The Material Logic of John of St. Thomas

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Translated by

YVES R. SIMON · JOHN J. GLANVILLE
G. DONALD HOLLENHORST

With a Preface by

JACQUES MARITAIN

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PREFACE

to Yves R. Simon

My dear Friend,

By sending me a typewritten copy of John of St. Thomas' *Logic* you gave my eagerness the privilege of early satisfaction. It has been a joy for me to follow the progress of this translation ever since it was begun quite a few years ago. I know how much work it meant for you and your excellent collaborators. Friendship, together with stubborn dedication, is responsible for the successful completion of this difficult task.

My personal indebtedness to John of St. Thomas is great. In your introduction, you describe him as "an inspiring and charming teacher." This is indeed what he has been for me. He is among the greatest metaphysicians who ever existed. I admire and cherish him for the profundity of his thought and the illuminating power of his spiritual experience. I gratefully remember the intellectual delight provided by his interminable disputations, when I was groping after the basic insights of Thomism. Later, when I was engaged in projects designed to carry on the development of the Thomistic synthesis, I constantly found in John of St. Thomas a outstanding witness to the progressive character of St. Thomas' philosophy.

With such works as this *Logic* the commentators of St. Thomas, for the first time in history, are reaching a large audience. It is puzzling to realize that the treasures contained in their writings have remained, for so many generations, unknown except to a very few, and it is good to be alive at the time when to read John of St. Thomas seems almost as natural as to read Berkeley or Leibnitz. Twenty-five years ago we could not even have dreamt of such a victory over age-old prejudices.

There will never be any question of substituting the works of the commentators for those of St. Thomas, nor shall we ever allow ourselves to read into St. Thomas what was contributed by

his disciples, no matter how faithful. Men like Cajetan and John of St. Thomas set such an example of exacting respect for the genuine thought of Aquinas that their guidance is a most effective protection against the risk of ignoring the historical evolution of problems.

Of course, it would be a great mistake not to scrutinize eagerly St. Thomas' text itself, and its inexhaustible riches. But it would be no less a mistake to neglect the invaluable contribution made by his great commentators, whom I would prefer to call his continuers. To do so would be to disregard the fact that Thomism is a living philosophy, which will never cease developing in time.

Philosophy lives on dialogue and conversation; and it is a mark of any great philosophy that it can manifest constantly new aspects in a conversation which is pursued through centuries on the same accepted principles and with organic consistency. A philosopher finds reason for melancholy in realizing that the conversation about his own ideas (assuming that he is worthy of it) will begin only when he is dead and no longer has the opportunity of having his search for truth profit by it. Fortunate is he, if the very meaning of his dearest intuitions is not missed by the interlocutors. To continue the conversation with congenial and clear-sighted companions of the stature of Cajetan, Banez and John of St. Thomas is a privilege of the genius of Thomas Aquinas and of his grace-given mission.

The development of St. Thomas' doctrine in the works of the commentators is a fascinating process to which not enough attention has been given. The greater our familiarity with the writings of St. Thomas, the better we realize that by the character of his mission, by the nature of his interests and by his style, St. Thomas calls for commentators. Because the complete works of St. Thomas look huge on a bookshelf, it has been a surprise for many beginners to find that in a number of cases his treatment of important issues is very short. St. Thomas' works are free from the kind of obscurity which results from confusion, but they contain many difficulties framed in spiritual loftiness and lucid simplicity. To read St. Thomas well, the help of genius is needed and gratefully welcome. Our John is the latest and the most mature of the geniuses who explained St. Thomas.

Over and above the basic task of rendering the thoughts of

St. Thomas more accessible, the commentators have performed feats of doctrinal progress with hardly any parallel in the history of philosophy. As we have often pointed out, progress in the philosophic sciences is normally effected not by the substitution of one system for another system, but by the accomplishment of greater profundity and comprehensiveness within one and the same continuously living body of truth. Yet history offers few examples of processes conforming to such a pattern. It is altogether accidental that philosophic progress should be achieved by way of substitution, but such accidents are so frequent that the really normal course of events has, historically speaking, the character of an exception. Considered in its relation to the philosophy of Aristotle, the work of St. Thomas comprises, besides many features of continuity, changes involving significant corrections. But, if we compare the work of John of St. Thomas—latest of the great commentators—with that of St. Thomas himself, all important changes can be interpreted in terms of pure development.

It is in the field of logic that the school of St. Thomas exemplifies most successfully the method of progress which becomes the philosophic sciences. In logic a picture characterized by the predominance of continuity over discrepancy covers not only the several ages of Thomism but the work of Aristotle himself. The *Logical Art* of John of St. Thomas is in several respects the masterpiece of Aristotelian logic; yet, it includes issues that Aristotle hardly touched upon. In the context of John of St. Thomas, issues not treated by Aristotle never look un-Aristotelian; quite naturally, the system of logic founded by Aristotle takes over truths contributed by the Stoics and other philosophers, by grammarians and by theologians. At a time when the state of logical studies obviously calls for an ample process of integration, the work of John of St. Thomas demonstrates, in the most encouraging fashion, the integrative power of Aristotelian logic.

So far as I can judge, the mood of conquering vitality which distinguishes the work of John of St. Thomas is nicely conveyed by your translation. The most obvious function of the present book is to give college students a chance to read, besides whatever "textbook" they may use, a "great book" of *material logic* (that is, of logic not only of correctness in reasoning, but of truth

in knowing). It should not be held that John of St. Thomas is too difficult for beginners. As you say in your introduction "It is the privilege of a patient teacher to become less and less difficult to follow as the work of teaching goes on." A beginner who refuses to be discouraged by initial difficulties will soon notice that things are no longer so hard, and by that time he has already learned a great deal. The style of the translation, which will be of great help to beginners, will also play a significant part on the level of advanced research. Trained logicians, including those who have access to the Latin text, will notice that your sharp and graphic expressions often bring about helpful insights into obscure issues and a fresh understanding of familiar ones. You remark that "intense and luminous life may find expression in scholastic language." In spite of the known difficulty of translating scholastic language into a vernacular, I expect that through this translation the quiet ardor of intellectual life that we admire so much in the *Courses* of John of St. Thomas will endear itself to many readers.

Jacques Maritain

Princeton,
November 1, 1953

FOREWORD

The expression 'material logic,' used in the title of this book, is uncommon and paradoxical. Few logicians would hesitate to say that all logical problems are problems of form and that there is no room in logic for the consideration of any matter. But if such is the case, the common use of the expression 'formal logic' has to be accounted for. Unless some part of logic is not formal, to speak of formal logic seems to involve absurd redundance. We might speak of symbolic algebra if there were such a thing as a nonsymbolic algebra, but because all parts of algebra are symbolic, the expression 'symbolic algebra' sounds nonsensical. The formal character of logic should rule out the expression 'formal logic' just as the symbolic character of algebra rules out the expression 'symbolic algebra.' Here are logicians to whom the notion of material logic is entirely foreign: from what do they intend to distinguish what they call *formal* logic?

In the usage of these logicians and in the common usage of our time, 'formal logic' is not meant to distinguish one part of logic from another. Rather it is meant to distinguish, at the cost of redundance, logic itself from the inquiries described as 'theory of science,' 'scientific method,' 'critique of scientific knowledge,' 'epistemology,' etc. These unscrupulous neighbors of logic are not concerned with logical entities but with a universe of things and real relations; yet they are called by some, with no claim to rigor in the choice of words, 'logic of science,' 'applied logic,' etc. Redundance is welcome if it serves to remove the threat of confusion between logic and these ill-defined disciplines.

Formal logic is universally held to deal with consistency alone. Let us, accordingly, approach the problem of material logic as follows: Should it be said that when the rules of consistency are established the task of logic is over and the possibilities of logic exhausted? Beyond consistency there is truth. No matter how rigorous our inferences, we fall short of truth if our

principles are false, we fall short of certainty if our principles are uncertain, we fall short of understanding if our principles are devoid of explanatory power. It is certainly reasonable to ask whether, beyond the rules of consistent reasoning, any part of logic deals with the attainment of these scientific perfections: truth, certainty, and explanation.

To this question the vast majority of logicians answer in the negative. For them, the contribution of logic to the scientific ideal ends with the valuable achievement of strictly consistent inference. Any further achievement would be by the sciences themselves. "Whether the premises be true or false," Augustus De Morgan wrote, "is not a question of logic, but of morals, philosophy, history, or any other knowledge to which their subject-matter belongs: the question of logic is, does the conclusion certainly follow if the premises be true?" *(Formal Logic,* London, Taylor and Walton, 1847, p. 1). Along the same line, Abraham Wolf wrote, about a century later, "... logic is the study of *valid* inference, not *true* inference. This is not because logic is not interested in truth, for its own function is to explain the *true* conditions of valid inference. It is simply a case of that division of labor which necessity has forced upon all the sciences. The study of the conditions of valid inference means the study of the general relations between inferences and premises. This is a sufficiently important task by itself. The study of the conditions of *true* inference would mean, in addition, an investigation into the truth of all possible premises—an obviously impossible task." ("Logic," *Encyclopaedia Britannica,* 14th ed.) To take a simple example, logic may define a type of inference based upon the transitivity of a relation; but in the argumentation, 'Chicago is north of St. Louis and St. Louis north of New Orleans, therefore Chicago is north of New Orleans,' logic will not let me know whether Chicago is in fact north of St. Louis and St. Louis north of New Orleans. The truth of the conclusion 'Chicago is north of New Orleans' depends upon facts known to geography and foreign to logic.

Logic cannot say what city is north or south of what city; more generally, logic knows nothing about things. But things admit of more than one way of existing. Over and above the primary existence that they enjoy in nature, things enjoy, as objects

of understanding, a new existence—objective, intelligible, intentional—which brings forth in them a new system of properties. The object of logic is constituted by the properties which accrue to things by reason of the new existence that they enjoy as objects of the human mind. In opposition to the real properties or 'first intentions' of things, these logical properties are called 'second intentions' in scholastic language. The laws of second intentions are the rules of reasoning, and the art of reasoning is the same as the science of the second intentions.

From all this, it results that there is no such thing as a material logic if second intentions concern exclusively consistent inference. In other words, there is no such thing as a material logic if all laws of second intentions are merely rules of consistency. But if there are, within the broad field of the second intentions, properties placed beyond the achievement of consistency—i.e., properties whose laws concern the truth of our argumentations, their certainty, and their explanatory power—then there is such a thing as a material logic. No part or function of logic will ever decide whether a particular proposition, relative to the real world, is true or not. But logic may be able to say what general conditions an argumentation must satisfy in order to be not only consistent, i.e., formally perfect, but also demonstrative. *Material logic is a possibility if and only if some second intentions are so constituted that their laws be the rules of scientific demonstration.*

Suppose three consistent argumentations of the same formal type—say, three syllogisms in Barbara. One conclusion is false, one probable, and one scientific. Such diversity derives from diversity in the matter or content since, by hypothesis, the form is the same. At this point, the problem of material logic can be stated in entirely definite terms. *Considering* the matter or content which grounds the diversity of false, probable, and scientific argumentation, *the question* is to determine whether this matter or content is constituted by real properties alone, or also comprises logical properties. Once more: *Considering* the diversity of content which, within the unity of a single form *(Barbara)*, divides argumentation according to falsehood, probability, and scientific certainty, *the question* is whether such diversity is merely one of first intentions or involves both first

and second intentions. If the content which distinguishes the three argumentations as false, probable, and scientific is altogether reducible to first intentions, then there is no such thing as a material logic. If all questions of content are to be decided, like the question whether St. Louis is south of Chicago and New Orleans south of St. Louis, by inquiry into the real world, then logic is concerned with consistency alone and whatever perfection of discourse lies beyond consistency is the business of particular sciences. If, on the contrary, diversifying contents involve also a diversity of second intentions, then there is such a thing as a material logic.

The *Posterior Analytics* of Aristotle are an inquiry into logical matter. This treatise considers the intentions which distinguish scientific argumentation from consistent reasonings devoid of scientific character. To be sure, logical matter, in relation to the real content of science, retains the nature of a form. In a comparison between logic and the sciences of the real, the whole of logic is formal. But over and above the relation of form to matter which obtains between logical science and the science of reality, a comparison between the parts of logic reveals a further relation of form to matter according as a second intention concerns mere consistency or the scientific perfections of truth, certainty, and explanation. The law that a syllogism of the second figure must necessarily comprise one negative premise concerns consistency and pertains to formal logic. Whether the premises are false, probable, or certain makes no difference: if the middle term is twice predicate and if both premises are affirmative, nothing follows.

The *Prior Analytics* deal with such problems and the *Posterior Analytics* start where the *Prior* leave off. A past master in prioristic analysis—i.e., in the theory of consistency—if he never studied demonstration would lack logical instruments of decisive significance. In order to achieve scientific quality in my discourse about the real world, in order to obtain the highest degree of intelligibility in my dealing with things, I need familiarity with such logical intentions as primacy and immediacy, essential universality, essential connection, the modes of perseity, strict appropriateness, logical priority and posteriority, a priori demonstration and a posteriori demonstration,

demonstration of fact and explanatory demonstration, etc.

Such second intentions, which do not regard the consistency of reasoning but its scientific perfection, constitute the subject of the *Posterior Analytics*. Among all the logical works of Aristotle, the climax is this treatise of material logic. Why, then, are Aristotle and his followers so commonly reputed to have constructed a logic purely formal in character? Among others, Mr. Bertrand Russell wrote: "Logic, in the Middle Ages, and down to the present day in teaching, meant no more than a collection of technical terms and rules of syllogistic inference."*

To account for this legend, we may observe, first, that the *Posterior Analytics* are a book of extreme difficulty. Whereas the formal logic of Aristotle has been explained in countless digests, some of which are both exact and relatively easy to read, his material logic is not readily accessible in secondhand expositions.

Further, and more importantly, the reduction of logic to the treatment of consistency alone is a stubbornly recurrent accident originating in the sociology of knowledge. At all times the behavior of scientific men betrays willingness to make sacrifices for the sake of communication, intersubjectivation, and consensus. Such sacrifices may affect the very structure of science, as when modern physicists restrict themselves to those aspects of nature which can be expressed in "sharp statements." But, independently of what happens to the sciences themselves, it seems that the instrument of science, viz., logic, should also be the instrument par excellence of scientific communication. And thus logicians are led to think and to dream of a logical system independent of philosophic controversy, indifferent to the subjects that cause conflicts among philosophers, acceptable to the most diverse schools of philosophy, valid for the Platonist, the Aristotelian, the materialistic nominalist, the nominalistic rationalist, and the pragmatist as well.

Now it soon becomes evident that not all parts of logic lend themselves equally well to abstraction from philosophically controversial issues. The problem of the relation between logic and philosophic controversy can be outlined as follows:

1. Any question of logic, if treated with the depth and

* Bertrand Russell, *Our Knowledge of the External World* (Chicago and London: Open Court Publishing Company, 1929), p. 35.

thoroughness required for greatest intelligibility, involves issues on which philosophers are divided.

2. On the level defined by merely utilitarian concern for safely working rules, it can be said, roughly, that formal logic, or an important part of it, admits of abstraction from philosophic controversy.

3. In material logic, rules are so closely bound up with their foundations that abstraction from philosophic controversy is altogether impossible.

Accordingly, a program of logic free from philosophic controversy will restrict itself to problems of form. Further, in the treatment of these problems it will shun inquiries into foundations and, generally, be not too particular about the intelligible establishment of its own rules. It is often possible to propose convincingly a rule of consistency without unfolding the ultimate reasons of its validity. Diversity regarding the justification of the rule proves compatible with common adherence to the rule itself—just as the ethical precept that one ought not to kill is commonly adhered to by the eudaemonist, the Kantist, the utilitarian, etc., though their reasons for not killing are diverse.

Take, for instance, the rule that in a syllogism of the second figure one premise must be negative: it is interpreted by the Aristotelian in terms of universal wholes and by the nominalist in terms of sets, and subsets, and members of a set or of a subset. Such diversity corresponds to very profound differences with regard to the most basic problems of metaphysics. Yet, this rule of the second figure is a subject and an instrument of agreement between the Aristotelian and the nominalist. Leaving aside the metaphysical issues, it is possible to achieve some common understanding of many rules of formal logic. Though utilitarian and shallow, this common understanding may by establishing a clear framework for discussions play a considerable role in the communication of knowledge. But the problems of truth, certainty, and intelligible necessity which material logic considers cannot be isolated from the subjects of philosophic controversy. Treated aside from philosophic controversy, material logic would hardly make any sense at all.

Logicians who want to avoid philosophic controversy must ignore material logic. So far as the sociology of knowledge is

concerned, the situation of the material logician is much the same as that of the metaphysician. Both need the very particular kind of fortitude that it takes to live by rational evidence, with little or no support from society, in the midst of never-ending opposition. Wherever logic is principally regarded as an instrument of discussion and communication, material logic is likely to decline. Only a short time after the death of Aquinas, the *Logical Treatises* of Peter of Spain supplied schoolboys with a manual of logic from which posterioristic analysis is entirely absent. The maintenance and development of Aristotle's material logic were tasks for such geniuses as Cajetan and John of St. Thomas.

* * *

In the work of Aristotle, the division of logic into formal and material is drawn with entire clarity so far as reasoning is concerned. But his treatises on apprehension and judgment do not express, by their divisions, the distinction of a form and a matter within logic. Thus *On Interpretation* considers both such formal properties of propositions as universality and particularity (chap. 7) and such material properties as necessity and contingency (chap. 9). In most logical works patterned after the Aristotelian Organon, formal and material standpoints are distinguished only in the treatment of reasoning. John of St. Thomas, on the contrary, interprets all three operations—apprehension, judgment, and reasoning—in terms of logical form and logical matter. Considering, however, that for the logician, the first two operations of the mind are subordinated to the third, it is easily seen that this division pertains by priority to reasoning. Intentions belonging to terms or propositions are considered formal or material according as they are preparatory to the consistency of reasoning or to its demonstrative power. The relevance of the division of logic into formal and material is indirect in the case of the first two operations. Where relevance is but indirect, lesser clarity should be expected. In fact, the reasons why a problem pertaining to the first or second operation is treated in formal or in material logic are not always obvious and may not always be certain. Thus, John of St. Thomas places in material logic the problem of unity and diversity in the meaning of terms. No doubt, the treatment of this problem is, in several respects,

preparatory to the theory of demonstration; but it is equally clear that without firm notions on univocity, equivocity, and analogy we are apt to break the first law of syllogistic validity, viz., that there be no more than three terms in any categorical syllogism. Further, the distribution of subjects in the two main divisions of the *Logical Art* may occasionally be influenced by pedagogical considerations. In scholastic language formal logic is also called 'minor' logic and material logic 'major' logic. But 'minor' does not only signify that formal logic is shorter, and 'major' that material logic is longer. It is understood that minor logic is the kind of logic that can be taught to beginners—students have to begin with formal logic anyway—and major logic the kind of logic which presupposes a background and consequently can be taught only to advanced students. Hence a tendency to place in material logic all questions particularly deep and difficult, even though it may not be entirely clear that they concern the demonstrative power of argumentation more essentially than its formal validity. The same pedagogical concern accounts for the fact that reflection upon logic itself, which, in an Aristotelian and Thomistic vision of the sciences, belongs not to logic but to metaphysics, is placed in the opening section of material, or major logic.

* * *

The general pattern of Aristotle's Organon can be described in terms of a polar opposition between dialectic on the one hand and on the other hand analytic and science. This opposition, however, must remain subordinate and can never be allowed to grow into a picture of final disunity.

Aristotle's notion of dialectic admits of several approaches and can be defined in several ways. It seems that dialectic is primarily *a rational system whose principles are not rational necessities but common opinions.* Science, on the other hand, is a rational system whose principles are axioms, i.e., propositions endowed with rational necessity and evidence. In lieu of axiomatic truth, dialectic depends upon the verisimilitude, the probable truth of propositions accredited by their success in the society of thinking persons. Dialectic is a sociological substitute for science. In it the real content is never certain—or, if it happens to be certain, it is so for reasons extraneous to

dialectic. Nothing is certain in dialectic except the logical arrangement of objects and signs. The dialectician knows nothing scientifically except second intentions. And yet he talks of real things, nay, of all sorts of things. The logical forms of his art organize a real matter supplied, under conditions of probability, by the authority of all men, or of most of them, or of all experts, or of most of them, or of the most famous of them. The dialectician can afford not to be a specialist: all that is certain in his art concerns second intentions, and these are general in character. The real content of dialectic is also general in character, though in an altogether different sense, since it is made of opinions commonly received among men. Because the principles organizing the dialectical art and constituting all the certainty found in it are logical, the logician, and no one else, constructs dialectical systems and writes books of dialectic. Historians and interpreters of logic have not given enough attention to the dual capacity of the dialectician. A treatise of dialectic comprises a system of logical propositions designed to get the best out of opinions commonly received in such domains as physics, ethics, or politics. It is also supposed to comprise an orderly collection of these commonly received opinions. *The logician, as dialectician, trespasses the borders of the logical.* He has much to say about real things, in his own tentative, talkative, unfinished, and uncertain style. Whenever the work of a logician comprises a dialectical section, we expect to find, framed in a logical system, an inquiry into real being. In fact John of St. Thomas has written no dialectic. But his extensive treatment of the categories involves a reinterpretation, in an analytical context and for analytical purposes, of material originally destined to supply the dialectician with a general knowledge of reality. As a result of this reinterpretation, the *Logical Art* of John of St. Thomas contains much philosophy of nature and much metaphysics.

In so far as it is directed toward analytic and science, logic does not have the same reason for inquiring into the world of reality. The analytician is not, like the dialectician, an ambiguous personage. He is all concerned with logical properties: real properties are taken care of by another person, viz., the scientist. In analytic, the treatment of logic, both formal and material, can

afford to be pure. But care for logical purity cannot hinder the logician's quest for a deep understanding of his own objects. Because the second intentions are founded upon the first, the intelligibility of logical entities, directly or indirectly, flows from the intelligibility of things. (As shown in the foregoing, this is why divergencies in the philosophy of the real are inevitably paralleled in logic. Again, the logical consequences of philosophic positions are more evident as the logician goes more deeply into the explanation of logical properties and rules.) The foundations of the logical world are aspects of the real world, both physical and mental. These aspects of nature and of the soul concern logical research intrinsically, and there is no a priori restriction on the volume of real inquiry which will be needed in order to achieve satisfactory explanation of even the most familiar of logical objects.

To sum up: although the object of logic is entirely constituted by second intentions, there are two reasons why discourse about real being should appear in the works of a logician. In so far as logic is influenced by the purposes of its dialectical part, the logician discourses about the real because dialectic is ambiguous and comprises a real content. In so far as logic is influenced by the purposes of analytic and science, the logician discourses about the real because the explanation of logical intentions requires such discourse. Besides these two reasons, which are essential, a purely accidental factor deserves to be mentioned. Occasionally, the temptation to digress about interesting issues accounts for the consideration of real subjects in a logical context. John of St. Thomas, a metaphysician and theologian much interested in reality, and a teacher always generous with his time, is not immune to this temptation. But his frequent inquiries into the real world are motivated and vindicated, in the vast majority of cases, by his search for thorough explanation of logical properties. These properties are so related to nature, to the world of the human soul, and to the metaphysical universe that an exposition of logic centered about the explanation of logical properties inevitably develops into a general introduction to philosophy.

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The author of the *Logical Art*, John Poinsot, was a

contemporary of Descartes. Contrary to popular belief, there still was, in this late phase of "decadent scholasticism," one man of genius among the so-called scholastics. But if we are to call him a 'scholastic philosopher,' let us bear in mind a properly restricted notion of scholasticism. Not so long ago, it was commonly assumed that there had existed a unified system of thought which could be designated as "scholastic philosophy." True, men whose mental habits had been formed by the reading of Plato, Descartes, Leibnitz, Hume, Kant, and J. S. Mill could not help detecting a family resemblance in St. Anselm, St. Albert the Great, St. Thomas, Scotus, Ockham, Suárez, and a few others. Through improved acquaintance with the history of medieval thought, we now know that there has never been such a thing as a unified system of scholastic philosophy. A dozen or more philosophic doctrines, which are sharply at variance with each other, would have an equal right to be called scholastic: this makes it nonsensical to predicate 'scholastic' of any philosophy or doctrine. It is possible to speak of a scholastic period in the history of thought, in spite of inevitable vagueness in the definition of such a period. But the word 'scholastic' is predicated more relevantly of a certain language, of a certain method, and of a certain set of problems—what the Germans call *Problematik*. There is no unified scholastic doctrine or philosophy, but there is such a thing as a scholastic set of problems. Both with regard to language and to *Problematik*, John of St. Thomas remains a scholastic. In spite of his chronology, Galileo and Descartes are unknown to him. His uneventful life was, for the most part, spent in schools dedicated to scholastic problems and regrettably closed to the great scientific novelties of the Renaissance.

A member of the Dominican order and a professor at the celebrated University of Alcala de Henares, John Poinsot (1589-1644)—called John of St. Thomas because of his devotion to St. Thomas' doctrines—left a monumental work comprising a *Course of Philosophy* and a *Course of Theology*. The *Course of Philosophy* fills three thick volumes in modern editions, the *Course of Theology* ten. John of St. Thomas belongs to the line of St. Thomas' great commentators; Cajetan is one of his most respected authorities. His expositions are parallel to basic works—treatises of Aristotle in the *Course of Philosophy*, *Summa theologica* of St.

Thomas in the *Course of Theology*– but he does not use the method of the textual commentary. Most sections of his *Courses* begin with a sharp summary of a text; then, the main issues are discussed in extensive dissertations. Sometimes these dissertations follow each other so continuously as to make up a complete and strongly organized treatise. But John of St. Thomas considers that the requirements of completeness and continuity in exposition are met by basic texts and textual commentaries. He does not feel obliged to treat all questions normally included in a curriculum. His task is to explain–leisurely, patiently, thoroughly, and with unique skill in the selection and multiplication of standpoints–a restricted number of wonderful questions.

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We do not need to elaborate on the reasons why the integral translation of a work which fills 839 two-column pages in the latest edition was held impossible. Since a choice had to be made, we turned to the field of material logic, where the shortage of great books is particularly felt.† But no more than about three-fifths of John of St. Thomas' writings in material logic could be included within reasonable space limits. Our choice was governed by both doctrinal and pedagogical concerns. We made it a rule never to abridge an exposition having the character of a whole. Our shortest units are long articles. In several cases, our unit is a whole "question." On the subject of demonstration, it is the whole set of "questions" corresponding to the *Posterior Analytics*.

Whoever is aware of the situation of logical studies in our time knows that the most vexing of our problems is the problem of logic itself. Accordingly, much space is given to the issues concerning the object and nature of logic (I). The problem of the universal (II) is obviously of central significance for all logic and for the philosophy of knowledge. The "antepredicamental" discussions (III), consisting principally of an inquiry into analogy, constitute a masterly contribution to the theory of meaning.

†Much of the doctrine contained in John of St. Thomas' formal logic is available in the *Formal Logic* of Jacques Maritain. The *Short Treatises* which, from a pedagogical standpoint, constitute the core of John of St. Thomas' teaching in formal logic, have been translated by Francis C. Wade under the title of *Outlines of Logic* (Milwaukee: Marquette University Press, 1955).

The doctrine of analogy presented here is the subject of further developments in the articles on the division of being into categories (IV). The long study of the first four categories (IV) is a store of elaborate information on concepts basic in all parts of philosophy and in the interpretation of the sciences. From a certain standpoint, the pages on quantity and on relation can be considered supplementary to the introductory pages on the object of logic. Taken together, these three sections present much material and many precise instruments for the improvement of our ideas on the relations between the logical and the mathematical sciences. Section V is concerned with four timely issues: signification, the relation of knowledge to actual existence, reflection, and formalization. Lastly (VI) we present without any omission John of St. Thomas' treatment of demonstration and science.

A scholastic language is spoken on the campus alone and never in the market place. A vernacular, i.e., a language spoken in the market place, can be successfully translated into another vernacular; but the translation of a scholastic language into a vernacular is an enterprise whose difficulties are not always surmountable. Intense and luminous life may find expression in scholastic language; however, the intellectual life that a scholastic language succeeds in conveying is marked by austerity even in its phases of abundance. In vernacular translations, such austerity may look stiff. These general difficulties are complicated here by a disposition related to John of St. Thomas' best pedagogical qualities. A very patient teacher does not have much time left to polish his style. John of St. Thomas is capable of sharpness and beauty in expression, but he often writes in the uninhibited style of a teacher who depends confidently upon friendly communication with eager scholars. In many cases we have had to reshape clauses, to divide exceedingly long sentences, to modify the order of phrases, and effect other changes, on the same minor scale, for the sake of better readability. We believe that accuracy has never suffered in the process. In so far as the subject matter admits of anything like ease, we would not hesitate to say that John of St. Thomas reads easily when familiarity has been achieved with his vocabulary, his style, and his way of approaching questions, considering and reconsidering them with indefatigable zeal. It is the privilege of a patient teacher to

become less and less difficult to follow as the work of teaching goes on.

* * *

From a philosophic standpoint, one major characteristic of our time is a deepened split between man's concern for mystery and the forms of scientific thought. Referring to well-known propositions of Maritain in *A Preface to Metaphysics,* let us say that a question can be predominantly a problem or predominantly a mystery. A problem is a question the true answer to which leaves no room for further elaboration. Descartes was praising the handiness of problems when he pointed out that a child who has performed a multiplication according to the rules of arithmetic knows as much about the product as any mathematical genius in the world. But a mystery is a question of such character that an answer unqualifiedly true and sound and appropriate not only admits of but also urgently demands further inquiries into inexhaustible intelligibility. The mystery aspect predominates in religion, in metaphysics, in philosophy generally, and in human affairs. The problem aspect predominates in the disciplines called the *sciences* by common usage, in techniques, and generally in the fields where the pattern of positive science exercises a strong influence. Interest in philosophy, religion, theology, human sciences, and humane studies is no less today than in celebrated periods of intellectual greatness. But it is impossible not to be struck by a widespread aversion to scientific forms in philosophy, theology, and human affairs—briefly, in the realms characterized by the predominance of mystery. What is most alive in the logical movement of our days is directed toward a universal and thorough problematization of science. True, the rigor achieved in the scientific handling of purely problematic questions is one glorious aspect of intellectual life in this century. At the same time a sense for mystery is not lacking. It is incomparably more profound in our contemporaries than it used to be in the golden age of rationalistic optimism—say, from the time of the Encyclopédie to the great terrors of the twentieth century. What is lacking in our relation to mystery is neither earnestness nor abundance of ideas, it is the rigor of the scientific spirit. There are things which will never be accomplished by

"the tragic sentiment of life," "immersion in history," "experience of death," "esprit de finesse," "cultural refinement," "esthetic sophistication," "our cultural heritage," etc. Those things are clarity in the statement of questions and principles, firmness in inference, rational evidence of conclusions, appropriateness in predication, integral preservation of past developments, lucid order, and the unique defense against error that rational forms alone can provide. The ambition to explore scientifically the realms where mystery predominates receives little encouragement from the most up-to-date of our logicians. Some of them would say that one major merit of their work is precisely to have demonstrated the meaninglessness of metaphysical questions, and more generally of questions concerning what we call the realm of the mystery.

Let it be remarked, at this point, that the scientific type borne in mind by a logician exerts influence upon the factual product called a system of logic. This does not express an essential necessity: such things happen because our energy is exhaustible and our versatility limited. The logic of Aristotle is not exactly what it would have been if his scientific patterns had not been Greek geometry, an imperfectly disontologized mathematical knowledge, and a physics that was not disontologized at all. With the great abundance of metaphysical and theological genius which marks the work of St. Thomas and his commentators, the scientific patterns used by the logician change somewhat. Indeed, for St. Thomas and John of St. Thomas, mathematics—principally represented by Euclidean geometry—remains the best approximation to unqualifiedly scientific knowledge and consequently the pattern which the analytician bears in mind. But when logicians are so ardently interested in philosophy, they cannot omit the logical problems of particular relevance for the explorers of philosophic mysteries. A clear example of such concern is the treatment of analogy in the *Logical Art*. Here, the logician answers a question asked by the metaphysician with burning anxiety, for the answer will decide whether metaphysical and, more generally, philosophic issues are meaningless or not. An inspiring and charming teacher, John of St. Thomas remains among us the logician who understands best the scientific ideal of the philosophers.

Yves R. Simon

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A NOTE ON THE TEXT

This translation is based upon the edition of John of St. Thomas' *Cursus philosophicus* by B. Reiser (Turin, Marietti, 1930). It is the best edition available, but by no means a critical edition.

The *Course of Philosophy* comprises a logic in one volume and a Philosophy of Nature in two volumes. The logic, or *Logical Art,* is divided into two parts, formal and material. The formal logic comprises a series of short treatises, and disputed questions on certain issues touched upon in the short treatises.

The work of John of St. Thomas contains innumerable references to Aristotle, to St. Thomas, to St. Thomas' great commentators, and to many second-class authors of the later scholastic period. References to Aristotle are always accompanied by the modern system of designation. Concerning St. Thomas, the following particularities are to be noted: (1) the words "Summa theologica" are omitted; by common usage, a succession of three figures, roman for the part and arabic for the question and the article, makes it sufficiently clear that the reference is to the *Summa theologica.* Thus, i-ii.7.3 means *Summa theologica,* first part of the second part, question 7, article 3. An extra figure preceded by the preposition *ad* signifies that the text referred to is contained in an answer to an objection. (2) In references to St. Thomas' commentaries on Aristotle, we use the system of subdivisions of the Marietti editors—Cathala for the *Commentary on the Metaphysics,* Pirotta for the commentaries *On On the Soul, On the Short Treatises of Natural Science* and *On the Ethics.* Thus, *Com. on Met.* 5. les. 5 Cathala 799 signifies: book 5. lesson 5. subdivision 799 of the Cathala edition. For the commentaries not included in the Marietti set, our references are to the Leonine edition.

Among the works referred to as of St. Thomas by John of St. Thomas, some are ungenuine or dubious. Attention should be called to the certain ungenuineness of two works that John of St. Thomas quotes very often: the *Commentary to Annibald* and the *Summa of the Whole Logic of Aristotle.* For the convenience of

the reader, here is the list of the genuine opuscula, as established by M-D. Chenu in *Introduction à l'étude de s. Thomas d'Aquin*, Montreal, Institut d'Études Médiévales, and Paris, Vrin, 1950, p. 278-80. The titles followed by the word Grabmann are those of works held genuine by Grabmann but not by Mandonnet.

De principiis naturae
De ente et essentia
De operationibus occultis naturae
De mixtione elementorum
De motu cordis
De unitate intellectus
De aeternitate mundi
De regno (De regimine principum)
De regimine Judaeorum
Compendium theologiae
Declaratio XXXVI quaestionum ad lectorem Venetum
Declaratio XLII quaestionum ad magistrum Ordinis
Declaratio CVIII dubiorum
Declaratio VI quaestionum ad lectorem Bisuntinum
Contra impugnantes Dei cultum et religionem
De perfectione vitae spiritualis
Contra doctrinam retrahentium a religione
Contra errores Graecorum
De articulis fidei et sacramentis Ecclesiae
De rationibus fidei
Responsio super materia venditionis
Responsio ad Bernardum abbatem Casinensem
De forma absolutionis paenitentiae sacramentalis
De sortibus
In quibus potest homo licite uti judicio astrorum
Expositio circa primam decretalem
Expositio circa secundam decretalem
Collationes de Credo in Deum
Collationes de Pater noster
Collationes de Ave Maria
Collationes de decem praeceptis
Officium Corporis Christi
Sermo de festo Corporis Christi
Duo principia de commendatione sacrae scripturae

De secreto
De propositionibus modalibus (very probably genuine)
De fallaciis (very probably genuine)
Epistola de modo studendi (probably genuine)
Piae preces (probably genuine)
De differentia verbi divini et humani (Grabmann)
De demonstratione (Grabmann)
De instantibus (Grabmann)
De natura verbi intellectus (Grabmann)
De principio individuationis (Grabmann)
De natura generis (Grabmann)
De natura accidentis (Grabmann)
De natura materiae (Grabmann)
De quattuor oppositis (Grabmann)

Footnotes preceded by the letter "J" are from the text of John of St. Thomas.

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I

On the Object and Nature of Logic

INTRODUCTION TO THE SECOND PART OF LOGIC

Questions relative to the form of reasoning and prioristic analysis were dealt with in the first part of the present work. In order that the logical art be entirely covered, we still have to consider the matter of this art, i.e., the subjects pertaining to posterioristic analysis. The second part of logic is longer and involves more extensive developments than the first; generally speaking, the matter of an art raises more problems than its form.

Let it be remarked, at this point, that every judgment of the mind is an analysis or assent; if it is ultimate, it is, so to say, a definitive statement. A judgment is uttered with certainty and firmness when its connection with its principles is analytically disclosed by proofs. Now, as we said in the first part of the *Short Treatises* (bk. 3. chap. 1)[1] the firmness of a judgment results, on the one hand, from the form of reasoning, on the other hand, from its matter. With regard to the *form,* there is firmness when the conclusion is grounded in a correct disposition and connection of the premises; such an arrangement, which alone enjoys the power of inference, is called a consequence or an argumentation. Thus, the correct analysis of a judgment requires a good or firm consequence. With regard to the *matter,* there is firmness when, through propositions expressive of necessity and essential connection, analysis reaches the first self-evident principles, from which demonstration is deduced; these subjects are treated in the second part of our *Logic.* Questions pertaining to the topical section – i.e., to probable argumentation – as well as those considered in the *Sophistical Refutations,* will be left out; they do not concern the certain and perfect analysis of judgment. The only treatises described as analytical – i.e., resolutive – by Aristotle are the *Prior* and the *Posterior Analytics.* These treatises contain all the teaching of Aristotle on the firmness and

certitude of analysis, both with regard to the form – prioristic analysis – and with regard to the matter – posterioristic analysis.

The matter required for demonstration – or certain analysis – is constituted by necessary and essential propositions. Now, these propositions are essential in which essential predicates or proper affections are predicated: such predicates alone have a necessary connection with the subject. (See *Post. An.* 1. 4. $73^{a}21$.) Propositions in which contingent predicates are expressed are themselves contingent. It follows that an explanation of the categories and their co-ordinations is a convenient way of finding the necessary matter of demonstration. In the system of the categories all things are reduced to their divisions and genera, and each category contains superior and inferior predicates between which a necessary connection obtains: the definitions of things are made of these predicates. By bringing forth the properties of each category, or, at least, by defining categories in which the properties of each nature find place, we enable ourselves to procure, at least so far as generalities are concerned, the matter of [demonstrative] propositions and the necessary connections [that demonstration requires]: with regard to particulars, the determination of this matter and of these connections is the business of particular sciences.[2]

But knowledge of the categories, which are co-ordinations of genera and species, requires the knowledge of the predicables, which are modes of predicating essentially or accidentally, by way of quiddity or by way of quality. To sum up: the whole matter of the logical art, with which we are dealing in this second part, falls under the following three sections: *Predicables, Categories, Demonstration.* (1) In the treatise on the *Predicables*—which are ways of predicating—the essential and quidditative mode is distinguished from the accidental or qualificative one. (2) All things, together with their degrees and essential predicates, are reduced to the ten categories as to ten classes and supreme genera. (3) Finally, the books of the *Posterior Analytics* show how to form necessary and essential propositions and to work out scientific demonstrations.

Of the subjects involved in the treatment of the categories, universals and predicables, several concern metaphysics, and the logician cannot dedicate to them more than a brief and sparing

consideration; however, the discussion of these subjects is longer and more laborious than the explanation of the Posterior Analytics. This is by no means astonishing, for it is a general fact that preparatory phases are more complex than final accomplishments; thus, in the domain of intelligibility, several argumentations are needed to reach one very short sentence, and in nature substantial generation is effected in an instant, whereas the accidental alteration which disposed the subject to such generation takes a long time.[3]

Before we undertake the explanation of logical objects in the order just described, we are going to study, in introductory fashion, the problem of logical science. Acquaintance with the science itself will facilitate our access to its object.

QUESTION 1

ON THE NATURE AND DOMAIN OF LOGIC

We shall follow the order observed by St. Thomas in his introduction to theology [i. 1.]. The question of the necessity of logic constitutes, as it were, the question of fact, [4] and must come first. Then we shall inquire into the very quiddity of logical science, its quality and its specific object. Such general questions as 'what determines unity and diversity in the sciences?' and 'whether science constitutes a single quality?' will be studied in the Posterior Analytics,[5] q. 27. As to the background needed for the understanding of these preliminary discussions, anything in excess of the brief information delivered, on the subject of logic itself, in the foreword to the *Short Treatises,* will be supplied in the course of our exposition. Likewise, the question 'what is theology?' is answered in the introduction to theology, not before.

ARTICLE 1

WHETHER THE ART OF LOGIC IS UNQUALIFIEDLY NECESSARY FOR THE ACQUISITION OF THE OTHER SCIENCES

This article would hardly contain any difficulty if the terms used in the title were properly understood.

1. We speak of the *art* of logic, i.e., of artificial, not of natural, logic. Natural logic is nothing else than natural light using discourse. Inasmuch as the first principles are known naturally, natural light is not constituted by the intellectual power alone but comprises both the intellect and the habitus[6] of the principles. The first principles are neither science nor art and they make up a habitus thoroughly distinct from the habitus of art or science. When we inquire into the necessity of logic we are not concerned with the principles of logic or the habitus of the principles. Those who call this habitus 'preceptive' or 'actual' logic speak improperly, for it is not logic, but rather the principle of logic.

2. The word 'science' may designate (a) the mere substance of scientific knowledge, existing in a state of imperfection. The first demonstration suffices to bring about the substance of science inasmuch as it achieves the conviction of the intellect in certainty and evidence. (b) The word 'science' may designate scientific knowledge in the state of perfection. Science so understood is that on account of which a man is described, without qualification, as a man of science. When science has reached the state of perfection it not only (α) achieves the conviction of the intellect, but also (β) procures the faculty of reasoning about whatever has regard to the full knowledge of the object and (γ) involves readiness to vindicate itself against opposite errors and against objections. In the present discussion of the necessity of logic for science, the word 'science' will be taken in both senses.

3. The title asks whether logic is *unqualifiedly* necessary. What is called here 'unqualified necessity' is not the 'absolute necessity' which belongs to the intrinsic causes of things, i.e., matter and form (e.g., man is necessarily rational and mortal). It is relative necessity, viz., the necessity characteristic of things that are necessary to other things as means to ends. The necessity of means to end can itself be interpreted in two ways, i.e., as unqualified and as qualified. A thing *a* is unqualifiedly necessary as means to a thing *b* when it is impossible to bring about or to preserve, without the operation of *a*, the very being of *b*. For example, food and breathing are unqualifiedly required for life. On the other hand, a thing *a* is qualifiedly necessary as

means to a thing *b* when *a* is required not for the being but for the good condition of *b*. 'Good condition' implies, over and above being, some sort of advantage or ornament. On these divisions of necessity into absolute and relative, unqualified and qualified, see St. Thomas, *Com. on Met.* 5. les. 6. Cathala 827-41.

In fact no one doubts that logic is at least of qualified utility or necessity; by consensus, it raises science to a state of greater excellence and makes it more easy. Accordingly the whole problem is whether logic is necessary in an unqualified sense.

Thesis. Artificial logic is unqualifiedly necessary to the perfectly scientific condition of the theoretical sciences, their preservation and their quasi-organic maintenance; but it is not necessary to the existence of science in a state of imperfection and, so to speak, in the initial phase of its generation.

Thus logic can be said to be 'unqualifiedly necessary, without addition,' but it cannot be said to be 'unqualifiedly necessary in all conditions.' Likewise, breathing and food are said to be unqualifiedly necessary to animals, although their necessity does not cover all conditions and states. During the period of generation, i.e., in the womb, an animal needs neither food nor breathing; however, inasmuch as these things concern, not an ornament or superadded advantage, but the very being of the animal, they are unqualifiedly necessary. Even though generation be complete, what is indispensably required for the preservation and nutrition of an animal is necessary to its being.

We say that logic is necessary to *theoretical* sciences. Practical sciences deal only with the proper accomplishment of a work, whether internal or external, and do not pursue the investigation of truth. Consequently what they need is not logic but art or prudence. Whereas the function of logic is only to procure the sound direction of discourse about truth, that of prudence or art is to bring about, by appropriate direction, goodness or rightness in things to be done or in things to be made.

Our conclusion unites opposite views on the necessity of logic. *Some* say that logic is useful, but not unqualifiedly necessary. (See, among others, the Philosophers of Coimbra, *Course of Philosophy,* Intro., q. 6. a. 2.) *Others* say that logic is unqualifiedly necessary in all conditions of science, just as the

operation of the universal cause is unqualifiedly necessary to all operations of particular causes. (See, among others, Araujo, *On Met.* 2. q. 3. a. 3.) We hold that logic is unqualifiedly necessary, but not in all conditions or states of every science. Indeed, a thing may be said to be unqualifiedly such and such either (a) because it is such and such 'absolutely and without addition,' or (b) because it is such and such 'in all conditions and from every standpoint.' (See, on this, the keen remarks of St. Thomas in iii. 50.5.) What is unqualifiedly such and such in the first way includes an area of indetermination and can be said to be unqualifiedly necessary – or such and such – without being necessary – or such and such – in all conditions and states of existence. (See, on this conclusion, the *Course of Philosophy* of the Carmelites, Introductory Dissertation, q. 7.)

The first part of the thesis, viz., that logic is not necessary to science in all conditions of scientific knowledge, is clearly established by the following consideration: it is in the capacity of art and instrument that logic is needed for the acquisition of the other sciences; now, the dependence of the effect of art upon art is not so strict as to imply that the same effect cannot be produced, at least imperfectly, without art. Aristotle says (*Met.* 9. 8. $1049^{b}29$ ff.) that "he who learns an art exercises without art the acts of art." St. Thomas, in his commentary on this passage (les. 7. Cathala 1855) says that "a person can elicit the act of a science and that of a virtue before he has the habitus of science and that of virtue; with the habitus, he acts perfectly, before he had the habitus, he acted imperfectly." If this were not the case, we could not acquire arts and sciences by our acts. Of the acts by which an art is acquired the first at least cannot proceed from this art, since they generate it. The demonstrations by which the first rudiments of logic are established constitute obvious examples of demonstrations which do not necessarily depend on logic. These initial demonstrations are accompanied by logic inasmuch as they generate logic, but, far from being presupposed by them, logic proceeds from them. In other scientific areas as well an intellect ignorant of logic can grasp demonstrations and attain conviction. The habitus thus acquired is that of the particular science to which the demonstration belongs, not that of logic, whose precepts are not being taught in particular sciences.

Finally, let us quote a text *(C. G. ii. 75)* where St. Thomas distinguishes two genera of arts: "There are some arts in which the matter is not an active principle productive of the art's effect; such is the art of building, since in timber and stone there is not an active force tending to the production of a house, but merely a passive aptitude. On the other hand there is an art the matter of which is an active principle tending to produce the effect of the art; such is the medical art, since in the sick body there is an active principle conducive to health. Consequently the effect of an art of the first kind is never produced by nature but is always the result of the art. But the effect of an art of the second kind is the result both of art, and of nature without art."[7] Same doctrine in *Com. on Met.* 7. les. 8. Cathala 1438 ff.

To sum up: the function of logic is to direct the works of the intellect; but there is in the intellect a principle which tends to cause scientific thought just as there is in the body a principle which tends to cause health; accordingly, the effect of the logical art can sometimes be produced without art, and logic is not unqualifiedly necessary to every demonstration and science in every state and condition.

The second part of the thesis—viz., that logic is unqualifiedly necessary for the perfect condition of science—is derived from St. Thomas *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*] q. 6. a. 1, 2nd q. ad 3. Here St. Thomas says that the dependence of the sciences upon logic makes it necessary for the student to begin with logic, although logic is not easier than the other sciences. Likewise, in *Com. on Met.* 2. les. 5. Cathala 335 and in *Com. on Post. An.* 1. les. 1. Leonine 1, he says that the purpose of logic is to enable the mind to proceed easily, quickly, and without error. *To proceed without error* is more than useful to the other sciences: it is unqualifiedly necessary to their very being. The naked power of the intellect—naked, that is, not helped by art—is unable to perceive all defects affecting consequences and cannot scientifically procure good consequences in all cases. Indeed, the laws of a good consequence are often hidden to natural light and have to be gathered by discourse. Moreover, in order to know what propositions are essential and necessary we have much to learn from the principles and precepts of the logical art. The treatise on the *Categories* offers

an orderly arrangement of essential predicates, the treatise on the *Predicables* describes the essential and accidental ways of predicating, the *Prior* and *Posterior Analytics* explain such properties as perseity, universality, strict appropriateness, etc. We need to be familiar with these subjects and many more in order to distinguish between a necessary and a contingent matter or between a legitimate and a defective consequence. In the perfectly scientific state the intellect avoids all errors and works out successfully its various conclusions; such a state cannot be attained unless a principle superadded to the intellectual nature establishes artful procedures.

A grown-up animal, which provides for its own nutrition and growth, needs foodstuff as the matter out of which, through nutrition, digestion, and concoction, it derives new substance. Ideas are the food that the intellect needs in order to effect nutrition and development in the sciences; but discourse will not be scientific unless ideas have been digested, concocted, and artificially disposed. Logic is the art which conditions ideas in such a way as to provide for perfect inference.

It may seem that the necessity so attributed to logic does not concern the very being of the sciences, but rather a more excellent or more perfect way of being. Logic, in the present theory, assumes that the sciences already exist, just as there is no question of feeding an animal unless it is already existent. Food is necessary to a state of things superadded to sheer being. If the necessity of logic does not concern the being of the sciences, it is not unqualified.

Answer. It is true that science is supposed to exist prior to the operation of logic, yet what logic is required for cannot be described as a perfection superadded to the being of science and, as it were, extrinsic to it. Indeed, it is the function of logic to insure the continued existence of science, its preservation, its protection against all threats. By the very fact that a thing *a* is necessary to the being of a thing *b* (and not merely to some superadded perfection of *b*), *a*'s necessity is unqualified, even if the operation of *a* is not required in every state of *b*. The being of man does not require food in the state of generation; it does in the state of preservation.

Objections and Answers

First objection. Many demonstrations can be completed by natural light alone. Consequently the being of science can be preserved, as well as generated, without the help of logic.

Proof of the antecedent. Many scientific conclusions can be demonstrated in the four moods of the first figure. These moods are known by natural light, not by the discourse of the logical art, for they are the principles to which other syllogistic forms are reduced. In the case of logic itself, it is plain that an art is acquired by natural light, without the help of any antecedent logic. Thus, the logical art is not required for the very being of science. Nay, science can, without the help of logic, reach a multitude of conclusions and thereby attain a state of perfection.

Answer. I deny the antecedent. Assuming that a science uses moods of the first figure alone, it still must be said that, if demonstrations are elicited without the help of logic, scientific knowledge remains in a state of imperfection. In fact, it is not possible, without the help of logic, to reduce all syllogistic forms to the four moods of the first figure. Only a man perfectly trained in science and thoroughly familiar with the precepts of logic can organize the many subject matters and conclusions of a science so skilfully as to effect such reduction. Nor is the nonlogician able to protect his positions by detecting, in his opponent's argumentations, faulty and weak consequences, erroneous definitions and divisions, etc. Now, unless science is accompanied by the perception of such defects, it remains in a state of imperfection, no matter how numerous the demonstrations that it has successfully carried out. Logic itself, at its origin, was created by the natural light in a state of imperfection, like all other arts. In the state of perfection it helps and preserves itself as it does other disciplines. Another logic is not needed: logic takes care of its own needs.

Second objection. There is in natural light an energy capable of mastering any demonstration considered separately. It is impossible to designate any demonstration as the last of those accessible to natural light. Mastering one demonstration does not decrease the power of the natural light: it rather increases it. Therefore, this power will extend from a first demonstration

to a second and to a third and to all demonstrations. The assistance of logic is never strictly needed, although it would make things easier.

Answer. Arguments of this kind, which conclude from a divisive enumeration of possibilities to a complete and entire enumeration are invalidated by the fallacy of the accident, in other words, by a failure to bring forth the proper appellation. Each operation is counted separately, and the argument ignores a way of operating which involves continuity between operations, the extension of one operation into another, defense against objections, etc. The inference concerns a collection made of many or all demonstrations, but fails to notice that this collection involves a mode of continuity or extension, which thus remains uncounted. A limited power [such as the human mind] cannot achieve such continuity without the assistance of a superadded principle [viz., logic]. The performance of a demonstration obviously does not decrease the virtue of the intellect, but the human intellect, because of its limitations, cannot establish continuity among all demonstrations and insure defense against objections unless it is helped by an art. The enumeration [referred to by the upholders of the opposite theory] seems to be copulative, for its parts are joined by 'and.' It is said that the intellect can do this *and* can do that; in fact, the meaning of this enumeration is disjunctive, for to be able to do 'this separately and divisively' and 'something else separately,' etc., is the same as to be able to do this or that disjunctively or divisively. From a disjunctive enumeration you cannot derive a distributive enumeration. True, it is impossible to designate any particular term beyond which the intellect would be unable to exercise its power separately and divisively: in this enumeration the term which cannot be reached is the whole collection, or the whole sphere of a perfect power. [Without the help of logic], the power of the intellect does not extend to this whole collection or sphere, although it extends to any demonstration taken separately or divisively.

Last objection. What logic brings about in all sciences is an artful way of proceeding. Such is the teaching of Aristotle *(Met.* 2. 3. $995^{a}12$) and of St. Thomas *(On Met.* 2. les. 5. Cathala 335 and 4. les. 4. Cathala 577). Thus, logic behaves as a universal

cause in relation to all the sciences. Now, a universal cause is unqualifiedly necessary to every operation of the inferior cause; e.g., if the movement of the heaven ceased, all inferior movements would cease. Therefore, logic is required unqualifiedly and in all conditions for artful demonstration. If some demonstrations are effected without the help of logic, they are not artful and do not involve an analysis reaching the first principles.

Answer. Logic is not a universal cause in an essential and primary sense. It is in the capacity of instrument helping the principal agent, i.e., the intellect, that it plays the role of universal cause. Such is the teaching of St. Thomas concerning every art (i. 117. 1). Now, the necessity of an instrumental universal cause is not so strict as to exclude the possibility of an effect of art being produced without the help of the instrument, especially when the instrument is virtually contained in the principal cause and is derived from the principles of the principal cause. The principal cause may compensate for the lack of art and produce an effect of art without the help of art. The heaven is not cause as art and instrument: it is a principal and universal cause, though moved by a superior one.

Is it true that without logic analysis cannot reach the first principles? Let our answer be that in some cases analysis into first principles and faultless consequence are things so obvious that they can be achieved without the help of logic; such achievements, however, are contained within what was described above as a state of imperfection. The state of imperfection is the common condition of sciences and arts at their beginnings.

ARTICLE 2

WHETHER LOGIC IS BOTH A TRUE SCIENCE AND AN ART

There is no reason why we should spend much time explaining what is meant by 'science.' Clearly, this word designates a habitus acquired by demonstration and constituting a special facility for demonstration. Demonstration is the certain and evident proof of a truth. For a proposition to enjoy demonstrative certainty and evidence, its analysis must be carried up to first principles. If few men succeed in pursuing analysis that far, and

if, for these few, success is limited to few subjects, this is not the fault of science, but of the scientists. Of those who are said to know, the vast majority possess only an imperfect and, as it were, subalternate science; instead of analyzing their science into its principles, they accept on belief principles supplied by another science.

Thesis. Logic is truly and properly a science and it is, at the same time, an art, though a liberal one.

Few doubt the truth of this proposition, although some want logic to be called a way to science rather than a science. St. Thomas expressly calls it a science in *Com. on Met.* 4. les. 4. Cathala 576 and i-ii. 57. 3 ad 3 and 6 ad 3. He also calls it an art in *Com. on Post. An.* 1. les. 1. Leonine 2 and ii-ii. 47. 2 ad 3.

Further, in *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*] q. 5. a. 1 ad 3, he says that "these are called arts among the other sciences because they not only involve knowledge but a certain work which is directly a product of reason itself; for example, producing a composition, syllogism or discourse, numbering, etc."[8]

The first part of this thesis is proved as follows: logic elicits demonstrative acts; therefore it is a scientific habitus.

The consequence is clear and the antecedent is more clear, for logic reduces conclusions to the first indemonstrable principles, for example, (a) when it uses the principle "anything whatsoever either is or is not" to prove that contradictories cannot both be true, (b) when it shows that two contraries cannot both be true, because their both being true would imply that contradictories can both be true, (c) when it shows that the syllogism in Darii concludes validly because it fits perfectly under the principle "said of every. . .", and in a thousand other cases.

The second part of the thesis is proved in the same manner, viz., by showing that the definition of art, "right determination of things to be made"[9] applies to logic. The concept of art, as expressed by this definition, involves two requirements: (1) On the part of the matter to be set in order and shaped, art requires that there be not entire determination, but some indifference; otherwise the matter would not be capable of regulation and art; the acts of seeing and hearing, for instance, cannot be directed by art. (2) On the part of the form, which has the character of a

directing rule, art requires that regulation should proceed by certain and determinate ways. If ways and means are contingent rather than certain and determinate, direction is the business of prudence, not of art. Prudence exercises direction by an estimate of the pros and the cons, not by art, for it has no certain and determinate rules; it uses rules of good judgment, prudential rules, issued in relation to the circumstances as they arise (see ii-ii. 47. 2 ad 3). What are the things that fall under the regulation of art? External works, called 'things to be made,' are the matter of arts called mechanical, because such works are more servile and subject to despotic government. But internal works are also to be set in order by art, and because these works are more free and less servile, the arts which rule them are called liberal. In both cases actions constitute a matter that admits of being set in order by certain and determinate rules, for these actions contain some indifference and can be done rightly or wrongly, with or without error.

Thus, the second part of the thesis is proved by the consideration that the intellectual operations (cognitions) which constitute, remotely,[10] the matter to be ordered by logic, can either fall into error or avoid error in their movement toward their objects; such indifference involves a need for direction and formation by right disposition and order. On the part of the form, i.e., of the rules by which its matter is set in order, logic has certain, determinate, and immutable rules, as anyone can see for himself by surveying the rules formulated in the *Short Treatises* and in the present book, especially in the sections corresponding to the *Posterior Analytics*.[11] Logic fully satisfies the requirements of art and those of science. On the one hand its regulations are immutably certain; on the other hand, its remote matter is indifferent.

Objections and Answers

Against the first part of the thesis it is argued that logic is a way to science and an instrument of science, and therefore is not a science.

The antecedent is a commonly received statement; it is supported by the authority of Aristotle (*Met.* 2. 2. $995^{a}13$) and

that of St. Thomas. The latter says (*Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 5. a. 1 ad 2): "Logic is not included under speculative philosophy as a principal part but as something brought under speculative philosophy as furnishing speculative thought with its instruments."[12] Proof of the consequent: An instrument is not on a level with its cause and its effect; thus a saw, a brush and other such things are specifically distinct from the things they make, as well as from the agent by which they are moved.

Answer. The statement that logic is a way to science and an instrument of science must not be understood formally but, as it were, objectively. The way to science and the instruments needed by the other sciences, such as syllogisms, propositions, etc., make up the object of logic. So far as its object is concerned, logic is different from the other sciences, for the latter deal with things, and logic with the way of knowing. Because the way of knowing must be known before things come to be known, Aristotle said that it is absurd to seek both at the same time.[13] Along the same line St. Thomas says that logic is not contained in philosophy as a principal part because it does not, like philosophy, deal with things: it deals with the way of knowing things, which is a less principal object.

With regard to the consequence of the argument, let it be said, first, that logic is not the instrument of the other sciences; it is the instrument of the intellect itself, which uses logic as an instrument to direct the other sciences. This implies only that logic must be adequate to the intellect, not that it should be adequate to the sciences. Secondly, there is no reason why an instrument should not be of the same species as the thing produced. It is sometimes the case, though not always and not necessarily. One uses a hammer to make another hammer.

Second objection. Doctrinal logic and logic in use are probably one and the same habitus, as we shall see in the last article of this question. It follows that the habitus of logic elicits acts of opinion, for it is obvious that logic in use proceeds dialectically and according to probability (see St. Thomas, *Com. on Met.* 4. les. 4. Cathala 574 and *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 6. a. 1). Now a habitus which elicits acts of opinion cannot be a science. Therefore logic is not a science.

Confirmation. A being of reason cannot specify a real science; it is not knowable of itself, consequently it cannot be, of itself, the object of scientific cognition. Any scientific object is known by genuine causes and has properties that science predicates of it; a being of reason has neither genuine causes nor properties. Now a being of reason is the formal object of logic, as we shall see in the next article. Therefore logic is not a true science.

Answer. This argument belongs in a later place. Let us, at this point, give a mere hint of the discussion to be held in Article 5. Logic in use truly comprises some acts of opinion, but the presence of opinion in the use of logic is not traceable to any formal motive, for the principles upon which logic depends are by no means fallible or contingent. This presence of opinion is traceable to a subsequent effect. Dialectical disputations are merely tentative and do not admit of complete analysis;[14] the procedure that logic directs in these disputations is, consequently, one of opinion. Logic directs acts of opinion rather than elicits these acts. Or, if it should be said that it elicits any acts of opinion, such acts would rank as secondary, not as principal, among the operations of logic. There is no reason why there should not be acts of opinion among the operations of a scientific habitus, provided that they hold secondary rank and are exercised in dependence upon the *rules* of dialectic and probable knowledge that the scientific habitus establishes scientifically.

The *confirmation* will also be answered in Article 5. There we shall see that the requirements of science regarding knowability and objective truth—with foundation in the real and necessary connection—are satisfied by beings of reason. Beings of reason do not have truth subjectively and transcendentally, like genuine beings, but objectively, so to say, i.e., as objects of science.

Last objection. The concept of art excludes that of science; therefore one of these two does not apply to logic.

Proof of the antecedent. Art deals with individual and contingent things and falls under the conjectural function of the mind (i-ii. 57.4 ad 2); on the contrary, science deals with universal and necessary objects and resides in demonstrative reason. Further, the ways of art are synthetic and practical, those of

science analytical and theoretical. This is why St. Thomas (*Com. on Met.* 1. les. 1. Cathala 34) opposes art to theoretical reason and places it in the practical part of the intellect.

Confirmation. It is only by virtue of a certain resemblance that liberal arts are called arts (i-ii. 57. 3 ad 3). Therefore logic is not an art in the full sense of the term, but, at most, in a qualified and improper sense.

Answer. The proposition that art deals with individual and contingent things refers either to the application of art to its work or to the remote matter of art, which remote matter is indifferent. It does not refer to the rules by which art exercises direction: these rules are certain, determinate, and universal. Art is one of the intellectual virtues (i-ii. 57); now no intellectual virtue is conversant with contingent truth, all deal with truths that are necessary and exclusive of error; otherwise they would not be virtues (St. Thomas, *Com. on Eth.* 6. les. 5. Pirotta 1178). The proposition that art falls under the conjectural function of the mind refers either to the mechanical arts or to the application of art to its work and to the indifference of the remote matter; it does not refer to the direction and regulation on account of which art, as an intellectual virtue, contrasts with opinion. Nor is it of the essence of art to proceed by synthetic and practical ways. When the work is theoretical, art exercises direction not by synthesis but by analysis. More on this later (Art. 4). The text where St. Thomas opposes art to theoretical reason does not refer to liberal arts but to those arts whose way of being art excludes the characteristics of science.

Answer to the confirmation. The statement that liberal arts are called arts by reason of a mere resemblance holds with regard to the matter to be set in order, not with regard to the directing reason. The matter of a liberal art is an internal work and a work of the reason: it is less servile, and consequently less subjected to the government and direction of art than the work of a mechanical art, which is entirely servile. But with regard to the directing rule, art is predicated univocally of liberal and mechanical arts. Be that as it may, we have not said, without further specification, that logic is an art; we say that it is a *liberal* art. It possesses the characteristics of art in the way proper to liberal arts and in no other way.

ARTICLE 3

WHETHER THE BEING OF REASON KNOWN AS SECOND INTENTION IS THE FORMAL AND ADEQUATE OBJECT OF LOGIC

Let us, in preliminary fashion, touch upon two points which properly belong elsewhere but are needed for the treatment of the present issue.

1. We hold that there are beings of reason.[15] The expression 'being of reason' designates an entity which, though incapable of existing in itself and apart from the consideration of the intellect, admits of being considered by the intellect. There is no need to prove the familiar fact that we apprehend many things which do not exist; now the intellect, in all its cognitions, uses the pattern supplied by being, and objects which admit of consideration but not of real existence are called beings of reason inasmuch as they exist only by virtue of reason and apprehension. A being of reason is sometimes purely fictitious, as when we construct in imagination a thing that has no foundation in the real, e.g., a chimera, a golden mountain,[16] etc. But sometimes a being of reason is not entirely fictitious and has a foundation in reality. To explain: real being can be known in such fashion as to acquire, because of the way in which it is known, attributes and properties that do not exist in the real world. This happens, for instance, when I know God in relation to creatures, or darkness after the fashion of a form affecting the air, though in the real world it is not a form but the absence of a form. The beings of reason constructed in the first way are called beings of reasoning reason, those constructed in the second way are called beings of reasoned reason, that is, beings of reason founded upon the thing known [or reasoned about].

2. The meaning of the expression 'formal object' must be specified. 'Formal object' designates the formality, aspect, or determination on account of which a thing can be attained by a habitus or a power. Clearly, whatever is an object for a habitus or a power comprises (a) the thing which is attained and (b) the aspect or determination by reason of which it is attained. Moreover, the attainment of a thing [by a habitus or power] may

require several formalities; in this case, one formality determines the other and assumes, with regard to what it determines, the character of a form. The determining formality is called the *aspect which*[17] is attained and if it is the last of the series, so that all the other ones are determined by it, it is called also the *aspect under which,*[18] for the other aspects, so to say, fall under it and are contained in it. Sight will supply an example. The stone is the thing which we see or material object; but we see it by reason of color: accordingly, color is the aspect on account of which the stone is related to sight rather than to touch or to any other sense. Further, color is determined by light, on account of which the object is ultimately constituted as a visible object. Be aware, however, that another aspect *under which* resides in the knowing power: it is the very ability to know, the specific light of knowledge. But in the present connection we are concerned only with the objective *aspect under which.*

Thus, to inquire whether a being of reason is the formal object of logic is the same as to inquire whether all things and subject matters treated and directed by logic pertain to logic on account of a real being or on account of a being of reason. If it is a being of reason, we shall still have to determine what kind of being of reason it is.

So much for the preliminaries. Two points are certain and all the difficulty centers about a third point.

1. It is certain and beyond controversy that logic deals at least with some beings of reason found in, and attributed to, the things known and the words. These beings of reason are used by logic as instruments. As examples, let us mention the notions of genus and species, predicate and subject, and other similar notions.

2. It is certain that logic does not deal with being of reason in all its extension. For instance, it is not concerned with privations, negations, and those beings of reason that are entirely fictitious. It deals only with the relations, called logical intentions, that are founded upon things inasmuch as the latter are set in order and known by the reason.

Logical intentions concern objective concepts, formal concepts[19] and words, but in diverse ways. They concern (a) the things known, as the foundations upon which they rest and the

subject which they denominate; e.g., animal, as known, is denominated genus, and man, species. They concern (b) the formal concepts and the acts of the intellect as the operations by which they [i.e., the intentions] are formed. It is by virtue of these intentions, formed by operations of the reason, that mental activities are said to proceed correctly and in orderly fashion. They concern (c) the words as signs or instruments which express outwardly the concepts ordered in such and such ways. *Some* authors turn their attention to the things known, in which the intentions of the reason are grounded, and declare with no qualification that the formal object of logic is the being of reason described as second intention, for it is only on account of second intentions that things concern logic. This position is common among Thomists. See the *Course of the Carmelites*, Disp. 1. q. 2, sec. 3. *Others* turn their attention to the words and the concepts, and say that logic, in so far as it is concerned with significative sounds, deals with second intentions, but, in so far as it is concerned with the operations of the intellect, deals with something real. See Martinez, *The Syllogistic Art of Aristotle*, Intro. q. 4. Finally, *others*, considering only the operations of the intellect which logic directs primarily and properly, declare with no qualification that it deals with something real. See Fonseca, *Com. on Met.* 2. chap. 3. q. 1. sec 5; Suárez, *Met. Disp.* 54; Cabero, *Digest of Logic*, tr. 1. disp. 1. diff. 2.

The question on which the difficulty centers can be posed as follows: Which one of these is the more formal with regard to logic: (a) the objective concepts as determined by the intentions founded upon them, or (b) the formal concepts and the words under the direction which they receive from logic? Is this direction something real?

Answer According to the Doctrine of St. Thomas

Thesis. The matter which, as an operation, lends itself to the direction of logic, is something real. The matter which, as an object or a thing known, lends itself to being denominated by the logical artifice is anything, whether real being or being of reason, which can be known through intellectual operations directed by logic. But the form under which both the operation to be directed

and the thing to be known pertain to logic is a being of reason. This being of reason is not a pure fiction, but, as a second intention, has a foundation in the real.

This thesis expresses the doctrine of St. Thomas and three texts, among others, can be quoted to support it.

1. In his preface to the *Com. on Eth.* 1. les. 1. Pirotta 1-2, St. Thomas says that "order can be related to the reason in four different ways. There is an order which the reason does not make but only considers: such as the order of the things of nature. There is another order which the reason, through its own consideration, brings about in its own act, for instance, when it orders its concepts in relation to each other, and the signs of its concepts, which are significative sounds. In the third place there is the order which the reason, through its consideration, brings about in the operations of the will. In the fourth place, there is the order which the reason, through its consideration, brings about in external things of which it is the cause, e.g., an arch or a house. The order which the reason considers but does not make pertains to natural philosophy; the order which the reason brings about in its own act, through its own consideration, pertains to rational philosophy[20] (viz., logic); the order of the acts of the will pertains to moral philosophy; the order which the reason, through its consideration, brings about in external things, pertains to mechanical arts." Thus St. Thomas assigns to rational philosophy, or logic, as its object, the order which the reason, through its own consideration, brings about in its own act. This order is not something real, since a real order, though it can be considered by cognition, cannot be produced by mere consideration and without any real external act. The relation of reason consists precisely in its being brought about or attained by mere consideration.

2. In the *Com. on Post. An.* 1. les. 20. Leonine 5, he says: "because the reason has to do with all things that are, and because logic has to do with the operations of the reason, logic is concerned also with properties common to all things, that is, with the intentions of the reason, which concern all things."

3. In the *Com. on Met.* 4. les. 4. Cathala 574, he says in the clearest fashion: "being is twofold, viz., being of reason and being of nature. Being of reason is properly predicated of those

intentions which the reason discovers in the things known, as the intention of genus, of species, etc., which are not found in the nature of things, but derive from the consideration of the reason. And this kind of being, viz., the being of reason is the proper subject of logic."

Some answer as follows: either St. Thomas speaks of an accidental object of logic, or, if he speaks of its proper object, he means by being of reason the very work of the reason inasmuch as it is subjected to dialectical artifice. *Against this:* St. Thomas says that the being of reason [known as second intention] is properly the subject[21] of logic. Therefore he does not speak of the incidental or material object. Concerning the latter, he immediately remarks that it is every being of nature[22] as bearer of intelligible intentions. Likewise he says that the intentions treated by the logician do not exist in nature; but the acts of the intellect do exist in nature; therefore, *either* the work of the reason as subjected to dialectical artifice is formally a being of reason, not found in nature, and our thesis is granted (since the formal object of logic according to St. Thomas is nothing else), *or* this work of the reason is said to exist as such in nature, and this contradicts St. Thomas, who says that it does not exist in nature.

Others answer that by 'being of reason,' St. Thomas means the extrinsic denomination, in which they see the formal object of logic. *Against this:* St. Thomas says that logic deals with intentions which the reason discovers in the things considered, although they do not exist in the nature of things. But either these extrinsic denominations, precisely considered as extrinsic, exist in nature, and then logic does not deal with them; or they are not found in nature but are formed by the reason: then they are beings of reason, which is our theory.

Finally, *some others* say that St. Thomas speaks of the significative sounds with which the logician deals as means or instruments, and that the intentions of those sounds are beings of reason. But St. Thomas obviously teaches the opposite, since he speaks of the intentions which accompany the very operations of the intellect and which the reason, in its proper act, brings about or discovers[23] in the things considered, as is clearly stated in the texts of the *Com. on Met.*, of the *Com. on Eth.* quoted above

and in *Op.* 42 [*On the Nature of the Genus*], chap. 4. Therefore he speaks not only of the intentions of the sounds, but also of the intentions of the things known, as genus, species, etc., and of the intentions attributed to the proper operations of the intellect. Thus it is not possible to doubt that the doctrine of St. Thomas designates a being of reason as the formal object of logic, just as it designates as its material object the things known and the concepts set in order. In addition to the texts quoted above, see *Op.* 56 [*On the Universals*] and *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 6, a. 1. 2nd q. ad 3, and *Com. on Post. An.* 1. les. 1. Leonine 1-3.

Our thesis is grounded on the consideration that every reality which can be found in the object of logic is either (a) an act of the intellect by which the things known are denominated, or (b) the thing understood and represented, or (c) something real superadded to the concepts and accruing to them in virtue of the ordering effected by logic, or (d) something real superadded to the known objects and accruing to them in virtue of the same ordering.

The first two, considered in their reality, pertain only to the material object of logic, for known things, as things, fall under the sciences of the real, and the concepts, taken as real perfections of the intellect, fall under the philosophy of nature.[24] Logic does not have to do with real things formally, except inasmuch as they are set in order by its art. For instance, it is incidental and purely material, from the point of view of logic, that the intention of genus be found in a tree or in a stone. Logic does not deal with the nature of the stone or the tree, but with the intention or formality of genus found in all such things.

Concerning the latter two, the problem can be stated as follows: what is it that accrues to concepts or objects as a result of the ordering effected by logic? If it accrues to the objects precisely as known, it is a second intention and a being of reason, for that which belongs to the things known in the very capacity of things known does not belong to them in real existence; it is not something real but a being of reason. If it is said, on the other hand, that this entity is merely the extrinsic denomination by which the things themselves are said to be known in such and such a way, and which does not accrue to the things as already known, we would raise the following objections: (a) the extrinsic

denomination is not something artificial, for it follows naturally without any artifice or construction, e.g., the denomination of the object as 'seen' results from the act of seeing; (b) many logical intentions make no sense unless objects are compared with each other and put together, which presupposes that the thing is known and apprehended. Examples would be: the relation of superior to inferior, of subject to predicate, of composition in a proposition or in a syllogism. These are not extrinsic denominations of the known, but beings of reason belonging to the things as known.

If, on the other hand, it is held that the determination under inquiry accrues to the concepts and the acts inasmuch as they are elicited by the intellect with the assistance and under the direction of logic, let us reply that the direction impressed upon the concepts and the acts is not entitative with respect to itself, but representative and related to the objects. In fact, logic has nothing to do with the real entity of the concepts. Direction by logic is not needed for their elicitation, since they are natural things and emanate naturally from the intellectual power. Their emanation does not require any artifice, but only a power or virtue determined by an intelligible form.

It cannot be denied that the relation to the objects artificially arranged is something real in the concepts and in the acts. This relation is the representative character by which concepts and acts are naturally referred to their objects even when the latter are not real. But this relation is not the formal object of logic. It is, at most, the effect which logic, by its directing influence, brings about in the other sciences in order that, under the guidance of logic, they tend toward and relate to objects arranged in logical fashion. Now, the impression that a superior power or art brings about in an inferior power or art, in order that the inferior be related to the object or to the end of the superior, is merely an effect of the superior, it is not its formal object. When an architectonic art directs inferior arts toward its own end, and when a higher angel illuminates a lower one, the object of the former is not the act of the inferior which it directs, and the object of the latter is not the act of the inferior which it illuminates. The formal object of a higher light [e.g., that of a higher art or a higher intelligence] is not the act of the illuminated inferior, but the object whose presentation effects the illumination of the inferior.

The reason for this is clear: when the higher virtue or art acts upon the lower and directs it toward its own [i.e., the former's] end, the superior is already understood to have an end and to be specified by an object, to the attainment of which it directs and disposes the inferior. What properly specifies the superior is not the influence that it exercises in directing the inferior toward such an end. The end, which is the object of the superior, is also its specifying principle. The action of the superior communicates to the inferior a relation to this end. Since logic directs and illuminates the other sciences so far as the artificial way of discoursing is concerned, its formal object cannot be constituted by the acts of the other sciences as really tending toward and really related to their own ordered objects. The formal object of logic is that aspect, on the part of the known object, which logic considers and proposes to the other sciences as a norm. It is an arrangement of objects, and, inasmuch as it is on the part of the objects themselves, it is a second intention.

Some answer that the only thing with which logic is directly conversant is the placing and arrangement of concepts in such a way that one be predicate, another subject, etc. It would be of no direct concern to logic that a being of reason should result from such a disposition. According to *others,* logic directs the intellect in bringing forth its acts, but the object of these acts is something set in order according to logical intentions. The acts of the intellect would constitute the immediate object of logic, but the objects of these acts, inasmuch as such objects are set in order, would be beings of reason; thus, not the proximate, but only the remote object of logic would be a being of reason. Finally, *some others,* considering that the operations of the intellect are really perfected by logic—if not, a logician would not be any better at reasoning than a peasant—hold that the object of logic is a real perfection.

Against the first thesis, let it be observed that the disposition and arrangement of concepts should not be likened to the disposition of stones in a house; it has nothing to do with situation but consists in a representation and in a tendency toward things correctly disposed and set in order among themselves. The order spoken of does not concern the entity of the concepts but their representative function and their relation to the objects

for which they stand. Therefore logic is principally concerned with setting objects in order; the formal tendency of the concepts and their representative function interest logic only as means to attain objects set in order.

Against the second thesis, let it be said that logic does not teach how to produce intellectual acts considered in their entity. It is only inasmuch as acts are artificially arranged that logic is concerned with their production. Now acts are not subjected to the disposition of art except in so far as they attain objects set in order and disposed. Consequently, to say that logic directs the intellect in such a way that it produces its acts according to art is the same as to say that logic proposes, in the right order, objects which the intellect grasps by exercising diverse acts of scientific knowledge. But, then, logic regards primarily and directly the second intentions of the objects; as to the relation of the acts to the second intentions, logic *effects* it in its own acts and introduces it into the acts of the other sciences through its power of *direction*.

The *third thesis* is irrelevant. The attainment of the object properly set in order is, doubtless, a real perfection of knowledge and science, but it is not the formal object of logic. Rather, the objects that logic sets in order are attained by means of this real perfection. The arrangement of the objects, considered on the part of the objects themselves, is a being of reason and a second intention. The attainment, by intellectual acts, of objects so arranged, and the tendency of the acts toward such objects, are a real perfection and a real tendency, which logic produces only in so far as it acts as an efficient cause or a directing principle. Indeed, the cognition and attainment of beings of reason is a real perfection in the knower.

Two Questions Remain To Be Examined:

1. Is the second intention the formal object of logic as *aspect under which* or as *aspect which?*

Answer. It is the formal object of logic as *aspect which*. In many cases the demonstrations of logic are designed to show that a second intention has a certain property; for instance, logic demonstrates that the universal has the property of predicability.

Therefore the second intention is the thing known by the science of logic and pertains to the *aspect which* is known. This is why St. Thomas calls these intentions the *subject* of logic *(Com. on Met.* 4. les. 4. Cathala 574)—it is clear that the subject of a science is the thing which is known. The *aspect under which* is determined, in logic as well as in the other sciences, by abstraction from matter. Abstraction brings about the diverse systems of intelligibility within which a thing can be known in diverse ways, according as it is, in diverse fashions, disengaged from matter. More on this in philosophy of nature and in the last question on the Posterior Analytics (q. 27). The object of logic, which is a being of reason, enjoys a state of abstraction similar to that which characterizes metaphysics. It is an abstraction from all matter, achieved, not by purifying actuality from materiality, but by denying[25] all matter.

2. Among the objects treated by logic, which one is principal?

Answer. Syllogism, which is produced by the third operation of the intellect, is the principal object of logic; among syllogisms, demonstration is principal on account of its matter. The reason is plain since, as St. Thomas teaches *(Com. on On Interpretation,* les. 1. Leonine 1-2, and *Com. on Post. An.* 1. les. 1. Leonine 4), the three operations of the intellect are such that the first and second are related to the third as to the principal one. It is in the third operation that reasoning or discourse is completed. Discourse is validly arranged by syllogism and it is grounded with certainty and firmness by demonstration. Since the science of logic is properly and essentially a direction of the reason, its principal object is that in which reasoning and discourse endowed with certainty and free from error chiefly reside. Error happens either as a result of a defect in the form or as a result of contingency on the part of the matter. Therefore, so far as the form is concerned, the principal object of logic is the properly arranged syllogism; so far as the matter is concerned, the principal object of logic is demonstration.[26] In demonstrative syllogism rational process is free from error both on the part of the matter and on the part of the form. Questions relative to the other operations still concern logic directly, but less principally, as was explained in the *Short Treatises,* q. 1. a. 1.

Objections and Answers

First objection. Being of reason cannot be the object of a science primarily and essentially. Therefore the thesis is false.

Proof of the antecedent. (a) Being of reason is not knowable directly and formally. Since it has no entity of its own, it cannot, by itself, ground knowability. Therefore it does not have directly the character of a scientific object. (b) Further, being of reason does not possess any properties traceable to it as to their active principle, since it does not exercise any causality. Nor does it have causes through which it could be known, since it is not caused. Therefore no science is concerned, in direct and essential fashion, with being of reason.

Answer. There is no science of those beings of reason which have no foundation in the real and no relation to real being, such as the chimera and similar fictions. But a science can be directly concerned with those beings of reason which have a foundation in the real or a relation to real being. As a matter of fact sciences treat of privations, the philosophy of nature counts privation among the natural principles, and theologians have much to say about relations of reason and distinctions of reason.

Answer to the supporting proof. "It has no entity of its own, therefore it is not scientifically knowable." Touching the consequent a distinction is in order: I grant that being of reason is not scientifically knowable, of itself, in a subjective sense; I deny that it is not scientifically knowable, of itself, in an objective sense. In other words, although being of reason is not an entity to which scientific knowability belongs really as to a subject, it is, nevertheless, an object which admits of being known scientifically. In order that something be an object of scientific knowledge in an unqualified and univocal sense, it suffices that it be, in itself, objectively attainable by a power as an object grounding necessary connection. Likewise, something can be said to be possible in two senses: (a) intrinsically and on account of the ability which it has, subjectively and materially, to receive determinations in itself and to have forms brought about in itself, (b) extrinsically, inasmuch as it is related as an extrinsic object to an efficient power (i. 9. 2). Both are possible in an unqualified and univocal sense. Thus, a thing may be

scientifically knowable either (a) on account of its intrinsic entity, which is the subject of knowability, or (b) because it can be known objectively and, inasmuch as it is founded upon real being, can perfect the intellect objectively, although it owes its being to the intellect acting, as it were, after the fashion of an efficient cause. The latter condition suffices to render a thing scientifically knowable absolutely speaking. And this is how St. Thomas *(Com. on Met.* 7. les. 4. Cathala 1336) interprets the statement of Aristotle *(Met.* 7. 4. $1030^{a}33$) that the nonknowable is knowable relatively. St. Thomas says that 'relatively' means ". . .in a secondary fashion, because, of the unknowable we can know that it is not known, just as of nonbeing we can know that it is not."

Answer to the second proof. Although being of reason has no properties which would be caused in a real sense, it certainly has properties which imply foundation, derivation, and connection. It is itself not caused in the sense of real and efficient causality, but has foundations and formal causes which supply bases for genuine and necessary connection and truth. It has, so to speak, causes in a metaphysical though not in a physical sense.

Second objection. Logic is directly concerned with the operations of the intellect inasmuch as they have to be directed. Now, as a result of the disposition effected by logic, some real perfection accrues to these operations. Therefore, there is something real which logic considers formally as its object.

The *major* is obvious and is steadily asserted by St. Thomas in the texts referred to above.

Proofs of the minor. (a) Intelligence and discourse are more perfect in the logician than in the peasant who does not know the precepts of logic. (b) The property of demonstration,[27] inasmuch as it is correctly arranged, is to bring about science, but demonstration owes to logic its correct arrangement. (c) Prudence and the arts direct their actions according to genuine morality and the requirements of the artifact; morality and the patterns of art are entities of reason and yet, because the actions they direct are real things, it is said that prudence and the arts have real things for their formal objects. The same holds for logic.

Referring to what was said in our thesis, let it be *answered* that the matter to be directed by logic consists of the operations

of the intellect, which are subjected to artificial arrangement. Under the guidance of logic, intellectual operations receive in themselves certain artificial forms. This reception should not be understood entitatively, but in a representative sense. Now, although representation is not artificial in itself (for the concepts exercise naturally their representative function), the objects attained are artificially arranged by logical intentions. Thus, it is on account of their objects that the operations themselves are called artificial.

Accordingly, in *answer to the minor* of the argument, we grant that the relation of the concepts to objects properly set in order, and the tendency of the concepts toward these objects are real, but this tendency is not the formal object of logic: it is that by which the intellect attains objects set in order by logic.

In answer *to the first proof* (a), let us say that the act of understanding is more perfect in the logician than in the peasant because objects, when set in order, are better attained and represented. More generally, an act which understands and distinguishes among relations of reason, privations, and other beings of reason is more perfect than an act which does not perceive them. However, it does not follow that the formal object of logic is the representation and tendency involved in knowledge; it rather is the arrangement of the objects with which knowledge is conversant.

In answer *to the second proof* (b), let it be said that the efficient and physical causality by which the act of demonstration brings about the habitus of science does not properly pertain to logic, which directs science, but to the science directed by logic. This efficient causation belongs to science on account of the real acts of which a demonstration is made. What pertains properly to logic, in demonstration, is the correct syllogistic arrangement and the appropriateness of the matter; thereby we mean that the propositions must be necessary and per se and correctly arranged. These are conditions required on the part of the object in order that the scientific process be well ordered. These conditions do not constitute the efficient cause of science; they are required on the part of the object for the orderliness of the scientific process.

In answer *to the third proof* (c), let it be said, first of all, that between the arts which deal with an external matter and

logic, there is this obvious difference that these arts regard an order formed and made by the intellect and externally realizable by a power of execution; an example would be the disposition of lumber in such and such a way with regard to shape, situation, and place. All that is in itself something real, though dependent upon the direction of reason in the order of efficient causality. Such effects of art do not pertain to reason as objects, but as effects; in other words, they proceed from reason inasmuch as reason causes them and directs their production, but their being does not consist in being objectively formed or [which amounts to the same] in the very fact of being objectively known. The things which logic considers in the objects do not proceed from reason inasmuch as reason moves the powers of execution, but inasmuch as reason is purely dealing with objects of knowledge.

Correspondingly, there is a difference between prudence and logic, although prudence is concerned with things to be done, which are internal acts. Prudence comprises two functions: one is relative to judgments about things and to deliberation, the other is relative to commands, precepts, applications, bearing on things already judged about and deliberated upon. The act of judging or deliberating may well be formally concerned with entities of reason, viz., with objects considered under the aspect of morality, inasmuch as they are set in order by the rules of law or of right decision. This arrangement does not posit anything real in the things considered; what it brings about is a denomination, or relation, of reason which, however, is *not* called a second intention, because it does not belong to things as known, but to things as desirable under ethical rules. As to the act of commanding and of giving precepts, which is the principal act of prudence (ii-ii. 47. 8), it does not concern the objects directly by setting them in order (this is done by law and reason), but concerns directly the application of the will to the elicitation of acts regarding objects already set in order. It is in this application that the main practical difficulty lies. Thus prudence, in its principal act, considers more formally the production of real acts than the ordering of objects. But logic does not give any command and does not apply the will or other powers. Its function is to set in order, through second intentions, objects considered in their being known; once this arrangement is made or

proposed, the intellect and the sciences form their acts regarding the objects so arranged without further difficulty and without any need for a command. Thus logic, unlike practical command, is not formally concerned with the elicitation of acts, but rather with the setting in order of known objects.

Last objection. Logic has for its object modes of scientific knowledge, e.g., definition, division, etc., since it supplies the other sciences with them. These are formally acts of knowledge having an artificial arrangement. Therefore these acts, so arranged, are objects of logic and do not pertain to any other science. But so considered, they are something real, viz., acts of the intellect.

As a *confirmation* it is argued that even if no beings of reason should result on the part of the objects, or even before they do result, logic has to direct knowledge; therefore it is not formally concerned with the being of reason as being of reason.

Answer. Undoubtedly, the acts of reason by which definition, division, and the other instruments of logic are formed are real entities; they imply a relation of natural representation and tendency toward the objects. The ordering of these acts by logic does not bring about any reality distinct from and superadded to this tendency. The difficulty that logic is designed to solve concerns the objects known. The whole problem is that they be set in order, and this order in the objects is a being of reason. The production of acts regarding these objects involves no difficulty to be overcome by logic; it is entirely sufficient for a natural representation that it be produced by the intellect. To sum up: if we consider the tendency toward the objects, i.e., the representation, we have to do with real acts—this is granted—but I deny that we have to do with real acts on the part of the objects set in order by the intentions of the reason. And this is what formally pertains to logic, although that by which such objects are attained must be real concepts and real acts.

Nor can it be said that logic regards the artificial order of objects only by way of connotation but treats formally and directly of the acts. The formal reason why these acts concern logic is precisely this artificial order. It is on account of such artifice, not on account of their real entity that they pertain to art, although their real entity, inasmuch as it is representatively related

to the artificial arrangement of objects, is itself subjected to this artifice. Considered entitatively, the acts of the intellect are something physical and fall under the science of natural philosophy.

In answer *to the confirmation,* let us say that even if beings of reason were not brought about formally and by way of objective existence, there would still be a logic to consider their intelligibility, at least with regard to foundations. If there were no second intentions, either formally or fundamentally, there would be no logic. Likewise, in the opinion which we reject, if there were no extrinsic denomination, and if the acts did not lend themselves to an artificial and real direction, there would be no logic, since—according to the same opinion—logic is concerned exclusively with the direction of intellectual acts. In fact, the artificial direction which logic exercises over its own acts suffices to bring about second intentions on the side of the objects set in order. In the next question (Art. 4) we are going to show, according to the doctrine of St. Thomas, that a relation of reason results from our very way of understanding one thing in relation to another.

When St. Thomas *(Com. on Post. An.* 1. les. 1. Leonine 1) says that logic deals with the acts of the reason in order to direct them, in the same way as the art of a workman deals with the operations of the hands, he obviously means that logic deals with the acts of the reason as matter to be directed; an artificial form, however, is presupposed as formal principle of this direction. This formal principle, as was said, lies on the part of the object with which the act of the reason deals. Similarly, the formal object of the workman's art is not the operation of the hands, but the things made by the hands.

ARTICLE 4

WHETHER LOGIC IS A THEORETICAL OR A PRACTICAL SCIENCE

At this point authors have many things to say about the difference between the practical and the theoretical, the nature of action and such questions as: is every action external to the intellect? does any action take place within the intellect itself?

These issues do not belong here, and the meaning of the present problem will be easily understood if only we recall the general difference between the practical and the theoretical. On this see Aristotle, *On the Soul*, 3. 10. $433^{a}14$; St. Thomas, *Com. on On the Soul*, 3. les. 15. Pirotta 820-21; *Com. on Met.* 2. les. 2. Cathala 290; i. 79. 11 and 13. 16. From these texts we gather that the theoretical order is entirely relative to the knowledge of truth, whereas the practical order aims at the *realization* of truth and its embodiment in a work.

But the knowledge of truth is itself a work, and conversely, every work is a kind of truth; therefore, the distinction between work and truth must be understood in the most formal sense. It is impossible to call practical everything which, in some way or other, effects a work or elicits an operation. That alone deserves to be called practical which directs a process toward a work, sets work in order by rules, and has a work for its end. The proper use of the term 'practical' implies, besides the elicitation of an operation, the production of an object or matter whose execution or effectuation needs to be directed by rules for making, and not only for knowing. 'To be known' and 'to be effected' are always distinguished when there is a question of distinguishing the theoretical and the practical from each other. Not every knowledge of the truth is theoretical. Theoretical knowledge aims at knowing alone and does not, beyond knowledge itself, aim at any making. Every direction exercised in the theoretical order has for its purpose not the making of a thing, but knowledge itself and the defeat of ignorance.

The requirements of the theoretical are satisfied in either of two cases, viz., (a) when the subject is not a matter of action, e.g., when the subject of our study is God, angel, the heavens, etc., and (b) when a subject which is a matter of action is treated not as a matter of action but as an object of science and an instance of truth. The practical, on the other hand, requires that the subject be a matter of action and be treated in the way proper to a matter of action. When Aristotle distinguishes the practical and the theoretical from each other by their ends, he does not refer just to the end of the person who actually understands and works; he refers to the end intended by reason of the principles and rules that a science uses. If the principles do nothing else than

manifest the truth, illuminate it, and defeat ignorance, they proceed theoretically. If, besides manifesting the truth, they exercise direction in such a way that a certain truth is effected and brought into existence, they are practical and bring about order in action. (Action, here, is taken in the general sense of object of practical knowledge.)[28] Theoretical principles are said to be analytical, for they present themselves only as the principles into which a truth is to be broken down in order to be understood; but practical principles are said to be synthetic because, in their treatment of a truth or entity, they are aimed at the embodiment of some truth and the positing of some entity in the world of existence. On this see St. Thomas, *Com. on Met.* 2. les. 2. Cathala 290.

When in the present connection we ask whether logic is practical or theoretical, the problem can be specified as follows: Do the formal principles of logic regard the truth treated by logic in such a fashion as to proceed in a purely analytical way toward knowing? Are they subjected to synthesis and ultimately related to some work which, over and above the act of knowing itself, would have to be executed and made—a work which would not be pure contemplation of truth, but also action? Another formulation, and perhaps a better one, would ask whether a system of ways and means relative to knowing can be practical.

On this, three main opinions must be reported.

Some declare with no qualification that logic is practical. Their argument is that the objects of speculation found in logic, no matter how many they may be, are all related to a certain work, viz., the appropriate construction of a syllogism. According to this opinion, the operations of the intellect are a matter of action, and the rules or precepts uttered by logic are practical principles. It is pointed out that through these rules or precepts logic not only explains, in universal terms, the nature of the syllogism, but also teaches, with due regard for particular circumstances, how a given syllogism should be constructed. On this opinion, see Fonseca, *Com. on Met.* 2, chap. 3, q. 2, sec. 3 and 4, and the Philosophers of Coimbra, *Com. on Aristotle's Dialectic,* Intro., q. 4, art. 5.

Others unqualifiedly declare logic to be theoretical. Their argument is just the contrary of the argument used in the preceding opinion. Either they consider that no act of the intellect is

action, or, if they grant that an act of the intellect, as subjected to the will, can be action, they represent that it is not such when it merely regards the object as knowable. Logic does not immediately direct our concepts in their entitative existence; the direction that it exercises is immediately concerned with objects that it sets in order and disposes according to the requirements of perfect speculation. This is the theory commonly received among Thomists. See Soto, *Com. on the Dialectic of Aristotle,* On Logic, q. 4; Sanchez, *The Logic of Aristotle,* q. 16; *Course of the Carmelites, Intro.,* disp. 1, q. 6, sec. 2.

Finally, *others* consider that logic is both practical and theoretical; for them 'theoretical' and 'practical' are accidental differences in the sciences. Or, at least, they contend that logic is made up of two partial habitus, one of which is theoretical and the other practical. This view is held by Vasquez, *Com. on Sum. theol.,* i disp. 9, chap. 1; Cabero, *Digest of Logic,* disp. 3, diff. 3; Martinez, *The Syllogistic Art of Aristotle,* q. 3.

First thesis. Within the natural order, no science can be both practical and theoretical. The third opinion is thereby excluded.

This thesis is derived from i. 1. 4, where St. Thomas declares that in the philosophical order the practical and the theoretical determine diverse sciences. The expressions that he uses signify essential diversity. Likewise, in *Com. on Eth.* 6. les. 2 and 3. Pirotta, 1124-60 and i-ii. 57, he says that science and wisdom on the one hand, art and prudence on the other hand, are essentially diverse virtues because the former are theoretical and the latter practical. See also *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 5. a. 1.

The reason is that the specific distinction of habitus is derived from their formal objects. Now, in the sciences, the formal diversity of objects reduces to the diversity of the principles from which sciences proceed in their dealing with one object or another. Following Aristotle, St. Thomas says *(Com. on Post. An.* 1. les. 41. Leonine 11): "Just as the formal aspect of 'visible' is determined by light, in virtue of which color is seen, so the formal aspect of 'scientifically knowable' is determined by the principles in virtue of which a thing is known." Between the principles demanded by the theoretical and those demanded by the

practical, there is a difference which concerns the essence of knowledge. Theoretical principles proceed analytically and intend solely to manifest truth in connection with and in dependence upon the formal principles of such and such a truth. But practical principles do not analyze or illuminate truth with regard to its formal principles; they do not analyze or illuminate a quiddity by, as it were, abstracting it from existence; rather, their aim is to apply the truth or quiddity, to set it up in existence. Accordingly, they proceed in synthetic fashion. The theoretical considers the causes of truth abstractly and in themselves, the practical considers them concretely and in a work, without abstracting from existence. Principles cannot be theoretical except inasmuch as they are distinct from, and opposed to, any principles of practical character. Theoretical principles have nothing to do with application: thus, their way of operating is opposite to that of practical principles. From the point of view of knowledge and illumination, the distance is greater between practical and theoretical principles than between any two systems of theoretical principles, even though the latter be so different from each other as to determine the constitution of specifically diverse sciences. Now, if principles determine essentially diverse species, they cannot, by uniting as parts, constitute a third species which would be described as both practical and theoretical. To say, as some do, that it would be inadequately theoretical and inadequately practical does not remove the difficulty. It is not possible, either, for two specifically diverse sciences to be united by one scientific form; e.g., a science cannot be simultaneously mathematics and metaphysics, or anything of the sort, for it is absurd to imagine that specific differences, being opposite, should unite in a state of inadequateness and constitute a third species, unless their opposition and differences are transcended by the power of a more excellent form. We shall soon examine this extraordinary case. But here we speak only of sciences of lower order.

This is not the proper place to show how in theology and other supernatural habitus the practical and the theoretical are united. On this, see St. Thomas, i. 1. 4 and ii-ii. 8. 3 and 45.3. Let us briefly remark that in these habitus the practical and the theoretical of lower order, such as they exist in the lower

disciplines, are not united; they remain distinct by species, just as the vegetative found in the plant and the vegetative found in the animal are never joined in the unity of any form. Specific differences cannot be united within the order in which they are specific differences; such unity would involve contradiction, for, by the very fact that they are specific differences, they are opposite, and if they are opposite, it is impossible that they be united in something one. However, they can be united in a thing of higher order—in which thing a loftier form exercises, in the simplicity of a higher method, the functions that, on a lower level, several forms exercise in diverse and opposite ways. The case is not the same as that of the [metaphysical] degrees, i.e., higher and inferior predicates, such as sentient, vegetative, etc., which are united in a contracted form, as in man. These degrees are not opposite to each other, as a species is to another species or a difference to another difference; they are related as superior and inferior predicates, the latter contracting the former but not conflicting with them. Supernatural sciences attain God according as he is in himself: this constitutes the excellence which makes for the unity of the practical and the theoretical. In God, the principle of exact speculation and that of practical disposition are one and the same, for the very essence of necessary truth is also the rule of contingent things, and it unites in its simplicity the principles of speculation and those of action. This is not the case with other lights [than the divine essence], for no other light can manifest a thing, simultaneously and in the unity of a single expression, both with regard to necessary principles and with regard to contingent ones, with regard to analysis into principles of truth and with regard to principles of effectuation and synthesis in real existence. A limited light cannot comprehend all those things in unity, for those things are the foundations of opposite differences and opposite ways of proceeding.

Second thesis. In an essential sense and by virtue of its principles, logic is unqualifiedly theoretical. However, it shares in the style of practical thought inasmuch as it supplies rules and direction to speculation itself.

Such is the thesis that St. Thomas teaches constantly. (1) For him, all liberal arts fall under the genus of the theoretical (*Com. on Met.* 1. les. 3. Cathala 59). (2) With definite reference

to logic (i-ii. 57. 3 ad 3) he says that even in theoretical matters there is some sort of work, e.g., the making of a syllogism or of a fitting speech, etc. He says, further, "whatever theoretical habitus are relative to such works of the reason are, by resemblance, called arts." Thus St. Thomas calls theoretical not only the act of logic but the habitus itself. Now a science, in his doctrine, is only one habitus (see i-ii. 54. 4). Therefore logic is entirely theoretical. (3) Likewise, in i-ii. 47.2 ad 3, St. Thomas says that there is such a thing as a theoretical art—although there is no such thing as a theoretical prudence—because theoretical reason *makes* some things, e.g., syllogism, proposition, etc. (4) Finally, in i-ii. 51. 2 ad 3, he says that in theoretical matters "the rational (i.e., logical) science that is dialectic is one thing and the science that is demonstration, viz., which demonstrates truths, is another."

Scotus (*Com. on the Universals of Porphyry,* q. 1, and *Com. on Met.* 6. q. 1, n. 14) and his school hold the same theory. It has been said that with regard to the foundations of this theory the Scotists' views are widely divergent from those of the Thomists, but this is not true; in his *Com. on Met.* (6. q. 1, n. 14), Scotus uses the same argument as St. Thomas, viz., the consideration that the work directed by logic is speculation itself.

One might be tempted to say that St. Thomas speaks of the theoretical in a qualified sense, for he says that theoretical reason produces some sort of work. It seems that when the theoretical goes into producing a work it no longer is theoretical except in a qualified sense.

But this cannot be the case, for in these texts, St. Thomas seeks to determine whether prudence is theoretical in an essential and absolute sense, not in some qualified fashion. His inquiry bears upon the genus of knowledge in which the habitus of prudence is placed; it would be absurd for him to conclude with a proposition concerning the theoretical understood in a relative sense. It would even be an entirely insane way of doing things if, when he expressly seeks to determine in what genus of knowledge one should place prudence, liberal art, or dialectic, he should lose sight of the genus considered absolutely and declare that prudence [or liberal art or dialectic] belongs to the

theoretical genus in a qualified fashion. This would not be an answer to the question: in what genus is it placed, purely and simply? When St. Thomas declares purely and simply that something is such and such, without further restriction or explanation, he does not mean it in a weakened and qualified sense: he means it in a formal sense and absolutely speaking; otherwise we would have nothing certain in the doctrine of St. Thomas. That St. Thomas should be understood in the absolute sense is particularly certain in a case like this where he is not digressing but centering upon an argument. If it is suggested that logic is said to be theoretical in a relative sense, principally because it is operative, the answer is that the concept of operation, as such, does not diminish the theoretical character of a habitus, for speculation itself is an operation, as we have already pointed out.

Two arguments, one a priori and one a posteriori, constitute the foundation of our thesis. I find the main a posteriori argument in this reasoning of Aristotle (*Met.* 1. 2. $982^{b}11$; *Com.* of St. Thomas, les. 3. Cathala 53): No science in which knowledge is sought for its own sake is practical; but whoever philosophizes in order to overcome ignorance philosophizes only for the sake of knowing and tends toward knowledge for its own sake; therefore he is not practical but theoretical. This reasoning of Aristotle concerns first philosophy (metaphysics), but it applies also to logic.[29] Logic seeks knowledge for its own sake; therefore it is theoretical.

Proof of the antecedent. Logic intends to overcome ignorance. It was invented in order that the reason should not proceed ignorantly or erroneously but should know rightly. Thus it aims only at science and knowledge. To overcome ignorance is the same as to know. If logic seeks knowledge in order to overcome ignorance and purify science itself from error and nonscientific ways and means, it seeks knowledge for the sake of knowing; therefore it is not practical.

Confirmation. If logic directs speculations, then it is the speculative power which is perfected by artificial logic.[30] Since artificial logic perfects the speculative power, it cannot be practical. If it were, the practical reason would direct the theoretical reason and the practical power would be perfected before the theoretical power is set straight; but this is absurd, for perfection

in the practical order comes after and follows upon the complete rectitude of the theoretical intellect. This order cannot be reversed.

The a priori argument is drawn both from the principles from which logic proceeds and from the matter with which it deals. (1) The principles of logic are entirely theoretical; even in rules for the construction of syllogism, it is impossible to find anything practical; therefore logic itself is not practical. The consequence is obvious, and the antecedent is proved as follows: the principles used in the construction of syllogisms are: 'two things, identical with a same third thing, are identical with each other' and 'whatever is affirmed of some universal, is to be affirmed of every subject falling under that universal.' These principles are purely theoretical. In any number of theoretical fields they help science to perfect the establishment of other truths; thus, they attain truth itself considered [not in application to practice but] in itself. The same remarks hold for other principles that logic follows in the treatment of genus and universals, of opposition, of such ways of knowledge as definition and division, etc. All these principles are so definitely theoretical that the other theoretical sciences make use of them, as St. Thomas pointed out (*Com. on Post. An.* 1. les. 20 Leonine 4-5). If logic has principles that serve to establish theoretical conclusions, its principles are theoretical; but then it does not have any practical principles, because, as already said, it cannot have both practical and theoretical principles.

(2) The same conclusion can be proved in proportionate fashion by considering the matter with which logic is conversant, for the ordering done by logic concerns directly and essentially the objects themselves that are known and set in order. Being nothing more than references to their objects, the formal concepts are set in order by the very fact that the objects are set in order. Thus the subject matter of logic does not include any matter of action.

The consequence is obvious, for an object in the state of known object and of second intention is not a matter that can be worked upon by any real practice or operation. Thus, if the direction exercised by logic is concerned with the known objects precisely considered as known, it does not have to do with a matter of action.

The antecedent is obvious, for the principles in virtue of which logic conducts discourse regard essentially and directly the objects known in the state of known objects having second intentions. This is plainly the case, for instance, when the logician says "two things identical with the same third thing are identical with each other," "whatever is predicated of a universal is predicated of everything that is contained in it." Similar examples are to be found in the rules of ampliation, restriction, supposition, etc. In the systematization of the categories and the distinction of the predicables everything is relative to and conversant with known objects precisely considered as known. Nothing is relative to any matter of action considered as matter of action, for what is meant by "matter of action" is something that can be touched by real operation, i.e., affected by a process of execution. We do not speak of something that can be attained extrinsically in the capacity of known object. As said in the foregoing, by the very fact that objects are set in order and presented as ordered, an action on the concepts themselves, an action whose purpose would be to produce an artificial tendency toward objects that are already artificially disposed, is quite unnecessary. The reason why it is unnecessary is that concepts tend toward their object by virtue of natural representation and resemblance.[31] Thus the whole logical artifact is conversant with the objects themselves considered as known. It is never concerned with the tendency and representation embodied in the concepts, for this tendency and this representation are natural and cannot be artificial except in a purely objective way, viz., in so far as they are related to objects disposed in an artificial order.

But what is it that prevents the act of the intellect from being itself a practice? Not the very fact that it is an act of the intellect, but rather the fact that it is a *speculation*, which tends toward truth and finds its term in it. That for which truth is terminal is contemplative. For St. Thomas (ii-ii. 179. 2) the only thing that pertains to the practical intellect is external action, and an action is external when and only when it takes place outside of knowledge precisely considered as a perfection whose term lies in truth. In so far as the acts of the intellect have a moral character and are subject to motion by free will, they can be regulated by the practical rules of prudence. So considered,

they are like the acts of the other powers; they are external acts inasmuch as they are external to the knowledge of truth.

Objections and Answers

A *first objection* is derived from some texts where St. Thomas apparently attributes to logic the character of a practical rather than theoretical habitus. In *Com. on Met.* 1. les. 1. Cathala 32 and les. 3. Cathala 57 and *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 5, art. 1, ad 2, he says that logic is a discipline connected with theoretical philosophy rather than one of its main divisions, because the things that logic treats of are studied for the sake of their own truth. Thus, logic is not theoretical in an essential sense, but relatively and by reduction. Moreover in the same article of *Op.* 70, ad 3, he declares that among other sciences those are said to be arts which elicit not only cognition but also work. There is no doubt that it elicits a work distinct from cognition itself. Again in *Com. on Met.* 6. les. 1. Cathala 1166, and 11. les. 7. Cathala 2264, St. Thomas, following Aristotle, mentions only three genera of theoretical science, viz., physics, mathematics, and metaphysics. Obviously logic does not belong to any of these; therefore it is not comprised in the theoretical genus. Lastly, St. Thomas considers that a science can both be practical and theoretical, for he attributes both characters to medicine in *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 5, art. 1, ad 4, and in i. 1. 4.

Answer. The first text shows only that among the theoretical sciences, logic is not principal but inferior and ancillary, inasmuch as the things that logic treats of serve the other sciences by providing them with scientific method and form. The object of logic does not have, for the theoretical mind, the character of a final term. Nevertheless, logic is essentially theoretical. On the one hand, its method and its principles are theoretical. On the other hand, the things of which it treats [second intentions] are altogether related to other things [first intentions], not in order to serve action, but in order to serve contemplation in the other sciences. For the objects of logic supply the instrument of speculation.[32]

In reference to the *second* text, when those sciences which are also arts are said to elicit not only cognition but also a work, it is not meant that their work is distinct from speculation itself. The work elicited by these sciences orders and directs speculation itself and is entirely relative to speculation, although it retains the character of a work inasmuch as it can be regulated and directed by certain rules. As already mentioned, some sort of practical style is not foreign to logic; but all logical direction is relative to theoretical thinking and is aimed at making straight the work of speculation; consequently it remains, absolutely speaking, theoretical.

In reference to the *third* text, recall that it was said, in connection with the first, that logic belongs to theoretical philosophy *by reduction*, i.e., in a subordinate capacity, because the things that it treats of are themselves subordinate, being the instruments of speculation.

In reference to the *last* text, it is the express statement of St. Thomas that medicine is a science practical by reason of its end, i.e., by reason of its object, for it is totally relative to action. In a secondary sense, however, medicine is said to be theoretical inasmuch as some part of it does not use principles of its own but borrows from geometry.[33] It can be represented also that some parts of medicine are less proximately related to action. As to theology, it is both practical and theoretical because, as a science of the higher order, it participates, by its principles, in things that belong to the divine light.

Second objection. Logic regards operations as admitting of practical direction; therefore it is practical.

Proof of the antecedent. Logic supplies the rules and precepts by which the works of the reason are set in order and protected from error in speculation. If logic speculates at all, it speculates in order to direct. It does not direct in order to speculate. Therefore, it regards operation as admitting of practical direction in so far as the way of speculating is concerned. Plainly, this is what logic does when, for instance, it teaches how to construct a syllogism in Barbara with definite quantity and definite quality and according to the other certain and determinate rules by which the syllogism can be governed.

Confirmation. Logic directs not only the theoretical

syllogisms but also the practical ones. Thus, the intemperant is said to syllogize invalidly because he syllogizes in four terms, as Aristotle says in *Eth.* 7. 3. 1147^{a}31. (St. Thomas, *Com. on Eth.* 7. les. 3. Pirotta 1347). Just as logic is speculative because it regulates speculations, so it will be practical because it regulates practical syllogisms.

Answer. The antecedent is to be denied. In reply to the proposed proof, let it be said that the operations of the intellect are to be directed and regulated by a regulation and an artifice concerning exclusively the known object as known; they do not admit of a regulation and artifice which would belong to the act itself as a thing to be produced or to be elicited in an artificial or a moral way. Intellectual acts are directed by logic inasmuch as, in analytic fashion, and by virtue of natural representation and tendency, they tend toward objects set in order according to the laws of second intentions. We have already said why such a direction is not practical in any way whatsoever. The statement, "logic speculates in order to direct," calls for a distinction. If it refers to a direction concerning exclusively the object known, and whose single purpose is the defeat of ignorance, this statement is true, but direction so understood is theoretical. If, on the other hand, this statement refers to a direction concerned with the work itself and aimed at the existence of the thing or its production, it should be denied. Precepts and rules for the construction of syllogisms and other logical instruments do not bring about any form in any matter. The form that they bring forth is exclusively relative to objects known by theoretical principles.

Answer to the confirmation. It is true that in a practical syllogism the *immediate* conclusion is a cognition or [result of] a reasoning rather than an operation, but the ultimate conclusion is an operation. This issue is treated extensively by St. Thomas in his *Com. on On the Movement of Animals* les. 5 and in *On Truth* 22. 15. ad 2. Such a syllogism does not infer its conclusion merely in the light of truth and of what is known: by deliberation and decision it also regards goodness. This is why the arrangement of such a syllogism, in so far as it is practical, i.e., ultimately related to action, is not the business of logic but that of prudence. However, the arrangement effected by prudence resembles the logical arrangement because, just as one who

argues in four terms paralogizes theoretically, so the imprudent and the intemperant, who do not dispose properly the imperative of the universal and particular judgment, meet with practical failure. St. Thomas calls this practical disposition a syllogism by way of resemblance and in a relative sense. *(Com. on the Sent.,* ii. dist. 24, q. 2 art. 4.)

Last objection. Since ethical theory is practical, logic must also be practical.

The consequence is warranted by the similarity of the notions. Ethics is practical because it supplies rules for directing the act of the will; logic, likewise, is practical because it applies rules for directing the act of the reason.

Proof of the antecedent. (a) Ethical science uses practical principles, such as 'the good is to be done, the evil is to be avoided,' and it does not proceed by way of analysis but by way of setting in motion. (b) If it is not a practical science, then there is no such thing as a practical science. Mechanical arts are arts and not sciences, and liberal arts are sciences, but, according to our [John of St. Thomas'] theory, are not practical.

Confirmation. Art falls under the practical part of the mind; it is listed together with prudence in *Eth.* 6. 4. $1140^{a}1$ and 5. $1140^{a}24$, where Aristotle designates art and prudence as the intellectual habitus that deal with contingent matters, science and wisdom as those which deal with necessary matters. On this see St. Thomas (*Com. on Eth.* 6. les. 3 and 4). The other liberal arts, such as arithmetic, geometry, rhetoric, are not theoretical, but practical [according to the objector]; therefore, logic is also practical.

Answer. Ethical science can be understood in two ways, viz., (a) as including prudence, and (b) as excluding it and solely concerned with the knowledge of virtues by way of speculation. In the first sense it has the character of practical knowledge by reason of the prudence which it includes, and it uses in a practical way the practical principle, 'the good is to be done.' If ethical science is so understood, there is disparity between it and logic. Prudence directs the works of the will by choice and command, because the works of the will which are free and do not tend toward their object naturally are in themselves capable of real direction and moral motion. But logic again uses theoretical

principles in its dealing with known objects and its whole movement is analytical; it does not impose any real order upon concepts; for concepts tend toward their objects by virtue of a natural, not an artificial resemblance. If, on the other hand, ethical science leaves prudence aside and only treats of the subject of virtue by definition, division, etc., it is theoretical. In theology, the First Part of the Second Part [of the *Summa theologica*] represents this nonpractical condition of ethical science. It does not use practical principles, or if it does, it does not use them in a practical way, i.e., as causing motion and affective inclination. The principles of the First Part of the Second Part are speculative inasmuch as they know the nature of virtues and prudence from the point of view of truth. Such a treatment of ethical science is found in Aristotle's *Ethics* and in the whole of the First Part of the Second Part,[34] and a man may well be an ethical philosopher and theologian of great distinction and an imprudent sinner.

There is nothing absurd about the conclusion that there is no practical science, if science is understood in a genuine and proper sense, for science proceeds by analysis and definition whereas practice proceeds by motion and synthesis.

Answer to the confirmation. As St. Thomas points out (ii-ii. 47. 2 and 3), Aristotle does not say that all arts reside in the part of the soul where prudence resides; some art is placed in the theoretical part, as for instance the art of constructing a syllogism. All that the concept of art requires is that there be ordering of a matter by certain and determinate methods; the matter may be speculation and it may be a matter of action. As to liberal and scientific arts, such as arithmetic and geometry, St. Thomas places them among the theoretical sciences (see *Com. on Met.* 2. les. 2. Cathala 291 and other texts referred to above), for in their dealing with numbers and magnitude they aim only at contemplating and showing the truth. Grammar and rhetoric do not seem to be sciences; they do not treat of objective quiddities and necessary connections but of expression, style, and elegance; they do not proceed by defining things and resolving them into their principles.

In order that a science be practical it does not suffice that it have the power of producing its own acts in individual reality; if

this were the case, every science would be practical, for every science produces acts in individual reality. One must see whether these acts refer to the truth of the thing by way of contemplation and regard the known objects as *known* objects or, on the contrary, as matters of action, and whether the principles used are theoretical or practical.

ARTICLE 5

MEANING OF THE DISTINCTION BETWEEN DOCTRINAL LOGIC AND LOGIC IN USE

The meaning of the distinction between doctrinal logic and logic in use is controversial and remains obscure. Logic is called doctrinal inasmuch as it scientifically teaches rules for the direction of the intellect. 'Logic in use' insures the application of these rules to particular matters. This division of logic originates in a feature common to logic and the habitus which direct practical affairs. The latter give rules and make use of them; logic, which exercises direction in the theoretical order, also has both of these functions.[35]

The controversy arises from two main difficulties. First comes a problem of matter.[36] When the matter admits only of opinion, viz., in dialectic, it is held that doctrinal logic and logic in use have one and the same matter; the question is whether such unity of matter obtains only in this case or also when the subject admits of demonstration. The second problem is relative to form and can be phrased as follows: do the doctrine and the use of logic pertain to the same habitus and formal principle?

In order to clarify these issues we must bear in mind one point of St. Thomas' doctrine, viz., that the use of logic can be understood in three senses.[37] (1) There is use of logic inasmuch as logic teaches other sciences how to proceed artfully in syllogistic form. It is the function of logic to give other sciences a method for avoiding error, and to direct the work of the reason by supplying the instruments of speculation. This is what St. Thomas, following Aristotle, teaches in *Com. on Met.* 2, les. 5.

Cathala 335, in *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 5, a. 1. ad 2, in *Com. on Post. An.* 1. les. 1, and in many other places.

(2) There is use of doctrinal logic itself inasmuch as doctrinal logic gives to the other sciences not only a syllogistic form, but also principles from which proofs will be derived. The case of logic, in this respect, is not unique; sciences other than logic help still other sciences by supplying them with principles. Beside logic, metaphysics plays a distinguished part in delivering principles to other sciences. St. Thomas acknowledges such use of logic when he says (*Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 6, a. 1) that sometimes we use logic, as doctrine, in the other sciences, for logic, he says, delivers to the other sciences some principles of proof. Thus, we use the intentions of genus, species, opposite, to effect certain proofs in the other sciences. In *Com. on Post. An.* 1. les. 20. Leonine 5, St. Thomas gives the following example: "To prove that love and hatred belong to the concupiscible appetite we point out that contraries belong to the same subject; this proof is drawn from a logical principle, viz., the nature of contrariety."

(3) Logic admits of use in a sense strictly proper to it inasmuch as it supplies the use of probable argument in other scientific domains, without demonstrative process or analysis into first principles. Here, *logic in use* is spoken of with propriety, as distinct from demonstrating logic and doctrinal logic.[38] Where there is demonstration, the use of discourse never implies confinement to a discursive state of affairs: the demonstrating intellect reaches analytically the first principles, which are not proved by discourse, but are the term [i.e., the terminal point] of discourse. On the contrary, when there is no demonstration, the mind uses discourse and remains in discourse; the term of discourse is never reached; analysis is never carried up to the first principles. Such a process is disputative or tentative; it is an inquiry without final resolution. This process is also called probable, because it does not possess the certainty that can be procured only by final resolution into principles. Such is the act of logic in use. St. Thomas explains this act (*Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 6. a. 1) by saying that there is logic in use when logic makes use of discourse but

not of the term of discourse; again, the term of discourse lies in self-evident principles, where there is no more use for discursive reason.

Logic in use, if the word 'use' is taken in the first or the third sense, cannot be called, formally, a science. (The use of logic, in the second sense, belongs to doctrinal logic, since it is a function of doctrine to supply other sciences with the principles that they need for their demonstrations.) If 'use' is understood in the third sense, there is no science because the process is not analytical but merely probable or disputative. If 'use' is taken in the first sense, it is not a demonstration—the only thing by reason of which a discipline can be called a science—but an application and an assistance aimed at disposing the syllogistic form,[39] whether the matter be demonstrative or dialectical; there is not, determinately, use of science and demonstration.

Our answers to the difficulties involved can be summed up in three theses.

First thesis. Logic in use, if use is understood in the first sense, directs not only the dialectical, but also and principally the demonstrative function.

We employ the words 'to direct' without deciding the question of words raised by those who hold that logic so understood should not be called 'logic in use' but 'logic in direction.' In this domain, the use of logic is direction; likewise, the proper act and use of higher sciences and architectonic arts is the direction of inferior arts and sciences.

This thesis is taught by St. Thomas when he says (*Com. on Post. An.* 1. les. 1. Leonine 1) that not only the other works of reason, but also and especially its judicative and demonstrative functions are directed by logic. Again, St. Thomas holds that logic supplies instruments of speculation to all the other sciences (which of course proceed demonstratively). See *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 5. a. 1 ad 2. In *Com. on Met.* 2. last lesson (Cathala 335), he says that logic supplies all sciences with the method of scientific knowledge. Thus, the use of logic, so understood, is not restricted to dialectic: it also covers the demonstrative function.

The reason for this is obvious. Demonstration, no less than probable syllogism, requires that the syllogistic structure and the

validity of the consequence be assured by the rules and principles of logic. It is from logic that demonstrations derive appropriate disposition and artful form. The perfect state of demonstration depends upon the principles and rules of logic both with regard to the form, which is regulated by the 'said of all,' the 'said of none' and other principles of syllogistic arrangement, and with regard to the matter, for the necessary and essential propositions which demonstration must use are the main subject of logical inquiry in the *Posterior Analytics*.

Here, *some* would point out that the efficient cause of demonstration is not logic but a particular science; demonstrations would depend upon logic for direction alone. We cannot regard this as an objection, for we do not definitely hold that logic is the efficient cause of demonstration in particular sciences. The conditions of our thesis are still satisfied if the influence of logic is exercised only by way of direction, just as prudence exercises influence upon virtues not by eliciting their acts but by commanding them. At any rate, logic is not the principal efficient cause of demonstration. If it were granted that logic is efficient cause of demonstration, we still would have to say that it cannot enjoy the capacity of a principal cause, but only that of an auxiliary and subservient factor. Likewise, the proposition that virtues elicit the moral act regulated by prudence can be asserted determinately without deciding whether this regulation modifies the virtuous acts in the order of efficient causality, through a real impression left in the virtues, or consists in a merely directive influence.

We are touching upon a problem which, properly, does not belong here: what is the nature of the causality exercised by the higher habitus or powers upon the lower ones? Considering the command by which the higher [habitus or power] moves the lower, the question is whether this command pertains to the order of efficient causality and is exercised by way of impression. Be that as it may, logic is no more of an efficient cause or eliciting principle in the case of the syllogism of opinion—i.e., the merely probable syllogism—than in the case of the demonstrative syllogism. The function of logic, even in the case of probable syllogism, is essentially one of direction. We hold that logic admits of the same directive use in the case of demonstrative syllogism.

Second thesis. If the use of logic is understood in the third sense, logic in use concerns only the dialectical and sophistical functions, i.e., the processes that are not analytical but probable, tentative and disputative. If such use takes place in the other sciences and proceeds from the principles of those sciences—which happens when the principles of sciences operate in disputative and not in analytical fashion—it is the business of logic only in so far as logic directs it. If, on the other hand, such a nonanalytical inquiry proceeds from the principles of logic itself, the inquiry is not only directed by logic but also elicited by it, as a secondary and imperfect act.

St. Thomas points to this conclusion when he says (*Com. on Met.* 4. les. 4. Cathala 576) that "doctrinal logic studies these intentions and defines the way in which they make for a process of probable reasoning in the particular sciences; logic [does this demonstratively, and] so far as such operations are concerned, [it] is a science. On the other hand, we speak of 'logic in use' according as logic is used in auxiliary fashion to draw probable conclusions in particular sciences. So understood, logic falls short of having scientific character." St. Thomas expresses still more definitely the same idea in *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*] q. 6, a. 1: "In another way a method is called rational from the end, when we stop in the very process of attaining it. For the ultimate end which the investigation of reason ought to reach is the understanding of principles, in which we resolve our judgments. And when this takes place, it is not called a rational procedure or proof but a demonstration. Sometimes, however, the investigation of reason cannot arrive at the ultimate end, but stops in the investigation itself, that is to say, when two possible solutions still remain open to the investigator. And this happens when we proceed by means of probable arguments, which are suited to produce opinion or belief, but not science. In this sense, *rational* method is contradistinguished to *demonstrative* method. And we can proceed rationally in all the sciences in this way, preparing the way for necessary proofs by probable arguments. And this is another use of logic in the demonstrative sciences; not indeed as having a teaching function, but as being useful."[40]

If logic in use is so defined, it obviously does not belong to

the demonstrative function but to dialectic. Such use is not a demonstration, since it implies no fully determined analysis into certain and evident principles, but only an inquiry into, and a discussion of, alternative possibilities. If logic contributes principles of its own to such a discourse and disputation, the whole discourse is elicited by logic. In this case, logic contributes not only the way of disputing, but also the matter or the principles. Whatever is deduced from the proper principles and object of a certain habitus is elicited by this habitus; whether the deduction is analytical or merely disputative makes no difference. If, on the other hand, a discourse or discussion is determined by principles of sciences or habitus other than logic, then logic supplies only the way of inquiry; it contributes a direction but does not elicit the substance of the act.

Last thesis. Doctrinal logic and logic in use are one and the same habitus. Whether this habitus merely directs intellectual acts or elicits them, whether it inquires with probability or proceeds demonstratively, it retains its unity. The formal aspect which specifies logic is not multiplied by the distinction between doctrinal logic and logic in use.

This thesis is not received by all. At one extreme *some* say not only that doctrinal logic and logic in use are the same habitus but also that using and teaching pertain to the same act. This is, for instance, the opinion of Martinez *(The Syllogistic Art of Aristotle,* Intro., q. 2). *Others,* at the other extreme, posit a distinction of habitus as well as one of acts; they say that doctrinal logic is theoretical and logic in use practical (among them, see Vasquez, *Com. on St. Thomas' Sum. theol.* i. disp. 8, chap. 5, No. 19), or they say that doctrinal logic is a science and logic in use a mere habitus of opinion. (References in the Philosophers of Coimbra, *Com. on the Whole Dialectic of Aristotle,* Intro., q. 4, a. 2). According to others, doctrinal logic and logic in use are one and the same habitus within the matter and object of logic itself but, in other scientific fields, logic in use would not be the habitus of logic; it would be the habitus of some other science, producing its inferences in orderly fashion. (Cabero, *Digest of Logic,* Intro., disp. 2, diff. 2.) There is no real difference between this theory and that of Merinero (*Com. on the Whole Dialectic of Aristotle,* Intro., q. 2, sec. 2.) who says that

logical use, in the field of other sciences, is not elicited by the habitus of doctrinal logic but by that of the other sciences.

Nevertheless, the proposed thesis, such as we formulated it and without the burden of unnecessary distinctions, is the most commonly received among authors and particularly among Thomists. See Dominic of Flanders, *Com. on Met.* 2, q. 5, a. 2 ad 2; Araujo, *Com. on Met.* 2, q. 3, a. 2; Soto, Sanchez, Masius, and the *Course of the Carmelites*, Intro., disp. 1, q. 4, sec. 2.

This thesis is founded upon the consideration that sciences other than logic cannot entrust to any principles of their own the function of setting their inferences in order. Principles capable of such a function are borrowed from logic, which formulates and explains them. Thus, if other sciences elicit consequences set in the right order, such order is traceable to logic and to the light that logic imparts to sciences, at least by way of direction and through the presentation of objects. St. Thomas teaches again and again (see in particular *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*]) that logic supplies the instruments of speculation to the other sciences. It is by the same habitus that logic teaches the way to speculate and uses it, for, no matter what the subject may be, it uses and applies to the constructing of consequences the very principles which govern its doctrine. This application does not require any distinct system of rules and involves no special difficulty to be conquered; therefore it does not require a distinct habitus but only the extension and application of the same habitus.

Proof of the antecedent. In order to understand that the principles of logic in use are not different from those of doctrinal logic, it suffices to remark that if logic in use applied principles not belonging to doctrinal logic, it would not be merely logic *in use*, it would also be a *doctrine*, since it would assert principles distinct from those of doctrinal logic. There would be two systems of principles and consequently two sciences. We would have to do, not with the doctrine and the use of logic, but with two doctrinal logics. Thus, it is necessary to conclude that the use of logic or, in other words, the direction afforded by it, are in continuity with the principles of logical doctrine.

On the other hand, it results from the preceding article that the application of logic does not require any distinct skill or

habitus. The direction and ordering to be effected by logic involve a difficulty which coincides entirely with the difficulty involved in the knowledge of the second intentions as founded upon the first. When such knowledge is possessed, application does not involve any special difficulty, for the acts which constitute the application of logical laws to the things known are related to their objects by natural representation and tendency. The case would be different if the tendency of the acts toward their object were brought about by moral or voluntary motion,[41] or by artificial deduction.[42] Again, artifice and arrangement concern exclusively the objects set in order by second intentions. The difficulty does not lie in the direction of the acts to be elicited, but in the knowing of the objects to which the second intentions are applied.

Likewise, on the part of the objects themselves, if one knows the rules and precepts demonstratively established by doctrinal logic, their application and use in such and such a subject matter does not involve any new difficulty; all that is needed is the presence of a subject matter to which the rules are applied and to which they extend, without there being any new difficulty to conquer. Consider the case of a man who knows the art of music and plays the harp; the same precepts of art would enable him to apply his fingers to any other instrument. If, when he uses another instrument, he has trouble moving his fingers and cannot play swiftly, what he needs to overcome this difficulty is not a new art but physical exercise, or any method capable of lifting this obstacle; as he becomes able to move his fingers more swiftly he is not developing a new art but removing an obstacle to the exercise of an art that he already possesses.[43] Likewise, when the intellect gets trained in syllogizing about diverse subject matters or sciences, it does not acquire an art or a habitus distinct from doctrinal logic, but greater facility in use.

Objections and Answers

A *first objection* is designed to prove that logic in use does not concern the demonstrative function but only the dialectical one. This is what St. Thomas seems to mean when he says (*Com. on Met.* 4. les. 4. Cathala 577) that in the demonstrative function

doctrine alone is the business of logic. Use would belong to physics and the other particular sciences. On the other hand, in its tentative [i.e., dialectical] and sophistical functions, logic would have both doctrine and use. Thus, according to St. Thomas, the demonstrative function of logic does not comprise use. *One might be tempted to say* that St. Thomas speaks of the use by which merely probable knowledge proceeds from logical principles in other scientific domains: such use is definitely not the business of demonstrative logic (*Com. on Post. An.* 1. les. 20. Leonine 5). Thus, one might contend that he does not speak of the use by which logic delivers to the other sciences a syllogistic form and an artificial method, for demonstrative logic admits of such use.[44] But, *in reply to this interpretation,* should it not be said that the other sciences produce and elicit their own demonstrations by their own power and not by the power of logic? Further, these demonstrations are produced in the right order, otherwise they would not be demonstrations. The second intention of syllogistic form is a being of reason and consequently is not an object produced; it merely results from demonstrative cognition. Thus, the efficient power and the use of logic are required neither for the production of demonstration nor for its syllogistic form, which is a mode or form of reason.

Answer. The solution proposed between the two parts of the preceding argument [viz., in the sentences beginning with the words "St. Thomas speaks of the use by which merely probable knowledge. . ."] is ours. *In answer to the reply,* let it be said that a demonstration proceeding from a particular science possesses, by virtue of the latter's distinctive type of explanation, the character of a special demonstration. As to the character of orderly and artful process, it comes, indeed, from the particular science but is not insured by its *own* power; it is insured by the direction that logic exercises. (Again, this direction is described by some as a process of efficient causality involving a real impression upon the acts of scientific knowledge, whereas others hold that the direction exercised by logic consists exclusively in an arrangement of objects. We are assuming, here, the latter theory.) The logical mode of scientific objects—i.e., the syllogistic form—is a being of reason and, as such, results from cognition, but the cognition from which it results is not the particular kind

of knowledge exercised by a science in its particular capacity: it is the directing cognition exercised by logic, which directs all sciences universally and modifies this particular one.

Second objection. The act of logic in use is neither scientific nor demonstrative. Therefore it does not proceed from the habitus of logic.

The consequent is clear. Since the habitus of logic is a science, it is evident and certain; therefore it cannot elicit an act of opinion which would be uncertain and inevident; therefore acts of opinion proceed from another habitus and it must be said that doctrinal logic and logic in use are not one and the same habitus. *Moreover,* the method of doctrinal logic is analytical and theoretical, whereas the method of logic in use is applicative and synthetic; therefore doctrinal logic and logic in use constitute diverse habitus.

Answer. The consequent calls for a distinction. It is true that the act of probable knowledge does not proceed from the logical habitus in the capacity of primary and essential act of this habitus, but there is no ground for denying that such an act can proceed from the logical habitus in secondary and indirect fashion, or at least as an act subjected to logical direction. If it is assumed that the act of probable knowledge is merely *directed* by logic, the difficulty is lessened, for logic teaches by scientific and certain rules how the assent of opinion should be directed. Thus, even though the matter be one of opinion, there is something scientific about the way in which this assent is directed and the rules according to which it is brought about. It is more difficult to show [upon the other supposition] that the habitus of logic not only directs but also *elicits* an act of opinion, yet the principles stated above [about the logical habitus, if it be efficient, being only instrumentally so] account sufficiently for the elicitation of such an act by such a habitus.[45] In a scientific habitus the primary act, whose derivation is rigorous and which admits of analysis into the first principles, is always certain and evident; however, principles capable of bringing about a certain and evident argumentation sometimes can also be used in an imperfect discourse which does not admit of complete analysis and follows the ways of discussion and conjecture: such is the probable discourse.

Likewise, in physical generation, the effect is not always perfect and entirely similar to the generator; a man or a horse, besides generating a man or a horse, sometimes generates an imperfect being, viz., an embryo or even a monstrous thing that has fallen away from its type. The power of the generator is perfect and the imperfection of the result is caused either by an interfering factor, or by the inappropriateness of the matter, or by the nonapplication of the active power to the matter. Thus, the science of logic can use scientific discourse and scientific principles by way of inquiry and trial, without effecting a complete analysis: this is an imperfect act. Along this line, St. Thomas says (ii-ii. 1. 4) that the habitus of faith knows with evidence its credibility [i.e., the credibility of its object], that the habitus of opinion knows with evidence its probability [i.e., the probability of its object], and that each of them attains its object—viz., the thing accepted on belief or held conjecturally—with obscurity. The evidence and inevidence [of such habitus] do not concern the same object: the latter concerns the thing accepted on belief and the former its credibility. It seems that several specifically distinct acts are involved: but any specific distinction concerns, so to say, the material aspect of the process, it cannot concern its form or its formal aspect. In like manner, a virtue may admit of diverse inadequate acts, distinct by species indeed, but in a material and incomplete way; e.g., religion has the act of prayer, the act of devotion, etc.: these acts are diverse, but inadequate and partial.

In *answer to the confirmation,* let it be said that logic in use does not proceed synthetically so far as rules and principles are concerned. The principles which it uses are those of logical doctrine; it merely applies these principles or rules to a determinate matter, so as to insure right order in speculation. As already said, the theoretical way of considering things does not become practical by the sheer fact that it is applied to diverse matters: what is applied remains speculation.

Last objection. Prudence as a virtue and a habitus is distinct from sagacity and good counsel (ii-ii. 51. 2); yet the only reason why the latter two are distinguished from prudence is that they insure good judgment and wise deliberation, whereas prudence insures command and execution. In logic, similarly, the

habitus which teaches and judges must be distinguished from the habitus which operates and uses.

Confirmation. Repeated acts of [logical] use give birth to a habitus which is not that of doctrinal logic. Since these acts are not scientific, they can neither generate nor increase a science; therefore the habitus that they generate is distinct from doctrinal logic.

Answer. Let the consequent be denied. There is disparity between prudence and logic. In prudence, command and the application of the will to the work involve a difficulty not involved in judging and deliberating. There is nothing of the same kind in logic. St. Thomas explains this difference when he says (ii-ii. 47. 8) that the perfection of art resides in judging, not in precepting, whereas the perfection of prudence resides in precepting, not in judging, as a consequence of which it is better for the reputation of an artisan to sin voluntarily than involuntarily against his art, whereas there is greater imprudence in sinning voluntarily against prudence than in sinning involuntarily against it. This general law of art is verified with particular clarity in the art of logic, whose matter is constituted by the very acts of the reason. All the difficulty that the intellect has to overcome resides in judgments or in ordering operations relative to some truth. When orderly knowledge of a truth has been achieved, what remains to be done in order that new acts be directed by this truth involves no special difficulty, for the intellect tends naturally toward objects as soon as they are proposed to it. The whole artifice and the whole ordering concern the objects, which are attained by a cognition tending toward them naturally. In moral matters, on the contrary, when the good has been known and recognized by a judgment, the application of the will still involves a difficulty which is the greatest one, for the will harbors liberty, indifference, or even resistance to the good assigned by the rule. This is why a distinct habitus is needed, the possession of which renders a person unqualifiedly prudent.

Answer to the confirmation. The skill generated by the acts of logic in use has the character of a disposition and of a facility in the handling of a matter; it does not have the character of a new art or habitus. Acts do not generate a new habitus or cause the growth of an existing one unless they are directly related to

the specific nature and formal motive of the habitus; if their relation to this nature and motive is secondary or consists merely in a disposition, they cannot be expected to generate a habitus, or to cause the growth of an existing one. A habitus is not generated and does not grow except according to its essential and formal idea: all other formalities are only concomitant.

St. Thomas exemplifies this point when he says (ii-ii. 144. 1 ad 5) that repeated acts of modesty do not generate a habitus distinct from temperance because modesty is not the habitus of a perfect virtue; it is only a disposition relative to the generation of temperance. Not any repetition of acts can generate a new and perfect habitus—a new science, for instance.[46] Imperfect and secondary acts generate something imperfect in the genus of habitus, e.g., some kind of helpful disposition or facility in the exercise of an art. The difference between such a disposition or facility and a habitus is particularly clear in intellectual matters, for here we sometimes find a habitus without facility in exercise. This happens, for instance, when the habitus of science is not accompanied by a handy arrangement of ideas. One demonstration suffices to generate the habitus of a science, but it does not suffice to supply the mind with ideas set in the proper order and ready to be actualized with regard to all the other conclusions of this science. Conversely, there is facility without habitus in the mind which, as an effect of repeated exercise involving all conclusions, has achieved a nice co-ordination of ideas[47] and yet has lost the habitus on account of an erroneous principle. If, for instance, a theologian errs against faith, he loses the principles of true theology and consequently the habitus of theology, but he does not lose the co-ordinated representations of theological conclusions.

QUESTION 2

ON THE LOGICAL BEING OF REASON

As we begin to treat of the object or matter of logic, order demands that we start with the more universal issues. Our exposition will begin with being of reason. Considered in its opposition to real being and as common to all beings of reason, the

being of reason belongs to the domain of metaphysics. The competence of the logician extends no farther than being of reason *as common to second intentions alone*. Three questions arise: (1) What is the being of reason known as second intention? (2) What are its divisions? (3) By what cause is it formed?

But we need to be acquainted, albeit imperfectly, with being of reason in general. So we shall first of all present some remarks about being of reason as a genus.

ARTICLE 1

NATURE AND DIVISION OF THE BEING OF REASON

Considered in its full amplitude and interpreted according to its nominal signification, the expression 'being of reason' designates that which depends, in some way, upon the reason. This dependence can be that of an effect upon a cause or that of an object upon a knower.

The first kind of dependence admits of two forms: (a) there are things which have reason for their efficient cause; thus, works of art are thought out and made by reason; (b) reason is the subject and material cause of such things as intellectual acts and habitus. Both these forms of dependence belong to real beings, for a being affected by either of them has real and true existence, though in dependence upon the intellect.

But when an entity depends upon the intellect in the second way, i.e., as an object, it is properly called, as it is here, a being of reason, because it has no existence outside reason, exists in reason in a purely objective fashion, and is set in opposition to real being.

Although you will find people who reject it, the notion of being of reason is commonly received by theologians and philosophers. Between a real being and a fictitious being or being of reason, all of them see this difference, that the former exists in the nature of things, whereas the latter has no existence in the real, but is merely known and constructed. Further, this notion is sufficiently established by experience itself, since we are aware of our imagining and knowing many things that are absolutely impossible; such things are fictitious beings. They are

beings, because they are known after the fashion of being; they are fictitious, because no true existence corresponds to them in the real world.

From these considerations we can draw a definition or explanation of the being of reason in general. It is a being "having existence objectively in the reason but to which no existence corresponds in the real." This definition is derived from St. Thomas (*On Being and Essence*, chap. 1 and 3; *Com. on Met.* 5. les. 9 Cathala 895-97; i. 16. 3 ad 2), according to whom the expres-expression 'being of reason' designates something that does not posit anything in the real and is not, in itself, being, yet is given, in the reason, the form of a being and is apprehended after the fashion of a being. The accuracy of this explanation will be better understood if one remarks that 'being' comes from 'to be' and is conceived in relation to existence. Just as real being is defined by its relation to the 'to be' that it has truly and in the real, so the being of reason, which is the opposite of real being, ought to be explained in the opposite way, i.e., by its not enjoying 'to be' in the real and its enjoying it objectively in cognition.

There are those who say (e.g., Durandus, *Com. on the Sent.*, i, dist. 19, q. 5, No. 7) that being of reason consists in the extrinsic denomination by which the thing is said to be known; but this opinion immediately raises a difficulty, since, as we shall see presently, the question whether the extrinsic denomination is formally a being of reason is highly controversial. Further, it is false to assert universally that the being of reason as such consists merely in the denomination of 'known.' Of this denomination it should be said that it is either (a) the *form* constituting the being of reason or (b) that which *receives* the form of being of reason. The first alternative is excluded, since an extrinsic denomination can also accrue to real beings, which are denominated known and yet are not thereby transformed into beings of reason, since they are not rendered fictitious by being so denominated. Concerning the second alternative, it is true that the extrinsic denomination is apprehended as a being of reason, but this does not hold for the extrinsic denomination alone: it holds also for other nonbeings, such as negations, privations, etc.

But what is 'to have existence in cognition'? The answer depends on what we shall have to say later[48] about the cause of

the being of reason and the act by which it is formed. In the present connection, it suffices to quote these words of St. Thomas (*Com. on. Met.* 4. les. 1. Cathala 540): "We say of some objects that they exist in the reason because the reason deals with them as if they were beings of some kind, in so far as it affirms or denies something about them." This does not mean that the formation of the being of reason is effected exclusively by way of affirmation or denial; it means that the formation of a proposition about an object devoid of existence in the real is a sign that this object is apprehended by the intellect after the fashion of being, for the copula, which signifies existence, is applied to it.

Thus, when an object that does not exist outside the intellect is grasped after the fashion of being, the act of the intellect has two effects: (a) inasmuch as it is knowledge, this act renders the object known, and produces in the object nothing else than the extrinsic denomination of being known; (b) but inasmuch as it causes an object to be known after the fashion of being (although in the real this object is not being), it gives this object a *'to be'* of reason or a fictitious existence. In this sense, St. Thomas says (*Op.* 42, *On the Nature of the Genus*, chap. 1) that the being of reason is produced when the intellect endeavors to apprehend 'that which is not' and consequently constructs what is not as if it were being. Elsewhere (*Com. on the Sent.*, 1. dist. 2, q. 1, a. 3) he says that the being of reason results from the way of understanding a thing that exists outside the soul, and that the intentions invented by our intellect are beings of reason. In the latter passage St. Thomas asserts that there is identity, in the case of the being of reason between (a) to be produced, (b) to be invented, (c) to be apprehended, and (d) to result from the way of understanding.

Thus, as we shall see later, the being of reason does not owe its fictitious or objective existence to the fact that it is rendered known as 'that which';[49] it cannot be known as 'that which' unless it already possesses some existence or intelligible constitution upon which the denomination of known may fall. The act which regards nonbeing under the aspect and after the fashion of being is said to construct or form the being of reason, not only to denominate it. Thus, there is objective existence in the

intellect when, as a result of the way of knowing, that which is not being assumes, in knowledge, the character of being.

Difficulty. If this is true, it follows that any object conceived by the intellect in a way other than the way in which it really exists is a being of reason. The consequent is false, for there are several real beings (God, angels, and, more generally, things lying beyond our experience) which we know, not as they are in themselves, but after the pattern of something else.

We deny the consequence, for such beings are, from the outset, understood to exist in the real order as true real beings. Thus, the character of being does not result, in them, from the way of knowing. The only reason why they are said to be attained after the pattern of something else is that they cannot be attained according to the mode proper and special to them. This is not a sufficient ground for them to be denominated beings formed—in an absolute sense and from the very point of view of being—by the reason. The truth is that they are described as known according to the mode of a foreign nature, not according to the mode of their proper nature; consequently their being known connotes a relation to that according to the mode of which they are known.

After having acquired a notion of the being of reason in general, we have to indicate briefly into *how many kinds* the being of reason is divided. It is not up to the logician to treat of the division of the being of reason considered in all its amplitude, since he is concerned only with one member of the division, viz., the logical being of reason. Yet, in order to show to what branch of the division the logical being of reason belongs, let us mention that St. Thomas *(On Truth* 21. 1) divides the being of reason, taken in its fullest extension, into negation and relation of reason: this bipartite division is exhaustive. For St. Thomas, only two kinds of entity, viz., the negation and a certain sort of relation, exist in the reason alone: "every positive and absolute term signifies something existing in the real." Negation, here, includes privation. Privation is the negation or absence of a form in a subject capable of receiving the form opposed to such absence, but [mere] negation is the absence of a form in a subject not admitting of such a form; for instance, the negation of sight in a stone is a [mere] negation, in man it is a privation. On the

other hand, relation possesses, by virtue of its very essence, which is 'to be *to* another,' a capacity to exist in apprehension without existing in the real; it exists in the reason alone when its being '*to* another' is of such a nature that it excludes its being '*in*' something. (See i. 28. 1.)

This division is not universally accepted. *Some* authors consider that the being of reason is more basically divided into being of reason with a foundation in the real and being of reason without such a foundation; the first is called 'of reasoned reason,' the second, 'of reasoning reason.' They say that the being of reasoned reason alone is divided into negation and relation, and that the being of reasoning reason is found in all genera. (See Serna, *Com. on the Logic of Aristotle,* disp. 1, sec. 4, q. 2, a. 3; Cabero, *Digest of Logic,* On the Universals, disp. 1, diff. 3; Merinero, *Com. on the Logic of Aristotle,* disp. 3, q. 2.)

Others think that there are no determinate species of being of reason; they hold that every entity involving a logical conflict, in other words, every entity that is impossible and implies contradiction, is a species of being of reason, for any such entity is a fictitious being. (See Martinez, *The Syllogistic Art of Aristotle,* Intro., disp. 2. q. 1.)

Others arbitrarily assign other species, but their theories need not be taken into account.

Thesis. In spite of these divergent views, it should be said that the division proposed by St. Thomas is perfect and exhaustive, and that it is the most direct division of the being of reason in general.

In order to perceive the truth of this thesis, notice that when being of reason is spoken of, three things may be under consideration: (a) the subject to which the being of reason is attributed, (b) the very essence which is conceived and attributed to a subject distinct from itself, and (c) that after the pattern of which this essence is conceived and apprehended.

With regard to the subject to which the being of reason is attributed, there is sometimes a foundation justifying, in some way or other, the attribution of the being of reason, and sometimes there is no such foundation. Thus, it is in relation to the *subject* that a distinction is made between the being of reason with a foundation in the real and the being of reason without

a foundation in the real, for this distinction is understood in reference to the subject to which a being of reason is attributed.

Likewise, with regard to that *after the pattern of which* the being is conceived, there is no reason why beings of reason should not be found in all genera of being. Sometimes an entity may be constructed and apprehended after the pattern of substance (e.g., a chimera, a golden mountain), sometimes after the pattern of quantity (e.g., the void), and sometimes after the fashion of quality (e.g., when death or blindness is conceived as darkness or some obscure form, etc.).

But if, in our treatment of the being of reason, we consider *the thing conceived*, or that which can be known after the fashion of real being—although it is not being in the real—the being of reason is adequately divided into these two members, 'negation' and 'relation,' as into its first genera. These genera admit of subdivision into several kinds of negation and relation. And since that is formal in the being of reason which is found intrinsically in it, this is the direct and formal division: the other divisions can also be accepted, but only as proceeding from the conditions of the being of reason, not as concerning it directly.

This division is adequate, for the very essence of the being of reason consists in an opposition to real being, inasmuch as this essence is incapable of existence. But what is incapable of existence is either something positive or something nonpositive. If it is something nonpositive, it is a negation, by which a form is not posited, but removed. If it is something positive, it cannot be anything else than a relation, because every positive and absolute being is conceived not in reference to something else, but as having independent entity, and whatever has independent entity is either a substance existing in itself or an accident existing in a subject. A positive and absolute entity cannot be taken to be a being of reason since it implies reality on account of the very concepts of 'being in itself' or 'being in another.' [Among positive entities] relation alone is not repugnant to being conceived without reality, for it expresses not only the concept of 'being something *in* something,' but also the concept of 'being something *to* something'; consequently it does not express precisely existence in the thing itself, but the extrinsic attainment of a term. Thus it can be a being of reason conceived neither as

something *in* something else nor as something *in* itself, but as a pure '*to* something else' devoid of existence *in* any subject whatever.

Objections and Answers

A *first* objection would tend to prove that privation and negation should not be described as beings of reason. Independently of all consideration by the intellect, privation and negation express the absence of a form and denominate a subject devoid of a form; therefore they are not voids fictitiously constructed by the mind, they are not beings of reason.

The consequent is plain, since it is in dependence upon knowledge that the being of reason both exists and brings about its formal effect. If, prior to being known, the negation gives its denomination to the things, it is not a being of reason. The same argument holds for the extrinsic denomination, e.g., being seen, being known. By the very fact that there is vision of the wall, the wall is denominated seen, regardless of whether or not an intellect is aware of what is going on; likewise, a nature can be denominated superior or inferior, predicate or subject, etc., prior to the emergence of any being of reason.

Confirmation. The extrinsic denomination follows upon a real form existing in a subject; therefore it is itself a real form. The consequent is plain, since just as the denomination which follows upon a substantial form is substantial, and that which follows upon an accidental form is accidental, so the denomination which follows upon a real form must be real.

Answer. Negation, inasmuch as it expresses the absence of a form, exists in the real negatively, since it is true that the form does not exist in the real. The explanation of why it is called a being of reason is not found here, but in the fact that negation, which, in the real world, is not being, but absence of form, is conceived by the intellect after the fashion of being. Thus, we grant that negation, prior to the consideration of the intellect, denominates the subject devoid of a form. Now this absence, properly speaking, is not a formal effect, and the removing of a form is not a form; yet such an absence is conceived by the intellect after the fashion of a formal effect, inasmuch as it is represented

after the fashion of a form, and consequently assumes the character of a formal effect, although in the real it is not a formal effect, but the removal of a formal effect.

Likewise, the extrinsic denomination is found in the real so far as the denominating form is concerned. But the application of the denominating form to the thing denominated has no reality in the thing denominated: therefore, to conceive this form as touching the thing denominated and applied to it pertains only to the reason. On the other hand, prior to knowledge by the intellect, such properties as 'to be predicate or subject, superior or inferior,' have a foundation, but do not exist formally as relations. More will be said on this when treating of the universals.

Answer to the confirmation. Some authors assert, without qualification, that the extrinsic denomination is a being of reason. (See Vasquez, *Com. on Sum. theol.*, i. disp. 115, chap. 2, sec. 2; i-ii, disp. 95, chap. 10.) *Others*, that it is, absolutely speaking, something real, although they do not attribute to it an intrinsic reality, able to bring about its effect without the addition of a being of reason, but merely an extrinsic reality. (See, among others, Suárez, *Metaphysical Disputations*, last disp., sec. 2.) But it is more exact to say that in this denomination two elements should be considered, (a) a denominating essence, which is the form; (b) a condition, which is the adherence or application of the form to the denominated. The form itself is obviously something real; e.g., vision, on account of which the wall is denominated seen, is a real form in the eye. But the application, by which this form is brought into contact with the subject denominated, is not a real entity (e.g., 'to be seen' does not produce anything in the wall). Now, every apprehended object which is not real is a being of reason; thus, the extrinsic denomination is a being of reason in so far as the denominated form (e.g., 'seen') is taken with such an application. The proposition that the subject is denominated prior to the operation of the intellect must not be understood with reference to anything caused in the subject by the denomination [vision does not produce anything in the seen] but with reference to the form that the denomination presupposes outside the subject: this form is real, yet does not exist really in what it denominates. On account of its nonexistence in the subject the extrinsic denomination is

described as a being of reason, but on account of its pre-existence in the other being, from which it points to the thing denominated [e.g., sight points to the seen], it is said to exercise the act of denominating prior to the operation of the intellect.

If it is asked to what member of the division the extrinsic denomination belongs when it is considered as a being of reason, let us answer that the extrinsic denomination is a kind of relation, for it is not conceived as affecting the subject by withholding or removing a form from it. It is conceived as affecting the subject by relating it to, and making it dependent upon, that from which the denomination is drawn or that to which the subject itself is applied and destined by an act of knowledge.

A *second objection* would seek to prove that the division is not adequate. It is held that the unity of reason [or logical unity] attributed by the intellect to the universal is formed by the reason: yet it is neither a relation nor a negation. It is not a relation, since unity is understood in an absolute sense, not in a relative sense [with respect to something else]. It is not a negation: (a) because unity designates something positive, not a mere negation (see i. 11. 1), (b) because [unity designates something relatively—with respect to itself—but] if logical unity were a negation it would have to be conceived [absolutely] as a *being* of reason—and then it would not be called logical unity; in other words, as a negation of reason, it would not be called logical unity but a being of reason absolutely speaking. Further, a duality, or distinction, of reason is not a negation because [as a distinction effected by reason and not found actually in the real world] it rather negates that there is a negation or lack of real unity; and it is not a relation, since a relation holds between distinct terms and thus is founded upon a distinction or duality; therefore it is a species not mentioned in the division.

A *confirmation* is found in the case of such purely fictitious entities as chimera, golden mountain, etc. These are neither negations nor relations, but various substances constructed by the intellect out of incompossible parts. Likewise, there can be a 'quality of reason' or a 'quantity of reason,' as, for instance, when the void is conceived after the fashion of a quantity, or darkness after the fashion of a quality. Therefore it is impossible to say that all beings of reason are reducible to these two, viz.,

negation and relation.

Answer. Some authors maintain that unity of reason is drawn solely from a unity of concept, and that the distinction of reason is drawn solely from a plurality of concepts. This is true so far as the efficient or productive cause of the being of reason is concerned, but, in the present discussion, we are considering its objective or fundamental cause. Accordingly, we shall say that logical unity formally understood as a property of the object is a negation or privation, for it is nothing else than the isolation of that in which there is agreement from the various factors of differentiation.

In answer to the first argument (a), notice that for St. Thomas, in the passage referred to, unity is something positive in a material and entitative sense, but, formally, it is a negation of division. In answer to the second argument (b), this unity of reason is also a being of reason, since the negation of, or separation from, plurality and differentiating principles is understood by the intellect after the fashion of being. With regard to what is said concerning duality, or distinction, of reason, let us answer that the distinction of reason is formally a relation of reason. It is nothing else than a relation between distinct terms. By the very fact that the reason alone is responsible for their being distinguished, the distinction obtaining between them is a certain kind of relation, although sometimes it is after the pattern of two absolute entities that the extremes are conceived as distinct (e.g., when the extremes happen to be conceived as distinct after the fashion of two substances). This relation of distinction is not founded upon another distinction understood formally, but upon a distinction understood fundamentally; it is founded upon the virtual plurality which holds on the side of the object inasmuch as the object faces a plurality of concepts.

In *answer to the confirmation,* let it be said that all these fictions are beings of reason and fall under negation. There is no such thing as a substance of reason or a quantity of reason, for that which is constructed by the reason after the pattern of real being is not substance or quantity; rather, negations of substance or quantity are conceived after the pattern of substance or quantity. Being of reason is not that after the pattern of which something is conceived, but that which is conceived after the

pattern of being, although in itself it is not being. More on this in Question 17 (On Relation), Article 2.

It follows that in the metaphysical universal, which is only the nature abstracted and conceived as one unit (as we shall see in the following article), there is already an element of reason, viz., the unity or aptitude (or more precisely nonrepugnance) to be in several things, which, as a result of abstraction, belongs to the nature represented and known. These negations are elements of reason, but they are not formally second intentions, for second intentions consist in relations founded upon natures so abstracted. The universal, in such a state of abstraction, is called metaphysical universal, not logical, because logic is not formally and directly concerned with every being of reason,[50] but only with the second intention, as we have shown (following St. Thomas) in the preceding question, Article 3. The second intention is a relation of reason, not a negation as unity is, and yet it belongs to the thing abstracted and brought to a state of unity.

ARTICLE 2

NATURE AND DIVISION OF THE SECOND INTENTION OR LOGICAL RELATION OF REASON

The second intention is the kind of being of reason with which the logician is properly concerned, inasmuch as those relations are relevant for him which are brought forth by the arrangement of concepts. Thus St. Thomas says *(Com. on Met.* 4. les. 4. Cathala 574) that "the expression 'being of reason' properly designates those intentions which the reason brings forth in the things subjected to its consideration, such as the intention of genus, of species, etc." This kind of being of reason is the proper subject of logic.

Let us recall what we said (in the *Short Treatises,* bk. 1. chap. 4) about the terms of first and second intention. 'Intention' does not signify, in the present connection, the act of the will which is distinguished from election and concerns the end, but an act or concept of the intellect. The intellectual operation and the concept are described as intentions in a broad sense,

inasmuch as they tend toward something other than themselves, i.e., toward an object. Accordingly, to the distinction between formal and objective concept (i.e., between cognition and the thing known) there corresponds a distinction between formal intention and objective intention. The objective intention is the relation of reason attributed to the thing known; the formal intention is the concept by which the objective intention is brought forth. For instance, when we conceive animal as a superior related to its inferiors, the universality affecting animal is an objective or passive intention, and the concept by which animal is so conceived is a formal intention. Thus the formal intention, as distinct from the objective intention, should not be confused with the formality of second intention as affecting the object known; the latter is always a being of reason, inasmuch as it results from knowledge, but the former is a real act.

The reason why some intentions are called *second*, in opposition to other intentions designated as *first*, is that they are connected with a second state or condition of the object. Let us note that the object can be considered in two states: *first*, according as it has being in its own right, whether with regard to existence or with regard to quiddity; *second*, according as it has being in apprehension. The state of being in cognition is second and the state of being in a thing's own right is first, for, just as knowability follows upon entity, so, 'to be known' is posterior to the 'to be' that a thing has in itself. Therefore the affections or formalities belonging to a thing on account of the being that it has in its own right are called first intentions, those belonging to a thing on account of its being known are called second intentions. Now the function of logic is to arrange things in so far as they exist in knowledge. Consequently, logic is properly concerned with those intentions which belong to things as known, i.e., second intentions.

From which we deduce:

First thesis. Not every relation of reason is a second intention, but every second intention taken in a formal sense (not in a merely fundamental sense) is a relation of reason; the second intention is not a real form, and it is not, either, an extrinsic denomination, as some people erroneously believe.

The first part of this thesis is perfectly clear. Every relation

of reason results from knowledge, but not every such relation denominates a thing merely in the state of being known, which is the second state. Some relations of reason denominate a thing in its very state of existence outside of knowledge: for instance, the relation of Creator and Lord does not denominate God absolutely as known, but denominates God in the state of existence, and a similar interpretation holds for 'to be doctor' or 'to be judge.' It is not a man as known that is doctor or judge, but an existing man; thus, such relations denominate things in the state of existence.

The relation of reason, like every being of reason, is caused by knowledge, so that it cannot belong to a subject and denominate it unless there is knowledge; yet it is exclusively in the case of second intentions that knowledge causes the object to be suited for a certain denomination and capable of bearing it; in this case alone, it is only in the state of being known that the denomination belongs to the object. Thus in order that such a relation as Creator or Lord, judge or doctor, should denominate its subject, knowledge is required, but its whole function is to cause the relation itself; a relation of this kind does not demand that knowledge should render the subject capable of a denomination by bringing it to the state of known object. Contrariwise, such a relation as genus or species presupposes not only a knowledge able to cause the relation, but also a knowledge able to abstract the subject from its inferiors: for the denomination of genus or species bears upon a thing so abstracted.

The second part of the thesis is explicitly held by St. Thomas, who says (*Op.* 42, *On the Nature of the Genus*, chap. 12) that the second intentions are properties belonging to things on account of the existence that things enjoy in the intellect. Elsewhere (*On the Power of God* 7 . 9) he says that they "follow upon the mode of understanding," and (*Com. on Met.* 4. les. 4. Cathala 574) that they belong to things as known by the intellect. Therefore, they are not real forms, but forms of reason.

The truth of this is evinced by the following considerations: (a) the essence of the genus, the species, and the other universals consists in a relation of superiors to inferiors; such relations cannot be real, otherwise the universal would exist formally in things. (b) These intentions presuppose, as their foundation,

the state of being known, e.g., genus presupposes a thing abstracted from its inferiors, and it is on account of such an abstraction that the predicate 'genus' belongs to a thing. Therefore, these intentions presuppose the extrinsic denomination of 'known' and 'abstracted'; they do not formally consist in extrinsic denominations, and much less in real forms. Were they real forms, they would descend to the individuals and exist in them really: thus they would not be found exclusively in objects abstracted from individuals. As to the act of the intellect, it is a real act, but we are treating here of objective second intentions, and the act of the intellect is not an objective second intention: it is a formal second intention which gives rise to an objective second intention.

[From the principles stated at the beginning of the present article] it follows, secondly, that, although the first intention taken absolutely must be something real or something belonging to a thing in the state of reality (otherwise it would not be, absolutely speaking, *first*, since what is real always precedes and exists before what pertains to the reason), nevertheless, this is our second thesis:

Second thesis. There is no reason why a second intention should not be the foundation of another second intention. When such is the case, the second intention serving as foundation assumes, as it were, the character of a first intention with regard to the intention of which it is the foundation; it is not first absolutely speaking, but it is anterior to the intention founded upon it.

Since the intellect reflects upon its own act, it is able to know a second intention reflectively and to ground in it another second intention.[51] For instance, the intention of genus, which is attributed to animal, becomes itself an object of reflective knowledge, and then serves as foundation for the intention of species, inasmuch as the intention of genus is a species of predicable. Here, a second intention founded upon a second intention denominates the second intention upon which it is founded; this is why it is said that the genus is formally genus and denominatively species. It often happens that a second intention is formally of a certain type and denominatively, inasmuch as it is known, of another type. Yet all these are described as second intentions regardless of the fact that one is founded upon another;

none of them is ever described as third or fourth intention, because they all belong to the object as known; now, the state of being known is always, for anything, a second state. Since an intention, by serving as foundation for another intention, assumes, as it were, the character of a first intention with regard to the latter, the intention founded upon another intention is always described as second.

Objections. The second intention and the first intention are related to each other as correlatives, since the second is always understood in relation to the first. Therefore, the first intention is not the foundation, but the term of reference, of the second intention.

Likewise, the second intention is predicated of its foundation, e.g., in the proposition 'man is a species'; but a second intention is not predicated of a first intention, for the proposition 'a first intention is a second intention' is false; therefore the second intention is not founded upon the first intention.

Answer to the first objection. As correlative of the second intention, the first does not have the character of a term, but that of subject to which the second is attributed, which it denominates, and upon which it is founded. Thus the second intention is related to the first as to its subject, not as to its term. In like manner, relation implies a reference to something absolute considered as its subject or foundation, not as its correlative, except when the absolute assumes the character of a term (then the absolute becomes something relative or correlative, but not in the capacity of subject. More on this in our study of the category of relation). It should be remarked, further, that the formal correlative of a second intention is always a second intention; thus the formal correlative of genus is species, and vice versa.

Answer to the second objection. The second intention is predicated of the first in the concrete—the way "white" is predicated of "man"—but not in the abstract; thus it is true that man is a species, and false that a first intention is a second intention. Notice that even second intentions can be signified by abstract nouns, whether in general, as by this noun 'second intention,' or in particular, as by 'universality, generic character,' etc. What these expressions signify is only the logical entity abstractly considered; as to the subject or thing upon which the intentions

are founded, these expressions do not signify it directly, but merely in an oblique way, just as whiteness in the abstract signifies body in an oblique way, inasmuch as whiteness is the quality of a body.

With regard to the various kinds of second intentions and the way in which they are divided, let us recall that the division of relation always corresponds to that of its proximate foundation or grounding principle (more on this in the treatment of relation, Question 17, Article 3). The relation of reason, which is constructed after the pattern of the real relation, is correctly divided according to its various foundations. Now the foundation of the second intention is the thing as known and as existing in the state of apprehension; consequently, the second intention, which is constructed for the purpose of setting known objects in order, follows in its own division the formal diversity of the known object. Considering, accordingly, that the first, the second, and the third operations of the intellect are set in order and directed in different ways, the ordering procedures connected with these operations determine the primary division of the second intention. Within the field of each operation, a diversity of intentions corresponds to diverse possibilities of direction.

Thus in the field of the first operation we have the intention of term, which is set in order as part of the enunciation and of the syllogism. Now, there are diverse ways in which terms can have the character of parts; consequently the intention of term contains such intentions as noun, verb, etc. Then, we have the intentions of 'universality had in virtue of being a superior predicable,' which is divided into the various modes of universality, viz., genus, species, etc., and to which corresponds the intention of subjectability, found in the individual and in the inferior predicates.

In the field of the second operation, we have the intention of discourse, divided into the various forms of perfect and imperfect discourse; then the proposition (one kind of perfect discourse), which lends itself to the division into affirmative and negative, and to other divisions (See *Short Treatises*, bk. 2. chap. 7.). The proposition itself gives birth to other second intentions that are properties of the proposition. Some of these are properties of the proposition as a whole, as opposition, conversion, etc.; others

are properties of the parts of the proposition, as supposition, ampliation, predicate, subject, etc. (On these see *Short Treatises*, bk. 2. chap. 9-19.)

Lastly, in the field of the third operation we have the intention of consequence or argumentation, which is divided into induction and syllogism; induction is divided into inductive ascent and inductive descent; syllogism is divided into diverse moods and figures. (See *Short Treatises*, bk. 3. chap. 2, 3, 5, 6.)

ARTICLE 3

ON THE DISTINCTIONS OF REASONED AND REASONING REASON, AND ON THE CORRESPONDING UNITIES

These are terms whose explanation is of great relevance for several questions concerning the distinction of superior and inferior degrees,[52] and which prove of great help in the treatment of many metaphysical and theological problems. A meticulous inquiry into this subject will be made in connection with these problems. Here, we propose to give at least a rough explanation of the terms themselves.

Let us, first of all, remark that the words *distinction, plurality, division, separation, diversity, difference*, although they are sometimes used loosely to designate the same thing, do not designate the same thing under the same aspect. For 'distinction,' 'plurality,' and 'multitude' are used in opposition to 'unity' and 'identity,' whereas 'division' and 'separation' are used in opposition to 'union' and 'continuity.' 'Diversity' implies distinction and excludes agreement, and 'difference' implies both distinction and agreement; for those things are *diverse* which have nothing in common, and those things *differ* from each other which have something in common and are distinct in some respect, not totally diverse. (On this, see Aristotle [*Met.* 5.9. $1018^{a}12$] and St. Thomas, *Com. on Met.* 5. les. 12. Cathala 913-17.)

Generally speaking there is agreement among authors on the following propositions: just as there are only two kinds of being, viz., real being and being of reason, so there are only two kinds of distinction, viz., real distinction and distinction of reason.

Unity and distinction must follow upon the order and intelligible charácter of being. There are no more than two kinds of being and it is contradictory to posit a being intermediary between real being and being of reason; consequently, there cannot be more than two kinds of distinction.

The real distinction can be described, in generic terms, as a negation or absence of identity independent of any insight or fiction elicited by the intellect. The distinction of reason is effected by the agency of the intellect and has no existence in the real.

The distinction of reason is customarily divided into distinction of reasoning reason and distinction of reasoned reason. What is commonly meant by the former is a distinction constructed by the intellect and lacking a foundation in the real; such distinction concerns only the way of signifying and understanding. Thus, there is a distinction of reasoning reason when one and the same thing is apprehended as predicated of itself and distinct from itself. The latter kind of distinction is constructed by the intellect but has a foundation in the real. The distinction of attributes in God is an example; another example is the distinction of degrees or essential predicates—which belong to the same entity—within the same form or nature.

The real distinction is divided into (1) unqualified real distinction, as between two things, e.g., Peter and Paul, and quantity and quality, and (2) real-modal or formal, as between a thing and a mode—e.g., between a man and his being seated, or located in a certain place—or between two modes, which are really identical with their subject, that is, do not differ from it really, and yet are modally distinct. That there are such things as entities purely modal in character, viz., inferior to realities [properly so called], will be proved in metaphysics. Here the existence of such entities must be postulated.

Now, not all admit that there are two kinds of distinction of reason, viz., of reasoning and of reasoned reason. *Some* reject the distinction of reasoning reason and acknowledge only the distinction that has a foundation in the real; for them, the distinction of reasoning reason is but the name of an illusion caused by the repetition of the same concept—which repetition does not bring about any distinction in the objective concept. (See Suárez,

Met. Disp. 7, sec. 1; Vasquez, *Com. on Sum. theol.*, i. dist. 117. chap. 3.) *Others* think that as a result of such fictitious distinction, a certain distinction affects the objective concepts, without, however, being founded upon them. *Others* go to the other extreme and acknowledge only the distinction of reasoning reason. They do not grant that a distinction of reason may have for its foundation something which, in the real, enjoys a unity that comprises virtual distinction: for them the nature of the thing, independently of any operation of the intellect, suffices to render actual the virtual distinction. This is where the subtlety of Scotus and all his school comes into controversy with St. Thomas. Scotus considers that over and above (a) the real or modal distinctions which, in the real, obtain between things or modes that can be separated at least by the power of God, and (b) the distinction of reason which consists in and is based upon a diversity of concepts, there is (c) another distinction by which one extreme, on account of its very nature and essence and prior to any intervention of the intellect, does not belong to the intrinsic and formal concept of another extreme, and thus is not identical with it in a formal sense; consequently, these things are formally divided from each other, although they are found in the same reality and entity and are so united that not even the absolute power of God can separate them. He calls this distinction "formal in the nature of the thing"; in other words, he considers that this distinction, by virtue of the proper nature of the thing, denies identification in the formal sense; by reason of this nonidentification opposite and contradictory propositions can be uttered about these formalities. Thus the distinction of reason does not presuppose, in the real, the foundation of a virtual distinction; by the very fact that the thing possesses of itself diverse intelligible aspects which supply foundations for diverse concepts, viz., for concepts such that one does not belong to the essence of the other, the thing possesses, by virtue of its nature, actual division or negation of identity. Consequently [the virtual foundation which the Thomists claim for the distinction of reasoned reason is eliminated and therewith the distinction itself, and] all that remains is the distinction of reasoning reason.

Those who admit the distinction of reasoned reason, that is, a distinction of reason with a foundation in the real, are not

agreed with regard to the nature of its foundation. *Some* hold that when the reason draws such a distinction within a thing there is no other underlying distinction, whether actual or virtual, presupposed therein; for them it suffices that the thing should be knowable (a) after the pattern of objects that are really distinct, (b) with the connotation of such objects, and (c) according to an imperfect way of attaining and knowing. This theory is that of Vasquez *(loc. cit.);* it is explained by Torrejon *(On the Whole Dialectic of Aristotle,* tr. 2, disp. 1. q. 1). *Others* understand that even when I want to insert a distinction within what is formally one and the same and belongs to the same intrinsic concept, merely because I like to construct it, without any foundation, after the pattern of diverse things, there still can be that imperfect way of knowing one and the same thing after the pattern of several. Consequently, they hold that the foundation of the distinction of reason implies, in the thing subjected to distinction, a certain loftiness uniting diverse perfections or formalities; this is called virtual distinction for, as a privilege of its higher *virtue,* one and the same form does everything that several forms would do [on a lower level of entity and virtue]. See Cajetan, *Com. on Sum. theol.,* i. 39. 1. Virtual distinction implies, on the other hand, a way of understanding so imperfect as not to attain all this loftiness in one act and, consequently, in need of using diverse concepts. However, not all agree that this last point should be included.

First thesis. The distinction of reasoning reason does not exclude any kind of objective identity (whether identity be understood materially, entitatively, or formally) from obtaining between the extremes that it distinguishes. It does not presuppose any virtual distinction. It is entirely concerned with the way of signifying and conceiving. The distinction of reasoned reason is the distinction which admits of material identity on the part of the object but posits a formal or virtual plurality.

We describe as formal the identity expressed by one proper and formal concept, i.e., the identity by which a thing is formally constituted. Those things are said to differ formally which differ by their definition or proper notion. We speak of material identity, or say that a proposition should be understood in the identical sense, when the objects signified are the same in entity and

reality but are not the same with regard to the notion signified directly and primarily. Regarding this distinction, see Cajetan, *Com. on On Being and Essence,* chap. 3 [Laurent ed. 45]. The distinction between formal and material identity is derived from St. Thomas, i. 13. 4; *On the Power of God,* 7. 6 and *C. G.* i. 35, where he says that "although the names predicated of God signify the same thing, yet they are not synonymous because they do not signify the same intelligible object. . . ." And then, he says (i. 41. 4 ad 3) that the distinction between God's act of understanding and his intellect is a distinction between ways of signifying; this is just what we call a distinction of reasoning reason. Comparing these distinctions with each other, let it be said that one of them takes away less of the identity of the extremes than the other does, for it is clear that the distinction of reasoning reason is not so much of a distinction as the distinction of reasoned reason. The former owes its name to its originating exclusively in the mind that understands or reasons, whereas the latter also has a foundation in the object itself. If, in spite of the distinction, the object remains identical with itself in all possible ways, both formal and material, the distinction by no means originates in the object but is entirely effected by the knower; if on the other hand the object enjoys unity, but not in every sense, it supplies a foundation, in spite of its identity in the real, for the distinction made by the knower.

Second thesis. The distinction of reasoned reason requires a foundation in the object itself. The distinction of the things after the pattern of which the distinction is made would not suffice.

The principle of this thesis is plain. Either there is or there is not, in the object subjected to distinction, a proportion or foundation suggesting that it be conceived after the pattern of certain distinct things. If the first part of the disjunction holds, we cannot say that the reason for distinguishing lies entirely in the things after the pattern of which the object is conceived; the reason for distinguishing lies in part in the object which has this proportion and foundation. If the second part of the disjunction holds, it should be said that without any foundation [in the real] we conceive a certain thing in relation to things that are distinct. Thus we distinguish without a foundation, and our distinction is

one of reasoning reason. This is what we do, when, for instance, by conceiving a thing in relation to things diverse, we set a distinction between the thing and itself.

Third thesis. The distinction of reasoned reason does not presuppose, on the part of the object, any actual distinction resulting from the nature of the thing. In fact no such distinction corresponds, on the part of the object, to the distinction of reasoned reason. When the distinction of reasoned reason is actually made, conceptions of the intellect bring about a diversity of objective concepts which does not pertain to real existence but to the way of existing proper to the object and the represented.

The first part of this thesis, which will be discussed in the following question (Art. 6), is commonly held among Thomists and by many of those who reject the so-called 'formal distinction in the nature of the thing' which would be intermediary between the real distinction and the distinction of reason. On this see Cajetan, i. 39. 1 and *Com. on On Being and Essence*, ch. 6. q. 12; Soto, *On the Universals*, q. 3; *Course of the Carmelites*, disp. 3, *On the Universal*, q. 4.

Briefly: Inasmuch as Scotus and his school do not deny that the "formal distinction in the nature of the thing" exists really on the part of the thing, they hold it to be real. On the other hand, the extremes are held to be really identical and the distinction is supposed to consist merely in the fact that one extreme is not *really included in the concept* of the other.

This description suffices to show why the "formal distinction in the nature of the thing" does not exist truly and actually in the real prior to the operation of the intellect. The formal nonidentification [in which it is said to consist] is nothing else than the negation of an intrinsic relation and connection between the terms distinguished. Such negation does not suffice to constitute actually distinct extremes and to render the distinction real.

The *minor*[53] is certain, for to say that one object belongs to the formal concept of another is the same as to say that one object has an essential and intrinsic connection with or relation to another object. Therefore, the negation of this identity is merely the negation of this relation and connection.

Proof of the major. If this essential relation alone is

negated, the extremes do not remain so distinct as to supply a foundation for such a distinction between themselves. This is clear in the case of the divine attributes which, according to Scotus, are distinguished in that fashion; yet there are no real relations between them. (The theologians acknowledge only four real relations in God, viz., the notional relations.) And if you consider the relation between a man as a man and the same as animal it is clear that the relation is not real; consequently the distinction is not real either, for a distinction is a kind of relation. If the relation does not exist in the thing, the distinction does not either.

In order to understand the second part of the thesis, consider that apprehension does not cause, in the apprehended object, any feature pertaining to the order of things, but only features pertaining to the order of the known object as such. This holds both for the distinction of reasoning reason and for that of reasoned reason. The difference is that the distinction of reasoned reason treats the extremes in such fashion that not all features revealed by one concept are also revealed by the other; in one concept there appears some intelligibility or formality which does not appear in the other concept, the reason for this situation being that the object, in relation to the light and way of knowing supplied by a particular concept, cannot be manifested in all its parts and formalities. Now, whenever there is diversity in the manifestation and in the manifestable, there results a diversity of objects in objective existence, i.e., in the way of existing proper to the knowable and the manifestable (I do not speak of the existence belonging to the thing as thing), and thus diverse objects correspond to the concepts involved in the distinction of reasoned reason. On the other hand the distinction of reasoning reason is not concerned with diverse manifestations of the objects; of its extremes it cannot be said that one is manifested by one concept and the other by another concept; it is the same extreme, the same object, which is manifested by both concepts so far as the intrinsic essence of object is concerned. Indeed, if diverse formalities or intelligible aspects were represented by the two concepts, they would not be identical according to their formal ideas; but would differ in this respect and consequently would be different in objective existence.

This consideration seems to have moved some authors like Suárez and Vasquez *(loc. cit.)* to say that the distinction of reasoning reason does not properly concern the objective concept, but is nothing else than the repetition of a formal concept in relation to an entirely identical object. In this they are wrong, for to conceive or to know the same object twice does not suffice to bring about a distinction of reasoning reason, otherwise even the external sense would make such a distinction when, for instance, Peter is seen twice. In order for the intellect to make such a distinction, it must apprehend in the object itself some comparison or relation on account of which the object presents a duality resulting from this extrinsic comparison, without there being diverse intelligible aspects belonging intrinsically to the object and having a foundation in it. Thus when the same is predicated of itself, as when I say "Peter is Peter," there is a certain comparison between the same and the same by reason of which comparison I conceive the same Peter as though duplicated. The distinction which thus takes place does not concern the object intrinsically and in its properties; it concerns the object considered extrinsically in the light of a comparison, or of a relation superadded by the mind. As to the distinction of reasoned reason, it is concerned, indeed, with one and the same thing. Since, however, the intelligible aspects of that thing are not represented adequately, every concept regarding a distinct intelligible feature in the thing determines a distinct intelligible object which should be considered to be intrinsic to the thing, inasmuch as the features retained or left out by the concept do belong intrinsically to the thing. Because the distinction of reasoned reason is based upon intelligible features found in the object, it has a quasi-intrinsic meaning in objective existence. This is how St. Thomas explains this distinction in *Com. on the Sent.* i. dist. 2. q. 1. a. 3. The same theory can be derived from the text quoted in the foregoing, where he says that diverse concepts or names predicated of God do not signify the same intelligible aspect even though they do signify the same thing. See also *Com. on the Sent.* i. dist. 22. q. 1, a. 3: "We affirm, he says, that God is truly wise and good; it is not only in the reasoning intellect that God possesses wisdom and goodness. The names of the attributes signify one thing, but they do not signify only one intelligible aspect of that thing:

such is the origin of their multiplicity."

No valid objection can be derived from the text *(Op. 9 [Answer to Master Joannes de Vercellis]*, beginning) where St. Thomas says that the distinction between the divine attributes does not concern God himself but the conceptions of the intellect in which the signified essence is subjectively diverse. In these words and in any similar statement all that St. Thomas teaches is that this distinction is actualized only by the conceptions of the intellect and does not hold actually, in God, prior to these conceptions. St. Thomas does not deny, he even affirms openly in other places quoted in the foregoing, that the distinction brought about by the conceptions of the intellect holds for the object in its objective existence, or at least is founded upon this object, inasmuch as one intelligible aspect of the object is manifested and another is not.

Last thesis. On the part of the object the foundation of the distinction of reasoned reason is a virtual distinction or a certain loftiness of the thing which in its unity contains in some sort of existence several intelligible features or perfections; on the part of our intellect the foundation of the same distinction is imperfection and inability to conceive adequately all these features of the object; hence the fact that they are attained in diverse concepts and compared.

A splendid exposition of this is given by St. Thomas in *Com. on Sent.* i. dist. 2. q. 1. a. 3. See also Cajetan *Com. on Sum. theol.* i. 39. 1.

The principle of this thesis is that a thing higher and loftier unites more perfections than a thing of inferior rank. As an effect of loftiness, intelligible features which at a lower level would constitute diverse entities enjoy a simpler way of existing in one entity. If the intellect lacks a light powerful enough to reveal all these features and is bound to use one concept to attain one feature and another concept to attain another, it distinguishes them in objective existence although they are not distinct but are one in real existence. Therefore the foundation of this distinction consists (a) in the loftiness or unity of a thing containing several intelligible aspects and (b) in the imperfection of an intellect which grasps that thing inadequately and thus uses several concepts in dividing and abstracting one intelligible aspect from

another. This is why our intellect distinguishes divine attributes which are one in the one form of divinity. Because this form is not attained adequately, but is known after the fashion in which creatures are known, our intellect effects divisions and uses diverse concepts each of which expresses one intelligible feature and fails to express some other one. In the same way, the metaphysical degrees, i.e., the superior and inferior predicates—e.g., 'to be animal,' 'to be living'—are distinguished in the same individual according to a distinction of reasoned reason, as we shall see later. Thus, by considering particular cases, you can see that all distinctions of reasoned reason have their root and principle in a form which in its unity or loftiness contains several intelligible aspects; these intelligible aspects are divided from each other by an intellect which attains them inadequately. On this see St. Thomas (*loc. cit., On Being and Essence*. chap. 3). For the logician, it suffices to have a taste of these distinctions.

Objections and Answers

A *first* objection is designed to prove that the distinction of reasoned reason is founded upon some distinction in the nature of the thing. Prior to the activity of the intellect, all the principles necessary for an actual distinction are already at work; this is evidenced by the fact that prior to the activity of the intellect contradictories hold; now, they cannot hold concerning the same terms, but only concerning distinct terms, since every opposition is a distinction. Thus, if the opposition holds in the real, so does the distinction.

Indeed, prior to the activity of the intellect, the following are true: "animal is not the proper and specific element of human nature, but rational is," "the divine essence is communicated, but the person is not communicated," "the Son proceeds according to the intellect, not according to the will." Therefore these intelligible aspects are in some way distinct by the very nature of the thing. Likewise, prior to the activity of the intellect there is ground for diversity in definitions; the definition of animal is one thing, that of man another; in God, again, the definition of nature is other than that of person, and the definitions of the attributes are other than the definitions of nature and of person. Now,

diverse definitions imply diverse constitutives. Thus, if it is the thing which demands that they be defined in diverse ways, they are also distinguished by virtue of the nature of the thing. Considering, finally, that the formal concepts relative to these objects are distinct, it must be said that the objective concepts also are distinct, otherwise there would be a circle, since formal concepts would be distinguished by objective concepts, and objective concepts by formal concepts.

Answer. These considerations do not suffice to establish the theory of an actual distinction resulting from the nature of the thing; the data are sufficiently accounted for by the virtual distinction found in the loftiness of a form which does not actually separate but, on the contrary, unites diverse intelligible aspects. Contradictories may hold in relation to one and the same subject if it is conceived under diverse aspects, though not if only one aspect is considered; this happens principally when the expression of the contradictories involves a reduplication or appellation (which may be merely virtual) as for instance when they explain an act of the soul, or an essence relative to an act of the soul or the signification of a certain formality. This is the case when it is said that the essence is communicated and the person is not, that the Son proceeds according to the intellect, not according to the will. These propositions explain the notional acts of proceeding, communicating, or noncommunicating, considered in their propriety; consequently the contradictories refer to nature or person envisaged under the proper concept of nature or person.

To the further consideration that these contradictories hold in the real and that every opposition implies a distinction, let it be answered that contradictories hold in the real because of a diversity of virtual features which are diverse fundamentally, not actually. Opposition entails distinction when it brings about a limitation which separates the forms. But if the opposition takes place in a loftier form uniting several essences, what it brings about is a virtual, not an actual, distinction. *Likewise*, when it is said that animal is not the specific nature of man, the term "animal" is taken as abstracted from man and inasmuch as it has the character of a common factor; rational pertains to the proper nature of man as distinct from animal. Thus these prop-

ositions are not opposed as contradictories since they do not assert and deny the same predicate of the same subject, which would imply that the subject is considered twice in the same concept and manifestation.

To what is said about definition let it be answered that there is no reason why a thing should not be defined and explained in diverse ways if several intelligible aspects are apprehended in the same thing and abstracted from each other; as things are apprehended, so they are defined.

Lastly, let it be said that there is no circle since the formal concepts are distinguished by objects that are diverse not actually but virtually, although they are rendered diverse in the act of apprehension itself.

A *second* objection is designed to prove that the distinction of reason does not take place in the objects themselves, but merely in the concepts and the extrinsic denomination of the objects. Indeed, this distinction does not posit anything real in the objects to make them distinct, but merely a denomination of reason by which an object is rendered known in such and such fashion. Thus this distinction takes place formally in concepts alone, in the object it holds only by way of extrinsic denomination.

Confirmation. In what ways are these formalities represented as distinct? (a) not as distinct by virtue of their nature: we oppose Scotus on this point; (b) let it not be argued that they are objectively distinct so that one can be represented without the other, for this would not suffice to warrant their being described as several; unless the intellect makes a distinction, there is not plurality, but if a distinction is made and no division resulting from the nature of the thing corresponds to it on the part of the object, the intellect does not truly effect a division. If we can speak of distinction, therefore, it is merely in so far as diverse concepts denominate the object; but, no distinction corresponds on the part of the object to this distinction of concepts.

Answer. This distinction of concepts does not posit any distinction in the object in real existence, but it posits a distinction in the existence that the latter enjoys as a manifestable object inasmuch as the object is attained inadequately and manifested in one respect and not in another respect. This is not merely the

extrinsic denomination by which the thing is said to be known, it implies also a denomination by which the thing is said to be manifested in diverse ways. The distinction of reason resulting from this does not concern the formal concepts, which are really distinct from each other, but the object itself is manifested in objective existence.

Answer to the confirmation. It is not necessary that an actual division, independent of the intellect, should correspond in the object to the distinction of reason which results from a diversity of concepts; a virtual distinction suffices, which originates in the fact that the object is manifestable only in inadequate fashion and admits of being put in relation to diverse concepts, so that a cognition proceeding by distinctions holds true. This cognition by distinction does not affirm that things are distinct in the real but, without uttering any affirmation, it considers the thing that is virtually distinct and that supplies a foundation for diverse manifestations and diverse concepts; there is no lie or falsehood in abstraction. This is why St. Thomas says, *C. G.* i. 35, that the intellect conceiving many intelligible aspects of one subject is free from falsehood "because the existence of God is such in its simplicity that things can be likened to it according to many forms."

II

On the Universal

QUESTION 3

ON THE UNIVERSAL CONSIDERED IN ITSELF

After having proposed a general theory of the being of reason, we must come down to the logical intentions needed for the definition and ordering of the categories. These are the universals and the predicables. We shall first treat of the concept of universality in itself and in general, then of each predicable in particular.

With regard to the universal considered in itself, three questions arise. The first concerns what a universal is; the second, the cause by which the universal is brought about; the third, the act of the universal, which is its being actually predicated of inferiors.

The first of these questions presents three topics for inquiry: (1) the *nature*, which is regarded as something common and is the subject denominated universal; (2) the *foundation* of universality, which is the unity abstracted from the many and the aptitude to exist in them; (3) the formal relation or the intention of universality by which the universal is related to its inferiors. These three points will be treated in the present question.

ARTICLE 1

WHERE THE VARIOUS MEANINGS OF THE UNIVERSAL AND ITS DEFINITION ARE EXPLAINED

Everyone knows that the term 'universal' designates that which has a relation to several. It is said in opposition to the singular,[1] which cannot be communicated to many. But because there are many ways in which something can be referred or related

to several objects, 'universal' admits of several meanings. These meanings are reducible to three. There is the universal from the point of view of signification, the universal from the point of view of causality, and the universal from the point of view of being or predication.

The universal from the point of view of signification is a sign which signifies the universal object itself, or can be universally applied to several things. Thus, common nouns or terms (e.g., man, animal) signify a thing in a general fashion and can be applied to several things.

The universal from the point of view of causality is something whose power extends to several effects, whether it be an efficient cause or another kind of cause; examples are the heaven, God. It should be noticed that what is universal in causing is related to its effects in such a way as to achieve in them not only universal or common forms or attributes, but also particular ones. It should even be said that the more universal a power is in its causality, the more profoundly it penetrates its effect, reaches to all the particular aspects of the latter, and causes them. Since all the particular aspects of an effect share in the common nature of this effect, the power which causes the nature of the effect in its entirety causes also everything which shares in this nature. Thus, the heaven, which is universal cause of bodies, exercises its action upon all corporeal beings down to their individual differences; and God, the absolutely universal cause of being as such, causes every being which in any way whatsoever participates in entity. This principle throws light on many theological difficulties. If we have understood that in the inferior cause every component or mode of action participates in the superior cause and comes down from it, we are able to understand how, even though an inferior cause is genuinely active, every component and mode of its action is preceded by the action of the superior cause.

Finally, the universal from the point of view of being and predication is that which is related to several things in which it has existence and of which it is predicated; for instance, animal is found in all animals, and man in all men. The universal so understood is defined "one in many and of many," or, as Aristotle defines it in *Met.* 7. 13. $1038^{b}11$, "that is called universal which

is such as to belong to more than one thing." In his commentary on this passage (les. 13. Cathala 1574), St. Thomas remarks that Aristotle did not say that the universal is that which is in several; rather, the universal is that which is such as to be able to be in several, for there are some universals which in fact exist only in one individual, for instance, the sun and the moon.

The first definition explains all the data concerned with the notion of the universal, namely: (a) the subject, (b) the foundation, (c) the relation to a term, and (d) the property.

(a) The subject and the foundation are expressed by the word 'one.' The definition speaks of a thing which is one, and of its unity; further, it describes this unity as separated from the many and communicable to them. This communicability to the many is explained more explicitly in the definition of Aristotle, who says ". . .which is such as to belong to. . ."

(b) Unity separated from the many and the ability to exist in them constitute the foundation of the relation of universality,[2] just as the power of generation is the foundation of the relation of paternity.

(c) The phrase 'in the many' explains the relation, in which formal universality consists, by a reference to the term of this relation, viz., the many; for those 'many' have the character of inferiors to which the universal is directly related. Further, the universal is said to exist in many by identity with them, because, through its being communicated and restricted to its inferiors, the universal becomes identical with the singular or, more generally, with the inferior.

(d) Further, the universal is said to be 'of many' by predication. But a thing is not predicated of another thing unless there is identity, not diversity, between the two; and thus 'of many' expresses predicability, which is a property of universality.

From these remarks two further developments can be drawn.

1. The first concerns the distinction between the two kinds of universal, the metaphysical and the logical, and how it should be explained.

The metaphysician considers principally natures, whereas the logician considers principally second intentions or relations of reason; accordingly, the nature itself, or subject abstracted from several things, is called the 'metaphysical universal.' This

kind of universal is called metaphysical because what is directly and principally considered in it is the nature. Abstraction or universality has but the character of a condition. Universality is a condition required by every science, because no science deals with individuals.[3] But the expression 'logical universal' refers principally to the very intention or form by which a thing is denominated universal: this form is a second intention and a relation of reason. It is what the logician considers principally. However, by way of presupposition, he considers also the nature as that upon which universality is founded, since he treats of second intentions inasmuch as they are founded upon first intentions. And so we understand that the metaphysician and the logician treat of the same thing, but in different ways *(Com. on Met.* 4. les. 4. Cathala 574). The metaphysician is principally concerned with the nature; the logician with the (second) intention.

2. Both universality and particularity pertain to the kind of state enjoyed by the nature, which nature can receive a denomination either from universality or from singularity. Therefore, every nature can be assigned a threefold state. (See *On Being and Essence*, chap. 3, and Cajetan's *Com.)* The first is the state of the nature taken in itself. Here we consider only the characteristics which make up the nature or quiddity itself. This state is also called 'state of indifference,' because the nature is, in itself, indifferent to accidental predicates. It is called also 'state of solitude,' because here the nature is alone and free from all predicates extrinsic to it. It is also designated as negatively common, because here the nature is not understood as multiplied. The second state is connected with the existence that the nature has in singular things; it is the 'state of singularity.' The third state is connected with the existence that the nature enjoys in intellectual abstraction: this abstraction can also be described as a state of solitude, but here solitude does not imply isolation from every extrinsic predicate; it only signifies that the nature, in this state, is abstracted from individuals.

The last two states do not belong to the nature considered in itself, since neither of them is an essential predicate of the nature. It is clear that, if the nature were, of itself, universal, it could never be singular; and if it were, of itself, singular, it could never be universal. Therefore, the state of the nature

considered in itself implies the removal of everything that is not an essential predicate. And this is how, thanks to the addition of the phrase 'in itself,' opposite predicates, which seem contradictory, are denied of the nature in the first state. We say that the nature 'in itself' is not one and is not several, is not white and is not nonwhite, which is the same as to say: essentially it is not one, essentially it is not several, but it is capable of being both. Yet do not infer from this that two contradictories hold for the nature considered in itself: such a thing is never possible, for, of two contradictories, one is always true and the other false. If you say, "Man in himself is not white," "Man in himself is white," the latter is false and the former is true, because those propositions mean: "Man is not essentially white," which is true; "Man is essentially white," which is false. And thus the following inference does not hold: in himself he is not white, therefore, in himself he is nonwhite; in such inference the use of the phrase 'in himself' entails a change of appellation.

ARTICLE 2

WHETHER THE UNIVERSAL UNDERSTOOD MATERIALLY AND AS A SUBJECT IS FOUND IN THE REAL

There are on this question two extreme theories derived from a common principle. According to the very ancient opinion of Heraclitus and Cratylus, who lived about the time of Socrates (see *Aristotle, Met.* 1. 6. $987^{a}32$ and St. Thomas, *Com. on Met.* 1. les. 10. Cathala 151-52), there cannot be any science of sensible things, for sensible things are in continual flux and motion. Driven insane by this philosophy (see *Met.* 4. 5. $1010^{a}11$ and St. Thomas' *Com. on Met.* 4. les. 12. Cathala 684) Cratylus went so far as to say that no word should be spoken, for, by his principles, the truth of the situation has passed before any sentence is completed. This theory was the occasion which induced Plato to posit natures separated from the individuals; these natures he called ideas. Considering that individuals are in continual flux and motion he denied (rightly) that they can be the object of a firm and certain science. But since he wanted to avoid the insane opinion of Cratylus that there is no science and no truth,

he constructed the fiction of a nature found outside the individuals, and existing in the real without individuality; such a nature would supply science with an object.

At the other extreme are the nominalists. They agree with Plato and Cratylus that the individuals, on account of their contingency and perpetual motion, cannot be the object of certain truth. Yet, against Plato, they deny that there exist natures separated from the individuals; they state that significative sounds alone, without the things signified, should be retained as universals. St. Anselm *(On the Incarnation of the Word,* chap. 2) warns us in grave language that this opinion should be absolutely avoided: "And since all must be warned that they should approach most cautiously questions pertaining to Holy Scripture, [let us say that the right to discuss spiritual questions should be denied] to these dialecticians of our time, or rather to these heretics of dialectic, who state that universal substances are but utterances of sounds."

First thesis. To the words and concepts expressive of universals there corresponds as object, truly and in an absolute sense, some entity or nature which is denominated universal. This nature does not exist in the real in the state of universality and abstraction, but, as a result of the abstraction performed by the intellect, it is so related to the nature existing in the object as not to include singularity, or as to include the superior predicates without including the inferior ones.

In this abstraction there is no falsehood on the part of the intellect. Likewise, there is no falsehood in vision, which attains the color of the fruit without attaining its taste; it cannot be said that sight separates color from taste in the real world; all that can be said is that it does not put them together in knowledge. Thus, man is apprehended by the intellect without singularity, although in the real world man does not exist without it.

In teaching this thesis we follow Aristotle *(Met.* 1. 6. $987^{a}29$), who continually fights the theory of Plato and also condemns by implication the opinion of the nominalists. See in particular St. Thomas, *Com. on Met.* 1. les. 10 Cathala 158. This is what he says about Plato's opinion: "If the arguments of Plato are carefully examined, it is clear that what is erroneous in

his thesis springs from the belief that the thing understood enjoys in its own existence conditions similar to those which pertain to our understanding of the same thing. Thus, considering that our intellect understands abstract objects in two ways, (a) inasmuch as we understand the universals as abstracted from the individuals, (b) in another way as mathematical objects abstracted from the sensibles, he stated that the essences of things exist in states of abstraction corresponding to either abstraction effected by the intellect. Accordingly, he stated that both the mathematical objects and the forms exist in a state of separation. But this is not necessary. It is true that the intellect understands things by being similar to them, inasmuch as it is determined by an intelligible form. But it does not follow that the mode affecting the form in the intellect should be the same as the mode affecting the form in the thing understood; everything that is in something else is in it according to the mode proper to that in which it is. Thus the difference existing between the nature of the intellect and the nature of the thing understood entails a corresponding difference between the mode of understanding, which concerns the operation of the intellect, and the mode of being, which concerns the existence of the thing." See also *On Being and Essence*, chap. 3; *Op.* 55 and 56 (*On Universals*), and i. 15.1.

From this text and these words of St. Thomas we gather that the theory of Plato and the nominalists should be rejected, because they did not distinguish between mode of being and mode of knowing. If the mode of abstraction from the individuals should belong to the thing in the real world as it belongs to it in knowledge, this thing existing in such a mode would either be, or not be, produced by God. If it were not produced by God, it would be nothing, or it would be God Himself, in whom individuality is most perfect. If it is produced by God, it is produced through an action which is singular, since from God, who is singular, only a singular action can proceed. But the term or the effect of a singular action is itself singular. Hence this mode of universality cannot, by any means, exist in the things themselves; it merely results from a way of knowing which implies that the nature is received without singularity.

The same consideration invalidates the theory of the

nominalists, who deny that any reality corresponds to a concept abstracting from the individuals. Their argument is that this state of abstraction is not found in the real. In answer to it, let us say that when the real presents several aspects united in a certain thing, the intellect is not always bound to receive those several aspects together, but can attain one without the other. Something is left out, but that which is grasped is being in a true and proper sense, though in the real it does not exist apart from what is left out, just as, in the example already given, sight attains the true and real color of the fruit, but not its taste. Therefore, to grasp one and leave the other out is not to form a false concept, but merely an inadequate one. To such a concept something corresponds on the part of the known object, yet this objective term of the concept does not, as such, possess every mode found in the real; and not everything with which it is conjoined is perceived by the intellect.

This will become more manifest if we refer to the composition and division that take place in the intellect. When, considering a subject, I affirm of it something that belongs to it, without affirming something else that is joined to what is affirmed, as when I say, 'Man is an animal' without affirming that he is a body, or 'God is merciful,' 'The fruit is colored,' etc., such affirmations are either false or true. They cannot be false, since what is affirmed of the subject is not inconsistent with it, but belongs to it; and if they are true, something corresponds to the concepts under consideration. If nothing corresponded to the concept, the proposition could not be true. Therefore, it is certain that something corresponds, in the real, to an inadequate and isolated concept, although, in the real, the object of this concept does not exist in isolation, but together with something else. Thus, the abstraction of the universal is perfectly intelligible, provided that we distinguish between adequate and inadequate concepts. We are concerned with an object containing both nature and singularity, but we do not conceive the whole of it. Proceeding inadequately, we attain one of the two, viz., the nature, and omit the other, viz., the singularity.

The nominalists contend that the universal concept signifying, for instance, 'man' or 'animal,' is a sort of collective noun which does not signify something that is one, but rather the result

of a grouping; the concept of man thus means all men, or all that to which the essence of man belongs. When I say: 'Man is an animal,' the meaning is: 'Everything which is man is animal,' or 'All men are animal.' For this reason, some seem to hold that what corresponds to the analogical concept of being is the whole collection of beings in a certain state of confusion.

This way out is impossible for two reasons.

1. When we use a universal noun as predicate, e.g., when we say: 'Peter is a man,' the sense would be that Peter is all men or that he is everything that is man, which is obviously false.

2. When we use as subject a common term without distributing it, as in the proposition 'Man runs,' the sense would be that all men run or that everything that is man runs. And so all indefinite propositions would be false. This proposition: 'The Divine Essence does not generate,' which is Catholic, would be rendered false, since the sense would be: 'Every thing that is Divine Essence does not generate,' which is obviously false, since the Father is a thing which is Divine Essence and does generate.

Thus, a universal noun cannot in any way be a collective noun. It signifies something one, though abstracted from singularity. As to the concept of being, we shall see later (q. 14) in what way it abstracts from its inferiors or includes them. Yet it should be made clear, at this point, that this noun 'being' is not a collective noun: what it signifies is not an aggregate of all its inferiors but their kinship in an analogical notion. However, this notion is not one absolutely speaking, but only proportionally one; it does not abstract from its inferiors absolutely, but only in a qualified sense. This is why it is said to include its inferiors implicitly and confusedly, not explicitly. (See q. 14.)

Second thesis. The universal understood as substratum or as material universal can be something real; in other words, it can be a nature admitting of existence in the real. But the state of universality does not admit of real existence. Accordingly, the universal understood as formal universal, that is, as universality and abstraction, is found only in knowledge.

This thesis results from what has been said. See Aristotle, *Cat.*, chapter on Substance (5. 2^a14), where he says that the secondary substances, which are the genera and the species,

subsist in the primary. See also *Met.* 7. 13. $1038^{b}6$. In his *Commentary* on the latter text (7. les. 13. Cathala 1570) St. Thomas says: "The universal can be taken in two ways. (a) It can be understood as being the very nature to which the intellect attributes the intention of universality; so understood, the universals, such as genera and species, signify the substances of things and are predicated essentially. 'Animal' signifies the substance of that of which it is predicated, and the same holds for 'man.' (b) The universal may be understood precisely as universal and according as the nature attributed bears the intention of universality, which happens when animal or man is considered as one in many. And this is how the Platonists held that animal and man in their universality are substances." Thus, universality, as he shows by several arguments in this passage, is not a substance or anything real, but an accident of reason, pertaining to the state of the thing as known; this state [or accident] is acquired by the thing as a result of its isolation or abstraction from the individuals, which isolation or abstraction is involved in our knowledge of it. Through abstraction, the nature, which, in the real, does not exist without individuating conditions, is left stripped of these in intellectual knowledge. This pertains to the state of the nature in knowledge; for the same nature, if posited in the real world outside knowledge, loses this universal mode of existing and yet retains its quiddity.

Objections and Answers

The theory of Plato is almost entirely based upon the everlasting character of science and of scientific truths, which are necessary and eternal. These truths are not found in individual things, because the latter are corruptible and contingent. Therefore, either they are found outside individual things, or the universe of science is not made of real and true objects, but of objects constructed by the intellect.

A related argument is suggested by the exemplary causes, from which individual things receive their essence by way of participation. For instance, Peter is man by his participation in man, and animal by participation in animal. Hence, there exists a separate man and a separate animal from which those participations are derived.

Answer. The scientific object and the truths attained by the sciences are not said to be everlasting and eternal on account of an eternal existence really possessed in a subject distinct from the divine intellect. They are declared eternal in an objective and negative sense, inasmuch as the connection of the essential truths which constitute the scientific objects does not depend upon any temporal foundation or upon any existence in time; this connection has of itself a truth which is as everlastingly accessible to the intellect as the intellect itself is eternal—a truth that is in no way founded upon any free or contingent principle. Therefore, it is not necessary that the truth attained by science should exist subjectively outside individual things: it suffices that it be attained objectively without individual features.

To the argument drawn from exemplary causes, let it be answered that there certainly are such causes, by participation in which created things have their natures. But these exemplary causes are divine ideas, not created natures separated from individual things.

The *second objection* assumes that, according to the opinion of Scotus which we are going to consider later (q. 3, art. 6), superior degrees are distinguished from inferior degrees (e.g., animal from man, man from individual men) on account of the very nature of the thing and prior to the operation of the intellect. From this it follows that a superior degree not including the inferior is found in the thing, outside the intellect. But by the very fact that the superior does not include the inferior, the superior is universal, inasmuch as it is in itself abstracted from the inferiors. Therefore, the abstraction of the nature from singularity and of the superior predicate from the inferior is given in the thing.

Answer. There certainly is a great distance between this opinion of Scotus and the fiction of Plato, since Scotus explicitly asserts that these superior and inferior degrees are distinguished according to their formal features in such a way that one nature cannot exist in separation from the other, not even by the absolute power of God. But Scotus contributes the subtle view that as a result of the nature of the thing and prior to the operation of the intellect, the formality that is taken as concept of the superior degree does not include, by reason of its essential

concept, the formality serving as inferior degree. But Scotus never dreamed of asserting that the superior formality can exist in separation from the inferior, as Plato did.

Third objection. In support of the opinion of the nominalists, the argument is advanced that the objective concept of the universal either should be described as something one or should be described as several. If several, the nominalistic thesis holds, because the universal word or concept will be merely a collective noun signifying immediately an aggregate of several things. If it is one, it is not, as one, something real; but, as one, it is the object of the universal concept; therefore, as object of this concept it is not something real.

The major is obvious, because, inasmuch as it implies unity, the objective concept of the universal neither does nor can exist outside the intellect. Now, we call real being that which is capable of existence.

Confirmation. Several absurdities would follow from the statement that there is such a universal nature abstracting from the plurality of the individuals.

First: Since all these individuals are this one universal, they are, accordingly, identical with each other. Objects which are identical in one third being are identical with each other. Now Peter and Paul are identical with one third term, viz., man, which is something real; therefore, they are really identical with each other.

Secondly: Either the universal nature itself descends in its entirety into each individual, or one part of it descends into one individual and another part into another one. But the latter alternative cannot be held, because, if it were, Peter would be part of a man, not a whole man. And if the first alternative is maintained, we posit the mystery of Trinity in creatures, and say that the nature of man, existing in unity and in reality, is communicated in its entirety to one individual and in its entirety to another individual.

Thirdly: What is called man in general is either corruptible or noncorruptible. If it is noncorruptible, it follows that corruptibility is not a property of man, and this is false, since every man is corruptible. If it is corruptible, it is generable and can be the term of generation and existence, which amounts to positing ideas in the sense of Plato.

Answer. The objective concept is one, not according to a real unity, but according to a unity of reason and abstraction. In answer to the proof, let it be said that what is described as one is something real if it is understood materially as subject of unity; but it is not something real if it is understood formally as the very unity of abstraction and the relation of universality. Thus, although it does not exist in the real in this state of abstract unity, the nature does exist in another state. This is a sufficient ground for it to be called a real being capable of existence absolutely and in itself, though not in every state.

Answer to the confirmation. The first absurdity does not follow, since the axiom invoked holds only when the third thing with which two things are identical is one in such a way as not to be virtually multiple. This is what St. Thomas means (i. 28. 3 ad 1) when he speaks of "being identical with a third thing according to the thing and according to the concept." The third thing of which he speaks is the same both as a thing and as a concept; it is not virtually multiple. In other words, in addition to its being entitatively one, it is described as not being ordered to many by relation and communication. But the universal nature is virtually multiple because it is communicable to several things; therefore, identity with it does not entail the identity of the individuals among themselves. It may also be answered that all individuals are said to be one in the common nature, not according to a real unity, but according to a unity of resemblance and agreement: for the intellect treats their resemblance and agreement as a kind of unity—from which it does not follow that they are entitatively one among themselves. They are merely similar and in agreement, but the reason treats them as one.

With regard to the second absurdity, let it be said that the communication of the universal nature to the individuals should not be likened to the communication of an integral whole to integrating parts, but rather to that of a predicable whole to subjective parts. Here there is no division into parts, but diversification or multiplication of a nature in diverse individuals. In the division of an integral whole it can never be said that a part equals the whole, but, in the communication of the universal to the particulars, every subjective part is equal to the whole so far as the communicated nature is concerned, though not with regard

to the extension and multiplicability of this nature. We are far from the mystery of the Trinity, where there is no communication of a universal thing through the multiplication of a nature, but where there is communication through the identity of the same singular nature with three really distinct persons.

Concerning the third absurdity, let us take the universal proposition, 'man is corruptible and generable.' These predicates belong to the universal subject only in the sense that the nature taken radically is an essential and proper foundation of these properties, not that this subject or nature, in the state of universal abstraction, exercises these properties. Corruptibility belongs to the nature, but it is exercised in individuals; similarly, the power of laughter belongs to the nature, and actual laughing belongs, not to the universal nature, but to the individual. It is a law of all properties that they belong to the common nature so far as connection and fittingness are concerned, though their exercise is the business of the individuals.

ARTICLE 3

WHETHER FORMAL UNITY, AS DISTINCT FROM SINGULAR UNITY, BELONGS TO THE NATURE PRIOR TO THE OPERATION OF THE INTELLECT

Since the universal has been defined (art. 1) as that which is one in many or capable of existing in many, it is necessary to explain in what way the universal possesses unity and in what way it possesses aptitude to exist in many. In this article we shall treat of its unity; in the following, of this aptitude to exist in many.

With regard to the unity of the universal, two difficulties must be pointed out: (1) what is the meaning of the expression 'formal unity'? (2) what is it that causes trouble and sets against each other the Thomistic and the Scotistic schools on the distinction (resulting from the nature of the thing) between this formal unity and individual unity?

1. Unity, no matter of what kind, formally implies absence of division; it expresses something positive on the part of the entity and something negative on the part of the formal element

which it adds to the entity. (See St. Thomas, i. 11. 1 ad 2; and *Com. on the Sent.* i. dist. 19. q. 4. a. 1 ad 2 and dist. 24. q. 1. a. 3.) Accordingly, diverse modes of unity result from the diverse ways in which division is negated. However, in order that there be not only diversity in the mode of unity but, absolutely speaking, diversity of units, it does not suffice that the way of negating division be varied; it is also necessary that positive entity itself be given as diverse, since it is a diversity of units absolutely understood that causes a multitude: for a multitude is composed of several units. Where there is not multitude there is not, absolutely speaking, diversity of units, even if the ways in which division is negated are diverse. A multitude is not composed of negations but of entities; more precisely, its principle resides in the positive element included in unity. (See St. Thomas, i. 11.) Thus, when we distinguish, within one and the same thing, formal unity, individual unity, and universal unity, and further distinguish, within formal unity, generic and specific unity, we are not distinguishing various absolute units of positive entity as if these units constituted a multitude; we are only distinguishing diverse ways in which division can be negated.

Let us consider a thing composed of formal principles, constituting its quiddity, and of material principles, pertaining to its individuation: when the formal principles are undivided, that is, when there is no division by formal principles, then, on account of this particular way of lacking division, i.e., inasmuch as no division affects the formal principles, the thing is said to enjoy formal unity. Further, formal unity can vary according to the diversity of the formal principles, since some formal principles are generic and some are specific. If there is only lack of division by generic principles, we say that there is generic formal unity. If there is lack of division by specific principles, we say that there is specific formal unity. And when there is absence of division not only in the formal principles but also in the material ones, which concern individuation, then unity is numerical or individual. Since quiddity and individuation are found together in one individual, there is no reason why formal unity should not be bound up with individual unity. But if the formal unity is separated by the intellect from all individuation, it acquires an

abstract character and then it is called universal unity or unity of abstraction.

2. Concerning the controversy between the school of St. Thomas and that of Scotus, let us show, in the first place, what the difficulty is *not* about. There is no question of maintaining that the formal unity is really distinct from the singular unity either in such a way that it could exist apart from the latter (this would be positing ideas in the sense of Plato), or in such a way that it be positively common to numerically distinct units. Scotus never said this. His theory consists only of the following two theses: (a) There is in the real a genuine and proper unity which accompanies the nature considered in itself; this unity is neither numerical nor universal. It is less than a numerical unity, because its indivision is not as complete as that of the numerical unity. Since this unity belongs to the nature considered in itself, it is found in every state of nature. In the state of abstraction it stands bound up with universal unity, and in the state of singularity it stands bound up with numerical unity. But, even considered in itself, and apart from numerical unity or the unity of abstraction added to it, it is unity in a genuine and proper sense. In every individual we find numerical unity and, over and above it, formal unity. In every universal we find the same formal unity and, together with it, the unity of abstraction.

(b) The formal unity which belongs to the nature considered in itself can be called negatively universal—that is, nonsingular—since of itself the nature, and consequently its unity, is neither singular nor positively universal. This is also the teaching of St. Thomas (*On Being and Essence*, chap. 3). In this state [of solitude], the only things that belong to the nature are its quidditative predicates and its properties: unity is one of the latter. (See Scotus, *Com. on the Sent.* ii. dist. 3. q. 1.)

It is on account of its very nature that the thing is said to enjoy this formal unity, which is not brought about by the intellect, but proceeds from the principles of the nature itself.

Some interpreters of Scotus made the situation worse by saying that this unity does not come down to the individuals and is not found in them: it would belong to the nature considered in itself and in the state of solitude, but would vanish as soon as the nature is placed outside the state of solitude. At the other

extreme, some want this formal unity to be found in the individuals in such a way as to retain in them some feature of universality, though imperfectly and inchoately, inasmuch as it exists actually in several; yet they do not go so far as to say that the nature existing in the individual retains its aptitude to be predicated of several. (See The Philosophers of Coimbra, *Com. on the Whole Dialectic of Aristotle*, On the Universals, q. 4. a. 3.)

First thesis. No unity of a positive and absolute character, even though it be described as less than numerical unity, belongs to the nature considered in itself; it is impossible to say that such a positive and absolute unity is bound up with numerical unity in the real. The nature considered in itself possesses only a negative formal unity, consisting in the negation of a division by formal principles.

Thus, with respect to quidditative predicates, there is agreement and resemblance of one nature with another in the real world. The intellect treats this agreement and resemblance as something one. Consequently, there is in every nature the negation of a division by formal principles. Almost all the equivocation in this area comes from the assumption that the negation of division can be brought about in only one way, viz., by genuine and positive unity. In fact, it may also be brought about by a mere relation of agreement. The principles by which things agree cause those things not to be divided. (See Cajetan, *Com. on On Being and Essence*, chap. 4, q. 6.) This is what St. Thomas teaches when he says (in the text commented on by Cajetan) that the nature considered in itself is neither one nor several ". . .if it be asked whether this nature should be described as one or several, neither must be conceded, because each of these is outside the concept of humanity and either of them may affect it. For, if the essence of humanity involved plurality it could never be one, and yet it is one inasmuch as it is found in Socrates. Likewise, if unity belonged to its concept and essence, then the nature of Socrates and Plato would be one and the same, and could not be multiplied in several."

These words of St. Thomas contain the *foundation* of our thesis. For positive unity to be unity in an absolute and unqualified sense, it does not suffice that it negate division in one respect, but it is further necessary that it leave the subject or

entity undivided and determinately reduced to unity in all respects. If in any respect room is left for division and plurality, the thing will be one in a certain way, but not absolutely speaking. Unity absolutely understood is destroyed whenever division or plurality continues to affect the thing in any respect. But the nature considered in itself is not, in every respect, free from division, nor does it exclude all principles of plurality. Therefore it does not have formal unity positively and absolutely speaking.

Proof of the minor. As the argument of St. Thomas proves, the nature considered in itself is indifferent to plurality and unity and does not demand either determinately. If it had plurality it could never be one, and if it had unity it could never be made plural. What belongs to the nature in the state of solitude belongs to it essentially; quidditative predicates alone are considered here, so that everything which belongs to the nature in that state belongs to it quidditatively. Therefore the nature in that state is indifferent to being determinately one or determinately several; its quiddity does not exclude either. Therefore it does not yet have the state in which it puts aside and excludes every principle of plurification and division. Therefore it does not yet have positive unity.

No argument to the contrary can be drawn from the consideration that there is in it a negation of division by formal principles, for this consideration shows only that it enjoys the negative unity to which St. Thomas refers when he says (*Op.* 42, chap. 7, *On the Nature of the Genus)* that "in the nature itself, taken absolutely, there is a certain unity, since its definition enjoys unity." This is not unity absolutely and positively understood. It is only unity as negation of division by formal principles, the only principles which pertain to definition. But concerning unity understood in a positive and absolute sense, St. Thomas adds the following remarks, already made in *On Being and Essence (loc. cit.):* "The concept of a nature absolutely understood does not involve any unity, and yet it does not involve plurality; for it can be affected by either." As further evidence, it should be noticed that negation of division by formal principles affects the nature considered in itself in such a way that, when the nature is multiplied in the state of individuation, this negation

itself is multiplied and does not remain one in all individuals. This signifies that it did not render the nature one absolutely speaking: here the negation of a formal division still has a character of indifference, so that the negation itself can be made plural or remain one. But how could a negation of division[4] which is not yet one in itself render the nature one absolutely speaking? Therefore the nature, as a subject, is not one in every respect; it does not enjoy a unity that should be retained in no matter what state, whether of singularity or of universality.

Second thesis. Although it is true that the nature considered in itself is negatively common and that the negation of formal division belonging to it is, likewise, negatively common, that is, nonsingular, this unity, neither positively nor negatively common, can never be found absolutely and factually in the real and outside the intellect.

Foundation of this thesis. By the very fact that the nature is posited outside the intellect, it assumes a state of singularity, since a nature cannot exist without singularity—unless we posit it as a Platonic nature existing outside the intellect. Actual singularity not only removes the positive common character which the nature acquires in the intellect (this is granted by Scotus), it also removes the negative common character. Two arguments can be brought forward. (a) The negation does not remain one in these individualized natures. Just as the specific nature is multiplied, so is the negation of formal division,[5] which accompanies the nature. (b) To be common negatively is the same as *not to be* divided into many. But when singularity is posited, the nature stands divided into many, since it is really and positively multiplied and has the opposite of the negation which renders it negatively common or undivided. Therefore it does not remain common negatively. Similarly, when light is posited, the air does not remain negatively dark, because the very illumination expels the negation of light.

Objection. Even if what we consider is the individual nature existing outside the intellect, it should still be said that the nature does not owe its multiplication to itself, but rather to the state of singularity joined to its entity; therefore, taken in itself, this nature always remains negatively common and the formal, negatively common unity still belongs to it in so far as its own constitution is concerned, regardless of the multiplication.

Answer. For a nature to be said not to have, absolutely speaking, an accidental form or predicate, it does not suffice that there be no necessary link between the form or predicate and the essential constitution of the nature; indeed, a determination or predicate can belong to a nature absolutely without belonging to it on account of its proper and intrinsic constitutives. For instance: it is not on account of their proper constitutives that man is white or that the air is clear; and yet, when a man is actually white and the air actually illuminated, the fact that they are not such by virtue of intrinsic principles is no ground for denying that they are such absolutely. [A white man is, without qualification, white.] Likewise, a nature, considered in itself, is neither multiplied nor divided and is therefore negatively common, that is nonsingular; nevertheless, when it is actually individualized and multiplied, it is no longer negatively common, although it remains true under all circumstances that its proper principles do not make it either common or singular. Thus, it is impossible to concede without reservation that the nature considered in itself is negatively common in the real. It should be said, rather, that the singularity and multiplication found in the real do not result from the proper and essential constitutives of the nature; yet it is in an absolute sense that the nature is singular or multiplied. The fact that singularity does not proceed from its intrinsic principles is not a sufficient ground for describing the nature as negatively common in the real, since the expression 'from its intrinsic principles' refers not to a way of being but to a way of not being.[6] In order to be negatively common in the real it would have to be devoid of singularity.

Second objection. It might be objected that St. Thomas, in the fourth chapter of *On Being and Essence*, says that the nature considered in itself is what is predicated of individuals; now, to be predicated of individuals is a property of universality. Therefore the nature considered in itself is universal.

Answer. As Cajetan rightly points out *(Com. on On Being and Essence, loc. cit.* diff. 3), there are in the nature (a) the thing which is predicated, and (b) the condition or state which makes predication possible. The *thing* which is predicated is the nature considered in itself, for its quiddity is communicated to its inferiors. The *condition* or state which renders it communicable is

its superiority, and this does not belong to the nature considered in itself. 'To be the thing which is predicated of individuals'—this is what belongs to the nature considered in itself; that is all St. Thomas says.

Last thesis. Once the state of abstraction from the individuals has been reached through the operation of the intellect, the formal unity of the nature assumes a character of determination and positiveness, inasmuch as it becomes a unity common to many, in other words, a unity of abstraction. Likewise, when the nature is contracted into individuals, it becomes one according to a numerical unity. Therefore, formal unity is never found absolutely speaking and positively unless it is a unity of universality or of singularity.

This thesis clearly follows from the preceding expositions. Concerning this unity, St. Thomas says (*Op.* 42, *On the Nature of the Genus,* chap. 7): ". . . of another kind is the unity that the nature receives from the intellect: in this unity all individuals are one." Thus he thinks that the nature to which formal unity is fitting receives from the intellect a determinate unity of reason. Similarly, in *Op.* 55 *(On the Universals)* St. Thomas says that ". . . the nature, which is universal inasmuch as it is in the soul, is numerically one," meaning thereby that it is conceived according to a pattern of positive unity, just as if it were numerically one. Further, in *Op.* 29 *(On the Principle of Individuation)* he says that the nature ". . . is granted a unity of reason in its communication." Thus, the unity of which he speaks is not found in the real.

The reason for this is clear, since the nature so conceived represents only what all the inferiors have in common, as if it were one nature separated from all these inferiors. But if this nature enjoyed in real existence the mode which belongs to it in our concepts, as Plato held, it would enjoy positive unity in the real; therefore, the reason why it has such unity in the intellect is that it is conceived according to a pattern of unity. It is only in the state of object of knowledge and owing to an attribution effected by the intellect that the nature possesses this unity, which, however, has a foundation in the real inasmuch as the inferiors resemble each other and agree in one intelligible aspect. Yet, this aspect, conceived as something common, is given unity

"inasmuch as in its relation to all individuals existing outside the soul it presents a uniform intelligible content" *(On Universals)*; on account of this uniformity "several men are one man" as St. Thomas says *(On the Nature of the Genus)*. Therefore, such a uniform concept does not represent all the individuals immediately and formally; what it directly represents is one intelligible aspect in which the individuals agree. Materially and mediately this concept represents the inferiors themselves inasmuch as they are the subjects to which such aspect belongs and in which such aspect is multiplied when the unity of abstraction is dissolved.

From this you can understand what is wrong with those who explain the unity of the universal by saying that it is nothing else than the essence of the many, or the many themselves conceived in relation to some common operation, property, or accident. This is not true, for, if the unity of the common nature is nothing else than several subjects as related to one operation, I wonder on what account this operation, this accident, or this property, is something one? If it is only on account of resemblance, they are just as diverse as the things themselves of which they are a property [operation or accident], for the things or natures also are similar to each other. But if it is on account of this resemblance that this operation or property is treated as one by the intellect, why should not the nature itself be treated in the same way, since its situation is the same so far as resemblance is concerned?

Objections and Answers

A *first objection* is formulated in this current reasoning: In the real world, Peter and Paul are not formally distinct from each other in the same way as Peter is distinct from horse; therefore they are formally one in the real. This unity is not numerical, because in terms of numerical unity they are not one but distinct. Accordingly there exists, in the real, a formal unity distinct from numerical unity.

Confirmation. When two terms are in opposition, there are as many ways of using one of them as there are of using the other. Now, there is in the real a formal distinction, not reducible to the numerical distinction, e.g., man and horse are formally or specif-

ically distinct in the real. Therefore, there is also in the real a formal unity not reducible to a numerical unity.

Answer. The reasoning proves that, in the real, Peter and Paul have formal unity in a fundamental sense and so far as negative unity is concerned: it does not prove that they have such unity formally and so far as positive unity is concerned. What we call fundamental unity is agreement or resemblance; this agreement or resemblance does exist in the real, for Peter and Paul are similar in nature. But this agreement is not unity; it should rather be said that agreement presupposes the distinction of the extremes [which agree]. Likewise, when we say that there exists a formal, negative unity, we do not mean that the same negation exists in two individuals. These two individuals are diverse subjects; consequently there are two negations. What we mean is that the same effect (viz., that the nature is not divided by formal principles) is brought about by each of the two negations. In the same way it should be said that two individuals of diverse species are less one than individuals of the same species, that is, less in agreement and similarity. Yet there is not more or less real and positive unity in one case than in the other.

In like manner the argumentation used as *confirmation* proves that, just as one finds formal distinction in the real world, one also finds formal unity there. But, in the real world, formal unity is always formally bound up with numerical unity, never separated from it. All that is needed [in order to avoid formal division between individuals of the same species] is that there be in the real a negative and fundamental unity, which is nothing else than agreement and resemblance. For agreement and resemblance are also opposed to formal division.

Second objection. The nature considered in itself as distinct from individuation is genuine entity; therefore it has the genuine and formal unity which is a property of being. Agreement or resemblance does not suffice, for it is unity, not agreement or resemblance, which is a property of being. Therefore, unity belongs to the nature considered in itself. But what unity? Obviously not numerical, therefore formal or specific.

Confirmation. Resemblance or agreement is a relation founded upon unity—not upon a unity of agreement and resemblance, for that would mean that agreement is founded upon agreement.

Therefore, the unity upon which it is founded is a genuine and proper one. But it cannot be numerical unity, for there is no such unity between Peter and Paul. Therefore, it is formal unity.

Answer. The mode affecting the unity of the nature is identical with the mode affecting the nature itself. If the nature is taken apart from any determinate state, that is, if we consider only its essential principles, then it is not considered as having unity determinately and positively, but only negatively; all that is meant is that it is not diversified by formal principles. But, in the real, because it has a state of singularity, it has also determinately a positive unity. This positive unity does not allow us to say that these several individualized natures are one, but through this positive unity (a) each nature has its own unity, (b) there is agreement so far as specific and formal aspects are concerned, and (c) there is negation of any division by formal principles.

But the following *reply* may be expected: in the nature considered in itself we find (a) positive unity, (b) negation of any division so far as formal principles are concerned. Therefore, we find in it full and perfect unity, for the unity constituted by entity plus negation of division is full and perfect.

Answer. In the nature so considered, the negation of division is not absolute and determinate, as if it were effected by the positing of unity. (It is only when it results from the positing of unity that the negation of division holds in an absolute sense.) Here the negation of division holds only within the limits of the following reduplication: 'so far as formal principles are concerned.' In other words, the nature is not affected by division in this respect [viz., in respect of formal principles], although it does not yet enjoy positive unity. It retains indifference toward the operation of material principles, which give it either plurality in an absolute sense or unity in an absolute sense; accordingly, it is not one perfectly and of itself, but only negatively, that is, within the limits of the said reduplication. In this fashion the principle that some unity, at least negative, accompanies being in any state, is safeguarded.

Answer to the confirmation. Resemblance or agreement, as relation, is founded on resemblance or agreement as foundation. Thus agreement is not founded upon agreement; [in the same

relative sense] the foundation of the relation of agreement consists rather in a certain unity, which is the uniformity implied by agreement. The relation of agreement is not founded upon unity understood in an absolute sense; absolute unity rather conflicts with the concept of agreement, which expresses the conformity of *several*.

Third objection. Formal unity is the unity on account of which something is said to be one in form, i.e., one in species. But an individual is not said to be one in species unless it is taken together with another individual. We cannot say, 'Peter is one in species'; we must say, 'Peter and Paul, or Peter and Francis, are one in species.' Therefore, formal unity is not multiplied in each individual, but it causes several individuals to be one with each other. This is why St. Thomas (iii. 2. 5 ad 2) says that human nature does not have the character of a species according as it exists in one individual, but according as it is abstracted from every individual, or according as it exists in all. Thus St. Thomas holds that the unity of the species is found in all the individuals, not in any one of them taken separately.

Answer. The minor calls for a distinction. 'An individual apart from any relation to another individual is not said to be one in species': let this be granted with regard to resemblance and agreement, but denied with regard to indivision and specific unity. Indeed, the nature which is in one individual, even if it is precisely considered as existing in such a condition, enjoys the negation of a specific division by formal principles; but it does not enjoy agreement with and resemblance to another unless it is associated with another. The formal unity found in every individual is said to cause unity among several individuals, inasmuch as it causes them to have something in common or to be in resemblance and agreement by reason of their nature.

Concerning the passage of St. Thomas to which reference is made, let us answer that human nature has the character of a species on account of its being in all individuals, the way the universal is said to be in many. [As already explained, the universal is said to be in many in either of two senses:] (a) fundamentally, inasmuch as one nature is abstracted from many subjects in which it is one, not by identity or unity absolutely understood, but by agreement or resemblance; (b) inasmuch as it is in many by predication and aptitude to exist in them. But the latter way of 'being

in many' is traceable to the intellect: there is not in the real any unity common to many which would account for the way of 'being in many.'

Last objection. The nature in the state of solitude has whatever is required for it to be free from singularity; of itself, it is neither contracted, nor determined, nor incommunicable. Therefore, of itself, it is communicable, and neither singular nor contractable; therefore, its unity is a unity common to many.

Answer. Once we have posited this reduplication 'of itself,' no inference is possible from a negative to an affirmative, with the predicate changing all the way between definite and indefinite;[7] no inference is possible, either, from absolute negation of the one to the positing of the other. Thus we cannot validly say: the nature considered in itself is neither singular, nor determined, nor incommunicable; therefore, considered in itself, it is communicable, or universal, etc. For, considered in itself, it is neither the one nor the other, but is capable of both. There would be a contradiction if we said: 'Man considered in himself is not communicable; man considered in himself is communicable.' But the second proposition is false, and the first one, which is negative, is true, and, by destroying one of them, we can validly posit the other, provided that the phrase 'considered in himself' is used in both cases to preserve the same reduplication or appellation.

Affirmative propositions can never be made determinately, about this nature considered in itself, in such a way as to mean that it is communicable or that it is of itself incommunicable: but the negative proposition, that considered in itself and essentially, it is neither the one nor the other, is always true.

ARTICLE 4

WHETHER APTITUDE TO BE IN MANY AND INDIFFERENCE WITH REGARD TO BEING IN MANY BELONG TO THINGS INDEPENDENTLY OF THE OPERATION OF THE INTELLECT

This issue and the preceding one raise almost identical controversies. As a matter of fact, those who acknowledge a common and formal unity resulting from the nature of the thing hold correspondingly that the nature of the thing involves indifference and aptitude with regard to being in many.

However, the supporters of such a thesis have serious trouble showing that this indifference and this aptitude do not imply universality in the sense of Plato. (a) Scotus (*Com. on the Sent.* ii. dist. 3. q. 1) merely declares that the nature in the most primary of its states, i.e., in the state that it enjoys when it is considered in itself, is neither singularized nor universalized but is indifferent both to singularity and to universality. The nature so considered remains indifferent with regard to universality in act. Therefore, universality in act requires more than such an indifference. Not having universality in act, the nature does not yet have the kind of indifference which renders it capable of being predicated of many and of existing in many.

(b) *Others* think that in the nature considered in itself there is truly a unity of abstraction from inferiors, and consequently a proximate foundation for existence in many singulars. This thesis assumes an actual distinction between superior and inferior degrees. (See art. 6.) They do not say that universality is found in the real. The indifference of which they speak is not an intrinsic predicate of the nature; it belongs to it as a result of the state of solitude—which solitude comes to an end when the mind goes down to the individuals. On this see Fonseca, *Com. on Met.* 5. chap. 28. q. 5. sec. 3; Suárez, *Met. Disp.* 5. sec. 2. No. 9.[8] References to other authors will be found in the Philosophers of Coimbra, *Com. on the Whole Dialectic of Aristotle*, On the Universals, q. 4. a. 3. sec. 2.

(c) Finally, some say (which is still worse) that the aptitude to be in many is found even in the individuals, but by way of act, not by way of potency. They think that when the nature is contracted and singular it retains, by reason of its essential concept, its aptitude with regard to several, even though this aptitude is held in check by the individual difference so that the nature cannot be predicated of others; similarly, prime matter, when it is determined by a form, retains its aptitude to have another form, although such aptitude is held in check so long as the first form is there. They say that the nature so contracted in several is an actual universal, not a potential one, in other words, that it possesses the act of existing in many, not a potency abstracted from the many. Against this position, see the Philosophers of Coimbra, *loc. cit.* a. 4.

To obtain a solution, let us notice that by 'aptitude' or 'po-

tency indifferent to many' we do not understand, here, a positive ability to do or to receive something; the universal of which we are treating is not related to its inferiors as cause to effect, since it is not the universal from the point of view of causality. It is a potency by way of capacity or nonrepugnance. On account of it the universal can be multiplied in many and exist in many as identical with them, and consequently as predicable of them. Briefly, the universal and the particular, the superior and the inferior, signify a certain whole:[9] the universal signifies it as indeterminate and abstracted, the particular signifies it as determinate and contracted. And because the indeterminate can be rendered determinate, it is said to have the aptitude to exist in this individual thing and to be predicated of it.

Further, this aptitude may be considered *formally* and *positively*, inasmuch as it regards inferiors, or *fundamentally* as a capacity or nonrepugnance to be related to inferiors and come down to them. The relation of the universal to its inferiors is founded upon this nonrepugnance, and when it is taken positively as a relation, it is the intention of universality formally understood, or universality in act. Even Scotus denied that it is found in the real; all that he admits is a common character arising negatively from the nature of the thing—which amounts only to this: the nature is not singular of itself.

At this point, the problem is to determine whether, on account of this negative common character, the nature considered in itself contains a nonrepugnance or capacity to exist in several and to be predicated of them.

We do not distinguish here between the aptitude to exist in many and the aptitude to be predicated of many, because, although universality and predicability are distinct relations (predicability is a property of universality, as we shall see—art. 5), it is, nevertheless, the same capacity or nonrepugnance which concerns existence in many and predication of many. 'To be' and 'to be predicated,' are so essentially co-ordinated that if one is posited, the other follows. When there is essential connection between two acts, the same aptitude or nonrepugnance which concerns one of them also concerns the other; thus the form is united to the matter, and the matter receives existence from the form, and both actuations are founded upon the same capacity or nonrepugnance of the matter.

Thesis. This aptitude or nonrepugnance, which is the proximate foundation of universality, does not by any means belong to the nature considered in itself or to the nature as contracted in individuals, but it belongs to the nature abstracted and disengaged by the intellect. Therefore, this nonrepugnance to exist in many follows upon the nature by reason of a certain state, not by reason of its quiddity.

This is the thesis of St. Thomas; it is commonly received among the Thomists. See Cajetan, *Com. on On Being and Essence*, chap. 4. q. 7. It is derived from St. Thomas, *Op.* 56 (*On Universals*, 2.), where he says, "The ability to exist in several does not pertain to the essence of man, because, if it did, the man who is in Socrates would admit of being participated in by several. This is impossible." In *On Being and Essence*, chap. 3, he says, "It cannot be said that the character of being universal belongs to the nature so understood (viz., considered in itself), for the character of the universal implies unity and community. But neither of them belongs to human nature considered absolutely. If community belonged to the concept of man, then, whenever humanity is found, community would be found. It remains that the character of species accrues to human nature on account of that existence which it enjoys in the intellect...." St. Thomas goes on to show how the nature in the intellect has unity inasmuch as it has a character common to all the individuals which are outside the soul, because it is the likeness of all of them.

The one and sufficient argument in favor of this thesis is drawn from the consideration that the aptitude which is the proximate foundation of universality is not merely negative community and nonpossession of singularity. It is a capacity or nonrepugnance of the nature, existing in a state of unity, to be multiplied in many. Consequently, in the state in which the nature is neither one nor several, or in the state in which it is narrowed down to individuality, it does not enjoy a unity capable of multiplication. But in the state of individuality it does not admit of multiplication, and in the state of solitude, or of the nature considered in itself, it does not yet have a unity multipliable into several. It has only quidditative predicates, among which it is impossible to count this capacity or nonrepugnance of a unity to

be multiplied. Otherwise, a nature, wherever it exists, would possess this capacity, which is obviously false, since in the real no nature is capable of existing in many.

Granted that, in the real, the nature is absolutely incapable of existing in many, it may seem appropriate to say that this incapacity does not result from the nature's essential principles. Such an interpretation would fall short of the truth. Although the nature considered in itself is neither incapable of existing in many nor incapable of being individualized in one, it cannot be said that the nature enjoys, in the state of solitude, the capacity required to provide a foundation for universality. This capacity belongs to a unity relatable to many. It is a capacity in an absolute sense, not just the absence of incapacity. True, it can be said that in some respect the nature in the state of solitude does not possess the opposite incapacity; but this does not suffice to constitute such a capacity.

In like manner, a stone is absolutely incapable of thinking and thus does not have the foundation of intellectuality: yet its being incapable of intellectuality does not result precisely from its being a substance. Thus, to say that the nature considered in itself is not incapable of unity in relation to many is one thing, and it is another thing to say that it possesses determinately and positively such capacity or nonrepugnance. The second statement would be false, since the nature considered in itself does not yet enjoy the unity which is multipliable in many.

Confirmation. Whether considered in itself or in individuals, the nature does not admit of being connected with many by a logical intention and a positive relation. Accordingly it does not, in either of these states, admit of the proximate foundation of such a relation, which foundation is an aptitude belonging to a unity relatable to many. Therefore, such aptitude is not found in the nature when considered in itself or in the individuals.

Let it be said, without qualification, that this aptitude necessarily presupposes a unity capable of multiplication in many. Therefore, whenever such unity is not found in the nature, this aptitude is not found either. Such unity is only an abstract unity, not a real one: in other words, it is not a unity belonging to the nature considered in itself.

At this point, some would *question* St. Thomas' proposition

that what belongs to a thing considered in itself always belongs to it. For the continuum is, of itself, divisible into parts. Yet in the case of the heaven it cannot be divided. Similarly, every quantity is of itself divisible to infinity, yet the quantity of a physical thing does not admit of such a division.

Answer. It is not in a positive and absolute sense but negatively that these properties are said to be attributes of these things considered in themselves. In other words, although these things do not rule out such properties they do not possess them actually in every state, but only within a definite state. Likewise, the essential principles of the nature considered in itself contain no ground for conflict with universality or with particularity. If the aptitude on account of which the one is predicated of the many belonged in a positive and absolute sense to the nature considered in itself, the nature would possess such aptitude in every state. This is what the argumentation of St. Thomas proves effectively.

Objections and Answers

Several arguments presented in favor of Scotus' theory, or rather attributed to him, are (1) founded upon the equivocation exposed in the preceding article: an affirmative proposition is equivocally inferred from a negative proposition through an indefinite predicate.[10] We are given inferences of the following kind: 'the nature considered in itself is not singular, therefore, considered in itself it is common,' 'it is not, by virtue of its essential principles, incapable of existing in several, therefore, it is capable of existing in several.'

(2) These arguments are said to be founded upon properties belonging to the nature considered in itself, e.g., to be an object for the intellect, to enjoy perpetual truth, to have one definition. Such properties, and similar ones, do not belong to the nature in individuals; yet they belong to the nature considered in itself and prior to the operation of the intellect, since the object precedes the corresponding act. Thus, if the act of the intellect is conversant with the universal, the universal exists prior to this act.

(3) Finally, it is pointed out that there is no incompatibility between the proposition 'the nature is singular and contracted as

a result of material principles,' and the proposition 'the nature, as a result of formal and specific principles, is indeterminate and, consequently, apt to exist in several, though this aptitude is impeded by singularity.' Likewise, prime matter is apt to receive several forms, though, so long as it is actually informed by one of them, its aptitude regarding the other ones is impeded. Similarly, the angelic nature, according to the Thomistic theory, is apt to exist in several, although actual existence in several is absolutely repugnant to it.

All these arguments are refuted by the preceding article. *Concerning the first proof,* it is clear that once we have posited the clause 'considered in itself' the things which do not belong essentially to a subject can be denied of it. But in order that a predicate may be said to belong to a subject, there must be a necessary connection between this predicate and this subject, even if this predicate happens to be negative [i.e., indefinite]. In case there is no essential connection [between *S* and *P*], the clause specifying that *S* is considered in itself voids the statement that *P* belongs to it, for *P* cannot belong to *S* considered in itself unless it belongs to *S*'s quiddity. Therefore, denying a predicate which admits only of accidental connection with the subject does not entail the possibility of admitting the opposite affirmative proposition after having rendered the predicate indefinite. Thus, the following does not hold: 'the nature considered in itself is not singular, therefore, considered in itself, it is non-singular,' and much less 'therefore it is universal.'

In *reply* to the *second argument,* let it be said that the properties of 'being an object for the intellect' and of 'enjoying perpetual truth' exist objectively even if they do not exist really; they are anterior to the operation of the intellect, but merely in an objective sense and so far as the objective aspects of the thing known are concerned. As to the condition of universality, which accompanies the object in cognition, it does not precede the act of the intellect but results from it in the object. The definition is rendered one in a twofold sense: (a) fundamentally, in virtue of the unity afforded by the thing defined; (b) in a formal sense, as having a positive unity achieved by the intellect. The same holds for the object considered as one and universal.

In *reply* to the *third argument,* let us say that the aptitude

found in matter and the aptitude relative to universality are of widely different character. In virtue of its proper nature, matter is capable of several forms: its aptitude and potency in relation to them is its entity. Wherever there is matter, there is also such aptitude, since this aptitude belongs to matter on account of its very entity. On the other hand, the aptitude to exist in several and to be predicated of many goes along with a nature by reason of its state and of its abstract unity. We are considering not an indeterminate notion of 'aptitude' but the definite aptitude of one nature to be multiplied in many things; clearly, a nature is not possessed of unity prior to the operation of the intellect. The additional remark concerning the angelic nature will be discussed later (q. 8). In the present connection it suffices to say that aptitude to be in several is in contradiction with the nature of the angel if the angelic nature is expressed in a perfect and adequate concept; to conceive an angel without individuation is absurd. Suppose, however, that an imperfect and inadequate concept represents angelic nature without individuation; the angel so represented would enjoy, by virtue of this imperfect concept, unity of abstraction, and, so far as the nature imperfectly conceived is concerned, aptitude and nonrepugnance to exist in many.

Second objection. The act of this aptitude is real. Therefore, the aptitude itself belongs to the thing considered in itself or in the real.

The *consequence* is clear, since potency is specified by act. Potency and act are in the same genus whenever act effects directly the specification of potency; therefore, if the act is real, so is the potency. The *antecedent* is plain, because the act of this aptitude is to exist in several beings, and this is something real. Since to be particular is something real, its correlative, viz., to be universal, is also something real.

Confirmation. This aptitude is the foundation of universality. Therefore it is not a second intention but a first intention, since every second intention is founded upon a first intention. Some might suggest that this aptitude, as proximate foundation of an intention, must have the same character as the intention and relation founded upon it; but there is a twofold argument against this view: (1) if this aptitude is created by the

intellect, it follows that the object is known before this aptitude is brought about, and then in order that something be an object no universality is required, not even fundamental universality. (2) If this aptitude is produced by the intellect, it necessarily is something individual, since it results from an individual act; therefore, it cannot constitute the universal formally.

Let us *answer* that the act of this aptitude is not a real thing. The aptitude of the universal does not have for its act the existence of several individuals, but predication, i.e., the contraction of one nature into several individuals, and this is a being of reason. The existence of several individuals can be only a foundation making possible the abstraction of the universal unity and rendering it apt for this predication. The particular is not the correlative of the universal, unless the particular is taken in the sense of a second intention. If the particular stands for 'the particular as found in the real,' that is, in the sense of a first intention, then it is not the correlative of the universal, but its foundation.

Answer to the confirmation. Although it has a first intention as its remote foundation, the second intention implies, as its proximate foundation, a being of reason which of course is not a relation of second intention, but a negation or an extrinsic denomination. Thus, universality presupposes that the thing is known and abstracted from the individuals. The results of this abstraction are (a) the unity of abstraction, which is a negation, (b) the nonrepugnance to exist in several, which is an aptitude to exist in them. The relation [of second intention] follows from this unity coupled with this aptitude.

In *answer* to the *first reply,* let it be said that the object is known by the intellect before the aptitude to exist in many is brought about. Thus, in order that a thing be an object for the intellect, universality is not required in the capacity of antecedent condition. Yet it is required as a consequent condition, inasmuch as a thing cannot be an object known in act without assuming the state of universality. In a way it might be said that universality is required antecedently for the act of the intellect, but then the reference would be to the universal fundamentally understood, not to the universal formally understood.

In *answer* to the *second reply* let it be said that what is produced by the intellect as an effect is something individual. But

that which results [from the operation of the intellect] as something known or as something following from cognition is the universal, i.e., the intention and form of universality. Further, this intention of universality, understood formally and as principle *by which,*[11] is universal, in other words, it is that which renders the nature formally universal; yet the intention of universality, considered denominatively and as *that which,* is singular inasmuch as it is attributed to a determinate object by a determinate cognition.

ARTICLE 5

WHETHER UNIVERSALITY CONSISTS ESSENTIALLY IN A RELATION

In order that nothing pertaining to the universal considered in itself should be left out of the present question, this difficulty will be discussed here, though briefly. Fuller clarification will result, in the next question, from an inquiry into the act by which the intellect brings about universality in the object.

As we pointed out in the first article, it is necessary to distinguish from each other the logical universal and the metaphysical universal. Both regard or connote inferiors, but there is between them this difference, that for the metaphysical universal the inferiors have the character of a term *from which* abstraction is made and which is left behind, whereas they constitute the term *to which* the logical universal is a relation. In other words, the metaphysical universal expresses natures stripped of individual conditions, but it is not its function to express the relation existing between these natures [considered without individual conditions] and the same natures [considered *with* such conditions]. This relation, in virtue of which the universal can be predicated of natures affected by individual conditions, is expressed by the *logical* universal.

There is a disagreement among logicians when there is a question of designating the form or intelligible determinant by which these universalities or their denominations are constituted and in which precisely the very quiddity of universality should be placed.

Some, like Martinez (*The Syllogistic Art of Aristotle,* on

Porphyry's *Introduction to the Cat.*, Disp. 1. q. 2), distinguish the constitution of universality as such from the constitutive of universality as found in the metaphysical or the logical universal. They say that the universal as such is constituted by a unity of reason resulting from abstraction, and that this unity is a radical aptitude to exist in several. For them, the *metaphysical* universal is constituted by a negative abstraction inasmuch as it is considered without the differences which are omitted or negated; the *logical* universal would be constituted by a positive abstraction inasmuch as the inferiors are not only negatively omitted but are positively taken into consideration by an act which separates the universal from them and relates it to them. Thus, the nature disengaged from the inferior differences through a process of positive abstraction is, as it were, positively distinct from them and external to their concept, though it remains in the same inferiors by being included in them. To exist in many is to be included in many; but whenever a thing is included in another, there is at least a distinction of reason between them, since nothing is included in itself. Now you cannot say that the universal, e.g., animal, is abstracted from its inferiors, e.g., horse, man; even in the consideration of the reason it is abstracted only from parts of the inferior, viz., their differences. Thus, inasmuch as it is outside the differences but included in the inferiors, it is called the logical universal, because then it is one in many.

To sum up this theory: the universal taken precisely as universal (not yet understood logically or metaphysically) is said to be such according as it enjoys a unity of reason, which unity of reason includes an aptitude [to exist in many] that is not proximate but radical, for the proximate aptitude is not apprehended without an act. The metaphysical universal, as universal, is one; as metaphysical it is without [sans] many. The logical universal, as universal, is one; but if we consider it as logical, it is not enough to say that it is *without many:* it must be said that it is *in many*. Now, this 'to be in many' is a relation to those many. But there cannot be such a relation unless the nature is included in the many, since the relation of the nature to something distinct from it cannot be apprehended unless this something is thought of. Now the inferiors are that to which the nature is related. Therefore, the inferiors must be thought of, but

they are not thought of without the superior being included in them; therefore, the relation to the inferiors demands the inclusion of the superior in them.

Others refuse to make any distinction: they simply posit that the metaphysical universal is produced by an abstraction both positive and negative. See Merinero's exposition and his criticism of Martinez (*Com. on the Whole Dialectic of Aristotle,* chap. 1, On the Universals, disp. 2. q. 3). This is the common opinion of many who make no distinction between positive and negative abstraction and teach without discrimination that the universal is produced by abstraction. Suárez *(Met. Disp.* 6. sec. 6. No. 8 and 11), according to the second opinion expounded by him on the universal produced by abstraction, teaches that the absolute universal, which is the metaphysical universal, is produced by any kind of abstraction. As to the relative universal, which is the logical, he teaches that it is produced by comparison.

Concerning the logical universal, it is the common opinion of logicians that it consists in a relation to inferiors. But three relations are to be considered. The *first* is a relation of aptitude to exist in the inferiors; the *second* is a relation of aptitude to being predicated, it is predicability itself, understood positively and relatively, inasmuch as being predicable follows from being universal; the *third* is the relation of actual predication itself, by reason of which something is not only predicable but also predicated.

There are three theories which correspond to these three relations. Some place the essence of the universal in the relation of aptitude to exist in many and consider that predicability is a property of this relation. Others, on the contrary, state that predicability is prior, and the relation of aptitude to exist in many, posterior. Finally, others state that the relation of actual predication is universality itself, for in actual predication it is judged that one thing belongs to many. (See Merinero, *loc. cit.* q. 2.)

First thesis. An essentially complete account of the universal comes down to just three considerations: the material universal, the fundamental universal, and the formal universal.

In other words, we have: (a) the nature or subject which is

denominated universal; it is called universal in a material sense; (b) the proximate foundation of the universal as a relation, i.e., the unity abstracted from the inferiors, together with the aptitude or nonrepugnance to exist in them; (c) the relative form itself by which the universal is compared with its inferiors and refers to them. The reason for this thesis is that universality is considered by the logician as a second intention, and, accordingly, as a relation of reason. Now in every relation these three things are necessary and sufficient: a subject, a foundation, and the form of the relation. Therefore, these are sufficient and necessary for universality.

Second thesis. Universality understood in the sense of a foundation (we leave out the material universal, which is the thing denominated and not the formality denominating something as universal) is required in order that the nature itself be denominated universal metaphysically; it consists in the absolute unity of abstraction and in an aptitude which is not yet taken relatively, but is nonrepugnance to existing in many.

This thesis must be held because that on account of which the metaphysical universal is called universal is not any mode superadded to universality itself. Such a mode, if it is one of reason, does not concern the metaphysician, who considers natures, but the logician, who considers modes or relations of reason. And if it is a real mode, it pertains to the nature itself, not to universality, for it is found also in individuals. This is why the universal metaphysically understood is nothing else than the things or natures (which the metaphysician considers, for his object is real being) separated from the individuals, since no science considers natures in the individuals. Now, the separation or abstraction necessarily suffices to supply the foundation of universality, because, by disengaging the nature from the individuals, it renders it one. [More precisely] it gives it a unity of abstraction, inasmuch as abstraction treats the nature as something one. Similarly, it renders it apt to exist in many, because the nature so considered shares its features with the things from which it is abstracted and consequently is nonrepugnant to existing in them, for to exist in them is to share features with them. The abstracted nature is one and apt to exist in several, and finds itself in such a state prior to the

establishment of a relation between it and the several, for such abstraction does not regard these several as the term toward which the nature tends and *to which* it is referred, but as the term *from which* it is separated. The *term from which*, considered in the exercise of its proper function, is not the term of a relation; therefore that which has the character of a *term from which* is not yet taken as term of a relation; it is the term of an abstraction which constitutes the foundation of a relation.

Third thesis. Fundamental universality results both from a negative and from a positive abstraction.

Concerning the negative abstraction, there is no doubt whatever, since this abstraction consists in the mere negation or omission of the inferiors, which [negation or omission] is brought about when the nature is taken as one. On the other hand, a positive abstraction is nothing else than an abstraction performed with positive knowledge both of the *term from which* abstraction is made and of the nature seized abstractly. This positive abstraction brings about the same effect as the negative abstraction, but not in the same manner, since it regards the inferiors merely as *term from which,* and does not refer the nature itself to the inferiors as to a *term to which.* Therefore it does not yet produce a relation; it produces only a state of disengagement; the whole process concerns exclusively the metaphysical universal. Thus the negative abstraction leaves the nature nude, and the positive abstraction leaves it denuded. The negative abstraction does not consider the individual conditions, of which it strips the nature, but omits them and merely annuls them. The positive abstraction considers the individual conditions in order to strip the nature of them. But both bring about the same effect, which is to leave the nature without the individual conditions.

Fourth thesis. The logical universal, or the universal understood as a second intention, does not consist in a comparison of attribution or predication, but in a comparison of simple relation, or of order, without the actual inclusion [of the nature under consideration] in the inferiors. Thus the logical universal is defined as an aptitude to be predicated of many, with the further specification that this aptitude is positively related to the inferiors.

This conclusion will be more clearly established later when,

following the authority of St. Thomas as well as conclusive arguments, we shall show how the logical universal results from a comparative act. Here it suffices to indicate its foundation. It is plain that logical universality, or universality as a second intention, is a relation of reason to many; this can be understood from the definition of the universal as 'one in many and of many.' But this relation of one to many is anterior to the relation of actual predication. Prior to actual predication, the nature is disengaged from the individuals, and capable of being predicated of them, for the potency on account of which it can be predicated necessarily precedes the act of predication. Therefore, prior to actual predication there is an intelligible feature predicable of many and a relation of one to many by way of potency and aptitude. Moreover, if there is, prior to actual predication, unity and aptitude regarding many (the metaphysical universal plainly has both), this aptitude can be considered as related to the many with regard to which it is an aptitude, just as any potency can be considered as related to the term with regard to which it is a potency. Therefore, there is, prior to actual predication, a relation of aptitude to exist in many, and this relation is universal. Furthermore, when the nature is actually predicated, it may happen to be applied to one individual alone, as when I say: 'Peter is a man,' 'Paul is a man'; then the word 'man' is universal and the actual application concerns only one individual, not several. Therefore, the relation to several does not result from a determinate predication.

It is *objected* that the universal is conceived as relative to many when it is judged to agree with many, which takes place in predication. The truth is rather that the universal is so conceived when the aptitude relative to many is apprehended as grounding a predication concerning these many: this takes place prior to actual predication, since potency precedes act.

It is obvious that actual inclusion is not required. Such inclusion would mean existing in many and being identified with each of them. But, before the universal is actually identified, it is apt to exist and to be identified, since the aptitude of the universal concerns both existing in many and being predicated of many. Universality is anterior to actual inclusion, since, prior to actual inclusion, there is an aptitude implying a relation to

existing in many. Further, actual inclusion in many cannot be understood without actual contraction in them. As a matter of fact, the universal is not actually included in the individuals except in the way in which it exists in them. Now it does not exist in them except as contracted and determined in each individual with which it is identified. It does not possess, in the individual, indifference with regard to several. Therefore it is included [in the individual] and identified [with it] by means of a contraction. But the universal is capable of being contracted in many before it is actually contracted in them and, consequently, before it is actually included in them.

The foundation of the opposite thesis, viz., the consideration that the inferiors themselves do not exist except through the inclusion of the superior in them, does not hold. To this, let us answer that prior to actual inclusion the inferiors exist inasmuch as they are a capacity to include, as inferiors, a superior, just as the superior exists as a capacity to be included; thus, they terminate the relation of superiority before actual inclusion is considered. Accordingly, just as something is actually superior when it actually possesses the aptitude to be included and to exist in many, not when it is, purely and simply, included in act, so the inferiors exist actually under the formality of inferiors when they are considered as having actually the power to include and to contract their superior, not when they include in act; then [viz., when they include their superior actually], the distinction between the superior and the inferior disappears. In the real the inferiors do include the superior in act, but this inclusion results from their identity with the superior, not from the formality proper to the inferior.

Last thesis. Predicability, or the relation to several beings considered as bearers of a predicate, is, as it were, a property of universality; universality itself is a relation to existing in several.

This thesis is against Merinero (*loc. cit.* q. 2).

It results from the fact that the foundation and root of predicability is the identity of the extremes united in predication, as we shall show in question 5; this is obvious, since, when a thing is not identical with another thing, the former is not, in truth, predicated of the latter, but denied of it. Therefore, the aptitude concerning identification is the foundation or root of the

aptitude concerning predication: thus predicability is related as a property to this aptitude and is consequent upon it. Therefore the relation to many from the point of view of existence and identification is anterior to the relation to many from the point of view of predication. The former is universality, the latter predicability.

Objection. The aptitude to exist is not a positive relation since it is merely nonrepugnance; among positive relations, predicability comes first, for the term of the positive aptitude is an existence procured by the intellect through predication, not existence in the real world and independently of the operation of the intellect.

Answer. Prior to predication, the positive and relative character of this aptitude to exist is taken into consideration by the intellect, for the capacity of the abstracted nature to be contracted in many and identified with them is perceived not only as a nonrepugnance, but also as a positive relation. This nature is truly identified with the many in the real and it is predicable because it is identifiable. Thus the common nature, prior to the second operation of the intellect in which predication takes place, is understood as identifiable with the individuals (sometimes, on account of a contraction anterior to predication, a simple concept suffices to grasp it as actually identified); accordingly, [prior to the second operation of the intellect] it is capable not only of being predicated by the intellect, but also of being understood as contracted and identified.

ARTICLE 6

WHETHER IN ANY NATURE WHATSOEVER METAPHYSICAL DEGREES ARE DISTINGUISHED ONLY ACCORDING TO A DISTINCTION OF REASON, OR WHETHER THEIR DISTINCTION RESULTS FROM THE NATURE OF THE THING

As already mentioned, the expression 'metaphysical degrees' designates nothing else than the superior and inferior predicates that are predicated of a given subject. Since one is more universal than the other and superior to it, in knowing them we are, as it were, going up and down: this is why they are called degrees;

e.g., man is predicated of Peter, and above man, animal, and above animal, body, etc. We are wondering whether these predicates or degrees are distinguished from each other in the same subject on account of the nature of the thing and prior to any operation of the intellect, or only by means of an intellectual operation.

On this there is quite a famous controversy between the school of St. Thomas and that of Scotus. The key to this controversy lies in the theory of distinction, and identity, of reason expounded above (q. 2. a. 3). Let us briefly recall what was said there of the three distinctions acknowledged by Scotus, viz., (a) the absolute real, which admits of the separation of the extremes; (b) the formal in the nature of the thing (this distinction does not imply separability, but means merely the negation of a formal identification, so that one formality does not, in consequence of its proper nature, belong to the concept of the other); (c) the distinction of reason, which depends solely upon the reason which forms it and is not given in the real. On the contrary, St. Thomas, considering that every principle or cause of distinction lies either in the real or not in the real, but in the reason, acknowledges only two genera of distinctions, the real distinction and the distinction of reason. Each distinction admits of two kinds: real distinction takes place either between a thing and a thing, or between a thing and a mode; the distinction of reason is either one of reasoned reason or one of reasoning reason. These notions were explained in the preceding question.

In the present article, we are wondering whether the distinction which obtains between essential predicates found in the same subject is the distinction that Scotus calls 'formal distinction in the nature of a thing,' or only a distinction of reason. That it is not a real distinction, i.e., a distinction between two things or entities, is granted by all; it is clear that the terms distinguished coincide in one and the same entity, e.g., in one man, and proceed from the same form, even in a composite substance (in which there is only one form, as we shall show when we take up this subject in the books On the Soul, *Phil. of Nature*. iv. q. 1. a. 3). In this question we have the following reasons to proceed in a more general fashion: (a) In categories other than substance there is obviously no composite entity made of several forms; yet acci-

dents, which are simple forms, present metaphysical degrees, or superior and inferior predicates; (b) in the category of substance itself there are simple forms (viz., angels), in which case these degrees must be derived from the same form; consequently, it is entirely plain that in such a case the metaphysical degrees cannot be distinguished really as a thing from a thing.

Accordingly, the whole difficulty concerns this 'formal distinction in the nature of the thing.' Is there such a distinction between the metaphysical degrees?

Thesis. Between the metaphysical degrees there is no formal distinction actually resulting from the nature of the thing outside the intellect, but only a virtual and fundamental distinction, which is rendered actual by the intellect.

This thesis is drawn from Aristotle, *Met.* 7. 12 and 13. 1037-1039 and St. Thomas, *Com. on Met.* 7. les. 12 and 13; *On Being and Essence,* chap. 2; *Op.* 72 *(Conciliations of Apparently Conflicting Statements),* [12] chap. 9; i. 76. 3. In these places St. Thomas shows that the genus differs from the difference and from the inferiors not really but logically, and in the question *On Spiritual Creatures,* a. 1 ad 9, he likewise says that the forms by which species are distinguished are not different in reality from the form of genus. On this subject St. Thomas is commonly followed by his disciples; see Cajetan, *Com. on On Being and Essence, loc. cit.* and chap. 6. q. 12; Soto, *Com. on the Dial. of Aristotle,* On Universals, q. 3. More references are in the *Course of the Carmelites,* Dial., disp. 3, On the Universal, q. 4.

This thesis is established by: (1) the universal invalidation of this 'formal distinction resulting from the nature of the thing,' (2) the peculiar character of the essential predicates as proceeding from the same form.

Concerning the *first* point: to the reasons given in the preceding question (art. 3) for rejecting such a distinction, I merely add that if this distinction is actual prior to the operation of the intellect it must necessarily destroy some identity actually and in the real, since it is essential for a distinction to destroy identity in the subject in which it takes place. But this formal distinction does not destroy any identity in the entity and reality under consideration. If it did, it would be genuinely and properly a real distinction, not a formal one, since it would have the

formal effect of a real distinction, which is to suppress real identity, and thus it would not be short of any feature needed to constitute a real distinction. The Scotistic distinction destroys only the identity of concepts, or of formal aspects. All that it means is that one term in the real does not belong to the concept and formal aspect of the other, i.e., to its intelligible constitution. But this does not require an actual distinction. A virtual and fundamental distinction suffices, since such a distinction supplies a foundation for conceiving one extreme as distinct from the other extreme and representing the former without the latter. Distinction comes forth in act where identity is actually destroyed. All we find in the real is this: one extreme is not the formal constitutive of the other, and accordingly does not have essential connection with it as a formal and constitutive principle, although there is essential connection between the extremes inasmuch as they are (really) identical. The extremes are not distinguished actually in the real although they are not, in the real, identified in every way. Notice the difference between these statements: "*A* and *B* are not actually identical, they are actually distinct," and "*A* and *B* are not identical in such and such a way, although, absolutely speaking, they are the same." The second statement holds whenever there is not between the extremes an essential relation and connection of the formal type so that they are not identical in an essential way. But there is actual distinction only when the extremes are, absolutely speaking, not the same; for actual distinction to obtain, it does not suffice that they be different in some respect, that is, in a qualified sense.

It can be said that there is formal distinction negatively, not positively, just as it can be said that the nature, so far as its essential constitution is concerned, remains common in the individuals, but negatively, not absolutely and actually. In like manner it can be said also that the nature remains formally one negatively, not positively. In other words, if you consider the formal content of its concept, *A* is not the same as *B*, but is distinct from it; we speak of distinction here just as we speak of unity when we say that what results from the principles of the species is one and admits of no distinction within itself, or when we say that the nature considered in itself is not individual. We do not, when we make statements such as the last two, assert

that there is actually in the real a negative community or a formal unity; there is no more reason to assert the formal and actual distinction maintained by Scotus.

Confirmation. Something is said to be actually given in the real when it actually exists in the real. If it does not exist actually, it exists only in potency and virtually and will exist actually only when it is known, or when it is brought into existence. But conditions for real existence are not satisfied if what is said to be given in a certain respect is said not to be given in another respect: real existence demands that the thing be given absolutely, or purely and simply. Therefore, when nonidentity obtains only between the formal contents of two concepts, it is impossible to speak of the object as being, absolutely speaking, nonidentical, or distinct; in the real, the distinction is merely relative and negative. In other words, all that can be said is that there is nonidentity so far as intelligible constitutions and formal conceptual contents are concerned. Likewise, a thing is not individual in the real by virtue of its very nature, and yet it cannot be said that it is not actually individual in the real.

The consideration that the metaphysical degrees derive from the same simple form furnishes another argument, often used by St. Thomas, against their being distinct in the nature of the thing. See i. 76. 3 ad 4 and *Com. on Met.* 7. les. 12 Cathala 1564. Separate substances and accidents are simple entities and, in a substantial composite, there is only one form. (This is postulated here and will be proved in the books On the Soul.) Therefore all the degrees or predicates which belong to a thing by virtue of such a form are not distinguished actually in the real thing.

The consequence is obvious, since the identity of the form makes it impossible for the metaphysical degrees to be distinct within this form. But if the noninclusion of a predicate (or degree) in the concept of another predicate (or degree) were a sufficient ground for actual distinction in the real, why should they not be distinguished as diverse forms? [In more explicit words: suppose that the noninclusion of a degree in the concept of another one should imply actual distinction in the real,] the metaphysical degrees would be actually distinct formal aspects, consequently, distinct principles *by which*, and thus they would satisfy all conditions for an actual distinction of forms in the real.

It is only with regard to the *individual degree* that there can be any hesitation. For it does not seem to be derived from the form, but from the matter determined by material principles, which are outside the specified essence. This is how St. Thomas commonly expresses himself. Likewise, the *genus* is said to be derived from the matter and the difference from the form. Therefore, it seems that not all degrees are derived from the same entity.

Concerning the first difficulty. Although things made of matter and form receive their individuation from the determinate matter, the form is not denied a part in the individualizing of composite things; indeed the determination of matter proceeds from quantity, which is itself diversified by the diversity of the forms. See i. 7. 3, and, in *Com. on the Sent.* ii. dist. 30. q. 2. a. 1, the passage beginning "Since determined quantities and all other accidents are received in matter according to the demands of the form. . . ." On the one hand, quantity owes to matter alone its property of having material parts (this is obvious in the case of man, where the form is spiritual and does not admit of any parts); on the other hand, it owes to the form its being a quantity formed in such and such a way. Thus, the nature of the form has also something to do with the constitution of the individual degree, though it plays its part in dependence upon the incommunicability of the matter, and upon the determination and division of the matter by quantity. This determination and division is a condition required for individuation. As to the substances not composed of matter and form, it is obvious that their individuation is not derived from matter, although the individuation of their accidents implies a relation to a subject. We shall elaborate on these topics later (q. 9, On the Individual) and in the books On Generation when we discuss the principle of individuation *(Phil. of Nature.* iii. q. 9).

Concerning the second difficulty. Let it be said, following St. Thomas (*On Being and Essence,* chap. 2 and chap. 5, and *Op.* 42, *On the Nature of the Genus,* chap. 5), that the genus is not derived from the matter considered as a physical part distinct from the form. This proposition, 'The genus is derived from the matter and the difference from the form,' really means that the genus is derived from what is material and potential in anything.

Now, in composite substances, which are the better known to us, the matter is a principle more potential than the form.

Objections and Answers

The main arguments of Scotus in favor of this 'formal distinction resulting from the nature of the thing' are set forth in the preceding question, article 3. The principal foundation of these arguments consists in the consideration that, prior to any operation of the intellect, there are formalities such that one does not include the other, and between which there is actual opposition—therefore, actual distinction.

The consequence holds, since every distinction is founded upon some opposition and exclusion of one term by another term. Therefore, if, prior to any operation of the intellect, there is actual opposition and exclusion, there is also actual distinction prior to any operation of the intellect.

Proof of the antecedent. 'Rational' is not of the concept of 'animal' and is not defined by the same definition, since 'animal' is found without 'rational.' Therefore, the one object is not included in the concept of the other. Likewise, 'animal' and 'rational' actually receive contradictory attributes—this cannot be, unless there is some actual opposition between them. For it pertains to the formality of animal to be that which man and brute have in common, and this does not pertain to the formality of rational. Likewise, to discourse and to understand pertain to the formality of rational, not to that of animal. Thus these formalities, such as they are in the real, call for contradictory attributions; therefore, they are not identical in the real, since, when the subject is really the same, contradictory attributions do not hold. The same argument is used with regard to action and passion, and with regard to the divine persons and the divine essence (in these contradictory attributions: 'the essence is communicable, the person is not communicable').

Let us answer that the virtual distinction suffices to safeguard all the truths pointed out by the objection, and that an actual division between the extremes is not necessary. Should these arguments prove anything, they would prove that there is a real distinction and not only a formal one, for we should take a

further step and say that contradictory attributions cannot hold if they refer to the same reality. If the negation of the inclusion of one term in the concept and definition of another actually brings about a division, there is no reason why it should not give rise to diverse realities.

Let it be said, therefore, that two terms [*a* and *b*] can be identical in two ways: (1) Identity is adequate and holds in every respect. If this is the case, wherever you find *a* you find also *b*, and the latter enters into the concept of the former. (2) *a* and *b* are one and the same inadequately; they are identified absolutely speaking but not in every respect and not in such a way that the occurrence of *a* should be exclusively restricted to the cases in which *b* occurs. For instance, being is identified with the *per se* mode and with the *in another* mode; yet the identification is not such that everything that is being should have to be determinately *per se* or determinately *in another*. The divine essence is identified with Paternity really and entitatively, as Scotus himself confesses, and yet Paternity does not belong entitatively to whatever subject possesses the divine essence entitatively: e.g., it does not belong to the Son. Thus the Scotists are bound to speak of entitative and real identification in spite of a recognized diversity: we shall go further and say that the same diversity does not exclude a formal identification. *a* is not of the concept of *b*, yet *a* is not distinguished from *b* in the real. There is not, between them, the essential relation which would be needed for an intrinsic and essential identification: yet their identity and unity in the real is not actually destroyed by an actual division, since they are one really and identically. Thus they remain one, absolutely speaking, though not in every way and not adequately; they can have distinct definitions on account of the virtual distinction which obtains between them, since they can be conceived as distinct and defined as distinct. Definition is brought about by an act of the intellect that actually distinguishes concepts. In the real they differ only fundamentally, that is, according to a virtual distinction on account of which such words as 'animal,' 'man,' etc., that signify distinct formal aspects, are not synonymous nouns. See St. Thomas, i. 13. 4 and *On the Power of God*. 7. 6.

A like answer should be made to the objection drawn from

opposition and contradiction. Let us say that contradictory attributions can hold, and opposition obtain, in spite of the real identity of the subject, provided they refer to diverse aspects of this subject. This is particularly clear when the ground for contradiction is constituted by reduplication, appellation, or some special way of conceiving. This is the explicit teaching of St. Thomas, who says (i. 39. 1 ad 2) that, because in God essence and persons differ as specifying principles of human intellections, an attribute can be affirmed of one of them and denied of the other. The argument used in the objection does not prove anything against this position, for we do not say that the real admits of contradictory attributions; we merely deny that contradictory attributions, in order to hold, require an actual distinction in the real. What we maintain is that for *a* and *b* to be the subjects of equally valid contradictory attributions it suffices that a virtual distinction deprive them of absolute and adequate identity: the contradiction concerns the same being, but not under the same conceptual determination and intelligible aspect. Actual opposition causes actual distinction in the extremes between which it obtains (viz., between 'to be' and 'not to be,' between contraries, etc.), but not in the subject to which it pertains and of which such contradictory properties are predicated. It suffices that the subject be virtually diverse and admit of contradictories under diverse aspects.

Second objection. There is correspondence between the metaphysical whole and its degrees on the one hand and the physical whole and its parts on the other hand, for the former are derived from the latter. Now the physical whole is composed of really distinct parts, such as body and soul. Therefore, in like manner, the metaphysical whole is composed of degrees distinct in the nature of the thing.

The *antecedent* is plain since the composition of the metaphysical composite is not purely logical; if it were, God would be a metaphysical composite; therefore, between the degrees composing the metaphysical whole there is likewise a distinction resulting from the nature of the thing. The *consequent* is clear also, for the following reasons: (a) the physical and the metaphysical wholes are identical in the real, therefore they admit of the same distinction with regard to their components. (b) St.

Thomas (*On Being and Essence*, chap. 2) says that man is composed of body and soul as a third thing of two things. Now body does not designate only matter, but also the degree of corporeity. Therefore one degree can be really distinguished from another one with which it enters into composition.

Confirmation. If these degrees were not distinguished absolutely, the genus and the difference would be predicated of each other even in abstract form, because one essence would be the other one. And thus it would be true that rationality is animality and vice versa; which cannot be admitted. Therefore, they are distinct on the part of the real.

Answer. The metaphysical whole is not composed of parts but of predicates belonging to the same whole. Further, it does not correspond to the composition of matter and form, since there is metaphysical composition even in things, such as angels and accidents, which are not composed of matter and form. In composite things the metaphysical composition presupposes the physical whole, assumes it in its entirety as more or less determined, and thus effects a whole made not of parts but of concepts. This composition is logical, though it has a foundation in the real; there is no such foundation in God, because he is pure act and cannot be understood, in one respect, as less determinate and as capable of actuation, in another respect, as more determinate and as actuating or specifying. Thus, although the metaphysical and the physical wholes are identical in the real, the ways in which they are composed are different. When St. Thomas says that man is composed of body and soul, either (a) what he means by body is not the body informed by a form, but the matter, more precisely, a matter disposed and organized, and then he speaks of physical composition, or (b) by body he means that which precedes the infusion of the soul and exists under the form of embryo. When the soul is infused and displaces the form of embryo, man comes about in the way in which a third thing results from the union of two things.[13]

Answer to the confirmation. Although animality and rationality are indistinct in the real, the way of signifying makes it impossible to say in a formal sense that rationality is animality or vice versa. An abstract term signifies exclusively the formality itself, considered in the state of abstraction: with regard

to such a formality it cannot be said that rationality and animality are formally identical, since one term is not included in the concept of the other and is not related to the other as to its own constitutive. A proposition such as 'humanity is animality' holds only with this specification: inasmuch as animality is of the concept of humanity. Yet in the sense of a material identification it can be said that rationality is the thing which is animality and vice versa. More on this in question 5.

III

Antepredicamental Inquiries

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On Unity of Meaning

QUESTION 13

ON THE ANTEPREDICAMENTS AND THE ANALOGUES

ARTICLE 1

WHAT ANTEPREDICAMENTS ARE AND WHY ARISTOTLE TREATED OF THEM IN THIS PLACE

As mentioned in the foregoing,[1] the Antepredicaments[2] contain preliminary notions needed both for the arrangement of predicates into categories and for the distinction of the categories from each other. These prerequisites, set forth by Aristotle as an introduction [to his Treatise on the Categories] are four distinctions or conditions.

The first distinction or antepredicament is the division of terms into univocals, equivocals, and denominatives.

The second is the distinction of complex and incomplex [expressions].

The third antepredicament is the distinction between what exists in a subject and what is predicated of a subject.

The fourth antepredicament distinguishes two ways of belonging to a category. Some things belong to a category directly, others stay on the side of it and belong to it indirectly. Aristotle explains this last distinction by two antepredicamental rules.

As to the division of being into diverse categories, it does not pertain to the antepredicaments but constitutes the list of the categories themselves.

1. The *raison d'être* of the first antepredicament is that, in order to understand the system of the categories, it is necessary

to consider three relations. The first concerns the predicates that are above all categories. The second concerns the predicates that are co-ordinated in one and the same category. The third holds between terms that find place in one category and those that find place in another category. Likewise, it is necessary to consider unity and disunity in names, for the logician does not treat of things except in so far as they are expressed by names and concepts.

The relation of the categories to those predicates that are above them is expressed by the words *analogue* or *equivocal*, for categories do not unite in any univocal superior. The relation to the terms ordered in the same category is expressed by the word 'univocal,' for there is, among these terms, identity of meaning and not only identity of name. The relation of one category to another has the character of a 'denomination,' inasmuch as one category is accidentally related to another. Indeed, two categories cannot be united in essential fashion, since, when there is community of essence, there is but one category. Thus, the theory of the equivocals, univocals, and denominatives is the first antepredicament, whose function it is to explain the three relationships without which the co-ordination and union of the categories cannot be explained.

2. In order to perceive the meaning of the second antepredicament, consider that the things set in order by the various categories are simple, not complex. Indeed, the natures placed in categories are those which enjoy unity of definition and quiddity. A thing that does not possess unity and quiddity in essence is not being in an unqualified manner, it is rather a plurality of beings. Unity is a property of being. Incomplex natures alone find place in the co-ordinations of essences, for these natures alone are definable quiddities. Thus, the distinction between the complex and the incomplex expression was another necessary antepredicament.

3. In order to understand the meaning of the third antepredicament consider that, in any category, the arrangement of predicates into series or systems is relative to the functions of subject and of predicate; in other words, predicates ordered in categories are described as superior and inferior subjects and predicates. Thus, in order to form these systems, it is necessary

to distinguish between *being in a subject* and *being predicated of a subject*. For 'to be in a subject' pertains to something real, viz., to the accident, which inheres, and 'to be predicated of a subject' pertains to something intentional, viz., to the predicate, which is said of something. Thus, Aristotle describes four combinations:

(a) Certain things[3] are predicated of a subject, but do not exist in a subject. This is the case with universal substances: they are predicated of inferiors, but do not exist by way of inherence.

(b) At the other extreme, there are things which exist in a subject but are not predicated of a subject. This is the case with individual accidents; they exist by way of inherence—e.g., this whiteness—but they are not predicated, because they do not have the character of logical superiors.

(c) Other things neither exist in a subject nor are predicated of a subject. This is the case of individual substances—e.g., this man.

(d) Finally, others both exist in a subject and are predicated of a subject. This is the case with universal accidents—e.g., white. Thus, in this third antepredicament Aristotle distinguishes two kinds of being, viz., substance and accident, and two kinds of intention, viz., the intention of universality and that of individuality.[4] All these notions play a major role in the constitution of the categories, which are systems of predicates expressing accidents and substances with respect to individuality and universality.

4. Let the meaning of the fourth antepredicament be explained as follows: in order to effect the co-ordination of the categories one must know both (a) the connection of the things that belong to a category directly and are placed immediately in it, and (b) the connection, or the separation, of the things which remain on the side of a category as differences. Concerning this Aristotle gives two rules.

First rule. When something is predicated of a subject, whatever is said of the predicate is said of the subject. To wit: when something is said of the subject, i.e., of an inferior—whether it be a subject in the absolute sense, i.e., an ultimate subject, as in the case of the individual, or a subject not absolutely ultimate, as in the case of species—whatever is universal in respect to this inferior is related to it as a predicate of it.

Thus, whatever is said of such a predicate and is universal in respect to it will also be said of, and be universal in respect to, the subject inferior to this predicate and contained in it. This rule systematizes the predicates whose appurtenance to a category is direct; in the resulting system, inferior predicates are placed under the superior and universal ones.

Second rule. When genera are not placed in subalternation to each other, i.e., when one is not placed under the other, the essential differences are not the same. But, if they are placed in subalternation to each other, they may have the same differences—in other words, share superior differences—for differences which constitute the superior genera come down to the inferior together with the superior genera. Now, the subalternation of genera to each other can be understood in two ways, according as (a) one is placed under the other, or (b) both are placed under a third, like 'animal' and 'plant,' which are not placed under each other but are both placed under 'living.' Thus, if genera are absolutely and in every way devoid of common differences, it should be said that they are not placed in subalternation in either sense and that, consequently, they belong to diverse categories. If they are included in any third genus, they have in common at least the difference of this genus. In this case one genus does not share the difference of the other; the two genera share the difference of the genus in which they are contained as in a third entity. Consequently they are said to have the same differences not as communicated from one genus to another but as derived from a third and superior genus.

Now, it is important to remark that diverse genera may happen to be divided by similar differences. Thus 'power' is divided into cognitive and appetitive as into two genera, and each of these is divided into corporeal and spiritual. Likewise, but in the opposite direction, the spiritual faculty can be divided into cognitive and appetitive. Quantity is divided into continuous and discrete, and each of them into successive and permanent. Again, the proposition is divided into categorical and hypothetical, and each of these into affirmative and negative. Notice that these differences, if they are essential and formal, are really diverse and cannot consist of the same intelligible character, no matter how similar they may appear to be. Since, indeed, they formally constitute diverse natures, it is obvious that they cannot

consist of the same intelligible entity. On this subject St. Thomas (i-ii. 72. 5) gives this general rule: "the difference which causes diversity of the species is never found except in diverse species"; thus, rational and nonrational, animated and inanimate never can be found except in diverse species. "On the other hand, the difference which is found in diverse species without constituting diverse species may well be found also in things that belong to the same species"; for example, whiteness and blackness are found in the swan and the raven, which are of different species, but they are found also in two men. Thus, if the differences under consideration are constitutive and essential, they are not the same, although they may be similar. The 'corporeal' and the 'spiritual' which divide faculties and those which divide substances are not the same corporeal and spiritual; moreover, if we consider only qualities and faculties, 'corporeal' still admits of diversity of essence, and so does 'spiritual.' The spirituality of the appetitive is one thing, that of the intellective another. Both the categorical and the hypothetical propositions are divided into affirmative and negative, but it is not the same kind of affirmation and negation. On the other hand, biped and quadruped are not essential and constitutive differences but accidental ones, as we said in the foregoing,[5] following St. Thomas. Thus, differences that are essentially and formally constitutive never retain the same meaning in diverse genera and species.

ARTICLE 2

DEFINITION AND DIVISION OF THE EQUIVOCALS

This is how Aristotle defines the equivocals: "Things are called 'equivocals' when, though they have a common name, the notion of the essence corresponding to the name differs for each."[6] In this definition he clearly refers to the equivocated equivocals, since he uses the word 'equivocals' in the plural and says that "they have a common name." Thus, he did not define the equivocating equivocal, i.e., the name, but the things that are signified by the name, i.e., the equivocated equivocals. Now, things cannot be said to be equivocated except on account of an intention present in a mind; further, it is not on account of

their falling under an ultimate concept but merely on account of their falling under a name that the things signified receive the intention of equivocity. The definition refers to the name because the intention of equivocity is formed in relation to a name.

The elements of the definition do not call for a long elaboration. When it is said, "...they have a common name...," 'name' stands for any significative sound; it may be a noun or a verb or any significative term. When it is said that "the notion differs for each," the word 'notion,' according to the remark of Cajetan, stands for the concept signified by the name and principally for the objective concept. We shall soon see whether the formal concepts also must be diverse. In the phrase "the notion of the essence" the word 'essence' means quiddity or thing. The equivocals signify things different in quiddity; if there were signification of the same quiddity, there would be univocity.

The object so defined by Aristotle must be understood in the same way as the objects of other logical definitions. (Recall what was said of the object defined in the case of the genus). The object defined here is the second intention concretely considered, in so far as it belongs to the equivocated equivocals.

Yet, in order to clarify the theory of the equivocals, some difficulties must be briefly examined.

1. Can there be equivocity in the ultimate mental concept as well as in the word?

This question was answered negatively in the *Short Treatises* (Bk. 1. chap. 6). The reason for the negative answer is that the equivocal signifies a plurality of objects considered in their diversity, i.e., as having nothing in common. If a term signified several things as having something in common, whether the unity of the common feature be unqualified or merely proportional, there would not be pure equivocity, but univocity or analogy. Now, since a concept is a natural likeness of things, it cannot be one if the objects are several and in no way one; the unity of the concept in its function of representation and resemblance results from some unity on the part of the thing represented; it is from the object that it receives its specification and, consequently, its specific unity. If the objects are represented as several and not as having something in common, if, in other words, several objects are represented as diverse, there does not remain anything from which the concept can derive unity. The unity of a

natural representation is secured only by the unity of its object.

From this, it results that the law holding for the ultimate concept holds neither for the sound itself nor for the nonultimate concept, which is the concept of the significative sound. The significative sound does not signify by virtue of its intrinsic nature, but by imposition, i.e., as an effect of application. Whereas one and the same sound can lend itself to several applications, it is impossible that several natural representations should belong to one and the same concept, since the essence of the concept consists in representation. The case of analogy is different, for the analogous concept is not related to its analogates according to absolutely diverse meanings, but according to a meaning that has some sort of unity, at least the unity of proportion. As we shall see,[7] the unity of the concept does not require more than the proportional unity of the object signified—and, if such porportional unity does not suffice, much less will univocity suffice to secure the unity of a concept. Even in the case of a merely probably judgment, the subject and predicate of the same proposition are grasped through one and the same representative quality, for they do enjoy some unity, albeit only the unity of predication and conjunction.

2. Must the equivocal name be described as one name, or as a plurality of names, just as the equivocal proposition is described as a plurality of propositions?

Since the unity of any accidental whole is derived from the unity of the subject (as is often stated by St. Thomas; see in particular, iii. 3. 7 ad 2), the answer is that, absolutely speaking, the equivocal name should be described as one name in spite of its having several significations. Likewise, a man wearing several clothes is one clothed being, not several, and one body with several qualities is described as one 'such and such thing,' not as several. The number of accidental wholes is determined by the bearers, not by the forms, for the latter have existence not in themselves but in a subject. Since a name or term is an accidental whole made of a sound and a signification, a multiplicity of names cannot result from a mere multiplicity of significations—which have the character of forms—but only from a multiplicity of subjects. In the equivocals, the sound is one and the same. The name is common; therefore equivocals cannot be said to be, absolutely speaking, several names. This theory, rejected by some

moderns, is explicitly held by St. Thomas; see *Qdl.* 4. a. 17:"The unity or diversity of the significative sound does not depend upon the unity or diversity of the thing signified, otherwise there would not be any equivocal name." Likewise, in *Op.* 39 [*On Fallacies*], chap. 4, he says that the [deceptive] appearance, in the fallacy of equivocity, "is the unity of an oral term which is, absolutely speaking, one and the same." See also *C.G.* i. 33 and *Com. on Met.* 11. les. 3. Cathala 2197. This theory results plainly from the definition of Aristotle, who says that the equivocals are things that have a common name; if the name were not one and the same, it would not be common. Aristotle did not say that "the sound is common," but that "the name is common"; thus, to say that the equivocal is materially one on account of the sound would be short of the truth; it is one as a name.

No objection can be derived from the fact that the equivocal proposition, i.e., the proposition containing an equivocal term, is said to be a plurality of propositions. The plurality spoken of does not concern words, but conceptions; there are in the mind several propositions not subordinated to any single one, but, so far as words are concerned, there is only one proposition. This is why St. Thomas says (*Op.* 39 [*On Fallacies*], chap. 5): "Just as equivocity results from the fact that an oral term which is absolutely the same signifies several things, so amphibology results from the fact that one and the same sentence has several significations." Amphibology is an utterance containing an equivocal term.

You might say: An equivocal name has several significations; now signification is the form which makes a sound a name; accordingly, the equivocal name has merely unity of subject, and this is material unity, since formal unity derives from the form. Now, plurality on the part of the form suffices to determine plurality in accidents concretely considered, even though the subject be the same. This statement rests upon the following arguments: (a) If this were not the case, all accidents inhering in one and the same subject would have the same unity and would determine the same concrete whole; for instance, in a man, white, warm, healthy would be one and the same concrete whole, since the unity of the whole would be derived from the unity of the subject. But this is absurd; consequently it should be said that there can be numerical multiplicity of accidents concretely considered

without multiplication of the subject, if only the form is multiplied. (b) Consider, further, that the multiplicity of substantial things is determined by the multiplicity of the corresponding forms, as St. Thomas teaches (i. 39. 4); if this holds for substantial things, it holds much more certainly for accidents, especially when they are signified after the pattern of substance, which is the case of 'name,' 'term.' Multiplication in the genus of accident seems to require less than multiplication in the genus of substance, especially if you consider that multiplication, like other kinds of evil, results from any defect whatsoever. Briefly: if the multiplication of forms suffices to bring about the multiplication of substances, it suffices also to cause the multiplication of accidents.

Answer. With regard to numerical plurality, it is necessary to distinguish between what is required as cause and principle of numerical multiplication and what is required as condition. In substances the cause of multiplication lies in the diversity of the forms. Now, the multiplication of substance is not traceable to the form considered from just any possible angle, but only to the form considered as carrying with itself a suppositum, since it pertains to the substantial form, as a connatural condition, to carry with it a suppositum. If this condition is lacking, no multiplication of forms entails multiplication of individuals. This is what St. Thomas teaches (iii. 3. 7) in reference to the question whether two[8] human natures can be assumed by one divine Person. But the contrary holds for accidents: here, it is the multiplication of the supposita which causes the numerical multiplicity of the wholes made of subjects and forms. The plurality of accidents must follow upon the plurality of forms, if there is to be plurality at all: plurality of forms considered absolutely and abstractly, i.e., with reference to formal principles, determines a specific plurality; on the other hand, numerical plurality (a) in the case of substance, follows upon a form directly united with a suppositum, and, (b) in the case of accident, follows upon a form existing in another thing as in a subject.

1. In answer to the argument that all accidents existing in the same subject would be numerically one, let it be said that they do not enjoy numerical identity except in so far as their meanings are contained within one and the same specific form. Thus, even though a man be both warm and white, he is said to

be one 'such and such being' and it does not follow that he should be said to be several 'such and such beings' just because the specifically distinct accidents [warmth and whiteness] residing in the same subject do not have the same numerical unity but each has its own numerical unity within its own species. Moreover, accidents do not cause the constitution of a multiplicity of wholes corresponding to the various significations of the forms unless the subjects are multiplied; indeed, it it not on account of their own entity that forms are concretized in supposita, but on account of the subjects in which they inhere.

2. In answer to the second argument, viz., that substantial things are multiplied as an effect of the multiplication of the forms, we have already said that this consideration holds only when each of the forms carries with itself a suppositum. If such is not the case, viz., if the suppositum remains one, the forms are not many unless they are specifically different. A sign of such difference is the possibility of designating them by several names, each of which signifies a diverse species; so far as numerical concreteness is concerned, there is no multiplication. This holds with still greater certainty for accidents, even though they be signified after the pattern of substance, since accidents, considered in themselves, do not carry with them a suppositum: they owe their concreteness to their subjects. The concrete multiplication of accidents requires less than that of substances: it requires only the numerical distinction of the supposita. The multiplication of substances, on the other hand, requires both the multiplication of the supposita and that of the forms; more exactly, it requires the multiplication of the forms considered as carrying supposita with them. Notice, moreover, that not any kind of defect causes any kind of multiplication; let it be said, rather, that a definite kind of multiplication, viz., the numerical one, results from a definite kind of defect, viz., the multiplication of the supposita.[9]

With regard to the equivocals or analogues we formulated two rules in the *Short Treatises* Bk. 1. chap. 5).

First rule. An analogous term taken by itself stands for the better known of the things that it signifies. Thus, if you say: "The lion runs," 'lion' stands for the true lion, not for the

metaphorical one. The analogues concerned are those involving two concepts, which is the case in the analogy of attribution and in metaphorical analogy. This rule is found in St. Thomas, *Com. on the Sent.* i. dist. 9. q. 1. a. 1 ad 2: "When a term is expressed without qualification, it is understood of that which is unqualifiedly such; thus 'being' expressed without qualification signifies substance."

Second rule. Subjects are such as they are permitted to be by their predicates. This rule is also taken from St. Thomas (*On Truth* 7. 5 ad 3): "On account of some later addition, a term itself expressed without qualification is sometimes understood to stand for what it designates but secondarily."

The first rule refers to the analogue taken in itself and without any restriction, whether on the part of the subject or on the part of the predicate. On the other hand, by being united [with the predicate], the subject itself can play a restrictive role; e.g., if you say: "The meadow is smiling," the word 'smiling' is taken metaphorically on account of its union with 'meadow.' With regard to this second rule, (a) make sure that there is never distribution on the part of the subject. Such distribution interferes with alienation,[10] which is a kind of restriction. Strictly speaking, it is false to say: "Every being is God," "Every man is pictured," although, as a manner of speaking and not as an expression of logical rigor, the proposition "all the kings of Spain are in this palace" is conceded: it is understood to refer to kings represented in paintings. (b) Notice that when an analogue is affected by alienation as a result of some joined word or phrase, as in the proposition: "Man is pictured," where man stands not for real man but for pictured man, the contradictory assumes the following form: "No pictured man is pictured," so as to keep the same subject with the same alienation.

If the first caution (a) were not observed, distribution would interfere with alienation, as in the above distributive proposition ["Every being is God"]. Similarly, negation interferes with it if we ignore the second caution (b), e.g., when one says: "Man is not pictured"; here alienation is not applied but removed. Likewise, in the proposition: "God does not generate," the meaning of the word 'God' is not so restricted as to stand for the Father. See St. Thomas, i. 39. 4 ad 3.

ARTICLE 3

NATURE AND FORMS OF ANALOGY

The difficulties concerning analogy, which are metaphysical to a large extent, are discussed by Cajetan in the Opusculum *On the Analogy of Names* with such thoroughness and sublety that no room is left to us for any novel elaboration.

It is a general and commonly received view that analogy is intermediary between pure equivocity and univocity, inasmuch as the thing signified is neither absolutely the same, as in univocals, nor absolutely diverse, as in equivocals; it is, in itself, marked by diversity, yet it enjoys a unity of proportion and relation. For St. Thomas, all this is clear (*Com. on Met. 11. les. 3.* Cathala 2197). However, *some* modern theorists are of the opinion that the analogues, though distinguished by Aristotle from the fortuitous equivocals, are to be numbered, absolutely speaking, among the equivocals; they argue that analogy is but a species of equivocity and necessarily retains the generic nature of equivocity, viz., diversity of features on the part of the reality signified, with unity of name alone. There would not be, in the essence of analogy, any element traceable to the thing signified as though the latter were not several, for they hold that the analogous name signifies now one thing, now another, as all equivocals do; analogy would be entirely traceable to that which causes the signification of the name, for the relation of a thing to another or to several others is the reason why the name of a thing is applied to another thing. This relation is called analogy only when it has the character of a proportion; if it is another kind of relation, then the name is said to be an equivocal term, designating a plurality *to one* of whose members the rest are related, not an analogous term.

True, if we consider exclusively the proper signification of the word 'analogy' and its Greek origin, we find that all it means is (a) proportion and (b) the things which are one on account of a relation of proportion. This is how Aristotle (*Eth.* 1. 4. $1096^{b}27$) and St. Thomas (*Com. on Eth.* 1. les. 7. Pirotta 95) declare that those things are analogously one which are one in a relation of proportion. Those which are one according to other

relations are described as several things related to one and the same thing, the latter having either the character of a term or that of an origin. Cajetan says that the analogy of proportionality alone is true analogy (*On the Analogy of Names*, chap. 1); the other ones would be called analogies by abuse. Same remark in Soto (*On the Dialectic of Aristotle*, On Equivocals, a. 2 corollary 1).

However, it cannot be denied that *according to the usage of schools and of the best authorities, the word 'analogues' designates generally the terms which are neither purely equivocal nor purely univocal*, whatever may be the relation which gives them proportional and relative unity and on account of which they do not signify absolutely diverse essences. In a number of places Aristotle declares that some terms are used neither equivocally nor univocally; of these terms St. Thomas says that they are used analogically. (See in particular *Met.* 4. 2. $1003^{a}33$; St. Thomas, les. 1. Cathala 535.; *Met.* 7. 4. $1030^{a}34$; St. Thomas les. 4. Cathala 1336-1337; *Met.* 11. 3. $1060^{b}36$; St. Thomas, les. 3; *Com. on Met.* 12. les. 4; *On Truth* 2. 11; *On the Power of God* 7. 7; i. 13. 6.) St. Thomas divides analogy itself into analogy of attribution and analogy of porportionality; he speaks also of an analogy consisting in the relation of several things to one thing which has the character of a term or that of an origin; elsewhere he uses other expressions, which are similar and equivalent to these. (See in particular *On Truth* 2. 11; *On the Power of God* 7. 7; *Com. on the Sent.* i. dist. 19. q. 5. a. 2 ad 1.) He speaks of the analogues in contradistinction to the unqualified equivocals, which are the fortuitous equivocals. Indeed, all these terms signify things that are not absolutely diverse but enjoy some sort of unity. They differ from the pure equivocals and yet fall short of univocity since they do not signify absolutely the same thing. Why should they not be called 'analogues' in order that this difference be expressed?

Others, considering that the analogues do not abstract from any of the analogates, or from any of their modes or differences but are engaged in them, also hold that the unity of the analogues does not pertain in any way to the thing but only to the signification of the word. This is the opinion of Vasquez, *Com. on St. Thomas' Sum. theol.*, i. disp. 114 chap. 2 and disp. 121

chap. 2. We do accept the first statement, which will be proved in article 5 with arguments derived from St. Thomas and Cajetan. But the second statement is absolutely inacceptable, since it makes being purely equivocal, a thing that Aristotle denied so many times. (See next question, art. 2.) Obviously, propositions in which 'being' or 'to be' are predicated apply to the things themselves, for there is nothing more real than 'to be' or 'being': it is on account of the act of existing that any real thing is said to possess reality. Therefore, the general act of existing, in which all real beings come together, is not a mere way of speaking: it expresses the truth of reality. We shall see later what sort of unity this concept possesses.

It results from what has been said that the analogues constitute a species of equivocals inasmuch as they do not have, like the univocals, unqualified unity of signification. On the other hand they are distinct from the fortuitous equivocals, since they do not signify entirely diverse things but diverse things that are proportionally one. This [relative unity] does not concern merely the signification or the cause of the signification: it concerns also the reality signified. If there were not, on the part of the reality signified, some proportion and some relation of agreement, a signification involving such a relation would imply falsehood, and so would the application of such a signification.

In order to explain the division of analogy, we must first establish the common notion of analogy, then show how it is divided. From the preceding exposition it clearly follows that those terms are called analogues whose meaning is not absolutely diverse but admits of some unity; now, the unity which connects a multiplicity of meanings is necessarily founded upon some agreement, resemblance, or identity in the things; consequently, to understand the difference between analogous and univocal unity, one must inquire into the diverse ways in which things can agree or be identical with each other. In the case of the univocal concept, agreement means unqualified unity; agreement is unqualified, since unity of nature, whether specific or generic, causes the resemblance of its inferiors. In the case of the analogue, agreement means proportional unity; the analogue does not apply to things having equality or resemblance in any nature. Such things [the analogates] are said to be the same [in the

analogue] by way of a proportion, not by way of equality. This is more forcefully expressed in Spanish, "*Es lo mesmo en su tanteo*"; it is as if you said that for each analogate 'being the same' is marked by a measure of its own and a proportion of its own. According to St. Thomas (*Com. on Eth.* 5. les. 5 Pirotta 939) a proportion is "the relation of one quantity to another." Since quantity has the character of measure, a unity of proportion (or an agreement consisting in a proportion) is a unity dependent upon the measure of each term. It is not a unity in an absolute sense. Now, those things are called univocal whose essences are absolutely similar, which implies equality in the possession of a nature. The analogue falls short of absolute unity or agreement among its analogates. Agreement among them is merely relative, which means that it consists in a proportion or commensuration.

Such are the notions which had to be explained prior to setting forth the divisions of analogy.

1. Analogy is divided, firstly, into analogy of proportion and analogy of proportionality.[11] Analogy of proportion is designated by several names. It is commonly called 'analogy of attribution' because, in it, a principal term is the origin of an attribution or denomination received by other subjects; thus, starting from the health of the animal, an attribution or denomination is received by urine and medicine which are also said to be healthy. Further, it is called 'analogy of one to another or of several to one' for the same reason, viz., because a denomination originating in one is received by several. Lastly, it is called 'analogy of proportion' because its principle is one of correspondence or commensuration among several things. Sometimes this proportion consists in a definite degree, as in the case of the proportion between the strength of a man and the weight that he can carry; sometimes it is merely a relation of correspondence without determination, as between creature and God. (See St. Thomas, *On the Power of God* 7. 10 ad 9, and *On Truth* 2. 11.) Analogy of proportionality is also called 'analogy according to a comparison' for its principle consists in an equality or comparison between proportions. Indeed, as St. Thomas says (*Com on Eth.* 5. les. 5. Pirotta 939), equality in proportions is called proportionality.

This is the definition of the analogue of proportion or attribution:

"Things in the case of which a name is common to several in such a way that the essence signified is the same if one considers the term but diverse if one considers the relation to this term." Thus, 'healthy' expresses the same essence if you consider the health which resides in the animal, but in urine and herb it designates diverse relations to a term which is the health of the animal. This definition is derived from St. Thomas who says (*Com. on Met.* 11. les. 3. Cathala 2197) that such an analogue is called an analogue because it is proportional [i.e., adequately related only] to one [of its analogates]. See also Cajetan, *op. cit.* chaps. 2 and 3. This is the definition of the analogue of proportionality: A name and a feature which are common to several in such a way that the feature is the same according to a resemblence or agreement between proportions. This definition is derived from St. Thomas, *Com. on Eth.* 1. les. 7. Pirotta 95; *On Truth.* 2. 11, and other places already referred to. See also Cajetan, same reference as above.

Notice that St. Thomas, in his *Com. on the Sent.* i. dist. 19. q. 5. a. 2 ad 1) uses other names to designate these kinds of analogues. There, the analogy of proportion or attribution is called analogy "according to intention but not according to being." To understand this expression, notice that the intention or essence from which the denomination proceeds does not exist in all the analogates but only in one, viz., the principal. In the same place, the analogy of proportionality is called analogy "according to being and according to intention." In this case the analogates do not find the principle of their unity or agreement in one thing from which they would receive an intention or denomination; they do not find such principle, either, in one form which would have the same kind of existence in all of them. Each of them has necessarily a feature belonging intrinsically to itself and different from what the other is; yet this feature is in some way proportionate to the other analogate, as when being is predicated of substance and of accident. The other analogues, which are called there "analogues according to being but not according to intention," and are called by Cajetan and some others "analogues of inequality" are not analogues in the proper sense; however, the physicists describe them as analogues, because their matters are not of the same kind; the corruptible and the incorruptible would be analogues

in this [improper] sense (*Met.* 10. 10. $1059^{a}10$; *Com.* of St. Thomas *on Met.* 10. les. 12 Cathala 2142-2145), although they participate univocally in the notion of body and in that of substance.

2. The analogy of proportionality is divided into proper and improper or metaphorical. There is proper analogy when the essence signified by the analogous term is found in each analogate formally and truly, as being is found in accident and substance. Analogy is metaphorical when the essence signified is found formally in one analogate and figuratively, or as an effect of transfer, in the other; thus 'smile' is found properly in a smiling man and by a sort of abuse of language in a smiling meadow. This division is not unknown to St. Thomas; he mentions metaphorical analogy when he speaks (*Com. on Eth.* 1. les. 7. Pirotta 95) of names that are used "...in the unity of a single proportion to diverse subjects; for the proportion of sight to body is the same as the proportion of intellect to soul." Thus the intellect is figuratively said to be an eye, for, although it is not truly an eye, it is like an eye. Everything which owes to something else a metaphorical and figurative denomination is said to be not what the term means but like that which is meant by the metaphorical term; e.g., Christ is not said to be a lion but like a lion. Although the name is the same, the concepts in the mind are not the same. (See *Short Treatises* bk. 7. chap. 2.) The words that exercise the function of metaphorical analogy are not analogues by virtue of their own meaning [i.e., by their proper imposition] but as an effect of transfer and usage. Such transfer results from the fact that men use roundabout approaches to things, compare things with one another, and come to treat one thing as if it were another. More on this in article 5. Metaphorical analogy is not in a proper sense a species of analogy, it is a comparison of one thing with another, the same name being retained. Cajetan says (*op. cit.* chap. 3) that it is an abuse to call analogues things which are not analogous except in a metaphorical sense. In the *Short Treatises* we described their case as not being one of analogy properly so called.

Finally, it is customary to divide analogy into analogy of two concepts and analogy of one concept. This point will be examined in article 5; there we shall see which analogues can

be conceived in one concept and which require various concepts.

You might ask whether the transcendentals imply any kind of analogy distinct from these. Some authors think that this is the case; but, following Aristotle and St. Thomas (*Com. on Met.* 3. les. 8. Cathala 430, 432-433), we count the transcendentals among the analogues. This issue will be elaborated on in the next question, where we shall discuss the analogy of being. Briefly: the differences in which the transcendentals are engaged derive their diversity from the transcendental essence, not from any additional concept distinct from the transcendental itself; consequently, the transcending essence, by virtue of its very concept, is evenly related to unity and to diversity; this means that it is not one, absolutely speaking. We consider that this analogy of the transcendentals is reducible to an analogy of proper proportionality or, as some maintain, of attribution. This will be explained in the next question, where we consider the analogy of being; what holds for being holds also for the other transcendentals. The theory just outlined is upheld by St. Thomas in *Com. on Eth.* 1. les 7. Pirotta 95 in relation to the good, which is one of the transcendentals, in i. 6. 4 and in *On the Power of God* 7. 7 where he treats of being itself, and in other places cited above.

Again you might ask: being, as predicated of Peter and of Paul or of any two individuals, is transcendent, since it is engaged even in their differences and in all elements of their essence; yet, this is neither a case of proportionality nor one of proportion, since between individuals there is unqualified equality. Thus, the theory is false.

Answer. By virtue of its own being and essence, the transcendental extends to several things which differ from each other in species and genus; with regard to these things, it is analogous and, accordingly, it is not restricted to particular individuals [of the same species]. With regard to such individuals, it is not analogous in the precise sense of this word, although it is transcendent; this situation is an accident traceable to the fact that the transcendent essence is taken not in its entirety but as restricted to two things between which there is no formal inequality; their inequality is merely material, which implies that it is not an inequality of diversity. Thus, when a transcendental concept is restricted to individuals of the same species, the property

of being purely and simply unequal and diverse, which belongs to analogy, is not exercised, although transcendence remains. But notice that the transcendental reality is considered here, not according to its essence, but in an accidental situation determined by explicit restriction.

ARTICLE 4

ON THE FEATURES PROPER TO THE VARIOUS ANALOGUES

In analogues by attribution and analogues by proportionality there are two main features, each of which entails several subordinated ones.

Among the many features customarily ascribed to the analogues by attribution or proportion, this is the main one: the form [signified by the analogous term] pertains intrinsically to the principal analogate, extrinsically and by denomination to the other analogates. This feature entails three other ones. *First:* The analogous form must possess numerical unity, inasmuch as it is found only in one analogate. *Second:* The form of the principal analogate must be included in the definition of the others, which derive their denomination from that form. *Third:* These analogates [i.e., the principal and the secondary ones] are not expressed by one concept; yet, the various concepts which express them are connected with each other by way of connotation, which distinguishes their case from one of pure equivocity. All these features are exemplified by 'healthy' as predicated of animal and medicine or herb, etc.

Similar features hold for the metaphorical analogues which are also expressed by several concepts and resemble quite closely analogues by attribution.

With the analogues by proper proportionality the main feature is this: in all the analogates there exists, intrinsically and formally, a certain essence consisting in a proportion, according to which essence the analogates are assimilated in proportional fashion. From this there follow three other features, opposite to those of the analogy of proportion. *First:* The analogous es-

sence cannot exist formally in one analogate alone and in the others by denomination; it must exist formally in all according to ways proper to each. *Second:* It is not necessary that one analogate should be included in the definition of the others. *Third:* The analogates can be expressed by one concept, whose unity is imperfect and relative. It is a proportional unity. It has objective significance.

In connection with the two main features, upon which the others depend, we have to consider the following problem: are these conditions necessarily required to the constitution of these analogies? *Some* modern authors think that in analogues by attribution the essence signified may happen to exist intrinsically not only in the principal analogate, but also in the other analogates, though dependently upon the principal analogate. Conversely they say that the analogy of proportionality always requires an element of attribution or metaphor. The latter statement follows from the former, for they consider that there is analogy of attribution whenever a form exists primarily in one thing and secondarily in another, even if it exists intrinsically in both. These views are held by Suárez (*Metaphysical Disputations* 32. sec. 2) and his disciples. See also Cabero, *Digest of Logic*, Treatise 4. disp. 2. diff. 3.

The first part of this theory is based on the consideration that an analogy of attribution can be found in being and in other terms that are predicated of their inferiors according to an intrinsic denomination: thus, the feature [described as the first of the two main ones] would not be necessary.

The antecedent of this argumentation is taken, in the *first* place, from St. Thomas who acknowledges an analogy of attribution in 'good' and 'true' when truth and goodness are divided into divine and created. See i. 16. 6; 6. 4. Same doctrine about being as predicated of God and creatures in C.G. i. 32. In *On Truth* 2. 11, he teaches that what is predicated of God and of creatures, of substance and of accident is understood by priority and posteriority: but this is proper to the analogy of attribution. *Secondly:* the definition of the analogy of attribution requires merely that there be among the analogates a first and principal one upon which the others depend, it does not require that the analogous form should pertain in merely extrinsic and denominative fashion

to the secondary analogates. Indeed, the definition says that the analogues by attribution are united in the term [of the set that they make up] and diversified by their relations to this term. Who said that these relations must be determined by a form existing intrinsically in one analogate and extrinsic to the others? *Thirdly:* it is obvious that the analogous term 'healthy' is predicated of animal and herb in an analogy of proportion; however, as predicated of herb, it is not an extrinsic denomination; it is an intrinsic relation, i.e., the essence on account of which an herb is denominated healthy. Clearly, this relation is founded upon something intrinsic, viz., the ability to cause health. See St. Thomas, i. 16. 6.

The second part of this theory is grounded *first* upon the authority of St. Thomas who teaches, in general terms, that in all kinds of analogy all meanings must be understood in relation to one, and that the primary meaning must be included in the definition of all. See i. 13. 6 and 16. 6. Since this is a property of the analogy of proportion and of metaphor, such analogy is required even in the case of the analogy of proportionality. *Secondly:* proportionality, taken without any further specification, can be found in univocals; we certainly can say that just as man is related to his 'to be an animal,' so horse is related to its 'to be an animal,' and this does not exclude univocity. Accordingly, in order that univocity be excluded and analogy constituted, some dependence of one analogate upon another is required over and above the proportional comparison. Now wherever there is one principal analogate and secondary ones dependent upon the former and denominated by it, there is analogy of attribution or metaphor. It is the element of attribution or metaphor which excludes from proportions or comparisons the absolute equality which is directly opposed to analogy.

Nevertheless opposite views should be held on both points. With regard to the first part of the theory we say that the analogy of attribution and likewise the metaphorical analogy—which is very closely related to the analogy of attribution so far as the analogically denominating form is concerned—must, of necessity, exist intrinsically in one [term of the set], extrinsically and denominatively in the others. However, intrinsic relations may be presupposed in the secondary analogates; it is not by virtue of

these intrinsic relations that they are analogically denominated and placed under an analogous form, but by virtue of these intrinsic relations they are connected with the principal analogate; following upon this connection they are denominated extrinsically, in analogous fashion, by the first member of the set.

Both parts of this thesis are taught by St. Thomas. That the analogous form, in the case of attribution, must be found intrinsically in only one member of the set and denominatively in the others is held in i-ii. 20. 3 ad 3; i. 16. 6; *Com. on Met.* 4. , les. 1. Cathala 537 and 11. les. 3. Cathala 2196-2197. In these texts he says that the form must be found according to its proper essence in only one of the analogates, from which the others receive their denomination. St. Thomas' thought is clear; the form does not exist formally in all members of the set; it is only in one member that it possesses its proper essence and way of existing; it enjoys numerical unity, which excludes formal communication to others. That the secondary analogates possess something intrinsic by which they are not analogically denominated but intrinsically related to the principal analogate is held by St. Thomas in i. 16. 6: "And although health is neither in medicine nor in urine, yet in either there is something whereby the one causes, and the other indicates health." Thus, for St. Thomas, the analogically denominating form is contained within numerical unity and it resides in one analogate, viz., the principal one; correspondingly there is, in the other analogates, something by which[12] they are related to the principal analogate, in such a way as to be denominated by its form. The denomination that the herb receives from its power to cause health is not 'healthy,' but 'relative' to health. Likewise, urine is called healthy on account of the health of the animal, which is extrinsic to it; if its ability to signify health were considered alone, it would be called significative, not healthy.

The reason for this is that, if there were in each analogate an intrinsic form exercising denomination, every one of the analogates would be said to be such and such, not on account of a form existing in another, but on account of a form possessed intrinsically. Then no analogate would need to be denominated by the extrinsic attribution of a form belonging to another; the analogy of attribution would be destroyed. For the sake of greater

clarity, suppose that the denominating form exists intrinsically in each analogate, though principally and more perfectly in one of them; three cases should be considered according as the form is (a) one by way of similitude and identity, or (b) proportionally one, or (c) absolutely diverse. If there is absolute diversity, there is equivocity, not analogy. If the form is entirely similar and constituted by the same essence, there is univocity. If the form enjoys proportional unity and exists intrinsically in each analogate, all the conditions of the analogy of proportionality are realized, as is clear from the definition of this kind of analogy. Thus, in order that there be an analogy of attribution distinct from these three cases, denomination must proceed not from a form intrinsically existing in each analogate, but from a form existing intrinsically in one and denominating extrinsically the others. Thus, health exists intrinsically in animal, but in herb or medicine the form of health does not exist intrinsically: it merely exercises extrinsic denomination.

Our stand on the *second issue* is also based on St. Thomas and on reason. On St. Thomas, for he distinguishes sharply between the analogy of proportionality and the analogies of attribution and metaphor. See *On Truth* 2. 11. and *Com. on. Eth.* 1. les. 7. Pirotta 95-96. Strikingly, he declares, in *On the Power of God* (7. 7), that even if there were goodness of identical essence in God and creatures (which of course is impossible), in such a way that one goodness should not derive from the other, diversity in the relation to existence would still exclude univocity. Thus, if you set aside all attribution or extrinsic and metaphorical denomination, diversity in the ways of existing proper to God and creatures would still suffice to cause analogy and exclude univocity. In the *Com. on the Sent.* (i. dist. 19. q. 5. a. 2 ad 1) he says that the analogues according to existence and intention, which are the analogues by proportionality, must exist intrinsically in the analogates. In the *Com. on Met.* (3. les. 8. Cathala 433) it is said that the reason why being and the other transcendentals do not have the character of genera and are deprived of univocity is that they are engaged in their own differences. (This subject will be treated more extensively in the next article and in the next question.) Thus, there is genuine analogy without any metaphor or attribution, since in the transcendentals

there is neither attribution nor metaphor. If there were either, they would not be transcendentals.

It is very easy to understand why it is so. True, a comparison of proportion and equality can be made between things which enjoy absolute and univocal resemblance; thus, it can be said that, just as man is animal, so is horse. But here unity of equality and proportion is not the only unity. There is another and a greater one, viz., the unity of univocal resemblance. The unity of proportion founded upon a unity of univocal resemblance does not suppress univocity. When there is no unqualified resemblance, unity of proportions, even though it may hold between intrinsic forms, cannot constitute univocity, for it is not unity in an absolute sense and in all respects; it is a unity inferior to univocity, it is a relative unity, it is analogous unity. For instance, if we make a comparison of proportion between heart in animal and foundation in house and give the name of principle to both, this word 'principle' does not signify any nature or any complete resemblance shared by both; it signifies the proportion of each form; in other words, it means that the heart is to the animal what the foundation is to the house. These two retain some unity in the notion of principle, but it is not the unity or resemblance of things or natures: it is merely a unity and resemblance of proportions. Thus, there can be analogy as an effect of proportional unity, without any attribution or metaphor. This is the case when the comparison of proportions is not based upon any unity of similitude or agreement concomitant to proportional unity; then, analogy is constituted by a mere comparison of proportions and by a form intrinsic to each member of the set; it does not result from a denomination or metaphor derived from what exists in only one analogate. The heart is principle and the foundation is principle in a true and not in a metaphorical sense, yet heart and foundation are called principle analogously. The same holds for the transcendentals, where there is no univocity. See the following article and the following question.

Answer to the arguments supporting the first part of the opposite theory. St. Thomas, from a certain point of view, attributes to these analogates an analogy of proportion, but he does not deny that, from another point of view, they possess an analogy of proportionality. This is why in i. 6. 4., where he says

that all things derive their goodness from the divine goodness both in the order of exemplary causality and in that of efficient causality, he adds: "Nevertheless everything is called good by reason of the likeness of the divine goodness belonging to it, which is formally its own goodness, whereby it is denominated good." Thus, St. Thomas considers that the analogy of goodness as found in God and creature refers to a form intrinsic in both and does not result from an attribution or from a metaphor. In his *Com. on Eth.* (1. les. 7. Pirotta 95-96) he says that the analogy of the good refers principally to a goodness inherent in things; he gives priority to this analogy over the other analogies which were characterized in terms of proportion or attribution. Thus St. Thomas does not ascribe to the analogy of attribution the property of being predicated according to inherent forms; this property is said to belong to the analogy of proportionality, although the things which are analogous by proportionality can also, from another point of view, be analogous by proportion.

You might ask how these two analogies, which have absolutely opposite features, can belong to one and the same thing, viz., being. The analogy of proportion implies that the form exists intrinsically in one and extrinsically in the other, the analogy of proportionality implies that the form exists intrinsically in both; now, being exists intrinsically in all analogates, not intrinsically in only one and denominatively in the others.

Answer. When the two analogies accompany each other, not both of them are formally present; one of them is merely virtual. Being is present intrinsically, and in no other way, in every analogate; however, if any being, say, creature or accident, were not being in an intrinsic sense—which, of course, is impossible—it still could be called being by attribution and denominatively, since creature is being derived from another and accident is being inherent in another. This is how the various texts of St. Thomas can be reconciled with each other. In i. 16. 6 he acknowledges, though not in entirely definite terms, an analogy of attribution between created and uncreated truth. In *On Truth* (2, 11) he acknowledges only an analogy of proportionality between God and creature. True, an analogy of proportionality, which implies intrinsic participation, actually holds. On the other hand, since everything that there is in creature is participated and derived from

God as from the principal analogate, creatures could still be called such and such [good, true, etc.] by mere attribution and denomination, inasmuch as they are from God, if the intrinsic denomination were lacking.

It might be argued further that Aristotle speaks constantly of an analogy of attribution between substance and accident, with reference to the example of 'healthy' as predicated of animal and medicine. See *Met.* 4. 2. 1003^a33; 7. 1. 1028^a13 and 4. 1030^a34; see also the *Com.* of St. Thomas on these texts [Cathala 537-539; 1251-1259; 1337] and *On Truth* 2. 11. Thus, at least in the case of substance and accident there is actually an analogy of attribution together with a no less actual intrinsic participation. The *answer* is found in St. Thomas, *Com. on Met.* 4. les. 1. [Cathala 539]: "Every being is understood in reference to one first being. But this first being is not efficient cause or final cause as in the above mentioned examples of healthy and medicine: it is a subject." When the principal analogate exercises its priority by being a subject, there is not attribution by extrinsic denomination as if it were an end or an efficient cause: the thing is called such and such on account of the inherence of a form.

In answer to the second proof of the main argument: since analogues by attribution have no more than a relation to a term by the attribution of which they are denominated as by an extrinsic term, they cannot be denominated by any intrinsic determination.

In answer to the third proof: the herb is intrinsically related to health by its healing power and thus it is said, in an intrinsic sense, to be relative to health, but it is not called healthy in an intrinsic sense. Thus, health has the character of a form in animal, but for herb it has the character of a term denominating extrinsically.

Let us now consider the *arguments* which support *the second part* of the opposite theory. To the *first* argument, which claims the authority of St. Thomas, let us answer that in this universal proposition St. Thomas does not speak absolutely of all analogues, but restrictively of the analogues of attribution alone; in the text referred to (i. 13) he treats of analogy in dialectical rather than metaphysical fashion; in other words, he considers analogy from the point of view of names rather than from the point of view of things. (The whole question is concerned with the names

of God.) In a metaphysical treatment of analogy, attention is given to inequality on the part of the things, and, correspondingly, in a dialectical treatment, attention is given to inequality in the way of signifying and naming. This is made evident by the examples that St. Thomas uses: healthy as predicated of animal and urine, and those names said metaphorically of God and creatures which are such that the essence signified is found primarily in creatures. When he speaks of the other perfections of God which are found intrinsically even in creatures, such as to be good, to be wise, etc., he says that with regard to the thing signified they are attributed to God by priority because they come down from him to the creatures, but he does not say that they are traced to God as to the principle of an extrinsic denomination. Likewise, he does not intend the previously stated universal rule to be understood as if in all cases of analogy every predication referred to a first term by which the others would be denominated; he intends it to be understood in reference to the analogues by attribution alone. In the text from q. 16 he does not speak universally of all analogues and so the argument derived from that text lacks cogency.

Answer to the second proof. A comparison of proportions—which is what we call a proportionality—does not suppress univocity if it is designed to express a comparison of unqualified resemblance. There is analogy when, and only when, no unity and no agreement are presupposed except proportional unity and agreement. The fact that proportionality can be exercised in univocals does not prove that proportionality does not constitute analogy if no unity greater than that of proportionality is involved, even though the form signified exists intrinsically in each analogate.

ARTICLE 5

WHETHER AN ANALOGOUS CONCEPT ENJOYS UNITY BY WAY OF ABSTRACTION FROM ITS INFERIORS

In the whole theory of analogy nothing is more important, and more difficult to understand, than the question of the unity of the analogues—a unity which distinguishes them from the equivocals but does not suffice to make univocals out of them. We are

speaking of the concept abstracted or separated from its inferiors, for, if a concept is considered as engaged in its inferiors, it is obviously multiplied. Unless a concept is separated from its inferiors, it does not have unity; consequently, it is impossible to inquire into the unity of an analogous concept without inquiring into its being abstracted from its inferiors. The unity of a concept is founded upon the possession of common features, [13] and diverse kinds of unity follow upon diverse ways of having common features. The kind of community of features and of unity which pertains to the univocals is properly characterized as unqualified unity. But in the analogues unity is relative and proportional and must be understood in terms of relation and comparison; consequently, not the same kind of unity is found in the various kinds of analogy; thus it is necessary to consider the various kinds of analogy one by one and to assign to each of them the kind of unity that belongs to it.

First thesis. The terms of an analogous set, in analogy of attribution or of metaphor, cannot have one common concept, whether objective or formal; the various analogates are expressed by several concepts connected, however, by a unity of comparison and connotation which alone distinguishes them from the pure equivocals. (This is why an analogue of attribution or of metaphor is called an "analogue of several concepts," by Soto, *Com. on the Dialectic of Aristotle*, chapter on Equivocals and Analogues, and by other Thomists.)

This thesis is founded upon the consideration that the unity of these analogates does not consist in anything existing intrinsically in all of them, whether absolutely and unqualifiedly or relatively and in proportional fashion, i.e., in ways proper to each; it consists in the relation of one or several to one term from which they receive denomination because they connote it or are related to it in some other way. This unity, being merely that of a relation obtaining between one object and another, or several objects and one, necessarily implies several concepts connected with this relation and without which neither relation nor connotation would actually hold. As a further evidence, notice that an analogue of either of these types does not possess its analogous character by virtue of its primary meaning, but as an effect of transfer and usage. This was suggested in the *Short Treatises*

(q. 6, On Supposition, a. 2), but it was not the proper place for a thorough discussion of this issue. We said that in transfer and metaphor there are no true analogues, but proper names used in a metaphorical transfer. This is true, since analogues by attribution and metaphorical proportionality are not what they are as an effect of their meaning (see Soto, *Com. on the Dialectic of Aristotle*, chapter on the Equivocals q. 1. a. 2 corollary 2), but as an effect of transfer and human usage. Considered in their own meaning the words 'healthy,' 'smiling,' 'lion,' and many others are univocal and directly signify health formally understood, which exists in the animal, and smile, which exists in man, and the true lion. But men are used to comparing things with each other on account of resemblances or connotations that the things imply, and the name of a thing comes to be applied to another thing. Under the name so transferred the comparison or connotation is, so to speak, concealed and expressed indirectly. The thing to which a name is applied by metaphor [e.g., the brave man] is [implicitly] compared to the object that the name properly designates [e.g., the lion], but this does not mean that the name signifies that thing [*lion* does not signify brave man], even in secondary fashion. The object signified by the name is exclusively that [the real lion] to which such a thing [the brave man] can be compared and related as to a term of reference. From the fact that the object [the lion] signified by the name is term of comparison or relation for other things [brave man], it does not follow that the name [*lion*] signifies any of those things, whether directly or indirectly, in virtue of its meaning and of the representative quality naturally possessed by the corresponding concept.[14] By impropriety, we use a certain name to designate things related to the thing that this name signifies; e.g., we see that medicine or food leads to health, which resides in the animal, and we call food healthy; we see that a blossoming meadow is a cause of joy and say that it is smiling; we understand that Christ is like a lion in courage, and we call him a lion.

This is what St. Thomas means when he says (i. 13. 6) that "The name of lion applied to God signifies only that God manifests strength in his works, as a lion in his." It follows that the concept of lion, inasmuch as it corresponds to the word 'lion,' which is univocal, cannot, by extension, come to signify God or

any thing that is compared to a lion. 'Lion' is merely the term of a comparison and assimilation and cannot be said to signify God even in less principal fashion. This is why, in the *Short Treatises (loc. cit.)* we gave this warning: although a name that is genuinely analogous [i.e., by analogy of proper proportionality] signifies secondarily the less principal analogates, yet the univocal name must be given an improper supposition when it is used, by transfer, to signify something else. This was a concise and abbreviated exposition; improper supposition and metaphorical analogy (they are the same) may belong to a univocal name, which by virtue of its meaning or direct signification signifies something univocal, and yet is extended to something else by transfer. Thus, the concept of lion does not signify Christ either directly or indirectly, it is not like the analogues which, by virtue of their first signification or meaning, are such that they signify their less principal analogates. The word 'lion,' by virtue of its meaning, is univocal, and it is only as an effect of transfer that it is applied to Christ. None of these analogues can be reduced to one concept, because the comparison and the connotation which make up its unity require several concepts, even though all the secondary analogates are compared with one and the same term. The foundation of all this is that these analogues, if taken by themselves, i.e., in their own meaning without any alienation, refer to the most familiar of the signified objects, because they are brought back to univocity.

Second thesis. An analogue by proper proportionality admits of one concept for all analogates, but this concept is inadequate and imperfect; it does not abstract from its inferiors by potential inclusion and actual exclusion, but by not making explicit in act things which it actually includes or implies.

This thesis, which is commonly received among Thomists, is derived from Cajetan *(On the Concept of Being* and *On the Analogy of Names,* chap. 4), and from Sylvester of Ferrara *(Com. on C.G.* i. 34). It holds for both the formal concept and the objective concept, which correspond to each other as that which represents and that which is represented.

The foundation of this thesis is that, most of the time, when the intellect perceives an analogous name, e.g., being (which in the following question we shall show to be analogous), it concen-

trates its power on one concept and does not scatter it on several. This is a sign indicating, a posteriori and inductively, that the analogous name can have a single concept. Indeed, we say that unity, goodness, etc. are properties of being; accordingly being must be something one, otherwise how would unity be its property? And how could metaphysics treat of it as of one object and demonstrate its properties? Further, it can be shown a priori that in these analogates there is a sufficient foundation for the formation of one concept. In the analogy of proper proportionality the bond of the analogates does not consist in a relation to one term or in the connotation of another (which would require a plurality of objects among which such relation and connotation would be exercised); the unity of the analogates resides in the way of having a form, for each analogate has its form not in the same way, but proportionally "*en su tanteo.*" Thus there is something which can serve as object of a single concept: it is this proportional unity in a form which belongs to all intrinsically; the expression of such a form does not require a plurality of concepts. To sum up: this kind of analogue cannot afford an absolute diversity of concepts, as does the fortuitous equivocals, otherwise it would not be an analogue. Therefore it has a concept possessing some sort of unity. Its unity does not consist in a connotation or comparison respecting one term; if this were the case, it would be an analogue by attribution and would require several concepts. The unity of such an analogue consists in an agreement restricted to the way in which each analogate possesses its own form. Unity of agreement is a sufficient ground for unity of concept.

In order to understand that this concept is an imperfect and inadequate one and does not abstract from its inferiors in such a way as to stand to them in a relation of potency to act and admit of contraction by the addition of a differential concept, it suffices to remark that otherwise it would be a univocal concept. 'Animal' is univocal in relation to all its species because it is conceived as having such actual unity that its dividing differences are had only in potency and must be added in order that division be effected. The analogue, whose unity is not so complete but is merely relative, must not include in mere potency the diversity of its inferiors. If it did, it would, absolutely speaking, enjoy actual unity; in other words, it would be univocal. It would not be mul-

tiple or diverse except in potency. In order that it should not be one in an absolute sense, it must include diversity in act, although it does not make this diversity actually explicit.

Moreover, the analogues of this kind [i.e., of proper proportionality], especially the transcendentals, are included in their differences and engaged in them; accordingly, they are not, like the univocals, contracted only by the addition of something extrinsic to them. Thus the analogue itself supplies not only the unity and agreement found in the inferiors, but also the difference and diversity, since division is not effected by something extraneous in which the transcendent thing would not be included. If there were an adequate and perfect concept expressing all that there is in the analogue, this concept would represent not only unity but also diversity. Therefore, when the analogue is conceived only in unity, it is conceived inadequately and imperfectly, since its concept does not express all that belongs to it actually.

Some find it difficult to understand how a concept can contain a diversity of inferiors in merely implicit fashion and yet contain this diversity in act; they argue that a concept contains a thing in act when it represents it in act, and in potency, when it does not represent that thing in act but needs, in order that there be representation of it, the addition of another concept. On account of this difficulty it is important to remark—and this helps a great deal in explaining the concept of analogy, the transcendentals, and the divine attributes—that the intellect can effect distinction or abstraction in two ways: (1) in unqualified fashion, by separating conceptually one thing from another, so that what is abstracted does not include that from which it is abstracted; distinction is effected by inclusion of the one and exclusion of the other, as, for instance, animal is abstracted from man; (2) in other cases, isolation is not unqualified, it is not effected by removing one intelligible feature from another, but by more confusion or more explicitness about the same thing. This does not change the things that are conceived, just as there is no change in the things that are seen according as they are seen confusedly from afar or distinctly from a short distance: the modes of conceiving alone are changed.

These two abstractions will be better understood if we con-

sider the opposite of abstraction, which is contraction. When an abstracted concept, e.g., animal or man, needs, in order to be contracted, the addition of something extraneous—by something extraneous I mean something of which the abstracted concept cannot be predicated—then abstraction has been effected by the exclusion of this contracting element; e.g., in order to contract the concept of animal, you need the difference 'rational,' of which 'animal' is not predicated. In this case contraction is effected by the addition of an element; correspondingly abstraction is effected through the exclusion of the same element. But when an abstracted concept does not need, in order to be contracted, the addition of anything extraneous but needs merely something of which the abstracted concept can be predicated, abstraction is not achieved by exclusion of this 'something,' but by mere nondeclaration of it; what is not declared is actually included but in a state of confusion. For instance, in order that 'being' be contracted to 'substance' or 'accident' or 'living' or 'body,' it needs something which also is being, and of which being is predicated and which, consequently, is not extraneous to being. Such contraction is not effected by addition. Correspondingly, the abstraction of being is not effected by the exclusion of any inferior, but only by the nondeclaration of the inferior which remains actually included, but in a state of confusion.

From these principles important consequences are drawn.

1. It is now possible to show in what sense divine attributes are distinguished from each other and in what sense analogues and transcendentals admit of being isolated. The distinction of one divine attribute from the others is not effected by abstracting a thing from other and different things; it is effected through a contrast between areas of greater clarity and areas of greater confusion within one and the same concept. The same interpretation holds for the isolation of analogues and transcendentals. A divine attribute is pure act without admixture of potentiality; consequently, it cannot be related to another attribute as potency to act and the perfectible to its perfection. Thus a divine attribute does not exclude the other attributes in the sense in which such exclusion would imply potency. The concept of divine mercy, inasmuch as it expresses mercy which is divine and which is pure act, necessarily includes justice in act, not in potency. However,

our mind does not make explicit, in such a concept as that of divine mercy, the whole that is there inasmuch as it is divine, but presents that whole as the mercy which is in God; thus mercy is distinguished from justice not by separation but by nondeclaration. The same holds for the transcendentals, e.g., being. Since being expresses a perfection that permeates its very differences and modes—for all that is, is being—the concept of being in general cannot be separated from something which would be foreign to being in the way in which animal is separated from rational as from something extraneous to it. (For rational is extraneous to animal, as such.) The concept of being is separated from the factors of its contraction inasmuch as it reveals but confusedly and inexplicitly things that are divided from each other in its inferiors. This is what St. Thomas teaches when he says that being is not contracted by addition but by modes each of which unfolds and sets forth something that is not set forth by the word 'being.' See *On Truth* 1. 1.; *Com. on the Sent.* i. dist. 22. q. 1. a. 3 ad 2. Following Aristotle, St. Thomas says in his *Com. on Met.* (8. les. 5. Cathala 1763): "In order to understand the relation of being to its diverse kinds let us not suppose that being needs a supplement by which it would become a definite kind of being, viz., substance, quantity, or quality. From the beginning being is all at once substance and quantity and quality, etc." Of these modes which contract being it should be said that, so far as the notion of entity is concerned, they are nothing else than the concept of being; but in so far as they express modifications, they are diverse.

2. Another consequence concerns the way in which the analogous concept achieves unity through confused reference to the analogates and the way in which explicit reference to the analogates causes its contraction and multiplication. The unity of the analogue should not be conceived as that of some third thing, which as superior form or quiddity would remain one and capable of contraction by inferiors. Let it be assumed that what is expressed by the common name is a thing whose intrinsic unity is an effect of abstraction and which can be contracted by the addition of contracting features: it includes these factors of contraction and division either in act or in potency. If in potency, we have a concept intrinsically one and potentially diverse: such a concept is univocal. If it includes in act the contracting factors

whose addition causes division and contraction, the concept will remain divided and contracted in act. In what manner then, is it abstract and one? The unity and diversity of the analogue cannot be accounted for by its being made one in an abstract and common form which would be understood to contain in act the factors of contraction; if such were the case, the analogous object would be both abstracted in act and contracted in act. Another explanation should be found for the unity of the analogue. Let it not be said that one form is taken apart and is later affected by differences. Let it be said that, as an effect of confusion, the various analogates are not expressed distinctly, although they are actually present in the analogous concept. Just as when we look at a multitude from a distance no particular member of this multitude is distinguished, so the multitude of the analogates, when it is attained confusedly, is the unity of the analogue, and when it is attained explicitly, it is its diversity. The common concept is not the concept of the proportion itself inasmuch as proportion means relation, for it would then be the concept of a relation; it is rather the concept of that which constitutes the foundation of a proportion inasmuch as it is taken confusedly, not explicitly, in diverse things. E.g., bone and shell[15] are taken confusedly if they are known in the notion of 'something that holds flesh up.' Substance and accident are taken confusedly if they are known as 'what has the act of existing'; foundation [of a house] and heart are taken confusedly if they are known as having the character of principle and of that which gives origin.

You might object: why should it not be said that the concept of 'holding up flesh,' 'having existence,' 'giving origin' is purely and simply one and later is contracted by the notion of a particular way of holding up flesh or having existence?

Answer. The form signified by this concept does not enjoy unqualified unity in its notion and quiddity of form; whatever unity it enjoys resides in the way in which it is possessed by the subjects, each of which is said to be such and such in its own way and proportionally, not absolutely. Thus, the notion of principle as realized in foundation and in heart does not express a form constituting the essence of foundation and heart, but absolutely diverse forms, each of which, however, has in its own way the character of a principle. Moreover, being is not one form,

since it is transcendent and is engaged in its differences; thus it is not less a principle of diversity than a principle of unity; accordingly, it is not a form absolutely one but a form partly one and partly diversified, as we shall see in the following question.

3. Let us see, finally, how the concept of the analogue by proportionality can stand for[16] any one of its analogates—a property that the concepts analogous by attribution or metaphorical proportionality do not enjoy. It is because the concept belonging to the first type of analogy refers to all its analogates under a unity of confusion by having proportional unity in its forms, without unfolding the diversity of these forms. Any analogate can be what such a concept stands for, since it is contained there as having such and such a form in proportional fashion. Thus being signifies substance when it is said "being subsists" and accident when it is said "being inheres," because the confusion of the term 'being' is determined by the word 'subsists' or by the word 'inheres.' The case is different with analogues by attribution or metaphor; in these two analogies, the analogous concept is directly a univocal one. It is adapted to the expression of other things by a transfer in language. In the mind such a concept cannot signify these other things as supposita of its form, but these are signified by diverse concepts with a connotation of the analogous concept.[17] Being but the term of reference and connotation, it needs another concept to stand for that which connotes it and refers to it as to the term of a relation. The property of supposition never refers to that which is connoted, so to speak, obliquely, but always to that which is directly signified and is contained in the concept itself and has the character of a 'that.'[18]

Objections and Answers

A *first* objection is designed to prove that analogues by attribution can be expressed by a single concept. Wherever there is resemblance and agreement among several things, it is possible to form a concept which expresses this agreement; such a concept is different from the concept expressing disagreement and diversity. Now there is some agreement and resemblance among analogues by attribution. Therefore they can be expressed by one concept.

The *major* is plain since the intellect does not derive the unity of a common concept from anything else than the agreement and resemblance of many by leaving out areas of dissimilarity and retaining areas of agreement. The *minor* also is plain, for those analogues are not absolutely diverse—if they were, there would be equivocity—therefore they possess some similarity, though associated with diversity. Why should not the intellect isolate the elements of similarity and represent them in one concept, leaving out what is diverse, as it does with other analogues, viz., those of proper proportionality?

Confirmation. This analogue has truly and properly the character of a universal in relation to its inferiors; therefore it is one in many and abstracted from many; therefore it does not include these many, or if it does, it is not universal.

Answer. Where there is resemblance there is unity of concept but the mode of this unity corresponds to the mode of this resemblance and agreement. If resemblance is unqualified and absolute, the unity brought forth by abstraction will also be unqualified. If resemblance is merely relative and proportional, the unity cannot be freed from every diversity. It will be, in a way, the same thing, and in another way, diverse things: such is proportional unity, which is not unqualified, otherwise there would be univocity. In analogues by attribution and metaphor there is still less resemblance, for their agreement does not consist in a form that all would partake of, as in the case of univocity; nor does it consist in the way of having their own forms proportionately, as in analogy of proper proportionality. The agreement of analogues by attribution is restricted to the unity of the term to which they are related and which they connote extrinsically. Their denomination is derived from this connotation and relation or comparison. In order to show how they differ from the pure equivocals, it should not be said that they have one concept and the equivocals several, but rather that they are connected under some relation, comparison, or connotation, whereas the equivocals are totally unconnected.

Answer to the confirmation. The analogue is universal in a relative sense, just as it is relatively one and relatively abstract. It does not exclude its inferiors but merely fails to unfold them; it contains them, but confusedly and imperfectly. Thus it is, in its

own way, one in many, and it has inferiors and is superior, in a qualified sense and according as the analogates are declared or left in confusion, as we said.

You might still object: an analogue can be, absolutely speaking, the object of a science, as being is the object of metaphysics—therefore it is universal in an absolute sense and one in an absolute sense.

Answer. The analogue is object of one science in the way in which it is the object of one formal concept. But relative unity in ontological existence is compatible with unqualified unity in the representable precisely considered as such, viz., in objective existence, inasmuch as the [above described] confusion of being can be represented by a single idea, and the connection of being with its properties can be illuminated by one and the same light.

Second objection. The concept of an analogue, taken in its generality,[19] does not represent in any way the analogates that are its inferiors or the modes by which it is contracted; thus, it does not include them in any way, but achieves separation by exclusion.

The consequence is plain, for mental isolation, even if it is supposed to be exclusive, can be effected only in one way, viz., through the use of a concept which represents one thing and does not represent another, what is not represented being excluded and cut out.

Proof of the antecedent. Either the analogue has several concepts or it has but one. It does not have several concepts since we are speaking of the analogue by proper proportionality which is, as we have seen, an analogue of one concept. But if the concept is one it cannot represent, immediately and directly, such a plurality as substance, quantity, quality, etc.; if it did, there would be equivocity in the mind, viz., representation of several considered as several. Further it would follow that when I utter this predication: "Stone is a being," "Man is a being," if, on the part of the predicate, the concept of being included in act all the analogates, viz., substance, quantity, etc., the meaning would be, "Man is substance, quantity, quality, etc.," which is obviously absurd. Lastly, it would follow that the concept of being actually contains and represents infinitely many things, since the analogates of being are infinitely many.

Confirmation. Of this concept described as one and imperfect it should be said that it contains all analogates either (a) as lumped together or (b) as scattered or (c) as unified in itself, contained in itself and assimilated to itself. The last (c) cannot hold since one thing is not similar to another except inasmuch as they have something in common; but the analogates do not have anything in common if a feature possessed in common is supposed to have the character of a third thing; they are, as we have seen, many, and have unity only by confusion and proportion. The *first* and the *second* are absolutely false. When I say, "Man is a being," the meaning is not: "Man is substance or accident," for I am not predicating by way of disjunction, but uttering a simple predicate. And this predication can much less be interpreted as meaning, "Man is substance and accident" as if the two were lumped or joined together. That would indeed be false.

Answer. The analogue, taken abstractly, represents its analogates in act confusedly, not explicitly.

And so, in answer to the first proof, it should be said that one concept is able to represent many in confused fashion, but not distinctly and in their plurality. Thus, when, from a great distance, I see a thousand men or a hill of sand, I do not discern the individual [men or grains of sand], I see the whole multitude in one vision. The individuals are many and they terminate one act of vision as if they were one thing, yet you cannot say that in such apprehensions the many are attained only in potency: they are attained in act, though confusedly. This is how the confused concept of being is related to all its analogates: it represents immediately all things under the confusion of 'having existence,' and the only thing that it tells explicitly is 'having existence.' From this, it does not follow that there is equivocity in the ultimate concept, for the equivocal signifies several as several, that is, as having nothing in common; it does not signify diverse things in a proportion, or after the pattern of a confusion that attains several things, but it signifies diverse things as explicitly diverse. On the other hand, a concept which attains several things confusedly unites those things through that confusion itself and the only thing that it expresses in explicit fashion is the unity of those several things: again, this unity is not one of isolation, but of confusion. Notice that the unity of con-

fusion requires the actual plurality of the things that are taken confusedly, as happens when I perceive a multitude in a unity of confusion.

Answer to the second proof. In the predication, "Man is a being," the predicate 'being' refers actually and confusedly to all its analogates, it does not refer to any determinate essence which would contain its inferiors in potency; however, it does not predicate all the things that it materially and implicitly contains, but the intelligible feature in which they are all confusedly present, viz., to have the act of existing. This is the idea which, far from isolating itself, embraces all things confusedly: this idea alone is made explicit by the analogous term. Likewise, distance and the weakness of the light bring a multitude to a state of confusion, and the multitude is the only thing that the eye attains explicitly. A clear example is found in the following predication: "The Father is God." The term 'God' includes not in potency but in act all that there is in God, even the three persons—not as if it were constituted by them, but as terminated and modified by them.[20] However, since it does not express them explicitly but includes them implicitly, it does not predicate of the Father all three persons, but only the deity in which they are contained. Likewise, being predicates only that in which all things are confusedly comprised, viz., in having existence. Verbs like 'signifies,' 'predicates,' etc., which indicate an act of the soul, refer specifically to the object as signified and predicated, not to that which is materially included and left in confusion.

Answer to the third proof. Although infinitely many things are contained in the concept of being, they are reduced to the one common feature in which they stand in confusion, viz., the essence of 'that which has existence,' and to a finite multitude of genera or categories.

Answer to the confirmation. The analogous concept does not refer to these several things as lumped together or as scattered, but as proportionately similar. What they [i.e., any two of them] have in common is not a third object enjoying strict unity. Indeed, they do not possess their forms in the same way. Each of them possesses its own form in its own way; yet the ways in which they possess their forms are unified by proportionality. Thus, the several are presented confusedly[21] and neither as several explicitly, nor as one in an unqualified sense.

Third objection. The concept of the analogue is contracted by the addition of a concept which is other and distinct, not through the more complete unfolding of the same concept. Thus, the concept of the analogue abstracts from its inferiors in unqualified fashion. The consequence is obvious, for a concept is absolutely abstracted when, in order to be contracted, it requires that something be added to it; so long as it remains in the state of abstraction it excludes this addition.

Proof of the antecedent. The analogates are distinguished from each other entitatively as substance and quantity, and they are not distinguished within the concept of being, which expresses what they have in common; therefore, they find their distinction in something that they superadd [to the common concept]. Indeed, all that in which they are distinguished from each other is superadded by them to that which they have in common. Therefore, what was described by us [i.e., by John of St. Thomas] as not unfolded would be better described as superadded.

Confirmation. If the analogous concept contained all the analogates, a mind which would penetrate exhaustively the concept of being would see all beings in act. But this is false, for understanding proceeds from the analogue—e.g., from being—to the analogates, as from potency to act; consequently, a mind considering being [no matter how great its penetration] could not see all things in act. Moreover, the inferiors of such a concept would have the character of actual and integrating parts, not that of subjective parts, since it would include its parts actually, not in potency; consequently if this concept is penetrated, its inferiors will be seen in act, not in potency; these inferiors will behave like actual parts of the concept, and whoever sees this concept will see all its parts in act, provided only that confusion has been removed. But the falsehood of the consequent is manifested by the argument that St. Thomas uses (i. 14. 6) to prove that God does not know all things just in the concept of being; if such were the case [St. Thomas says] God would know things in a most imperfect and potential fashion. Thus the concept of being, which remains indifferent in respect to its analogates, cannot manifest them actually and determinately.

Answer. The antecedent of the main argument ought to be denied. In reply to the proof, let it be said that the analogates

differ from each other entitatively on account of a difference contained within the same analogous essence in which they find their unity; again, the differentiating principle is not extraneous to the common notion. Consequently, that which contracts being is not superadded to being, but contained in it; all the difference [between the contracted, viz., being, and the contracting, viz., some particular mode of being] is that the contracting expresses in a way of its own what the common notion enfolds. The analogates differ even in that in which they enjoy unity, although it is not in the same respect that they are different and one. The analogue—especially if it is transcendental—consists in its having unity and diversity; it is not only a principle of agreement but also of difference. Thus the feature with regard to which they differ is not superadded to the analogue but merely explains the analogue in different fashion. From this, it does not follow that the analogates are distinguished from each other in merely modal and not in entitative fashion; but it must be understood that the difference by which they entitatively differ is also contained in being. True, it is said that the analogue is contracted by modes, not by differences; it would be puerile to understand this to mean that the modes are superadded and that being is in potency with respect to modes though not with respect to real differences; rather, the analogates express, over and above being, some mode which is not expressed by the name of being. Such is the plain teaching of St. Thomas in *On Truth* 1. 1 [to sum it up]: the mode is a matter of expression, not a matter of addition.

Answer to the confirmation. A mind that would penetrate the concept of 'being in general' would see that it contains nothing else than all beings in confusion; it would not penetrate all being in distinct and determinate fashion because they are not contained there in such fashion. If, on the other hand, the mind were to remove confusion, it would destroy the concept of being in general, which is essentially confused, and it would form another concept, viz., that of some determinate being. St. Thomas has successfully shown that if God saw creatures in the notion of being alone, he would see them imperfectly, for he would know them as confounded in being, not as distinguished from each other; he would not know them in their determinations and according to the intelligibility of each proper mode. The confusion of

this concept is opposed to the specific understanding of determinate beings. Thus, the mere cognition and penetration of this concept would not suffice to unfold determinately the plurality of beings; if nothing else takes place, confusion remains; and if confusion is removed, the concept itself is destroyed. A mind which proceeds from being to its analogates, begins with a cognition that is more potential, since it is more confused and indistinct.

Clearly, a cognition proceeding from a concept that represents all things confusedly [but in act, i.e., analogical cognition] is more confused and imperfect—even though it does not represent something containing a plurality in potency—than a cognition which proceeds from a concept representing something that does contain a plurality in potency and not in act· [i.e., univocal cognition].

For there is at least one object that the latter cognition does not attain confusedly, it is this potential [whole] which contains its inferiors in potency. For instance, when I grasp the concept of animal, I grasp all species in potential fashion and confusedly, but I grasp 'animal' distinctly. But when I attain being in confusion, nothing is attained distinctly; all that is attained is the concept of 'that which has existence in proportional fashion.'

Answer to the other part of the argument. Analogates should not be described, in unqualified fashion, either as actual and integrating parts or as subjective parts. As we have seen, it is only in a qualified sense that they have the character of parts; with this reservation, they are called subjective, even though they are actually contained in a superior concept and unified or confused within this concept—not by way of aggregation but by way of proportion in being. From this it does not follow that this abstraction of being is actual, i.e., formal: it is the most potential of all. Formal abstraction is effected by leaving aside potentiality and matter, and the more universal it is, the more pure and the more perfect it is. The formal abstraction of being is pure act if it is carried out to complete universality. But the abstraction of being in general as an analogue is most confused, and although being includes all things confusedly, it is better not to call this abstraction a formal abstraction since it is effected, not by leaving aside the imperfect, but by including all things in a certain confusion and obscurity.

IV

On the Categories

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QUESTION 14

ON THE DIVISION OF BEING INTO TEN CATEGORIES

ARTICLE 1

WHAT IS A CATEGORY, AND WHAT ARE THE CONDITIONS THAT AN OBJECT MUST SATISFY IN ORDER TO FALL UNDER A CATEGORY?

A category is nothing else than "a series or arrangement of superior and inferior predicates, starting with a supreme genus which is predicated of every inferior, and ending with the individual, which is subject to every superior."[1] Because the predicates making up this system are terms of greater and lesser universality related to each other as superiors and inferiors, they are called 'degrees,' and a category can be likened to a ladder that the mind would ascend and descend when it surveys the predicates constituting a thing. Thus, in the first category we posit substance as supreme genus, then body, then living, then animal, then man, then Peter. The treatment of each category will be concluded with the description of its tree.

The distinction of the categories is designed to set forth the orders and classes of the diverse natures, to which orders and classes everything that participates in a nature can be reduced. Being of reason is immediately excluded from all categories: it cannot be placed in a true category, but only in a fictive one, because its nature or entity is not true, but fictive. This is why St. Thomas says (*On the Power of God* 7. 9) that only the things existing outside of the soul belong to categories.

Now, of real beings, some are in *direct connection* with the line or scale of a category, and some remain on the side of this

line or scale. The condition of the latter can be expressed by saying that they belong *reductively* to a category. The reason for this division is that not all real beings participate equally in the concept of being or in that of genus. In order to determine (*a*) what beings are totally excluded from every category, (*b*) which ones belong to a category directly, and (c) which ones belong to a category reductively, and, as it were, laterally, let us consider the conditions, five in number, which must be satisfied in order for a being to fall under a category: (1) it must have the character of an essence, not that of a merely accidental entity; (2) it must be a complete being; (3) it must be finite; (4) it must be incomplex; (5) it must be univocal. Other conditions listed by some logicians are reducible to these five.

First condition. It must be a per se being. The accidental being is thereby excluded. It does not find place in any category because it implies not one nature but several. It is not a thing made of one genus and one difference. Inasmuch as there are diverse natures in it, it is a thing made of several genera and differences. Even when these natures happen to be made of the same genus and difference, genus and difference are multiplied by the very fact that there is a diversity of natures (if there were no such diversity, it would not be an accidental being). What we call accidental being is an aggregate resulting from diverse natures; thus, it is not by virtue of any nature of its own, but only by virtue of the diverse natures which make it up that accidental being is ever connected with a category. Sometimes, these natures belong to diverse categories: then, each of them finds place in a distinct category. Sometimes they belong to one and the same category, but on diverse grounds and in such a way as to retain their multiplicity. Thus, the accidental being is never placed in a category on account of itself and by a single operation.

This condition inplies that concrete accidental beings should be excluded from every category. By 'concrete accidental beings' I do not mean the accidental form alone, but the composite or aggregate made of a subject and an accident. If the formal component is considered alone, the concrete [term] signifies only the accidental form; thus Aristotle says (*Cat.* 5. $3^{b}19$) that "white indicates quality and nothing further" and in the *Metaphysics* he

often uses concrete terms (such as 'quantum,' 'such and such,' etc.) to designate categories that are accidents. Thus, the concrete term meaning an accident, provided that it is understood in a purely formal way, can be genus, species, and consequently predicamental series. In the opinion of some logicians, a difficulty arises from the way of signifying, for such terms signify by way of adjacence, not by way of quiddity. But this is not a valid objection, for it is only with regard to the subject that these terms signify by way of adjacence; with regard to the accidental form itself and to its essential attributes, they admit of being predicated by way of quiddity. When, for instance, we say that 'the white is colored,' the predication is quidditative on account of the formal component expressed by the predicate.

On the other hand, the subject connoted by the concrete term may be conceived as making up, by union with the form, a composite or aggregate; in this case the quiddity or idea of the concrete or aggregate comprises both form and subject. Such a composite or aggregate does not belong, by virtue of any entity of its own, to any category. It results from the association of natures, viz., the subject and the accidental form, which belong to diverse categories; so considered it cannot be placed in one category, in other words it cannot, per se, be placed in a category.

An *objection* is drawn from the consideration that accidents, concretely considered, have a definition, which implies that they have a nature and a species. They, indeed, exercise operations (e.g., the hot warms): now, an operation is the sign of the nature which is its principle.

Answer. If concrete terms designating accidents are defined in quidditative fashion, it is only on account of what is formal in them. The essential predicates mentioned in the definition belong to their formal part. As to the concrete term made of a subject and an accident, it admits only of a nominal definition, e.g., 'the white is that which has whiteness.' Likewise these concrete [natures] exercise operations by virtue of the form, which is principle of operation, not by virtue of a third nature resulting from the accident and the subject.

The *second condition* required by the notion of predicamental being is that it be a complete being. This applies to things

placed in a category directly, not to those which belong to a category reductively or collaterally. By 'complete being' we mean 'what is signified as a definite whole and in quidditative fashion.' Even accidents possess the character of beings complete in their genus, for they are complete in the genus of the accident, although, if related to substance, they are incomplete inasmuch as they are incapable of subsisting by themselves.

The reason for this condition is that a category includes directly inferiors, which are constituted by superiors, and superiors, which are predicated of inferiors. But inferiors are things made of their superior plus a contracting difference: in a certain way they have the character of wholes since they are made of their constitutives as of parts. On the other hand, superiors are identified with the inferiors of which they are predicated; accordingly they are wholes, like the inferiors themselves, by identity with the latter. If they are not signified as wholes, but as forms and parts, it should be said that, on account of the way of signifying, they do not belong directly to the system of those objects which are predicated as wholes. Notice, further, the peculiar situation of the differences: they are predicated of the species, but superior predicates are not predicated of the differences themselves. The genus cannot be predicated of the difference. Differences cannot be resolved into two concepts, one of which would be that of a genus and the other that of another difference (this would imply process to infinity). Thus, because superiors cannōt be predicated of them, the differences fall away from the straight line and series of superior and inferior degrees; they stay on the side of categories.

As to physical parts, viz., matter and form, and other parts and modes, we have already discussed the question whether or not they belong to a category. See q. 7. [of the second part of the *Logical Art*] *On the Genus*, a. 3, near the end.

Now, some substances, in spite of their being subsisting entities, are imperfect natures and have the character of a way and a tendency toward a more perfect state; for instance, the embryo tends toward the state of complete animal. These substances belong reductively to the species of their term. (See St. Thomas, *On the Power of God* 3. 9 ad 10). By their very nature they are, as it were, ways to something else and motions, for they exist in a state that is imperfect and still tends toward

the term in which generation is entirely accomplished. Although they do not enter into the composition of a whole, they have the character of a part inasmuch as they tend toward an ultimate perfection.

It is not easy to give a general rule concerning the modes. There are modes that belong but reductively to a category, e.g., the substantial modes of subsistence, unity, and others of the same sort. Others make up categories of their own such as 'where,' 'position,' etc. Let it be said briefly (for this subject properly concerns the metaphysician) that there are two different kinds of modes. *Some* pertain to the composition or completeness of a thing or nature. Thus the constitution of substance is effected by the union [of the substantial principles] and is completed by subsistence, accident is constituted by inherence, and quality is constituted by degrees of intensity—whether these degrees be diverse unions or diverse terminal states of the same quality. These modes make up or terminate a thing by modification just as parts make it up by composition; they are reduced to the category of the thing that they make up or terminate. *Other* modes have nothing to do with the constitution or completeness of a thing and concern it merely on account of some extrinsic form or principle. There is no reason why such modes should not constitute distinct categories of their own. This is the case with 'where,' with position, and, according to some philosophers, with relation.

Third condition: Predicamental being is finite. This excludes the Being which is infinite absolutely speaking and in the whole order of being, viz., God, but it does not exclude a thing infinite in a determinate order (if there is such a thing); thus, it would not exclude an infinite quantity or quality.

The reason for this is that a thing infinite in a determinate order has infinity in merely accidental fashion. In its essence it is made of act and potency; these are the terms by which essence is rendered finite as essence, in other words, these are the terms of essence, and the existing essence is made of them. Essence does not admit of components other than act and potency, and from potency the genus is derived, from act, the difference. Therefore, absolutely speaking, such a thing remains in the system and series of the superior and inferior predicates

of the genus and differences. To stay within such a system is to find place in a genus and category.

On the other hand, infinity in substance or in the order of being is infinity of pure act because it is infinity only by lack of terms of essence. If it exists in act, it is infinity of act and excludes all potentiality. Now, when potentiality is excluded, the character of genus also is excluded, for a genus is related to its differences as something potential to that by which it is actuated and determined. Therefore pure actuality excludes all the system of the determinable and determining, actualizable and actuating degrees which make up the predicamental scale and series. More on this in the next question.

The *fourth condition* is that it be an incomplex being. This excludes not only accidental complexes and accidental beings (already excluded by the first condition), but also essential complexes, as definitions, e.g., this complex, 'rational animal.'

The reason for this is that such complexes correspond to a twofold concept expressing one and the same nature that belongs directly to a category; the defined is nothing else than the species. If the species, which is one with the defined, belongs directly to a category, the complex expressing this defined concept cannot belong directly to this category without the same thing being placed twice in a category, once on account of itself and a second time on account of its definition taken complexly. Sometimes, however, there is no incomplex term by which to signify a thing; then we signify it by a complex expression which can be placed in a category because the thing itself is incomplex.

Moreover, let it not be said that the definition alone is placed in a category and not the thing defined, i.e., the specific nature. If such were the case, categories would be beings of reason in a formal sense; in other words, they would be the second intentions of the definitions placed in each category instead of being [as they actually are] the things defined, which are all that is real in definitions.

The *fifth condition* is that terms be univocal. Equivocal terms do not signify one nature but several, and thus do not signify something one that can be placed in a category. Analogical terms are also excluded because they do not express one essence capable of being contracted as a genus by a difference, or as a species which is made of a genus and can be further narrowed

down to individuals. Now, when we have excluded genus, species, and difference we have ruled out the whole arrangement of the category, for these are what a category is made of.

ARTICLE 2

WHETHER THE DIVISION OF BEING INTO TEN CATEGORIES IS UNIVOCAL OR ANALOGOUS

This is the subject of a famous controversy between the school of St. Thomas and that of the Subtle Doctor, Scotus. For Scotus, being is predicated univocally of the ten categories. This follows from his theory that being enjoys the unity of an objective concept abstracted from its inferiors and capable of contraction into them. St. Thomas holds the opposite view, as we shall soon see.

Our task, in the present connection, is limited to two problems: *first* we have to determine whether the division of being into ten categories is analogous or univocal; *second,* granted that it is analogous, we shall have to determine the kind of its analogy. The latter question will be considered in the next article, the former, here. We are not going to inquire into the attribution of being to God and to creatures: this problem does not belong to the present discussion, and it can easily be solved when the present problems are properly treated.

The theory of Scotus is that being is related to the ten categories as a univocal, though not as a genus. Scotus considers univocal any concept whose unity is such that to use it as predicate in affirmation and negation [the subject remaining the same] is to express contradiction, inasmuch as the same is affirmed and denied of the same. This is what he declares expressly in his *Com. on the Sent.* i. dist. 3. q. 2. In several other places, however, Scotus says that being is related equivocally or analogously to the ten categories; the reason adduced is that being does not have enough unity to be a genus or any of the five predicables. Because of Aristotle's explicit statements *(Met.* 3. 3. $998^{b}22$; 4. 2. $1003^{a}33$ and in many other places), Scotus always said that being is not a genus. There is no need to go further into the discussion of the diverse modes of univocity, as some disciples of

Scotus do (see Aretino, *Formalities*, p. 78):[2] all that is relevant here is the distinction between the univocal which is held a genus (or any of the five predicables) and the univocal which is said not to be a genus; it is only in the latter sense that being is described as univocal by Scotus. Later we are going to prove that this distinction does not hold, and that if being is not a genus it is not univocal either.

The main argument of Scotus is that the concept of being, and, more generally, any concept analogous by proper proportionality, enjoys unity and is disengaged from its analogates in the way which characterizes the relation of a univocal to its inferiors.[3] If this is true, it apparently can be concluded with rigor that being is univocal. In the state of abstraction just described, the concept of being enjoys unity and includes its inferiors in potency, not in act. Consequently, the additions by which inferiors contract the superior concept of being determine being and divide it. Thus, there is no reason why being should not be considered a univocal concept. Every inequality and every diversity found in it proceed from the contracting differences, not from the superior notion: this notion enjoys a unity of abstraction. Likewise, in the genus animal and in other genera, all that is inequality proceeds from the differences, all that is unity from the superior.

At this point, the principle of the whole argument seems to be sufficiently established. The concept of being cannot represent immediately a multitude of things as actually included in its representation. Not to include in act is the same as not to represent in act, and what is not represented in act by a concept is not the object of this concept. Now, what the concept of 'being in general' represents actually to us is not a multitude, viz., quantity, quality, etc., but one object distinct from these diverse natures. You cannot say that these natures pertain essentially to the concept of being in general; if they did, they would be found wherever being is found. Being can be represented without them, for anything can be represented without any of the determinations that do not pertain to its quidditative concept, as animal is represented without its differences, which it includes in potency and confusedly. Let it be said, likewise, that if the quidditative notion of being does not include those inferiors and does not depend upon them, it includes them only in potency and confusedly,

which means that explicitly and actually the concept of being is one. It is diversified in potency, not in act. But what distinguishes the univocal term is precisely the property of including in a merely potential way the natures by which it is diversified.

In order to evince the unity of this concept of 'being abstracted from its inferiors,' several absurdities are used as signs.

a) One can grasp with certainty the notion of being and yet be in doubt with regard to this and that being. For instance, if I look at a thing from a distance, I am sure that what I see is being although I may be in doubt as to what sort of being it is. This situation implies a diversity of concepts, for we cannot be both certain and uncertain, or doubtful, about the same object.

b) The following propositions, 'substance is being,' 'quality is being,' would be false if the predicate stood for all things, albeit in proportional fashion. Therefore, the predicate expresses only one object, not several objects that would be actually included in it. Otherwise, several natures, which do not actually belong to the subject, would be actually predicated of it. Substance is not actually quantity, quality, etc.; yet, these modes of being would be actually applied to substance if they were actually included in the concept of being.

c*)* Finally, if the concept of being included its inferiors actually, that which is signified by the word 'being' could not be used as middle term in a demonstration, for, unless a term signifies *one* thing, it is of no use in a genuine demonstration. Now, if the properties of being cannot be demonstrated for lack of a middle term, no science of being is possible. Again, if propositions about being cannot be constructed into contradictories—because they never could affirm and deny the same of the same—there is no such thing as a science of being.

Thesis. Being, as common to the ten categories, does not admit of a univocal concept. This proposition holds both if the concept considered is that of complete being and if it is a concept abstracting from completeness and incompleteness.

Beyond doubt, this is St. Thomas' thesis and I am shocked to find authors who deny it and yet claim to be good Thomists. In his *Com. on the Sent.* (i. dist. 22. q. 1. a. 3 ad 2), St. Thomas says: "The equivocal requires a certain kind of division, the univocal another kind, the analogous still another kind. The division of the equivocal is determined by the diversity of the

things signified, the division of the univocal by specific differences, the division of the analogue by a diversity of modes. Since being is predicated analogously of the ten genera, its division into the genera is effected according to a diversity of modes." Nothing can be more explicit than these words. Again, in the same book of the *Com. on the Sent.* (dist. 25. q. 1. a. 2) and in the *Com. to Annibald* he states as a general rule that nothing can be predicated univocally of things that are not contained in one supreme genus. Now, it is plain that being transcends the supreme genera, that is, the ten categories. Likewise, in *Com. on the Sent.* i. dist. 19. q. 5. a. 2 ad 1, St. Thomas proves that being and the other transcendentals are predicated analogously of their inferiors. In *On Truth* 1. 1 he proves that being cannot be contracted by additions (such is the way in which the univocal is contracted by its differences) but only by modes which unfold it in diverse manners. As to the proposition that the concept of being is not completely abstracted from the categories which are its inferiors, it is derived from what St. Thomas (following Aristotle) says in his *Com. on the Met.* (8. les. 5. Cathala 1763): "Unlike the species, which result from the addition of differences to the genera, the categories do not result from anything added to being. In order that it be such and such kind of being, e.g., substance, or quantity or quality, being does not need any addition." Here he plainly excludes, in the case of being, the possibility of contraction through addition. But if the inferiors of being are not constituted by addition, being is not univocal and does not include in merely potential fashion the plurality of its inferiors. Thus, the concept of being is not actually separated from its inferiors, although it does not manifest them. Finally, in *Com on Met.* 4. les. 1. Cathala 539, he teaches expressly that being is not predicated univocally of substance, of accident, and of the diverse categories. See also *Com. on Met.* 3. les. 8. Cathala 433.

Some would suggest that Aristotle and St. Thomas, when they say that being is not predicated univocally but in the way in which healthy is predicated of medicine, do not speak of being absolutely considered, but of being per se, which is being understood in the primary sense; such being belongs only denominatively and by attribution to the accident, inasmuch as the latter is said to be a being of being. *Against* this, let it be said that if be-

ing were taken here in the sense of substance or first being, accident, by virtue of such an attribution, should be called or denominated substance by extrinsic denomination, just as herb is called healthy on account of its relation to the health of the animal. But such denomination is not what Aristotle speaks of. Accident is called being by intrinsic denomination and it is not called substance, whether intrinsically or extrinsically. Further, the same being of which it is said, in *Met.* 4. 2. $1003^{a}22$, that it is not univocally predicated of substance and accident is also said (*Met.* 3. 3. $998^{b}22$) not to be a genus in any sense whatsoever. If Aristotle were speaking of first being, i.e., of substance, he would not deny that it is a genus, at least in regard to certain things, viz., the substances themselves; but he says without qualification that being is not a genus.

With reference to these texts, as well as to *Met.* 7. 4. $1030^{a}34$ and several other places where Aristotle teaches that being is not predicated equivocally or univocally but analogously, *some* say that being is not denied logical, but only physical, univocity. *Against which* let it be said that physical analogy is compatible with generic unity. For instance, the division of body into corruptible and incorruptible corresponds to a physical analogy; yet body is a genus in a true and proper sense. Now, the analogous nature that Aristotle attributes to being is such as to exclude the character of genus (*Met.* 3. *loc. cit.*); therefore, he does not speak of physical analogy. Furthermore, physical analogy is merely an inequality caused in inferiors by differences in which the superior essence is not included. Physical univocity is equality extended even to the inferiors which contract the superior notion; such equality is found only in ultimate species, which remain equal in individuals. If physical univocity alone were negated, Aristotle would merely deny that being is an ultimate species, he would not deny that it is a genus, which he does expressly.

In order to manifest the principle and foundation of Aristotle's position, let it be remarked that our thesis is understood to hold both for incomplete being and for complete or predicamental being.[4] Between these two there is the following difference: being, as abstracting from complete and incomplete, is included in contracting modes or differences, but being, as complete, includes these modes and differences, since it is completed by

them; unless it is completed by modes that contract it, being cannot be said to be complete or predicamental. Being cannot be rendered complete, except by a mode which distinguishes it from incomplete being; now, this mode is either *(a)* equal to being and inseparable from it or *(b)* inferior to being. It it is equal to being *(a)*, it has the character of a property of being and is no less transcendent than being itself: this is the case of the true and the good. Such properties do not render being complete, since they leave it transcendent and, consequently, included in its differences. If the mode under consideration is inferior to being *(b)*, it is a contracting mode, because it is less ample than being as such. Being is completed by the modes that contract it, it includes these modes, and complete being is nothing else than the ten categories. It is possible to conceive a predicamental being in general, embracing all predicamental beings, but this concept of predicamental being will owe its generality to the second intention of 'finding place in a category.' If, on the other hand, 'predicamental' refers to nature,[5] a thing cannot be termed predicamental unless it is placed in a category. The thing which abstracts from predicamental determinations is not, in this latter sense, predicamental.

After having made this point, the foundation of our thesis can be expressed as follows: Being is included in the modes or differences that contract it; in other words, it is predicated of these modes or differences, and if it is complete being, it includes them. Consequently, it does not constitute a concept enjoying absolute unity: it implies inequality and diversity inasmuch as it is included in its own differences. All this is perfectly clear, for an object of thought is said to be included in differences if it is predicated of them and belongs to them even in so far as they formally express diversity; for their diversity itself is something. What is included in differences is necessarily such as to supply differences with their own diversity; thus, it actually includes diversity, since it must include actually what it communicates.

Further: the differences or modes which contract being are not resolved into two concepts, one of which would express community and the other difference, they constitute single concepts of different things. If in any difference there were a concept ex-

pressing a common feature and another concept expressing difference by another feature, an infinite regress would ensue, since what holds for the first differential concept would also hold for the second, etc. The concept included in the difference and predicated of it is purely a factor of diversity and by no means a factor of agreement. Yet the concept of being is said to be one with respect to all things that agree in being. Thus, it is partly one and partly diverse; in a word, it is analogous.

Some reply that the differential features are not being, but modes of being. Granted that a difference is a mode of being, either this mode is something real, or it is nothing. If it is nothing, it causes [its subject] to differ by nothing, which is not to differ at all. If it is distinct from nothing, then it is being, for in the supremely general sense in which the word being is taken here, anything that is opposed to nothing is being.

Other members of Scotus' school, as Merinero *(Com. on the Whole Dialectic of Aristotle,* On the Equivocals, disp. 1. q. 1 and ff.), distinguish two aspects of being, viz., 'being as what' and 'being as such and such.' According to them, 'being as what' is contractable into its inferiors and potential in relation to them; but 'being as such and such' is actuating and determining or contracting: it is the difference itself. They maintain that 'being as what' is not included in the contracting differences, since, if it were, there would be infinite regression. Here is their argument: if the ultimate differences included 'being as what,' they would have something in common, viz., 'being as what,' and they would differ, not by what they have in common, but by some differential feature; but the same would hold for this differential feature, and so on indefinitely. Thus, the term of the regression must lie in a thing that does not include 'being as what,' although it is 'being as such and such.' This thing is a difference.

But this argumentation is not true and does not remove the difficulty.

(1) *It is not true,* for this 'being as such and such' or 'mode of difference' either includes 'being as what' or does not include it. If it does not include it, it is nothing, for the opposite of nothing, [in other words] that which is not nothing, is precisely 'being as what,' which is the same as 'being as something.' Should it be said that 'being as such and such' is also set in opposition to nothing, it follows that 'being as such and such' and

'being as what' have something in common, viz., to be something and not nothing—in other words, to have being genuinely and properly. Then, considering this concept common to 'being as such and such' and 'being as what,' I shall ask in what way it is intrinsically included in each of these two: this question cannot be evaded, since each of the two possesses intrinsically the attribute of being outside nothing and of being set in opposition to nothing. But if 'being as such and such' includes 'being as what,' it is being intrinsically and quidditatively, for 'to include being as what' means nothing else. It follows that 'being as what' is included intrinsically in the intrinsic modes and ultimate differences described as 'being as such and such.'

(2) *It does not remove the difficulty.* Considering the modes called 'being such and such' I shall inquire into *(a)* the ground of their unity in the general concept of 'being such and such' and *(b)* the ground of their distinction from each other—for, at all events, they are diverse. If their diversity results from some superadded mode or difference, again I shall inquire into both *(a)* the ground of unity and *(b)* the ground of diversity between this superadded difference and the other differences. If the answer is that these differences differ from each other by other superadded modes, we are engaged in an infinite regression. And if it is said that these differences or modes are diversified, within the boundaries of 'being as such and such,' by the whole of their entity, not by any superadded being, why should not the same hold for 'being as what'? If unity in the common notion of 'being as such and such' is compatible with differentiation by the whole being of the difference, there is no reason to deny such compatibility in the case of 'being as what.' In the transcendentals, primary diversity does not exclude unity.

Consequently, it should be said that being is intrinsically embodied in these modes, for they are truly something real and distinct from nothing. Yet there is no infinite regression, for both their difference and their unity reside in the same intelligible nature. But is it really the same intelligible nature? It would be more exact to say that it is not,[6] since analogous realities do not enjoy absolute unity; they are partly the same and partly diverse. In so far as they manifest agreement, they do not manifest diversity; yet they do imply and include diversity actually and confusedly, as we have said in the preceding question, article 5.

Finally: our thesis can also be established on another basis. If being is univocal, it follows that it has the character of a genus with regard to the ten categories, which is expressly denied by Aristotle *(Met.* 3. 3. $998^{b}22$) and St. Thomas *(Com. on Met.* 3. les. 8. Cathala 432-33). The obvious reason for this negation is that being is included in all differences. As has often been said, such inclusion is absolutely incompatible with the notion of genus; there would not be ten supreme genera if the categories were contained in being as in a genus.

Proof of the consequence. Being conceived as univocal does not lack any of the features which constitute a genus. *(a)* It is predicated in essential capacity, since it is included quidditatively and intrinsically in every nature; *(b)* its concept enjoys unity; it is not, according to this opinion, included in the contracting differences; it admits of being contracted by way of addition; it contains its inferiors in a merely potential way. Thus, nothing is lacking for it to be a genus.

The disciples of Scotus *answer* that being is not a genus because it is contracted, not by differences, but by intrinsic modes. These two methods of contraction are distinguished as follows: the difference comes, as it were, from outside, and the common notion can be perfectly understood without the difference—e.g., animal without rational—whereas a thing cannot be perfectly understood without a mode intrinsic to it. A mode, even intrinsic, does not change the essence that it modifies—e.g., modes of greater and lesser intensity do not change the species of a quality; but a difference changes the thing that it affects and makes it into another reality. Thus, for a genus to be contracted by differences, it is necessary that the reality from which the concept of the genus is derived be, by essence, in potency toward the reality from which the difference is derived. These conditions are satisfied by the concept of being.

Such a reply admits of two interpretations. *(a)* In spite of its authors' intentions, it may imply the concession that the concept of being cannot be perfectly separated from the modes which contract it and cause the diversity of things; but from this it follows that this concept does not enjoy perfect unity. So interpreted, this reply vindicates our own theory, and the foundation of Scotus' argument collapses. Clearly, if we can neither conceive a reality without its intrinsic mode, nor separate entirely this

reality from this mode—which is granted by the Scotists—the concept of such a reality is not disengaged from the modes which cause diversity. It includes these modes in act, not in potency, without, however, making them explicit. A reality that includes its modes in merely potential fashion can be completely understood without its modes. The concept of animal is understood completely without the [differentiating] feature of 'rational,' although the former includes the latter in potency. *(b)* If, on the other hand, it is meant that being abstracts perfectly from its modes, the modes of being are held not to be intrinsic: but then they are differences and being is a genus.

Further evidence of contradiction may be found in this [Scotistic] way out. By the very fact that being is said not to include its inferiors in act, the theory assumes that the objective concept of being is so completely unified and so thoroughly disengaged from its inferiors as to regard them [i.e., its inferiors] according to a mere relation of potency to act. At the same time the theory maintains that being is not a genus because there is no essential relation of potency to act between the reality from which the concept of being is derived and the reality from which the intrinsic mode is derived. Thus, if being is not in potency toward this reality [viz., the reality from which the so-called intrinsic mode is derived], either *(a)* it includes this reality and the modes derived from it in act or *(b)* it includes these modes neither in act nor in potency and has nothing to do with them: but in the latter case, it cannot be contracted and actuated by them. Yet they do contract being quidditatively. It remains that being includes its modes actually without making them explicit. This is our own position: it implies that the univocity of the concept has to be given up.

Others (as Cabero, *Digest of Logic,* treatise 4. disp. 3. diff. 7) hold that being is a genus and interpret Aristotle's denial as if it applied only to the being that is both common and complete. They grant that the ten categories, or at least those which imply forms of intrinsic denomination and reality, are not primarily diverse genera. Categories are said to be supreme only in a relative sense, inasmuch as in the order of quantity there is no quantity superior [to the category of quantity], and in the order of substance there is no substance superior [to the category of substance], etc. But this view is worthless and destroys the

whole system of the ten categories. If a supreme genus is said to be supreme not absolutely but only in a relative sense, 'animal' also can be termed a supreme genus, since there is nothing above it in the notion of animal. All subaltern genera will be supreme in the same way. Either there will be an almost infinite multitude of categories, or there will be only one category, viz., complete being; but both of these views are entirely foreign to the school of Aristotle.

These considerations refute the arguments used in favor of Scotus' theory. The plain conclusion is that the concept of being cannot be completely disengaged from its inferiors and cannot enjoy such unity as to include the plurality of its inferiors in merely potential fashion. This holds both for complete being and for being considered as abstracting from completeness and incompleteness. This statement can be efficaciously proved by the transcendence of being.[7] Such is the method used by St. Thomas in his *Com. on Met.* (3. les. 8. Cathala 433-34), where he shows that being is not a genus because, on account of its transcendence, it is intrinsically included in its differences. (Cf. preceding explanations.)

Objection. Complete being, at least, is not transcendent. [This can be shown by a reasoning which, in the case of substance, would run as follows:] common substance, in its own category, transcends complete and incomplete substance; however, it is not completed by inferior differences of its own, but by the common nature of substance, as determined by the principles of the category.

Answer. It has been clearly shown that being cannot be declared complete except on account of the inferior modes which contract it. But substance, in order to be rendered complete, does not need any difference inferior to the category of substance; it needs only the common mode implied by the notion of existing per se. Through this common mode, a thing is set in relation to the act of subsisting and constituted as a whole in the genus of substance; thereby it is separated from incomplete substance. But being does not admit of any common mode of being, by which it might be rendered complete, for whatever is a common mode of being is transcendent like being itself and included in all beings, even the incomplete ones.

Answers to the arguments set forth at the beginning. To the

first argument. Although the concept of being does not represent several things in explicit act and in such a way as to express diversity, it does represent several things confusedly and in their proportional way of having the act of existence. Through such a concept the mind conceives several things implicitly. But 'implicitly' is not the same as 'in potency.' That is 'implicit in potency' which is determinate in itself but admits of several further determinations by way of addition, as animal in relation to rational and nonrational. But that which is 'implicit by way of confused actuality' implies all without determination of any. All are comprised in a state of confusion, as when we confusedly perceive a multitude from a distance. If, at this point, it is held that not to represent in act is not to include in act, I answer with a distinction: not to represent in act explicitly is not to include in act explicitly, this I grant; not to represent in act explicitly is not to include in act even confusedly, this I deny.

The *second* argument points out that the inferiors of being do not pertain to the quiddity of being in general; this argument holds, consequently, that being in general can be perfectly represented without its inferiors.

Answer. The diverse inferiors, explicitly considered with the mode of diversity, do not belong to the notion of being in general. But the same inferiors, considered as implicitly contained in the proportional unity of the relation to existence, do belong to the concept of being in general. It should even be said that being in general is nothing else than any kind of entity understood confusedly and without any determination except a proportional relation to the act of existing. This is how such a concept as that of being differs from the concept of animal and other univocal concepts which not only include but also manifest a determinate degree of being admitting of addition by contracting inferior differences; for a notion or degree in a state of explicitness cannot be contracted except by the addition of an ulterior degree. But an analogous concept does not manifest any degree determinately. It contains in a state of confusion, within a proportional notion, analogates which it transcends, so that contraction and distinction are effected, not by addition, but through the unfolding of a confusion, as was explained in the preceding question, article 5.

A further objection would be that the concept of being (and more generally that of any analogue) admits of more than one

structure. It may be so constituted as to represent indeterminately the field in which there is analogous unity, without representing any analogate determinately; but it may also represent one analogate, viz., substance, determinately, and the other analogates indeterminately and confusedly, inasmuch as the latter are, so to say, assimilated to each other in being. Such a concept would not be entirely confused.

Answer. Both structures are acknowledged by Cajetan in his opusculum *On the Concept of Being.* However, when an analogous concept expresses one analogate determinately and the others confusedly on account of their proportional resemblance to the former, this concept, which is univocal with regard to the object that it expresses determinately (for, in this relation, it represents only one thing), is virtually analogous inasmuch as it conveys a resemblance of confusion with the other analogates. Within this resemblance no determinate nature is singled out. The thing signified is indetermination and confusion in the act of existing on account of which [indetermination and confusion] there is proportional unity among the analogates.

But some draw a further argument from the consideration that complete being can be held to be common to two individuals, say, Peter and Paul, for it is not predicated of them analogously, since it is not predicated of them unequally.

Answer. We have already mentioned (preceding question, art. 3) that an analogous concept may not exercise the property of analogy when its application is restricted to some of its inferiors, for these inferiors may not be diverse in an absolute sense; for instance, healthy, as predicated of two animals, is not analogous. When being is restricted to two individuals, it still exercises its transcendence, but does not exercise analogy, because these individuals of the same species enjoy such unity as not to be diverse absolutely speaking. Theirs is a merely material diversity, extrinsic to the nature which is unqualifiedly common to them. The fact that being is included in the merely material differences existing between two individuals of the same species does not prevent the concept of being, as applied to these individuals, from retaining a character of absolute unity. And yet the transcendent reality under consideration, viz., being, remains analogous by virtue of its concept, for the notion of transcendence demands that it should not be restricted to these two individuals, and consequent-

ly that it should be, absolutely speaking, diverse. Therefore nothing can be drawn from this argument in favor of the univocity of the transcendentals considered in themselves.

Answer to the objections presented at the end. To the first. There is no reason why a concept or cognition should not be at the same time doubtful and certain, obscure and clear, in diverse respects. This seems to be acknowledged by St. Thomas in the case of the act of faith (ii-ii. 1. 4 ad 2 and 3); he says that faith attains believable truths in evidence so far as credibility is concerned, but in obscurity with regard to the very truth accepted on belief. Likewise, sight can certify that a thing perceived from a distance is an animal while doubting and not certifying whether it is a horse or an ox. This holds mostly for negative doubt, which consists in a negation of assurance. An act which attains several things under a certain aspect does not necessarily attain all of them with equal clarity, but may enjoy complete certainty with regard to one of them, not with regard to the other. If there were a question of positive doubt concerning one object and evident certainty concerning another, it should perhaps be said that one act does not suffice, even with a diversity of respects. But this does not contribute any power to the argument drawn from negative doubt alone. If somebody begins to doubt positively, the confused concept of being disappears and the mind proceeds to the eliciting of concepts of the inferiors, and to doubting about them.

Answer to the second objection. We have already said (preceding question, art. 5) that in such attributions as 'substance is being,' 'man is being,' the particular analogates attributed to the subjects by the predicate 'being' are not signified as several and with their distinguishing characteristics, but rather as engaged in a state of confusion and in the proportional unity of their having the act of existence. Nothing else is predicated here and the meaning is this: 'Man is having the act of existence.' The predicate 'having the act of existence' implies a proportional resemblance to quantity, quality, substance, etc., but does not signify explicitly and determinately substance, quantity, or quality.

Answer to the last objection. Being certainly can be middle term in a demonstration. It has demonstrable properties. Unlike the equivocal term, which signifies the diverse as diverse, being signifies the diverse as engaged in a proportional unity and in a certain kind of confusion. Being accordingly satisfies the con-

ditions required for its being a subject of scientific knowledge and consequently of demonstration. It has properties of its own, though transcendental and connected with it according to a law of proportion. Such is unmistakably the theory of Aristotle *(Post. An.* 2. 14. $98^{a}20$). Cajetan *(Com.* on this text, chap. 11 of his commentary) remarks that a term enjoying merely proportional unity can be the middle term of a demonstration.[8] Again, on account of the proportional unity that it enjoys in the state of confusion, being can be the subject of contradictory attributions.

To show that being admits of absolute conceptual unity, *some* point out that its concept is unified by properties common to substance and to accident. This does not prove anything, unless it is also proved that these properties are univocally common. Since the properties of being, such as true, good, etc., are common only in an analogous and transcendental way, it is easy to understand that they do not require, on the part of the subject, absolute unity, but merely analogous unity.

ARTICLE 3

IN WHAT KIND OF ANALOGY IS BEING ANALOGOUS?

Some authors think that the analogy of being is neither one of proportion nor one of proportionality, but constitutes a third kind, which they call analogy of transcendence. See Cabero, *Digest of Logic,* treatise 4. disp. 3. diff. 3. *Others* think that being as predicated of substance and being as predicated of accident have nothing in common except the name; the analogy of being would be, as it were, one of attribution, similar to that of 'healthy' when predicated of medicine and urine. (See Vasquez, *Com. on Sum. theol.* 2. Vol. 1. disp. 121. chap. 2.) But they use the same expressions with regard to every analogous term and hold that wherever there is analogy the only thing that is common is the word. This theory will not be criticized here, since it has been discussed in the preceding question. Finally, *some others* understand that the analogy of being is one of proper proportionality, and this is more true.

Thesis. The analogy of being, as divided into ten categories, is not adequately described by the expression 'analogy of transcendence.' It is formally an analogy of proper proportionality, al-

though it includes virtually an analogy of attribution or proportion.

The first part of this thesis raises no difficulty. Transcendence is not a species of analogy, but a subject of analogy, and what is transcendent is denominatively analogous, just as animal is denominatively a genus. The reason for this is obvious, since the transcendent is something real, which is found in all things. But analogy, like univocity and equivocity, is formally a second intention, just as genus is formally a second intention. 'Analogy' refers to a mode of predicability and universality, and it is only as a result of intellectual abstraction that a thing can be termed analogous. To say that transcendence is a species of analogy is like saying that animal is a species of the universal or of the predicable. Thus, we have to determine the formal constitutives of the analogy which has for its subject being and the transcendentals.

The *second part* is entirely plain, since being and the transcendentals are found in all things, not by way of extrinsic denomination, but intrinsically; otherwise they would not be transcendentals. Accordingly, St. Thomas often says that accidents have their own being and an essence truly and genuinely distinct from substance. See *Com. on the Sent.*, iv. dist. 12. q. 1. a. 1. sec. 3 ad 5 and *C.G.* iv. 14. In the latter passage, he says that "accidents are forms superadded to substance and caused by the principles of substance; thus, it is necessary that their existence be superadded to the existence of substance and dependent upon it." Likewise, he says that the quiddity of the accident is a thing which demands to exist by way of inherence (*Com. on the Sent.* iv. dist. 12. q. 1. a. 1. sec. 1 ad 2; iii. 77.2; *Quodlibetal Questions* 9. 3 ad 2. All this could not hold if an accident were not a being in an intrinsic and quidditative way. And when St. Thomas says (i-ii. 55. 4 ad 1) that accidents and nonsubsisting forms do not have existence, he plainly means that they do not have existence by themselves and in the capacity of bearers—supposita alone are bearers of existence—he does not mean that they do not exist in the capacity of forms. Finally, St. Thomas says expressly (*Com. on the Sent.* i. dist. 19. q. 5. a. 2 ad 1) that analogy "according to being and intention," i.e., analogy of proportionality, belongs to being and to the transcendentals. These, he says, must "have existence in every one of those of which they are predicated." Same teaching in *On the Power of God* 7. 7.

The reason for this is obvious. What distinguishes analogy

of proportionality from analogy of attribution is the following feature: there is analogy of attribution when a term is predicated of several subjects on account of a form existing intrinsically in one principal analogate and denominatively in the others. On the contrary, in the analogy of proportionality, there is predication on account of forms existing intrinsically in each analogate; however, that in which these forms agree does not enjoy an absolute unity, but merely a proportional unity. Now, the accident is a being in an intrinsic sense, because it is truly outside nothing; it inheres really and procures such real effects as to be quantified, to be colored, to be hot, etc. Therefore being is predicated of the accident in an analogy of proper proportionality.

Proof of the third part. We said in the preceding question that Aristotle and St. Thomas often liken the analogy of being to that of healthy as predicated of animal and medicine, and this is an analogy of attribution *(Com. on Met.* 4. les 1. Cathala 535-39; 11. les. 3. Cathala 2194-97; *On Truth* 2. 11). But this does not mean that no other kind of analogy belongs to being, for in the *Com. on Eth.* (1. les. 7. Pirotta 95-96) St. Thomas expressly attributes to the good an analogy of proportionality. What holds for the good holds also for being. But accident depends upon substance and is *being of being* in such a way that if, by impossibility, it did not have entity in itself and intrinsically, it still could be called a being, by extrinsic denomination, on account of the being of the substance to which it is related and which it perfects. Thus, there is a *virtual* analogy of attribution between accident and substance. But, because accident possesses existence intrinsically, it is not in a formal sense that it is said to be a being by attribution; yet it has all that would be needed for such an analogy of attribution, if it were not being intrinsically. One might also say, as St. Thomas does in his *Com. on Met.* 4. *loc. cit.*, that the analogy of being, as divided into substance and accident, is similar to the analogy of healthy, not by relation to an efficient or final cause, but by relation to a material cause, inasmuch as the accident inheres in the substance as in its subject. From which it can be inferred, strikingly enough, that it must also possess existence intrinsically, that is, by inherence, not by attribution to an extrinsic cause or effect.

Objection. The proportion of accident to its existence, as well as that of substance to its existence, is a proportion of rea-

son, not a real one; therefore, this proportion does not suffice to constitute a real analogy, i.e., an analogy made of intrinsic agreement.

Proof of the antecedent. A proportion is a relation; in the present case, the relation is one of reason, since it does not hold between two real extremes. Indeed, nothing is distinct from its own existence: therefore, the relation between a thing and its existence is a relation of reason. *Again,* the proportionality which exists between accident and substance is not signified by the word 'being'; and if it is exercised without being signified, that is not enough to constitute an analogy, since proportionality can be exercised even between two species contained in the same genus. Of two species contained in the same genus it can be said that one is related to its genus in the same way as the other to its. Such proportionality does not destroy the univocity of being any more than the univocity of a genus.

Answer. Let it be said, *first of all,* that in the doctrine of St. Thomas, which posits a real distinction between essence and existence, this objection is altogether devoid of efficacy. Essence and existence are extremes between which a real relation can obtain. But, even if we abstract from this doctrine, it must still be said that analogy is formally a second intention and, as such, is not a real relation, but a relation of reason, like the intention of genus or that of species. The foundation of the intention of analogy is a proportion, but proportion is not formally considered, here, as a relation. A proportion grounds the intention of analogy inasmuch as proportion means the agreement and proportional resemblance of many, no matter whether these many are real beings or beings of reason. Likewise, the intention of genus is founded upon the unity of a generic resemblance, whether between real beings or beings of reason.

To the second part of the argument, let it be answered that proportionality does not have to be *signified* (as it were, in expressed act) but *exercised* in analogues; likewise, equality or unity is not signified in univocals. As to the proportionality exercised among species of the same genus, we have already said (preceding question) that it falls under absolute and unqualified agreement. The unity of the species contained in the same genus is not drawn from proportionality alone, but presupposes another and closer unity. On the contrary, all unity or agreement in ana-

logues is drawn from proportionality, without any other and closer unity being presupposed. This is the difference between the proportionality that obtains in analogues and the proportionality of univocals.

ARTICLE 4

WHETHER THE DIVISION OF THE ACCIDENT INTO NINE GENERA IS UNIVOCAL

Some authors hold that this question must be answered in the affirmative, especially if 'accident' stands for *(a)* complete predicamental accident—in opposition to accident so conceived as to abstract from completeness and incompleteness—and *(b)* real and intrinsically denominating accident. It is granted that the concept of accident is not univocal when it covers both extrinsically and intrinsically denominating accident.

This theory is founded upon the consideration that such an accident [i.e., an accident that satisfies conditions *(a)* and *(b)*] is not included in its differences, but seems to behave like the complete substance, which is a true genus because it is not included in its differences. (Substance would not be a genus if it were so conceived as to abstract from completeness and incompleteness.) Why should not complete accident be univocal, as well as complete substance? This interpretation looks plausible, especially if you notice that one accident—say, quantity—does not participate less than another—say, quality—in the notion of accident. Their diversity derives entirely from their proper differences, in which complete accident is not included. Finally, it is not easy to see under what kind of analogy the complete accident would fall if it were to be declared analogous. It is not transcendent, since it is not included in its differences. It cannot be the subject of an analogy of attribution or of metaphor, since all accidents are accidents intrinsically, not in a merely denominative sense. As to proper proportionality, these authors think that it is found even in univocals and consequently does not suffice to render a concept analogous.

On the contrary, there is the general rule set by St. Thomas (*Com. on the Sent.* i. dist. 25. q. 1. a. 2): "...when things do not agree in one supreme genus, nothing can be predicated of them univocally." Now, the nine genera of accidents are supreme genera, since they are diverse categories. Therefore nothing can be

predicated of them univocally. Accident is not divided univocally into nine genera.

First thesis. Accident, so conceived as to abstract from completeness and incompleteness, is not univocal, but analogous.

On this, agreement is rather general, for the argument which holds in the case of complete and incomplete common being, and in the case of complete and incomplete substance, holds also here. If accident is conceived as neither determinately complete not determinately incomplete, it is included even in its differences and finds its way into all things and modes. Accidental differences are being, but not substantial being; therefore they are accidental being and should be described as accidents, though incomplete ones. From this it follows that the notion of accident does not enjoy unqualified unity; it involves diversity inasmuch as it is included in its own differences and does not abstract from them perfectly. Once a notion is included in its own differences, it never can abstract from them, for there are no further differences from which it might abstract and which it might leave out; thus, if it should abstract from its differences, it would abstract from them entirely and the remaining notion would possess a character of community and unity in relation to its inferiors, not in relation to its differences. To sum up: if a notion is participated in by its differences, it does not abstract from them; in other words, it includes them in act; therefore it is a notion devoid of absolute unity.

Second thesis. Even complete accident is related analogously to the nine genera, whether or not the latter consist in intrinsic denominating forms.

This thesis follows from what was said in article 2 on complete being. When accident is conceived determinately as complete, it is not included in its differences, but it necessarily includes them, for they alone can render it complete. The only thing that can render accident complete is a mode of such nature as to distinguish it from incomplete accident. Such a mode will be either *(a)* inherence itself, which would render accident complete as subsistence does substance, or *(b)* the act of being an accident concretely, or (c) the determination of accident as a predicamental reality, or finally *(d)* differences contracting accident into a definite category.

The first of these modes would not render accident complete, for inherence is not, like subsistence, designed to achieve the constitution of a whole complete in itself. Inherence is a property of forms informing a subject. The sheer fact that accident is precisely conceived as inhering does not prevent it from entering into its differences: differences themselves inhere also. It is by the differences, not by inherence as such, that accident is rendered complete as a form. It should even be said that, with regard to the notions of 'completing' and 'causing a thing to be a whole,' inherence and subsistence behave in contrasting fashion, since subsistence renders a thing incommunicable (incommunicability is a characteristic of the whole) and inherence communicable (communicability is a characteristic of the form, not of the whole).

The second mode is of no relevance in the present connection, for an accident is rendered concrete by its existing in a subject. Notice, however, that even if an accident is considered apart from its subject and in itself, it is still placed in a category. Thus it is not the state of concrete existence in a subject which confers upon an accident the kind of completeness required by the notion of predicamental accident; it should rather be said that accident concretely considered is not placed in any category, except on account of its form.

The third mode, also, supplies an insufficient answer. The predicamental accident, considered as such, is understood to be rendered predicamental either *(a)* by the second intention of 'ordering [things] in a category,' or *(b)* by some first intention which renders it capable of the second intention expressed by the category. The first *(a)* cannot complete a real accident since a second intention is a being of reason. Moreover, the second intention of 'ordering things in a category' cannot belong to a thing unless the latter possesses a first intention by virtue of which it can be placed in a category and be the subject of such a second intention. As to the second *(b)*, what can it be, if it is none of the modes by which categories are constituted and accident rendered predicamental? It is certainly not a real mode, common to the nine categories, by which accident, considered as such, would be rendered complete and separable from its differences.

Accordingly, it must be said that 'complete accident' is not one concept superior to the nine categories, and that the completeness of accident is procured immediately by the modes which de-

termine the various categories. If accident is actually complete, it actually includes these modes. Complete accident does not enjoy the unqualified unity that univocity implies, but rather embodies the diversity of the differences and of the modes. This is why St. Thomas says (*Com. on Met.* 5. les. 9. Cathala 890) that the categories, which are distinguished from each other according to the diverse ways of predication, constitute the primary divisions of being. Thus, the division into ten categories applies to the concept of being in immediate and primary fashion, and complete accident does not procure any intermediary completeness distinct from the ten categories. Again, St. Thomas says (*Com. on Met.* 8. les. 5. Cathala 1763) that being does not need any addition to be substance, quantity or quality: it is quantity, quality, etc., at once and from the beginning. Likewise, accident does not expect any superadded determination, but from the beginning is quantity or quality, etc., and is immediately rendered complete by these modes.

The cogency of this argumentation is further evidenced by the following remark: if the division of complete accident into nine genera is univocal, complete accident is itself a genus embracing these nine, which are no longer supreme, but subaltern genera. True, the concept of univocal is adequately divided into genus, species, and the other predicables. This is why St. Thomas says (*C.G.* i. 32): "Everything that is predicated univocally of several is either genus or species or difference or property or accident." Now, 'accident in general' is not an ultimate species, and it is still more impossible to describe it as a difference or a property in relation to its inferiors. Therefore it is a genus, if it is univocal.

Some deny this consequence and say that accident is not a genus because its very essence is unequally participated in by the members of its division. But such unequal distribution, which indeed destroys generic unity, also brings about analogy, and it should be said that if accident is participated in unequally by diverse genera of accidents, it is analogous. (Notice that the inequality resulting from the differences alone does not rule out generic unity, for the differences of a genus are unequal.)

Others say that accident is not a genus because it does not signify a quiddity but the act of existence proper to accident,

viz., existence in a substance. [As an alternative theory, they also say that] if accident signifies a quiddity it still does not signify a distinct degree of being but whatever reality is included in all things. But, if the reality of accident is present in everything and fails to express any determinate degree of being, accident is not univocal. Indeed, a reality included in every thing cannot be a complete accident. If, on the other hand, accident is not included in the differences, it is univocal and predicated quidditatively, and there is no reason why it should not be described as a generic concept. It is in a quidditative sense that quality is an accident and is not a substance, and by the very fact that it is outside its differences quality expresses a degree of being. If accident does not express a degree of being, then it is included in its differences; but such inclusion destroys univocity.

Others trace the nongeneric character of the accident either *(a)* to its being transcendent or *(b)* to its implying a composite concept made of two analogous concepts, or at least a concept analogous in relation to other concepts. But if these conditions preclude the accident's being a genus, they also preclude its being univocal.

Others say that the reason why accident is not a genus is that the notion of the genus and that of the difference are not drawn from distinct realities. We have already criticized this theory (with regard to being) in the second article of this question.

Finally, others admit that accident is a genus. And if it is objected that the nine categories would not, then, be supreme genera, they reply that they are supreme genera relatively, not absolutely. This theory was rejected in the foregoing. Again, one might say, in like manner, that all subaltern [universals] are supreme relatively: 'living' has no superior in the order of living things, just as quality has no superior in the order of qualities. But if quality has, absolutely speaking, a genus above itself, it is not, absolutely speaking, supreme, although even inferior genera can be supreme relatively, that is, in the system defined by their notion.

Answer to the arguments presented at the beginning. To the first argument. There is a great difference between complete substance and accident for, in the case of substance we designate, as principle of completeness, something that has unity of notion

and category, viz., the act of being an integral or total substance with the character of a 'that which.'[9] On the contrary, because accident is a form, it is not possible to designate the factors of its completeness without pointing to the predicamental modes by which accident is adjusted to substance: but each of these modes, if it is determinate, constitutes a determinate category. If the predicamental mode is understood to mean, confusedly and indeterminately, the predicamental accident as such, there are two possibilities: (*a*) either 'predicamental' designates a second intention; in that case it is not the real complement of accident, but presupposes such a complement; (*b*) or it designates the complete nature of the accident; in this case it expresses confusedly all the predicamental modes, includes the differences and is analogous. To the objection that quantity is as much of an accident as quality, let it be answered that, even though these two participate equally in the nature of accident so far as inherence is concerned, they do not participate equally in the notion of accident with regard to the idea of disposing, nor with regard to the notion of a measure related to substance; in these respects they are fundamentally diverse and unequal. Now, it is not the mode of inherence which constitutes a quiddity, but the way in which a quiddity is related to the mode of existence as communicable, just as subsistence renders substance incommunicable. Therefore equality in inhering does not produce equality, absolutely speaking, in the quiddity of the accident.

In answer to the second argument, let it be said that if this principle held, it would hold just as much in the case of accident, conceived as abstracting from completeness and incompleteness. Yet all grant that accident, so considered, in analogous. Thus we maintain that it is analogous in an analogy of proper proportionality since it is present in all analogates as an intrinsic form. As to the remark that a relation of proportionality can be found in univocals, we have often answered that this relation, in univocals, is not the only ground for their unity, but presupposes the unity of univocity and comes in addition to it. When the relation of proportionality is that from which unity results, in such a way that there is no other unity than a unity of proportionality, this relation constitutes analogy and is foreign to univocals.

ARTICLE 5

WHETHER THE DIVISION INTO TEN CATEGORIES IS ADEQUATE AND SOUND

This division into ten categories is very famous and ancient. It is indorsed by the authority of so many centuries that there is something shocking about bringing it into question; yet, according to most authorities, it is not so easy to account for. This is how St. Thomas (*Com. on Met.* 5. les. 9. Cathala 891-892 and *Com. on Ph.* 3. les. 5. Leonine 15) evidences its adequacy: A term can be predicated of a subject or primary substance in no more than three ways: (1) as pertaining to the essence of the subject; (2) as inhering in the subject without pertaining to its essence; (3) as a predicate drawn from some extrinsic entity and denominated by it.

If the predicate is related to the subject in the first way, it constitutes the category of *substance*; if in the second way, the inherent predicate either is absolute or is relative and establishes a relation to another term. If it is a form absolute and inherent, it follows either from the matter or from the [substantial] form precisely considered as form (whether spiritual or corporeal). If it follows from the matter, it is *quantity*, whose function is to extend material parts. If it follows from the form, it is *quality*, which participates in the form inasmuch as it qualifies and determines. If it is a relative form, it makes up the category of *relation*.

If there is predication in the third way, i.e., if the denomination is drawn from something extrinsic and depends upon this extrinsic thing, the predicate belongs to the last six categories, which are systematized as follows: either the extrinsic thing is a cause, or it is a measure, or it is just an extrinsic thing applied to the subject without measurement or causality. In the last case the category is that of *having*, and the subject is said to be clothed. Suppose, now, that the thing from which the denomination is drawn has the character of a cause. It cannot be a material or a formal cause, since such causes enter into the intrinsic constitution of things and exercise denomination on accout of an intrinsic union. Material and formal causalities do not make up any special category, for their function is not to perfect and

change other subjects, as the efficient cause does, but to perfect and to complete the matter and the form themselves, which are perfected in themselves by information and reception. Modes do not constitute any particular category when they express merely the complement of a thing, for in that case they are reducible to the thing of which they are modes. They constitute distinct categories when they imply a special adaptation to the substance, not when they are mere complements of a thing or conditions required for its existence. As to the final cause, it exercises only a metaphorical causality, and in the subject in which it is a real thing it coincides with efficient causality. Thus, the only cause which denominates from outside is the efficient cause. It denominates either the subject which is changed, and then we have the category of *passion*, or the cause from which the effect proceeds, and we have the category of *action*.

If the denomination is derived from an extrinsic thing having the character of a measure, this measure is either of place or of time. If of place, measuring may imply only the notion of being in a place, at a shorter or longer distance [from the system of reference], and then we have the category of *where*; if measuring implies, further, the notion of an order of the parts in place, we have the category of *position*. If the measure is that of time, we have the category of *when*. There are not any other extrinsic measures.

This method of systematizing the various categories is deemed faulty by some, mostly on two accounts.

1. It is said that quantity follows upon matter, quality upon form. But if there is a question of inherence, it should rather be said that both of these accidents inhere in the composite. Such is the doctrine of St. Thomas, as we are going to show in our sections on Generation. And if there is a question of *emanation*, it should be said, again, that quantity does not emanate from matter alone, but from the composite, which is the body; it is the body that has three dimensions: and the body is not mere matter, but matter informed by the form of corporeity.

2. It seems that for St. Thomas the last six categories consist in extrinsic denominations.[10] The difficulty is not removed by merely stating that they are intrinsic modes dependent upon something extrinsic to which they are related; if this were the

case, relation also would have to be considered an accident of extrinsic denomination, since it depends upon an extrinsic term.

In spite of these difficulties, the explanation given by St. Thomas remains satisfactory.

The proposition that quantity follows upon matter and quality upon form is commonly received among philosophers. It does not mean that quantity emanates from matter alone or inheres in matter alone; it means that quantity is the first disposition of matter, inasmuch as the division and indivision of matter are understood in terms of quantity. (See St. Thomas, *Com. on the Sent.* iv. dist. 12. q. 1. a. 2. qcl. 3 and *On the Power of God* q. 9. a. 7). This is why there is no quantity except in material things. Quantity is said to belong to a subject on account of its matter because it disposes and sets in order the material parts, and also because it is akin to matter inasmuch as it is not active but serves as a means in the reception of other accidents; thereby it is proportioned to matter, which is the primary receiver. *Quality,* on the other hand, is found both in material and in spiritual beings. A quality may dispose its subject to act and may be an active instrument. Therefore quality is founded upon that which pertains to activity and actuality—things which are, by all means, related to the form.

Answer to the second objection. St. Thomas does not mean that the last six categories consist in extrinsic denominations such as 'to be known,' 'to be seen,' etc., which do not signify anything inherent in the denominated object. In the case of these extrinsic denominations, the only thing which inheres in a subject is the extrinsically denominating form (e.g., vision in the eye, love in the appetite). This form finds place in a category. But the denomination itself, by which an object is said to be seen or loved, does not inhere in the object and does not express any reality that would exist in it as superadded to vision and love and constitute a distinct category. Thus, the extrinsic denominations that St. Thomas places in categories are not purely extrinsic. They posit something intrinsic in the thing denominated, e.g., *where* in that which is placed, *passion* in the patient. However, this intrinsic reality is posited *dependently upon* an extrinsic thing which does not merely terminate but also gives a denomination or contributes to it. In fact, the subjects of the last six

categories are sometimes said to be denominated extrinsically; this must not be understood in a formal sense but in relation to origin. Here, the denomination of an intrinsic mode originates in an extrinsic thing and depends upon it.

In answer to the argument drawn from similarity between relation and other accidents dependent upon extrinsic terms, let it be said that the case is entirely different, for a relation does not depend upon its term as upon a thing which would denominate it or give birth to its denomination, but as upon a thing which terminates it. Likewise, power, habitus, and acts do not denominate their subject by the mediation of a term, but, though essentially relative to terms, they denominate their subject by themselves and intrinsically. The same holds for relation. The last six categories do not relate their subject to a term (if they did, they would reduce to relation). However, it is on account of a subordination to, and derivation from, an extrinsic thing, that they belong to their subject, and it is in dependence upon this extrinsic thing that they exercise denomination. Thus, a subject denominated *placed* depends upon the place where it finds itself; a subject denominated *clothed* upon the garment which surrounds it; a subject which is said to be *in a certain time* depends upon the time in which it exists; the patient depends upon the *agent*, and the agent upon the *effect*. These external things [place, garment, time, agent, effect] do not produce a merely extrinsic denomination; they produce a real mode, by which the subject is affected and denominated intrinsically, though dependently upon an extrinsic thing, in the way that we have described.

Yet, one might ask what kind of distinction there must be between predicamental natures in order that they constitute distinct categories. On this, there are two extreme positions. *Some* hold that the distinction needed is one between thing and thing, others that a distinction of reason with a foundation in the real suffices. The latter is the position of Suárez (*Metaphysical Disputations*, 39. sec. 2. No. 22).

The first opinion is plainly refuted by the example of categories that are mere modes, as action, passion, where, situation—even relation, as we shall see. These categories, considered in themselves and in their essence, are not distinct from the other categories in the way in which a thing is distinct from a thing. If

the opinion under discussion were true, there would be less than ten categories.

But if, according to the second opinion, a distinction of reason sufficed, we should be led to posit more than ten categories. If a distinction of reason sufficed, there would be no reason why the causality of the end or that of the exemplar, for instance, should not constitute a distinct category, although they really coincide with action, which is the causality of the agent. *Further:* the distinction of the categories is a distinction of real beings; where there is no real distinction, but only a distinction of reason, there is no ground for positing a diversity of categories. *Thirdly:* in fact, all categories are either things or real modes, such as relation, action and passion, where, and position which are modally distinct from each other and from their subject, as we shall see in question 19. True, place and having are identical with surface, but it is not inasmuch as they are surface that they constitute distinct categories; let it be said, on the contrary, that diverse categories are constituted by the mode *where,* which results from place, and by the mode *clothed,* which results from the contiguity of the garment. Action and passion are modally distinct, although entitatively they are really identical with motion or with their subject.

A *third* opinion requires a real distinction, but holds that it can be merely modal. This is the most exact interpretation of the case, and we consider that it has been proved by the preceding discussion.

IV

On the Categories

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QUESTION 15

ON SUBSTANCE

ARTICLE 1

WHAT IS THE FORMAL DETERMINATION WHICH CONSTITUTES PREDICAMENTAL SUBSTANCE?

When the term 'substance' is taken in the sense of the quiddity or essence of a thing, it does not designate a special category but conveys the general idea of *any* quiddity or essence; then it is understood in opposition to the accidental predicate, not to the predicamental accident, for even the accident—in the predicamental sense—has a quiddity of its own. Here 'substance' is not taken in this sense but designates *being by itself (per se),* i.e., that which is set in opposition to the accident, which inheres or exists in something else.

The property of existing by itself can be interpreted in two ways, *(a)* absolutely, i.e., *with regard to the thing itself;* so considered, the thing [said to exist by itself] is described as subsisting, which means that it does not need to be borne by something else, but rests in itself; *(b)* in relation to *other things,* inasmuch as substance bears them in existence and is described as not only 'that which subsists' but also 'that which stands under.'[1] Just as to be lucent is one thing and to illuminate is something else[2]—although the latter follows from the former—so the property of being in itself without need for support by another is different from the property of supporting other things and giving them existence.

This is how St. Thomas explains the essence of this first category *(Com. on the Sent.* i. dist. 23. q. 1. a. 1): "*To be* expresses that which is common to all genera, but *to subsist* and *to stand under* express two properties belonging to the first category alone, viz., *(a)* to be a being complete in itself and *(b)* to lie under all the other things—viz., accidents which owe their existence to substance." Here St. Thomas shows clearly that the constitution of substance, as first category, is to be understood in relation to these two acts, *to subsist* and *to stand under.* 'To subsist' refers to the thing itself and its own existence; 'to stand under' refers to the entities that the thing bears, viz., accidents.

Notice, further, that the expression 'to be by itself' can be taken either positively or negatively; *positively,* it signifies an excellent way of being, which excludes dependence upon something else; *negatively,* it signifies the negation of dependence upon something else and of communication to something else. Moreover, 'by itself' (per se) can be understood in several senses, as we shall show in our third thesis. Thus it is necessary to explain in what sense 'by itself' is taken in [the formulas meant to express] the constitution of substance, and whether it refers primarily to the property of subsisting or to that of standing under.

First thesis. The definition or description of substance, as first category, is *being existing by itself* (per se). Notice that substance does not admit of a definition properly so-called, since it is a supreme genus, not consisting of genus and difference.

These are the terms of St. Thomas in *Op.* 48 [*Summa of the Whole Logic of Aristotle*], Treatise 2. chap. 2. Elsewhere *(Com. on the Sent.. iv.* dist. 12. q. 1. a. 1. sec. 1 ad 2) he explains the meaning of this definition as follows: substance is a thing to which to be by itself or to exist by itself is due, just as accident is a thing to which to be in another is due.[3] [Such specification is necessary] because actual existence by itself is not the quiddity of substance, nor is actual existence in something else the quiddity of accident; clearly, to be or to exist is not an intrinsic predicate of any created quiddity. Recall, also, that in the Holy Eucharist quantity is a genuine accident on account of its aptitude to exist in another, although it does not exist in another actually.

Of the two relations implied in the concept of substance, viz., *(a)* to the act of existing by itself or subsisting and *(b)* to the act of 'standing under,' the former pertains more directly to the definition of substance. In other words, the property of subsisting and that of 'standing under' belong to substance according to an order of priority and posteriority; the property of subsisting, which is relative to substance itself, comes first; the property of 'standing under,' which is relative to other things to be borne by substance, comes second.

Second thesis. The perseity of substance does not consist in a mere negation, but in a positive determination.

Just consider that 'to be by itself' is loftier and more perfect than 'to be in another.' Now, to be in another, i.e., to exist by way of inherence in and union with something else, is a positive mode of existence. Therefore, to be by itself is not pure negation: it is something positive. Mere negation and exclusion of a positive reality do not make a thing more perfect, e.g., the perfection of man is not constituted by the sheer negation of brute. Finally, [if the perseity of substance were a negation] this negation would need to be founded upon some positive entity, otherwise it would be mere nothingness and would not constitute a positive being such as substance. But this negation is not founded upon being in general, for [if it were] it would belong to every being; thus it is founded upon some determinate being distinct from accident, and this being is substance.

True, St. Thomas says (C.G. i. 25) that 'per se' seems to imply no more than a mere negation, incapable of constituting a nature or the essence of a genus. On the basis of this text, some attribute to St. Thomas the opinion that perseity, in the case of substance, means a negation and nothing else. In fact, St. Thomas never held this theory: he merely says that the expression 'per se' does not constitute a genus. He immediately explains, in the following terms, in what manner substance is constituted by the concept of existing by itself: "The concept of substance must be understood to mean that substance is a thing to which it belongs to exist not in a subject. Indeed the word 'thing' is related to quiddity just as 'being' is related to 'to be.' Thus the concept of substance implies that of a quiddity to which it belongs to exist not in something else." We must, accordingly, distinguish be-

tween the sheer meaning of the expression 'by itself' and the implications that it assumes when it serves to explain what constitutes the quiddity of substance. In isolation the expression 'by itself' signifies merely the negation of 'in something else'; as explanation of substance, it conveys a positive way of being whose excellence implies the negation of 'existing in something else.'

Third thesis. The expression 'per se' can be understood in opposition to (1) being by accident, (2) being inhering in another, i.e., accident, (3) being existing in another as a part in a whole, (4) being existing in another but not in incommunicable fashion or with ultimate termination. (It is with ultimate termination that complete humanity exists in the suppositum.)

(1) In the first sense 'per se' concerns not only the category substance, but expresses a property of every being that is not being by accident; even quantity is 'per se' being in that sense.[4] (2) In the second sense it applies to every substance, whether complete or incomplete, as St. Thomas points out (*Op.* 42 [*On the Nature of the Genus*], chap. 10, and *Op.* 48 [*Summa of the Whole Logic of Aristotle*], tr. 2, chap. 2), for even a part of a substance is not an accident. (3) In the third sense it applies to the predicamental substance which—as in the case of 'humanity'—represents a whole quiddity and a nature complete from the very point of view of the idea of nature, though not in a suppositum. (4) In the fourth sense it applies to the suppositum. On this, see St. Thomas, *Op.* 48, *loc. cit.:* "Substance can be composite in two ways, viz., as nature and as suppositum. . . . Although 'humanity' is said to be a form, it is a composite made of matter and form, since it expresses soul and body. Yet, humanity or any nature expresses a substantial and natural form in such a way as to exclude from its main signification everything other than the said form and matter. Such is not the case with the suppositum, e.g., 'man,' for according to its main signification the word 'man' designates that which has humanity. . . . Now, what has humanity may be a nonhuman suppositum, as in Christ, whose humanity is borne by a divine suppositum; it may also have determinations, viz., accidents, that humanity does not, by any means, comprise; thus there is, in creatures, a distinction between suppositum and nature."

Further: 'to be by itself,' as opposed to the inherence of the accident, belongs obviously to every substance, whether complete or not, as does the property of being irreducible to any kind of accident. If 'to be by itself' belonged only to the complete substance, it could not be possessed by a thing having the character of a part, since it would demand a thing entire and complete. But subsistence and existence concern the way of existing, and 'to stand under' concerns the supporting of other entities: all this is extrinsic to nature and quiddity. Consequently, the nature of substance is not constituted in act by subsistence, but substance merely implies an ability to subsist, just as accident implies an ability to inhere and exist in something else.

Fourth thesis. Subsistence,' 'suppositum,' 'hypostasis,' and 'person' designate a *term* that is neither intrinsic to substance nor essential to it after the fashion of a constitutive predicate; this term is extrinsic to substance and has for its function to render a nature ultimately incommunicable to anything else [than the suppositum itself].

On the meanings of these words, see St. Thomas in the *Com. on the Sent.* (i. dist. 23. q. 1. a. 1.). 'Subsistence,' 'suppositum,' and 'hypostasis' are commonly predicated of substance, regardless of its nature; 'person' applies only to rational natures. The mystery of the Incarnation conveys the teaching that these words do not designate an intrinsic term; in Christ the quiddity of the human nature is entire without the proportionate act of subsistence. Thus subsistence is not a quidditative predicate. It is a term because it renders the nature ultimately terminated, incommunicable, and capable of receiving accidents in such a way that the nature of the accident remains distinct from the nature of the substance: this distinction shows that accidents are not joined to the nature immediately but reside in a suppositum which belongs to the nature and yet is distinct from it.

What subsistence is, whether it is a thing or a mode distinct from the nature, is a problem of metaphysics, not to be considered here (see Cajetan, *On Summa theologica,* iii. 2. 2). [However, a question of obvious relevance for the logician is this:] How can subsistence be predicated of nature if it is distinct from it? The answer is that subsistence is predicated of nature in a concrete fashion, like existence and the other accidental predicates; a

man is said to be existing and subsisting, and he is said to be a person, but he is not said to be subsistence or existence, and humanity is not said to be a person.

At this point, some say that humanity, physically considered, is distinct from subsistence and implies merely a nature devoid of subsistence; but, metaphysically considered, humanity would imply a nature disengaged from individuating differences; conversely, the concrete expression 'man,' physically understood, would signify the nature as comprised in a suppositum; and the same concrete expression, taken metaphysically, would signify the nature directly but connote the differences. But this is an abuse of words. Humanity, even if it is considered metaphysically, is signified after the fashion of a form, not after the fashion of a whole; what it expresses is the abstract object corresponding to the concrete term 'man' and only that by which man is man. Thus it abstracts from individuating differences in such a way as not to be predicable of individuals. The characteristics of this state of abstraction originate in the fact that the object so abstracted is signified as part, consequently in relation to some whole. But the whole is the suppositum; therefore, humanity, even metaphysically understood, is signified as deprived of suppositum and subsistence, although it is true that, physically considered, it is understood as singular. (It is in the state of singularity that the Divine Word assumed it.) Yet it can also be considered in general and still be understood metaphysically. Further, when man is considered metaphysically in his concrete reality, it is not easy to see how the differences of the inferior terms can be connoted; indeed, the term 'man' abstracts from these differences in the way in which a universal abstracts from contracting differences.

Last thesis. When the expression 'being existing by itself' appears in the definition of substance, the term 'existing' or the term 'to be' stand for existence itself, i.e., the act by which a thing is outside its causes; this act is not quidditative being.

The reason for this thesis is that the distinguishing features of substance and accident are derived from the diverse respects and ways in which they demand to exist[5] outside their causes, inasmuch as accident demands to exist with the dependence of inherence, and substance without such dependence. We shall show in Physics [*Ph.N.* i. 7. 4.] that existence is distinct from the na-

ture and quiddity of any created thing. It suffices, here, to quote these words of St. Thomas (*Op.* 48, *Summa of the Whole Logic of Aristotle*, tr. 2, chap. 2): "In creatures the 'to be' of essence and the 'to be' of actual existence are really distinct as two diverse things.[6] That which is extrinsic to the essence of a thing[7] differs really from this thing. Now, the 'to be' of actual existence is extrinsic to the definition, for all that is included in a definition is genus and difference. The definition leaves entirely out of consideration the question whether the thing defined exists or not."

Objection. The concept of substance must be constituted by something superadded to being; this something cannot be positive, therefore it is negative. The *minor* is plain: on the one hand, real being cannot be constituted by a positive element of merely logical character; on the other hand, the element superadded cannot be something positive and real; if it were, it would not add anything to being, since being is included in every real being. The whole theory would end up in these idle words: substance is being by itself; in other words, real being is real being. Thus what substance signifies, over and above being, is negative.

Further: not substance alone, but also the concrete thing made of accident and subject (e.g., the white) exists by itself. In the Holy Eucharist the separate accident exists by itself, without a subject. Thus the notion of substance is not adequately expressed by the proposed definition.

Finally: 'to stand under' is that which most properly constitutes substance. Aristotle says (*Cat.* 5. $2^{a}11$) that primary substances are substances in the most genuine sense because they exercise most genuinely the act of 'standing under.' Therefore 'to stand under' is the very essence of substance.

Answer to the first objection. Substance is constituted by a positive way of existing by itself, which does not superadd a new and distinct reality to being, but merely a new mode which, so far as entity is concerned, is contained in being but is explained in a new way. This is a general feature in the contraction of the transcendentals. They are not contracted by something superadded in which they would not be included: they effect their own contracting through the further development [of what was already there], not by way of novelty and addition. (See St. Thomas, *On Truth* 1. 1.) Consequently, two supreme genera differ from each other by

the whole of their being and not by something superadded. This has been elaborated on in the foregoing when we treated of the analogy of being (14. 2 and 3). There we have shown that the abstraction of being is not effected through the exclusion of inferiors and that its contraction is not effected by addition; in the two cases the same is expressed to a greater or less degree of explicitness. On account of such more or less complete expression, there is no absurd redundance in the words 'being by itself,' for the expression 'by itself' conveys a mode distinct from the mode conveyed by 'real being'.

Answer to the second objection. The thing made of accident and substance should be characterized, not as being by itself—*per se*—but as being by accident. Such a whole includes two things, one of which (i.e., whiteness) is inhering; consequently, not every one of its parts is free from the dependence of inherence; consequently, it is not, absolutely speaking, being by itself and not in another. In answer to the second part of the objection, let it be said that the separate accident does not exist by itself as a result of an intrinsic constitution but as a result of the extrinsic conservation that God supplies as he keeps this accident in existence without the agency of substance. Accordingly, this accident implies ability to inhere, which is foreign to substance.

Answer to the third objection. 'To stand under' is that which constitutes substance most genuinely, not with regard to its nature—which does not admit of more or less[8]—but with regard to the act of becoming and to the function of being under other beings; but this act and this function presuppose that the nature is subsisting and consequently that it is already constituted.

ARTICLE 2

ON THE DIVISION OF SUBSTANCE INTO PRIMARY AND SECONDARY. WHETHER THIS DIVISION IS SOUND

This division is famous, but in the judgment of many it involves great difficulty, and it has been interpreted in diverse ways. The whole trouble comes from the variety of meanings of the word 'substance.' *Sometimes* it designates the highest degree of the first category; *sometimes*, the nature or quiddity of the

things contained in the whole category, whether they belong to the superior degrees or to the inferior ones; *sometimes,* the suppositum or individual exercising the function of subsisting in itself and that of standing under other things or bearing them. Further, each of these meanings can be understood either in a context of first intentions or in a context of second intentions. As a first intention, substance is a subject of real information and actuation; as a second intention, it is a subject of predication. The variety of these meanings causes confusion with regard to *(a)* that which is divided by this division, *(b)* the essence of the division itself, and *(c)* the nature of its members.

As a first step toward a solution, let us remark that the special feature of this category consists in its being the bearer of other categories: to bear others is, indeed, to be substance. It must be subjected to others and stand under them. Inasmuch as other things are borne by it, substance stands under them; inasmuch as other things actuate it and are predicated of it, it is their subject. Since that is called primary to which nothing is prior, the things which, without being substance, exist underneath others and stand under them are not said 'to stand under' in a primary sense: for they presuppose an antecedent bearer, a last term of the regression. This ultimate bearer is described as primary; it is called the primary substance and the primary subject of others. Remark the difference between the relation of agreement and the relation implied in the receiving or bearing of accidents. The relation of agreement concerns the connection which holds between a nature, as nature, and the accident proper to it. On the other hand, the relation implied in receiving and bearing concerns the subject as subject; accordingly, it belongs primarily to the thing which is more of a subject and exercises with greater propriety the function of standing under others: the individual is such a thing.

Some authors consider that this division holds only in the order of first intention, both with regard to the divided and with regard to the dividing members. The divided would be substance as really 'standing under,' i.e., substance as possessing the real property of standing under. So understood, substance would be divided into the one that, as individual substance, 'stands under' primarily and the one that, being universal, 'stands under' in a secondary sense. *Others* go to the extreme opposite and hold that

both the divided and the dividing members should be understood in the order of second intention; for them the divided is substance as possessing the second intention of subjectability, in other words, it is substance as possessing the intention of subject-to-a-predicate. Substance so understood is divided into *(a)* the intention of first subject, i.e., that which is ultimate in the act of being a subject, and *(b)* that which is not ultimate in the act of being a subject, viz., the universal, which is more of a predicate than a subject. Finally, *others* hold that the divided, i.e., the nature of the substance, should be understood in the context of first intention, and the dividing members in the context of second intention. The dividing members would be either *(a)* the individual and the universal ways of 'standing under' or *(b)* the things of substantial nature as denominated by the second intention of 'standing under universally' and 'standing under individually.' On these and other opinions see the Philosophers of Coimbra, *Com. on the Whole Dial. of Aristotle*, chapter on Substance, q. 2; the *Course* of the Carmelites, disp. 12. q. 2; Araujo, *Com. on Met.* 5. q. 2. a. 1; Suárez, *Met. Disp.* 33. sec. 2.

First thesis. The subject divided by this division is not substance as abstracting from complete and incomplete; nor is it substance as degree, i.e., the supreme genus (of the first category).

The foundation for this statement is that [in every division] the subject divided is partaken of by each dividing member. Now, the supreme genus is found in but one dividing member, viz., in the second substance, for second substances are genera and species. Therefore, the supreme genus is not a matter of division common to primary and secondary substance. Indeed, the genus is divided into its species and goes down to the individuals, but it is not divided into individual (or primary) substance and generic (or secondary) substance. Likewise, the incomplete substance is neither primary nor secondary because it is incomplete and has the character of a part, not that of a whole. It does not exist by itself, but in another.[9] Thus, the incomplete substance does not *(a)* 'stand under' in a primary sense, for there is something else, viz., the whole which 'stands under' antecedently to it; nor does it *(b)* 'stand under' in a secondary sense, for it is not a predicable whole.[10] The thing which 'stands under' in a secondary sense is a whole [e.g., the universal man] predicated of the thing which

'stands under' in a primary sense [e.g., this man]. The latter [e.g., this man] is intermediary in the former's [e.g., the universal man's] being describable as 'standing under.' A part of a substance cannot be such a whole. Consequently, the part is not denominated a thing which 'stands under' but a thing which 'constitutes'; yet it may be the means of receiving something in the whole, e.g., vision is received through the mediation of the eye. But it is not the eye which 'stands under,' it is man; although the eye receives, it does not 'stand under' other things; the whole 'stands under' it as under a part. Of the universal it can be said that, through its identification with the individual, it 'stands under'; but nothing of the kind can be said of the part, which is not identified with the whole, whereas the universal [whole] is identified with the inferior.

Second thesis. The field divided by this division should not be restricted to the second intention, as if it were nothing else than the intention of subjectability.

The reason for this thesis is that the logical relation of subject to predicate, whether essential or accidental, is common to accident and substance. Even the accident is subjected to its predicates and receives them, whether they be essential—e.g., "whiteness is a quality"—or accidental—e.g., "whiteness is intense."

You might say that it is merely by participation in, and derivation from, substance that an accident ever has the character of a subject; consequently, the property of being a subject resides essentially and primarily in substance.

This remark is of no weight. Although whatever concerns entity and reality resides more principally in substance and participatively in accident, yet the intentions which belong to things as known—e.g., 'to be universal or particular,' 'to be genus or species'—are predicated equally of both. The same holds for the intention of subject and predicate, etc. Finally, substance is not only the subject of predication, it is also the subject of information: it really bears accidents. Therefore, the concept of 'standing under' cannot be explained only by a second intention, viz., the relation of subject to predicate; it has to be explained also in terms of the real property of 'standing under' what really informs.[11]

Third thesis. It may be said with some probability that the

subject divided by this division is the property of 'standing under,' or substance as exercising the function of 'standing under.' But it is much more probable that the subject under division is the very nature of the predicamental substance. [In this more probable view,] the parts of the division are diverse modes, one of which consists in 'standing under' as an individual that really subsists and exercises real reception, and the other consists in 'standing under' by a mere denomination proceeding from primary substances and primary receivers.

So far as its first part is concerned, this conclusion can be derived from St. Thomas' *Op.* 48 ([*Summa of the Whole Logic of Aristotle*] tr. 2, chap. 3). " 'To stand under' has two meanings, *(a)* to stand under accidents and *(b)* to stand under universals, inasmuch as the less universal is under the more universal." He says, further, that "the property of the primary substance is to stand under accidents. From which it follows that 'standing under' accidents belongs to the primary substance principally and primarily." Thus, for St. Thomas, the whole division is relative to the property of 'standing under' and bearing accidents. Let it not be understood that this property of bearing is divided into diverse properties. Let it not be believed, either, that the property of 'standing under' is one property in universals and another one in individuals; it is one and the same property, just as nature is the same and not diverse [in individuals and in universals]. The property of 'standing under' is exercised in essential and primary fashion, i.e., without any intermediary, by the individual, in secondary fashion by the universal inasmuch as the superior nature is identified with the individual. What belongs to the individual belongs also denominatively to the universal, and what belongs in expressed act to the universal is exercised by the individual. Thus, it is not necessary to suppose, as subject of this division, anything else than the property of 'standing under.' Again, this property belongs primarily to the individuals in which it is exercised, secondarily to the universals in which it has the character of a denomination derived from the individuals.

It might be objected that some accidents also possess the property of 'standing under' in this secondary sense, i.e., by the mediation of primary substance, for it happens that an accident bears another accident, as quantity bears color and as a power

bears a habitus or an act.

Answer. The underlying accident (e.g., quantity in relation to color) is an intermediary in reception but does not have the intelligible character of a thing designed to be the bearer of other things. Accidents are themselves inhering realities and cannot give [what they do not have, viz.,] a way of being by which other accidents would be borne. But they can act as intermediaries between the reception of one accident and the reception of another. An accident may, in a certain way, constitute a disposition by which the subject is rendered able to receive further accidents. On the other hand, universal substances are identified with individual ones. Accordingly, they receive accidents as individuals do; more precisely, they receive the denomination of 'bearer' although the exercise of 'bearing' is left to the individuals.

The second part of the thesis is derived from a passage of *On the Power of God* (9. 2 ad 6) where St. Thomas says: "The division of substance into primary and secondary is not the division of a genus into species, for nothing falls under secondary substance which does not also fall under primary substance; it is the division of a genus according to various ways of existing. Secondary substance signifies the nature of the genus considered in itself and absolutely, and primary substance signifies the same nature as subsisting in individuality. Thus, it is the division of an analogue rather than that of a genus." St. Thomas, according to an interpretation common among his disciples, does not think that this division is analogous, but merely that it is closer to an analogous division than to the division of a genus into species. True, it is neither of these kinds of division. The division of substance into primary and secondary is the division of a subject or nature into modes of existence. Such a division can be likened to that of an analogue because the latter also is effected by modes, not by differences like that of a genus. Lastly, in reference to the definition of the person—which is said to be an individual substance—St. Thomas says (i. 29. 1 ad 2) that the word 'substance' does not signify determinately primary substance but is taken "in a general sense as divided into primary and secondary, and that when individual is added, it is restricted to primary substance." Thus, according to St. Thomas the subject divided into primary and secondary substance is that

which is, under the name of substance, included in the definition of the person. Now, when the person is said to be an 'individual substance,' this expression does not designate the individual property of 'standing under' but the substantial thing itself. Accordingly, the substantial thing is the subject divided by this division. Since primary substance is not only the determinate property of 'standing under' but a determinate thing which possesses the property of 'standing under' in essential and primary fashion, it is more appropriate to say that this is not the division of a property into properties but that of a thing having certain properties into the modes of these properties.

From all this, it clearly results that primary and secondary substances do not express diverse natures; they are related as singular and universal within the same category. The bearer of the denomination 'to stand under in primary fashion' and the bearer of the denomination 'to stand under in secondary fashion' are one and the same, since they are the same nature. These modes or properties cannot be distinct realities, since no real property belongs to the universal secondary substance which does not belong also to the individual substance. But the real property of standing under, which resides in the individual, belongs also to the universal nature. On the other hand, the exercise of 'standing under' or bearing accidents belongs really to the primary substance and denominatively to the secondary one. But if 'standing under' means the second intention of being subject to superior predicates, then 'standing under' belongs to the primary substance and does not belong in any way whatsoever, not even denominatively, to the secondary substance. Indeed, the genera and species are not subjected to all the predicates to which the primary substance is subjected, not even by way of a denomination derived from the primary substance.

As a result of all the preceding discussion, it is now possible to define the *nature of this division.*

(a) If we assume [according to the more probable theory] that the divided subject is the substantial nature affected by the [previously described] two modes, the division of the category of substance should be characterized as that of a thing into its modes or as that of a subject into its accidents. See St. Thomas' explanation in *On the Power of God (loc. cit.).* Such an

interpretation does not conflict with St. Thomas' statement about the present division being that of an analogue into its analogates rather than that of a genus into species. This statement should not be taken to mean unqualifiedly that the division is analogous; it only means that if the division of substance is compared with that of a genus into diverse species and natures, you will find that it resembles such division less than that of an analogue [into its analogates] because it is effected by diverse modes. The first of these modes, i.e., to 'stand under' primarily, resides really in primary substances; but the property of 'standing under' in secondary fashion exists only denominatively and logically. It is as if nature were divided into universal and singular.

(b) On the other hand, if we hold that the subject of this division is the concept of the property or way of 'standing under,' then the division is analogous; for one mode, viz., 'standing under in primary fashion' exists really whereas the other one, viz., 'standing under in secondary fashion,' exists only denominatively and logically.

Objections and Answers

First objection. Properly understood, this division refers to subsistence rather than to the property of 'standing under.' Now, primary and secondary substances possess equally the character of things able to subsist. Therefore, this division is not analogous and its members are not analogous modes.

Proof of the major. The principle of this division must be supplied by what the dividing members have in common. Now, *subsisting,* rather than 'standing under' is what they have in common, since they are unqualifiedly different so far as the latter is concerned. Thus, the division must be relative to subsisting.

Proof of the minor. To subsist or 'to be by itself' belongs to the nature of substance even in the state of generality; it primarily belongs to the common natures of substances and from them comes down to individuals. (See St. Thomas, *Com. to Annibald.* i. dist. 23. q. 1. a. 4.) Thus, the character of subsisting thing is not less intrinsic to the secondary substance than to the primary one.

Answer. The term 'to subsist' is being used equivocally.

This term may *(a)* apply to a thing which demands subsistence, in other words, which is a 'being by itself,' and it may *(b)* designate the very mode of subsisting that belongs to the nature demanding it. Likewise, 'to stand under' may either *(a)* apply to the nature that demands the property of 'standing under'—in other words, apply to a thing that is 'standing under in a radical sense'—or *(b)* designate the very mode and property of standing under. In the first sense, 'subsisting' concerns the nature; this is how it is understood by St. Thomas (*Com. on the Sent.* iv. dist. 12. q. 1. a. 1. qcl. 1 ad 2) when he defines substance as "being by itself," that is, as a thing to which existing by itself is due. So understood, 'subsisting' pertains to genera and species by priority, to individuals by posteriority, as St. Thomas says in *Com. to Annibald.* i. dist. 23. In the second sense, 'subsisting' and 'standing under' designate an exercise and belong primarily to individuals. Although both of these properties pertain to the nature in a radical sense, their exercise belongs primarily to primary substance. It is in virtue of this priority in exercise that primary substances are said 'to stand under' in the full sense of this expression. This division does not proceed from the nature, for the nature is the same in primary and secondary substance, nor does it proceed from the act of subsisting itself, which is relative to the thing itself alone; it is derived from the concept of 'standing under,' which implies that a thing is related to other things by bearing them and standing under them. Thus, there are two ways in which denomination results from the things that are supported: *(a)* according as these things are received immediately and in exercise and *(b)* by mere identification with that which receives them immediately and in exercise, viz., in the way in which the universal nature is identified with the individual.

Second objection. Either *(a)* the divided coincides with one of the dividing members or *(b)* one of the dividing members coincides with the other one. *(a)* Indeed, what is divided is substance understood *in general:* therefore, it is secondary substance, which is the universal substance. *(b) Likewise,* primary substance can be understood in general, for all individual substances are primary substances as well as substances. Thus, from the fact that primary substance, even if considered precisely as primary, is predicated of all, it follows that primary substance is secondary

substance. And from the fact that secondary substance is predicated of the first, as genus and species are predicated of the individual, one dividing member coincides with the other. *Finally,* what is principal in substance is its quiddity and nature. Thus, it is absurd to say that primary substance is most fully substance because the property of 'standing under' belongs to it most fully; for nature is more important than any property. It is on account of its nature, not on account of any property, that a thing should be called 'substance' in a more excellent sense. But the nature belongs to genera and species by priority, to individuals by posteriority, and from genera and species it comes down to individuals. Therefore, secondary substances will be substances in the fullest sense of the term.

Answer. To the first argument: the subject divided is the nature considered in itself, not as individual or universal, but as nature having the property of 'standing under'; thus, it is not necessary that the divided subject should be universal; all that is necessary is that it be capable both of the mode of universality and of that of individuality. Or, if this division is interpreted not as the division of a nature into its modes but as a division of the very property of 'standing under,' then the divided is superior and common, and yet it is not a secondary substance, because it is not universal as a nature, like a genus or a species, but as a property or mode of 'standing under.' Of such a property or mode—as well as of the individual in general—it must be said that it is neither genus nor species.

From this the answer to the *second* argument follows plainly. Although 'primary substance' is taken *in general* when it is related to all primary substances, yet it is not taken as a secondary substance, because it is not common after the fashion of a genus and a species—which mode of community belongs to the secondary substances alone. It is common after the fashion of the vague individual, as when we say 'some man.' Those are wrong who say that 'primary substance' cannot be taken in a general sense, like 'some man,' but only as standing for a determinate suppositum. It is clear, indeed, that Aristotle uses 'some man' as an example of primary substance (*Cat.* 5. $2^{a}13$.). Thus, primary substance signifies an individual and determinate suppositum as 'that by which', i.e., that by which a suppositum is individualized. Yet,

this form or mode can be conceived in general as a certain thing; this is what happens with the word 'person,' which otherwise could not be defined. The fact that the secondary substance is predicated of the first and belongs to it proves only that the nature of the primary and of the secondary substances are one and the same. [Again,] the division does not express diversity of natures, but refers to the function and task of 'standing under.' So far as this function is concerned, the secondary substance is not predicated of the primary one, just as universality is not predicated of individuality.

To the *third* argument, let it be answered that nature or quiddity is principal in substance radically considered, because it is the root of the property and mode of 'standing under.' It is true that nature or quiddity exists principally in the secondary substance. But the very function of 'standing under,' so far as exercise is concerned, is principally and most fully proper to the primary substance and it belongs to the primary substance alone so far as the second intention of 'standing under' by subjectability to superior predicates is concerned. As to the property of 'standing under' really, it belongs to the nature radically, though not in such a way as to be exercised in every state of the nature, but only in the state of individuality. Distinguishing substances through their properties rather than through their quiddities was necessary because they make themselves known to us by their properties rather than by their intrinsic quiddities.

You might say: Accordingly, there must be a division of accident into primary and secondary, for the accident inheres really in the individual, and in the universal it does not have the property of inherence except by relation to the individual. And the same should be said of every property whose exercise finds place in the individual, though the denomination belongs also to the universal.

Answer. The accident cannot, like the substance, be divided, absolutely speaking, into primary and secondary. By the very fact that the accident inheres, even in the state of individuality, it presupposes something prior to it, by which it be supported. Thus, to be primary in inhering is not to be primary absolutely and in being, but merely in informing, for what inheres informs. And thus it presupposes something anterior, by which this information will be

borne. But because substance has the character of a bearer and a subject, it is necessary, in the substantial order, to come down to something primary which does not require anything antecedent to bear it, and thus is, without any qualification, primary in being. Likewise, the exercise of properties belongs by priority to the individual, not to the universal; but properties do not thereby assume a special way of being and of 'standing under,' as primary and secondary, as in the case of substance.

ARTICLE 3

WHERE THE DEFINITIONS OF PRIMARY AND SECONDARY SUBSTANCES ARE EXPLAINED

Two difficulties will be examined in this article. (1) Does the definition of primary substance refer to *the thing which* is primary substance or to *that by which* a thing is a primary substance?

Answer. In a formal sense, what is defined here is *that by which* a substance is primary, viz., the mode by which it subsists, stands under [accidents], and is subjected to its predicates.

The definition bears on what is formally constitutive of primary substance and proper to it. This proper constitutive is the mode or property just described, just as the formal constitutive of the person is personality. The constitutive of primary substance qua primary is not the quiddity or essence of the nature, but a mode of the nature, as was said in the preceding article. This mode is what is formally defined in this definition. However, since the defined is expressed in concrete terms, it must be interpreted according to the rule of concrete definitions and we must distinguish an object defined *which* and an object defined *by which*. The defined, understood formally, is not the thing *which* is primary substance, but only the mode *by* which primary substance is constituted; this mode alone possesses the character of primary substance formally and essentially.

(2) What is this form or mode defined here? *Some* believe that primary substance is defined by two negations, one of which would refer to a first intention ('not to be in a subject'), and the other to a second intention ('not to be predicated of a subject'). The first point is held to be obvious, for 'not to be in a subject'

pertains to the mode of existing characterized by subsistence. Such a mode is something real, even though we need a negation to express it; this negation is not the thing defined, but the idea used to define a thing, or, more exactly, to describe it, since a negation cannot define a positive reality. To prove the second point, they say that the negation ['not to be predicated of a subject'] is designed to manifest the opposite of the form denied; the opposite of this form is necessarily a being of reason: it is necessarily the opposite of the intention by which the secondary substance is constituted. What is set in opposition to this [second] intention cannot be something real, since opposites must belong to the same genus; it must be a being of reason, viz., the second intention of singularity.

Confirmation. That by which secondary substance is defined is a second intention. (Aristotle says that secondary substances are the genera and species under which primary substances fall.) Correspondingly, that *by which* primary substance is defined must be a being of reason. The same viewpoint is taken in the definition of both substances. Such views are held by Merinero *(Com. on Aristotle's Dialectic,* On Substance, q. 3).

This is, nevertheless, our *thesis:* The formal aspect considered in the definition of primary substance is a first intention, viz., a mode of subsisting in reality and of really standing under things. However, the definition of primary substance comprises, by way of consequence, the second intention of 'being subjected to predication.' The very fact that substance is really informed by accidents and really constituted by superior degrees entails its being subjected to predication.

Clearly, the formal constitutive of primary substance must be explained in terms of that which causes a thing to 'stand under' *in ultimate fashion,* viz., to lie under *all* other things. Now, the cause of such a property is not the intention of subjectability; it is a real mode, relative to the support of real accidents. Primary substance possesses the logical relation of subject to predicate inasmuch as ability to support other entities constitutes the foundation of such a relation. Thus, the form or mode by which a thing stands under other things is most thoroughly 'that which stands under' and lies under all other things; even the relation of subject to predicate is founded upon it.

The proof used by the opposite theory has taken care to show that the first negation, viz., not to be in another, concerns a first intention. By overturning the argument on which the same theory is founded, it is easy to show that the second negation concerns also a first intention. It is true that the form denied is a second intention and a being of reason, but its negation is truly found in the order of first intention and real being; indeed, it is real being which negates being of reason. First intention is best explained through the negation of second intention. It is false to say that a real thing cannot be set in opposition to a second intention or form of reason; they can be set in opposition to each other not on account of any formal contrariety, since they do not fall under the same genus, but on account of implied negation.[12] The first intention [viz., being bearer in ultimate fashion] denies the second, viz., being predicable of a subject. Between primary and secondary substance there is not such correspondence that both should be defined by similar intentions; rather, they must be defined by opposite intentions, since the primary bears the secondary, supplies it with a foundation, and contrasts with it. This suffices to invalidate the arguments used against our position.

But more objections are raised. (1) Both of these negations hold for nature considered in itself: it neither exists in a subject nor is predicated of a subject since it comprises only quidditative predicates; yet it is not primary substance; therefore, the definition is not good. (2) To say that primary substance is not predicated is false. The individual is predicated of only one subject, as we said in the section on species, and the vague individual (e.g., 'some man') is predicated of several. Notice that Aristotle uses the indeterminate individual (e.g., 'some man') as an example of primary substance.[13] (3) A negation does not explain or define anything. This definition, made of two negations, is a bad one.

Answer to the first objection. These negations can be understood in two ways: *(a)* as pure negations isolated from any positive meaning. So understood they hold for the nature considered in itself; they may even hold for beings of reason and for nonbeing, since they merely deny 'to be' and 'to be predicated of.' *(b)* They can be understood as founded upon some positive way of being which they serve to circumscribe. So understood they do

not hold for nature considered in itself but only for nature possessed of the mode of subsisting and 'standing under' which belongs to substance alone.

Answer to the second objection. Primary substance is predicated of itself and not of a subject, i.e., of a term inferior to itself. The definition does not say that it is not predicated, but that it is not predicated *of a subject.* As to 'some man,' i.e., primary substance taken in general, it is predicated of several as *that which* and by way of denomination, not as *that by which;* it has the character of a mode which renders something nonpredioable of several; in signified act, this mode is taken as a certain thing provided with a character of generality and the logical property of being predicable of several; likewise, the intention of genus is denominatively a species.[14] However, the indeterminate individual—in other words, the primary substance taken generally—is not directly and essentially universal, for it is not 'one in many'; not the aspect of multiplicity [many] but the aspect of unity [one] is lacking, because what is under consideration is not a nature alone and a definite quiddity, but a nature with the mode of individuation.

Answer to the third objection. This definition through a double negation is not proposed as a definition properly so-called but as a description and a circumscriptive formula: in all rigor of terms, it does not manifest the essence of primary substance.

ARTICLE 4

WHAT THINGS ARE EXCLUDED FROM THIS CATEGORY AND WHAT THINGS ARE PLACED IN IT

We are concerned with the things that are included in this category directly, i.e., by reason of their participating in the essence of the supreme genus and contracting it.

Let it be said, briefly, that a substance, in order to be included directly in this category and bear the name of predicamental substance, must satisfy two conditions. It must be *finite* and it must be *complete.* The latter condition means that a predicamental substance is a thing to which the property of subsisting and that of 'standing under' belong in essential and direct

fashion. This double property belongs directly to what is signified as a whole, to the part it does not belong directly but through something else and in dependence upon something else, i.e., through the whole and in dependence upon the whole. According as these conditions are satisfied or not we know which substances fall under the intelligible features of this category and which ones are left out.

These two conditions are derived from one and the same principle. In order for a thing to be a predicamental substance it does not suffice that it be a subsisting entity; it is further required that it be composite and that its subsistence be the result of a composition. If an infinite substance were placed in a category, it would be either in the capacity of a supreme genus or as a thing contained in such a genus. If it were a supreme genus, all predicamental substances participating in it would be infinite. If it were a thing contained within the supreme genus, it would be a species; but then it would be made of genus and difference, for this is what species means. Now, the relation of genus to the differences implies the readiness of the genus, as something potential, to be contracted and determined by the differences. Thus, [if infinite substance were contained in this category,] God would be made of an intelligible feature expressing potentiality and of another intelligible feature expressing actuality. He would not be pure act; he would comprise some potentiality, viz., the generic note. Even the differential act would not be pure act, since it would be joined to a potential act, viz., to the genus. In order to understand that such genus would necessarily imply potentiality, consider, besides what was said in the question on the Genus (question 7), that a genus cannot be pure act; if it were, it would not lend itself to contraction and determination by differences whose function is to actuate and qualify the genus that they determine. But the pure act exists in ultimate actuality.

Further: [if infinite substance were comprised in a supreme genus,] this genus would be common to God and creatures. But there is no pure act among creatures. Consequently this genus would not be, in itself, pure act.

Thus, in order that a thing be a predicamental substance, a certain composition is needed, which is incompatible with infinite substance and pure actuality.

The same principle excludes incomplete beings, i.e., differences. Obviously they do not express pure actuality, but they admit of no composition of genus and difference. If a difference were composite, it would be made of genus and difference by virtue of the same principle [which posits genus and difference in a species]; but this difference would also be composite; hence there would be infinite regress, and infinitely many compositions would be needed to accomplish the composition of a single quiddity.

Further: if what is genus in relation to a species were also genus in relation to the difference, the genus would appear twice in the definition, once on account of the species and a second time on account of the difference. It could not remain univocal, since it would belong to the essence of the differences and cause their diversity, as we showed above in the treatment of analogy (question 13, art. 4 and 5; question 14, art. 2). Thus, differences cannot find place in a genus directly: they can merely be reduced to it and belong to it, as it were, collaterally.

Whether matter and form and the integrating parts considered as such fall directly under the genus of substance was discussed in the question on Genus, question 7, art 3. In the present connection, it suffices to add that the parts as parts do not 'stand under' or subsist directly, but in dependence on the whole. Thus, they are not substance by themselves and directly, for that is substance directly which directly demands to subsist and to 'stand under'; expressing such a demand is an exclusive property of the whole, whether it be understood in particular or in general. For subsisting is directly required by universal substance but is exercised in the state of individuality. Now, it is not by virtue of their own entity but by virtue of the whole and in the whole that the parts demand to exist and to 'stand under.' Let this proposition be borrowed from metaphysics. Moreover: since the parts of the substance are, of themselves and intrinsically, designed to make up the whole which falls directly under the category, if these parts also were placed directly in the category, the same would appear twice in the category and the definition, a first time on account of itself, a second time on account of its parts; and we would have a situation like that just described in the case of the difference. For the refutation of this absurdity see Aristotle *Met.*

3. 3. $998^{b}24$ and St. Thomas *Com. on Met.* 3. les. 8. Cathala 433, and C.G. i. 25.

Some authors would *object* that it is not absurd to speak of logical composition in God and consequently to distinguish in him aspects related, according to our way of considering things, as potency and act. Our intellect distinguishes from each other a plurality of divine perfections, although the simplicity of the divine being is absolute. It may just as well, in line with our way of conceiving, understand these perfections and attributes after the pattern of act and potency.

Confirmation: if a division effected according to our way of conceiving is compatible with the concept of pure act, the corresponding composition should be equally acceptable, for opposites are governed by one and the same law.

But this objection implies the absurd postulate that it is possible to conceive, in God, a distinction whose terms exclude each other and demand to be separated from each other. Such a supposition is not tenable, for, if an aspect of God is conceived as implying potentiality and the addition of something to something else, the concept of pure act is thereby destroyed. We have to do, here, not with the abstraction of one attribute from the other, but with the destruction of one attribute by the other. When we think of an attribute existing in God, we either conceive it *(a)* as divine or *(b)* as created or (c) as abstracting from either. If it is conceived as created or as abstracting [both from being created and from being uncreated], it is not conceived as belonging to God and as something of God; thus the supposition [that we can conceive it in God as *b* or c] is destroyed. If we think of it as uncreated, then we conceive it as pure act and infinite, therefore as exclusive of potentiality, even in the definite aspect that it assumes in a definite concept. Thus, these distinctions made in divine things are not effected through the exclusion of one perfection from another but through the use of implicit or explicit concepts. Our imperfect mode of conceiving expresses one divine perfection in such a way as not to express another one. This expression of the one coupled with the nonexpression of the other is a distinction of reason of the kind that can be made in God, but it is not the concept of a perfection as formally excluding another perfection and being in potency toward it. Any notion of poten-

tiality is incompatible with the essence of pure act. Thus, such a division is not contrasted with composition, but with the perfect expression of the same most simple thing. The composition of reason which is founded upon the potentiality of one component and the addition to it of another finds no place in God. On the contrary there is place, in our study of God, for a composition of reason founded upon degrees in the expression of the self-same reality.[15] (See what was said on the transcendentals in the preceding question, art. 2.)

Some wonder whether Our Lord Jesus Christ, considered in his human nature, i.e., as man, falls under a category. The answer must be definitely in the affirmative, for we know by faith that he is, in a univocal sense, a man made of a rational soul and a human flesh. He belongs to the human species, he falls univocally under the species man, consequently under animal, living, etc. Thus he falls under genus and species and the degrees of a category.

It might be objected that Christ is not, absolutely speaking, a creature. (See iii. 16. 8.) Since created being alone falls under categories, Christ would not, absolutely speaking, find place in any category. But this argument proceeds from an irrevelant consideration. This name 'creature,' because of its transcendence, may designate indifferently nature or suppositum. Christ is in a category only by reason of his human nature, which was created. Likewise, to walk and to die pertain to him by reason of the same nature.

From all this it results that every created substance is contained in this genus [of substance]; the incorruptible and spiritual substance is no exception since it is finite and composite; it is not pure act and it involves some sort of potency together with act. Therefore it is possible to conceive it as comprising two intelligibles, one of which is determinable and contractable, the other determining and contracting. Such a thing must belong to some genus and category, which cannot be anything else than substance. These spiritual creatures (angels) are total and complete, not incomplete, beings, consequently they belong to this category directly, not by mere reduction.

When Aristotle says (*Met.* 10. 10. $1059^{a}9$; *Com.* of St. Thomas, les. 12. Cathala 2142) that "the corruptible and the incorruptible

differ in genus" he speaks of the physical genus, i.e., of matter. He means that they do not have matter in common. Indeed, the heavens are made (according to the more probable opinion) of a matter specifically different from the sublunary matter. And angels have no matter at all.

ARTICLE 5

WHETHER THE APTITUDE TO BEAR CONTRARY FORMS IS A PROPERTY OF SUBSTANCE IN THE FOURTH SENSE OF THE WORD PROPERTY[16]

Aristotle attributes to substance six properties. (See, in the foregoing, the summary of his text.[17]) We do not intend to discuss the rigor of this enumeration. Not all of these properties are positive; some consist in negations, as 'not to exist in a subject'; others are second intentions, as 'to be predicated univocally'; others do not belong to substances alone, as 'not to admit of more or less,' which belongs also to quantity. Of these properties, only one raises a particular difficulty.

Concerning the last of them, viz., aptitude to receive contrary determinations without loss of identity, the question arises whether it is a property of substance in the fourth sense. Referring to the two conditions that properties of this kind must satisfy, we shall ask (1) whether it belongs to every substance, and (2) whether it belongs to substance alone and always, that is, by virtue of a necessary connection.

There seems to be ground for arguing that this property does not belong to every substance. *(a)* It does not belong to universal substances, but only to primary ones, since universal substances do not really receive accidents and do not really stand under them. Now, the property of which we speak, if it were a property in the fourth sense, would, like any other proper affection, belong primarily to the universal. Indeed, an affection intrinsically connected with an essence and emanating from it belongs primarily to the universal; the reason why individuals possess it lies in the common nature. *(b)* It is reasonable to conjecture that the heavens and the angels, which are incorruptible substances, do not receive contrary determinations any more than

destructive influences. Thus, the property under consideration does not belong to every substance.

That it does not belong to substance alone seems to be established by several examples. *Quantity* receives contraries, as heat and cold, and in the mystery of the Holy Eucharist it receives them immediately and in itself, not through an intermediary bearer. *Quality* also receives contraries, e.g., the intellect bears opposite habitus and acts. Qualities that admit of varying intensity receive the contrary movements of weakening and intensification. Speech, while remaining the same, receives truth and error. Thus, this property does not belong to substance alone.

Lastly: to receive contraries [as understood here] is nothing else than to stand under contraries, for ability to receive not by way of 'standing under' can also be found in accidents. Now, 'to stand under' constitutes the essence of the primary substance, as we saw in art. 3: it is not a property.

In spite of all this, the *commonly accepted theory* must be retained. 'To receive contraries' is a property of substances in the fourth sense of the word 'property.' But this theory calls for the following specification. (1) In the capacity of means of reception, accidents may also receive contraries, as we shall soon see; now substance possesses in relation to things that [do not exist by themselves but] are borne by something else the character of a first principle; in other words, accidents exist by virtue of substance, not by virtue of any thing prior to it.

(2) 'Reception' designates, here, a real property, not the intention of subjectability—a logical relation of the subject to the predicates which agree with it, i.e., which can be predicated of such a subject. In the present context, we refer only to the reception of accidents, the sort of reception that takes place in a real bearer, a real subject. Such reception is exercised by primary substance alone, even though it belongs to secondary substance [without being exercised by it].

(3) The expression 'to be capable of contraries,' taken in its proper sense, refers to common accidents. Substance, of course, receives proper accidents, but these are not contrary to each other; all proper affections belong to one and the same subject without any contrariety; one proper affection does not exclude another one. The things, contrary to each other, which are received in a subject

are common accidents whose reception leaves the substance identical with itself, in other words, does not cause its destruction.

Briefly: to be, in essential and primary fashion, a bearer of things that imply contrariety to each other without the identity of the bearer being threatened by such reception of contraries, this is a property of substance in the fourth sense of property.

This property is of lesser extension than the general property of 'standing under,' for the latter extends to superior predicates and proper affections which do not admit of contrariety.

To the *first* objection, let it be answered that 'to receive contraries' belongs also to universal substances, but mediately and by reason of their identity with primary substances. Immediately and in exercise, 'to receive contraries' belongs to the primary substance with which the universal substance is identified. But accidents are not identified with primary substances; consequently, they cannot come to possess by material identity [as secondary substances do] the character of bearers, and the ability to receive contraries in the way just described as proper to substance. No communication[18] with primary substance can give accidents such character and ability. Yet they can be means or dispositions in the foundation or reception of other accidents.

Comparing essence in universality with essence in individuality, *a further objection* is that properties belong to the former before they come to be connected with the latter. The answer is that this priority of the universal concerns the connection between essence and property—in the present case it concerns the aptitude to receive contraries—but the *exercise* of a property pertains only to the state of individuality. Notice, however, that the aptitude to exercise, in the state of individuality, the bearing of contraries belongs to universal substance and has connection with it. When accidents are, in exercise, borne by individuals, the act of bearing them belongs denominatively to the secondary substances; in other words, secondary substances 'stand under' secondarily or mediately. Now, the property of substance is to 'stand under' in an absolute and unqualified sense.

To the second part of the argument—concerning the heavens and angels—let it be said that even the heavens receive contraries, viz., contrary motions and contrary places. They do not, however, receive contraries capable of causing their destruction. Likewise,

angels bear contrary acts and diverse judgments and diverse spiritual affections, although they are free from physical contraries. By *physical contraries* I mean those leading to the generation and corruption of the substance.

To the second objection. When any accident receives another accident, the former plays the part of intermediary or disposition in the reception of the latter, but it does not have the character of a bearer or of a principle designed to bear other things. The accident which acts as intermediary in the reception of another accident is not intermediary in giving being to that other accident, but in co-ordinating accidents in the same subject. Not all accidents belong to the subject in equally primary fashion. It happens that one accident requires another as intermediary and as a presupposed condition; thus the intellectual power is intermediary in the possession of the intellectual act and quantity in the possession of color. This is what St. Thomas means when he says (i-ii. 7. 1 ad 3): "...An accident is said to be the accident of an accident from the fact that they meet in the same subject. But this happens in two ways. First in so far as two accidents are both related to the same subject, without any relation to one another: e.g., whiteness and music in Socrates. Secondly, when such accidents are related to one another, as when the subject receives one accident by means of the other: for instance, a body receives color by means of its surface. And thus also is one accident said to be in another, for we speak of color as being in the surface."[19] See also the *Disputed Question On Virtues*, a. 3; here, St. Thomas says that there is nothing to prevent several forms from existing in the same subject with a relation of form to matter obtaining between them, as color is formal in relation to surface. More on this in i. 77. 7 ad 2 and i-ii. 56. 1 ad 3.

Concerning quantity in the Holy Eucharist, the answer is that to be a bearer of accidents does not belong to quantity essentially and by virtue of an intrinsic principle, as in the case of substance, but by virtue of something distinct from itself, viz., because it is immediately borne or sustained by the efficient cause, God, without the subjective material cause which is the substance. Thus, the qualities, which were previously united to quantity itself as borne in existence by substance, remain united to quantity in the same fashion after substance has been removed: they are, then,

borne in the same existence by the first efficient cause. Thus, the union does not change, but the character of the bearing.

To the other part of the argument, which concerns qualities and speech, let this be our *answer:*

When *qualities* receive opposite modes of intensification and weakening, their capacity is not that of bearing subjects, but that of intermediaries in receiving, for intensification and weakening are modes of these qualities. Such modes cannot be received except through the mediation of qualities. *Speech* receives the true and the false not by a change that it would receive in the capacity of subject but by an objective change to which no change in signification corresponds. For truth and falsehood do not consist in signification but in conformity and nonconformity with the existence of the thing. But when substance receives contraries, there is intrinsic change in the subject, not extrinsic change in the object. And if it is held, according to the opinion of some, that truth and error bring about an intrinsic perfection or mode in knowledge, then the answer should be the same as to the preceding argument, viz., that speech receives contraries not as subject *which* bears—this pertains to substance alone—but as intermediary in reception, just as quality is intermediary in the reception of intensification.

To the *last* objection let it be answered that the property of receiving contraries differs from the intrinsic quiddity of substance; because this quiddity is not, formally, the essence of bearing, it is so only radically and consists in an essence demanding such a property. Further, the property of receiving contraries does not express the essence of 'standing under' in all its amplitude, since 'standing under' is said not only with regard to the contraries, but also with regard to the proper affections and superior predicates: primary substance stands under all of these. But this property makes sense only in reference to the contraries that it receives.

CO-ORDINATION OF THE CATEGORY OF SUBSTANCE

The supreme genus is substance. It is divided into spiritual and corporeal. Spiritual substance is divided into the various species of angels. Body into corruptible and incorruptible. Incorruptible into the various species of heavens and planets. Corruptible into living and nonliving. Nonliving into elementary and mixed, each of which has various species. Living into animated

or sensible and inanimated, as plant. Plants into the various species of trees and bushes. Animal into rational and nonrational. Nonrational into the various species of brutes. Rational into individuals, such as Peter and Paul.

IV

On the Categories

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QUESTION 16

ON QUANTITY

ARTICLE 1

THE PROPER AND FORMAL CONSTITUTIVE OF QUANTITY

In the treatise on the *Categories*, Aristotle does not define quantity but begins with its division into continuous and discrete. The following definition is from the *Metaphysics* (5. 13. 1020^a7): " 'Quantum' means that which is divisible into two or more constituent parts of which each is by nature a 'one' and a 'this'."[1] This is, in brief, how St. Thomas interprets Aristotle's definition (*Com. on Met.* 5. les. 15. Cathala 977): the quantum is a thing divisible not into physical parts—i.e., matter and form—nor into dynamic parts—as the soul is divided into the intellectual and the sensible—nor into subjective parts—as the universal is divided into its inferiors—but into integral and quantitative parts. These parts are put together in such fashion that after division has been effected each of them remains a thing endowed with unity. Think of the division of a volume of water into several portions. The quantitative thing is divisible into integral parts.[2]

Our inquiry will be restricted to the differential and proper essence of quantity. But a thing must be understood in distinction from other general objects before its quiddity is explained. Accordingly, we premise that quantity is a real accident, distinct both from substance and from the other accidents. Some nominalists deny this proposition. Their own theory can be summed up as follows: on the one hand, there are no parts and no divisibility without quantity, on the other hand, no entity whatsoever

comprises anything else than its own parts; they conclude that quantity is not really distinct from the thing that has parts, whether it be a substance or an accident.[3]

The opposite of this theory is evinced by the most holy mystery of the Eucharist: we can see with our eyes that the quantity which was that of the bread is still present when faith teaches that the substance of the bread is no longer there; thus, quantity is distinct and separated from the quantitative thing.

The nominalists reply that the quantity of the substance is no longer present, that it has vanished; the remaining quantity would be that of the qualities and other extended accidents. Against this, an argument may be drawn from the plurality of accidents. Either *(a)* each of them has its own distinct quantity or *(b)* there is a quantity common to all of them. *(b)* A quantity common to all would be distinct from each of the accidents—by the very fact of its being common to all—and would also be distinct from the substance, which is no longer there. Thus, quantity is distinguished from the quantitative thing [and our theory is accepted]. *(a)* If it is held that each accident has its own quantity, it follows that several quantities penetrate each other, since all these accidents are in the same place. Such mutual penetration would either *(aa)* be effected supernaturally and by a miracle or *(bb)* naturally and as a result of the constitution of things. *(aa)* The first is not tenable. These accidents obviously have the same entity after consecration as before consecration; if quantity is not distinct from entity, they must have the same quantity as before. Moreover: prior to consecration these accidents were in the same place, therefore the alleged penetration does not require a supernatural miracle. *(bb)* Posit the second part of the alternative: It implies that the quantity of the accidents does not naturally resist penetration but is consistent with it. Then, what they have in mind under the name of quantity is a thing foreign to the present discussion, for by 'quantity' we designate a thing which, as a matter of experience, opposes penetration. Of quantity so understood, we say that it is distinct from the quantitative substance.

The same argumentation holds against the more recent theory that quantity is not a real accident but merely a mode of the quantitative thing. A mode is not really separable from the thing of which it is a mode. Considering that in the Holy

Eucharist quantity is separated from substance, they are forced to say that the quantity of the substance disappears with the substance itself and that the remaining quantity is another dimensive quantity. But how will this "other" quantity be described? If it is a mode of a remaining accident, the number of modal quantities will equal that of the accidents there, and we are back to the theory already criticized. If it is not a mode but a reality, our own interpretation is vindicated: quantity is a thing, not a mode, and it is up to our opponents to show *of what* this "dimensive quantity" is the quantity.

By explaining the theory of St. Thomas, we shall reply to the propositions upon which the opposite theory is founded. For St. Thomas, quantity gives integral parts to substance but does not *constitute* the parts of substance; it merely sets them in order, and this act of ordering is accidental, not substantial.

Within the framework of these premises, we are confronted by a number of divergent theories concerning the formal and constitutive essence of quantity. According to most, this essence should be gathered from the effects of quantity, some of which are separable from quantity itself and some are not. There is common agreement that the proper effect of quantity is the extension of the parts, from which extension several properties emanate, viz., the character of measure, divisibility, impenetrability, and ability to fill place.

Yet, in reference to measure, *some* theorists (1) speak of a quantitative extension which should be distinguished from the substantial extension of the parts. In favor of this distinction they argue that the character of measure is common to continuous and discrete quantity. They claim that according to St. Thomas (*Com. on Met.* 5. les. 15. Cathala 986) Aristotle, in the *Categories*, explained quantity in terms of this character of measure.

(2) *Others* hold that divisibility itself constitutes the essence of quantity; some of these point to divisibility understood radically, others to divisibility understood formally and directly.

(3) *Others* hold that the essence of quantity is constituted by space-filling extension. They do not speak of actual filling (as some nominalists did) but of an aptitude and a radical tendency to fill space. A form which demands that space be filled: this is how they conceive quantity. In order that this definition

should cover every kind of quantity—continuous, discrete, and sucessive—they distinguish three kinds of space, viz., the space of place, the space of duration, and the space of discontinuity. In correspondence with the space of place, there is the extension of continuous quantity, which extension is commensurate with the various parts of place. In correspondence with the space of duration, there is the extension of successive quantity, commensurate with the various parts of time and motion. In correspondence with the space of discontinuity, there is the extension of discrete quantity, commensurate with the various parts of number.

(4) According to *others,* the essence of quantity resides in the extension of the parts considered as capable of resisting penetration and of filling place. This capacity is described [not as an actual fact but] as a natural tendency, for there may be quantity without actual filling and commensuration. On these theories see the Carmelites' *Com. On Aristotle's Dialectic and Natural Philosophy,* On Quantity, disp. 13. q. 2 and 3; Merinero *Com. on the Whole Dialectic of Aristotle,* On Quantity, q. 1 and 2; Cabero *Digest of Logic,* On Quantity, disp. 2, diff. 2; Suárez *Metaphysical Disputations* 40. sec. 4.

(5) Lastly, *others* hold that the essence of quantity consists in the extension of the parts considered not in relation to the place external to them, but in relation to the whole that they make up. Without quantity the substance or subject does not have ordered parts. It does not have parts external to parts. In short, it does not have extended parts. This is the theory commonly received among the disciples of St. Thomas, as can be gathered from the authors just referred to, as well as from Vasquez (*Com. on St. Thomas' Summa theol.* i. disp. 196. chap. 3), Tolet (*Com. on Phys.* 1. q. 7), and some others.

Faced with this great diversity of opinions, I shall first set aside three issues which are decided with certainty and on which most authors are agreed. But in a fourth issue I find matter for some doubt.

(1) The formal constitutive of quantity cannot consist primarily and essentially *(a)* in measure formally understood or *(b)* in divisibility formally understood or (c) in the actual filling of place or *(d)* in actual nonpenetration or (e) in any kind of actual extension related to place. The mysteries of faith certify that

quantity can exist without these affections. The body of Christ exists in the Holy Eucharist with its quantity and its other accidents (as St. Thomas proves, iii. 76. 4); yet, in the Holy Eucharist, *(a)* it does not possess a condition of divisibility, *(b)* it does not have the character of a measure, and *(c)* it is not related to place either by way of divisibility or by way of impenetrability. In fact, the body of Christ was penetrated when it went out of the grave, when it went out of the womb of the Virgin, and when it entered a room whose doors were closed. In the Holy Eucharist there is no actual filling of the place, since the whole is in the whole and in any of the parts. Thus, the essence of quantity does not consist in any of these things. If St. Thomas sometimes says that quantity consists in measure (*Opusculum* 52, *On the Nature of Place*) or in divisibility (*Com. on the Sent.* i. dist. 19. q. 1. a. 1 ad 1 and *Com. on Met.* 5. les. 15), he speaks of measure and divisibility understood radically.[4]

(2) Quantitative extension pertains intrinsically to the concept of quantity. It is the root and the foundation of those formalities and affections of quantity which are relative to place. Quantity, by nature, tends to fill place, opposes penetration, tends to be formally divisible, etc. These are modes connatural to quantity. The theory that quantity consists in an extension apt to fill place and to oppose penetration (3 and 4) is perfectly true. Yet it is a weakened expression of the truth, since, instead of considering what the nature to be explained means formally, it considers what this nature demands radically. The same remark holds for the theory that quantity consists in aptitude to be a measure (1) or to be divisible (2). The problem is to find out what formally constitutes the root of these properties.

(3) Extension is relative to the whole, but it implies, by way of presuppositions, *(a)* the entity of the parts and *(b)* their union and arrangement. Clearly, the entity of the parts is not supplied by quantity, for the parts, entitatively considered, are substantial. As to their union, it can be considered *(a)* substantially and entitatively in so far as the united parts compose a substantial whole. Such a union is obviously not supplied by quantity, for, since the resulting whole is itself substantial, the composition is not accidental but substantial. *(b)* If the union is considered accidentally, inasmuch as it is not a union of indeter-

minate description but an ordered one, the parts are united to each other not by the whole of their being but by something of themselves, viz., their extremities: this is how confusion is removed. On account of this union of parts by their extremities, quantity is said to place one part *after* another. Something of one part remains away from the other part, and it is not by the whole of themselves that the parts are united. Such is the formal nature of extended part, considered not in its entity as a part, but inasmuch as it is distinct and set in order or free from confusion. This state of things results from the role played by extremities and indivisibles, without which parts are not united in orderly and nonconfused fashion. The problem is whether this is a formal effect of quantity.

Thesis. In the theory of St. Thomas, the proper and formal essence of quantity is the extension of the parts in relation to the whole. This is the same as to say that quantity causes the parts [of substance] to be formally integrating parts. Therefore, if quantity is removed, substance does not have, formally, integral parts set in order and distinct.

Before undertaking to prove this thesis, I wish to mention that the expressions 'distinct parts' and 'distinction of parts' can be interpreted in two ways: *(a)* according as the term 'distinction' is, absolutely speaking, used in opposition to unity in general and *(b)* according as the term 'distinction' is used in opposition to confusion. Distinction can put an end both to unity—viz., inasmuch as it brings about multiplicity—and to confusion—viz., inasmuch as it brings about order—for those things are said to be confused which are deprived of order, and those things are said to be distinct which are placed in orderly and appropriate fashion. What we assert is that quantity considered formally, i.e., precisely as quantity, does not constitute the parts of substance with regard to their entity and their intrinsic essence, but with regard to their orderly arrangement and freedom from confusion. This order is an accidental form of the parts which, through quantity, are given the character of things orderly and distinct.

Let us show that this is the express theory of St. Thomas. In *Op.* 42 [*On the Nature of the Genus*], chap. 16, he says that "the constitution of a part, as part, in an individual, is effected by quantity, which is the first accident of the body, since it is its

measure." Likewise, in *Op.* 48 [*Summa of the Whole Logic of Aristotle*], On Quantity, chap. 4, he says that "position means *(a)* the order of the parts in place, and so understood is one of the categories. . . and *(b)* the order of the parts in a whole; in the latter sense position is a difference of the genus quantity." We find the same teaching in his treatment of the category of position in the *Summa of the Whole Logic of Aristotle* and in *Com. on Ph.* 4. les. 7. Leonine 4. Thus, St. Thomas considers order or extension of the parts in the whole as the proper and differential essence of quantity. The same expressions are in *Com. on the Sent.* iv. dist. 10. q. 1. a. 3. qcl. 3 ad. 2: "Relations among the parts of Christ's body are not in correspondence with the parts of the host; yet the parts of Christ's body are related to each other according to the order of quantity." Thus St. Thomas considers that the order of the parts in the whole pertains to the very essence of quantity.

Texts of St. Thomas support the theory that if quantity is removed substance is indivisible, which implies that order of parts in substance is brought about, primarily and essentially, by quantity. In *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 5. a. 3 ad 3, he says: "Now matter can be divided only if we presuppose quantity in it; if that is taken away, every substance remains indivisible. So the primary reason for the diversification of things of one species lies in quantity. And indeed this belongs to quantity inasmuch as its very nature implies position as a sort of constitutive difference, which is nothing else than the arrangement of parts."[5]

Here, position is not understood formally, but radically. (St. Thomas is aware that position is a distinct category, not the difference of quantity.) Likewise, in *Quodlibetal Questions* 9. 6, he says "...a diversity of parts in matter is unintelligible unless a division is presupposed, and a division of matter is unintelligible without dimension, for, if quantity is removed, substance is indivisible," as said in *Ph.* 1. 2. $185^{b}16$. The same doctrine is expressed in i. 50. 2 and 4 and *C.G.* iv. 65: "If quantity is withdrawn every substance is indivisible." St. Thomas says, further, that "quantity, unlike the other accidents, has the property of being individuated in itself; this property is grounded in the fact that position, which is the order of the parts in the whole, is in-

cluded in its notion, for quantity is a thing that has position." Notice how clearly and how consistently St. Thomas teaches both *(a)* that quantity supplies order and the very possibility of parts in the whole and *(b)* that without it substance remains indivisible. Moreover, when quantity, as in the body of Christ, is no longer related to place, it still remains divisible and extended by virtue of a relation of part to whole which pertains to its essence. Thus, St. Thomas means that, if quantity is removed, substance is no longer divisible either in relation to place or in relation to whole; accordingly, it no longer has parts in a formal sense.

This theory is usually established by several arguments whose purpose is to destroy the notion of an entitative extension of integral parts, anterior to quantity. What is most effective in these arguments can be reduced to two main principles.

The *first* will be discussed extensively in the Books on Generation (*Philosophy of Nature*, iii. q. 9. a. 3 and 4); at the present point it cannot be explained and has to be postulated. It is the principle that the individuation of corporeal things proceeds from matter as determined by quantity. *(a)* Individuation proceeds from matter as from a substantial principle which causes it [viz., individuation] not formally but radically. Matter is not individuation itself, but is the principle of individuation. *(b)* Individuation proceeds from quantity as from a necessary condition. Quantity is not the essential and substantial principle of individuation. This doctrine is expressly held by St. Thomas in *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 4. a. 2 and several other places. But, if quantity determines matter with regard to individuation or distinction of individuals, it necessarily follows that quantity also determines matter with regard to distinction of parts. Clearly, the actual division of determined and extended parts alone brings about a plurality of individuals. It is one and the same principle which effects the distinction of parts and that of individuals. This is why the quantum is said by Aristotle to be "divisible into two or more constituent parts of which each is by nature a 'one' and a 'this'"; in other words, it is so determined that it needs only actual division to become this or that individual.

As to the *second* principle, its explanation, in the present connection, must be derived from the proper understanding of in-

tegral part. Substance alone does not cause parts of this kind to be extended, free from confusion, and set in order: an accident is required. The extension of the parts in the whole is a union by the extremities alone. Extension cannot consist in any other kind of union of the parts among themselves. In extension, not the whole of a part is united to the whole of another part; if such were the case one part would penetrate and impregnate the other, as in the union of form with matter, which union is purely substantial. If, in a whole, a part is united with another part penetratingly and by all of its own parts, union is no longer extensive and no longer places one part outside another part. Thus, in order that there be extensive union within the whole, it is necessary that the parts be united according to their extremities, not according to the whole of their entities. If the latter method of union obtained, the parts would be united by penetration, like matter and form. The method of union which belongs to integral parts is distinct from the way in which matter and form unite.

This is, therefore, the question to be inquired into: what is the origin of the double-sided fact that the substance of a part—e.g., the hand—*(a)* is prevented from uniting with the arm according to all of its own parts and *(b)* allowed union with the arm and continuity with it only by its extremities? This cannot be effected by the power of substance itself, since substance does not, of itself, have parts ended by extremities. Extremities cannot be had except by reason of indivisibles;[6] but substance, of itself, cannot have indivisibles, viz., line, surface, and points, for these are proper species of quantity.

It might be objected that substance also possesses indivisibles of its own, substantial indivisibles, corresponding to the indivisibles of quantity. Against this objection, our argument is as follows: These indivisibles of substance are posited in order that substantial parts should unite according to extremities, in other words, by way of extension, not by way of penetration. If their union were not effected according to extremities, they would necessarily be united by the whole of themselves and in penetrative fashion; they would remain confused and without order among themselves, and one part would not be placed after another. Thus, if substantial parts are united by these indivisibles and extremities prior to [the intervention of] quantity,

it follows that, prior to quantity, the parts of substance already exist in the whole as nonpenetrated or extended. Substance would have within itself a principle sufficing to insure resistance to penetration in place and the filling of place. It would be pointless to describe as the formal constitutive of quantity the property of being a principle of impenetrability according to place: the entitative extension of substance would, by itself, possess this property.

Proof of the consequence. In this alleged entitative extension of substance, extremities and indivisibles are supposed to insure, prior to quantity, a union of such nature as to prevent, in spite of continuity, the penetration of part by part in the whole. [If this union of entitative parts can accomplish that much,] it will also prevent a part from being penetrated by the contiguous parts of an adjacent body—for holding that a principle which suffices to prevent the mutual penetration of continuous parts does not suffice to prevent the mutual penetration of parts that are merely contiguous would be absurd. Now, according to the opponents of our theory, the principle which prevents the penetration of the contiguous by the contiguous is a quantitative extension distinct from the [so-called] entitative one. By the very fact that they hold the substantial parts to be united, in orderly fashion and without confusion, by substantial extremities and substantial indivisibles, they posit in substance, prior to quantity, the formal essence of quantity itself. Therefore, it must be held that extensive union in the whole is accidental[7] and results from quantity.

Objection. In the sacramental body of Christ, there is quantitative extension in relation to the whole, and parts do not penetrate each other within the unity of the whole; yet, in relation to place, the sacramental body of Christ possesses not extension, but a mode of indivisibility. Therefore this extension, which is relative to place, does not proceed from the same principle as the union of the parts, which is relative to the whole.

Answer. The quantity of the body of Christ, which [quantity] resides in the whole, suffices to insure nonpenetration and extension in relation to place, unless such an effect is suspended by divine power. Notice that this effect pertains secondarily to quantity and properly to the circumscriptive 'where.' At the core

of the argument, there is the theory that substance considered in itself and prior to quantity contains a principle opposing the penetration of parts by parts in the continuum and consequently the penetration of a body by a contiguous body. There is no principle [in substance] opposing penetration in place nor is there any principle opposing penetration of part by part in the whole. Both effects proceed, not from substance, but from quantity. However, the absolute power of God can separate these effects from each other, for one of them is primary, the other secondary.

Objections and Answers

Almost all the difficulty involved in this theory and almost all the arguments held against it concern the proposition that the parts of substance both exist and are distinct independently of quantity, so that substance without quantity still has parts. If God removes quantity from substance while keeping the latter in existence, we are confronted by this disjunctive truth: either substance retains distinct and extended parts, or it no longer has such parts and has become indivisible. If the first member of this disjunction holds, what our opponents wish to establish is actually granted. If the second holds, all parts of substance merge into a point. Such an event takes place either in an instant or in time. It cannot take place in an instant, for flux or motion cannot be realized in an instant. If it takes place in time, so long as this time lasts the parts have not disappeared—and yet, by supposition, there is no quantity. *Further:* there is no reason why substance should merge into one of its parts rather than into another; for lack of such a reason, it would remain as before.

Confirmation. Consider two partial substances that unite by new acquisition, as happens in nutrition, and suppose that God removes quantity from them. Either these parts will be one or they will be distinct, so that one part be not the other. In the latter case, our opponents have won. In the former, the parts under consideration lose their individuating principles and their individual differences, and yet they remain the same, which implies contradiction. The same argument would hold for two samples of fire, one of which produces the other. Suppose that they are united with each other and that God removes quantity, either they will re-

main diverse parts or not. If they do, our opponents have won; if they do not, it follows that without quantity producer and produced are one and the same. Likewise, consider a three-span-long piece of wood and suppose that God removes quantity from the two spans at the extremities but keeps quantity existent in the middle span: the two extremities are *diverse* parts of wood, and yet they are without quantity.

Answer to the main argument. All these remarks and objections emphasize the same difficulty and are refuted by one and the same principle, viz., that prior to quantity the parts of substance are not formally extended, that is, set in order and free from confusion. Substance has parts radically, in other words, it has the ability to receive such an arrangement and distinction of parts; but without quantity the parts of substance remain penetrated by each other and united by the whole of their being: in short, substance without quantity does not have parts outside parts. There is nothing paradoxical about this, for the removal of quantity implies the removal of all the indivisibles and extremities without which the parts are not united extensively, i.e., by the extremity of the one and the extremity of the other, but are united penetratingly and by the whole of their entities. Thus, if quantity is removed, the whole entity of the parts remains, but in a state of confusion and in unity. You do not have here, formally, one integral part and another integral part: all that is left is the root of such diversity.

Referring to the first case, let it be said that, upon the removal of quantity, substance would not merge into one point, but have no points at all; consequently, it would no longer satisfy the conditions required for the union of parts by way of extension. As St. Thomas remarks (*Com. on the Sent.* ii. dist 3. q. 1. a. 1), to say that substance without quantity is indivisible does not mean that its parts are reduced to a point—point is the principle of quantity—it means that substance without quantity totally lacks divisibility. Substance would no longer be capable of motion and it would not exist in a physical place, it would be in the universe as a part of it, not as a thing located in a place. All these familiar pictures must disappear for they follow upon quantity as placed, as Cajetan points out (*Com. on. Summa theologica*, i. 52. 1). Such a substance is neither at a distance from a thing nor

positively somewhere: it has its existence without a place, like a thing outside of the world and an angel not acting in the world.[8]

Answer to the confirmation. If quantity is removed from the parts, these do not remain distinct in act; they are confused and make up one entity endowed with a radical ability to have distinct parts. When it is said that one part is not another part, and that the parts cannot both lose their individual differences and remain the same entities, let the answer deny the presupposition. If quantity is removed, no part remains in act; parts subsist only in their root and in potency. Every individual difference in the genus of part disappears, for there is no part in act. It cannot be said that the parts remain the same after their differences have been removed, for, again, there remain no parts in act. What remains is a certain substance confused and capable of parts, not a substance actually made of parts. Likewise, if matter existed without form, it would not possess any formal being actually; it would only be capable of, and in potency to, formal being, as is said in the first book of Aristotle's *Physics*.

Further objection. Two individuals, e.g., two stones, remain distinct on account of individual differences after quantity has been removed; yet their individuation depends upon quantity. Therefore, substantial parts will also remain distinct in act by a substantial distinction, although such a distinction depends upon quantity.

Let us *answer* by denying the consequence. The alleged similarity does not hold, because the distinction of individuals depends upon quantity as a factor of division and separation. Suppose that quantity is removed after division has been effected; since the substances are not going to be, again, united among themselves, they will remain separate and not one, and this by virtue of their relation to quantity, although they are not actually informed by it. Likewise, the soul, which is individuated by its relation to the body, is still individuated by this relation after it has been separated from the body. Again, an accident separated from its subject is individuated by its relation to its subject. Indeed parts of the same whole are not distinguished from each other by quantity acting as principle of division and separation (if this were the case they would not be parts but wholes), but by quantity acting as principle of orderly union, which [principle]

unites the parts not by the whole of their beings and in confusion, but by their extremities, placing one outside the other, without dividing the one from the other. If quantity is removed, this orderly and extended union is destroyed and another kind of union appears, in which the parts are united by the whole of their being and confusedly; more exactly, they become one in the substance, lose their distinction as parts, and this means that they lose their individual differences as parts. Notice that within the whole, parts do not possess individual differences in unqualified fashion. Individual differences do not exist unqualifiedly except as a result of division. In the whole, the individual differences of parts have merely a relative significance, since the parts actually make up one thing and, absolutely speaking, they are not distinct individuals. Consequently, when quantity is removed, their distinction as parts does not remain actual; it is merely potential, since the orderly union by which they were distinguished is replaced by a confused union which renders actual distinction impossible.

To the argument concerning the producer and the produced, which in a certain case are said to be one and the same, let it be *answered* that producer and produced are never the same so long as production is being exercised. When the process of production has come to an end, the producer may well go into the substance of the product and be united with it, as, for instance, if the son eats the flesh of his father; then, if quantity is removed, the parts are no longer distinct except virtually and radically. By the absolute power of God, what produces a certain thing can be totally converted by transubstantiation into the thing produced.

In reference to the last case, let it be said that if quantity is removed from the extreme parts and retained in the middle, quantity itself is thereby divided, the extreme parts are separated from the whole, they become individuals by relation to divided quantity, and they no longer are parts. If God keeps them united with the intermediary substance, they will not remain parts formally but only radically, inasmuch as they are confused and united with the intermediary substance by the whole of their beings.

Question. What does it mean for a substance to have parts in merely radical fashion, and in what way does such a substance differ from an indivisible substance like an angel? *Answer.* It differs from a spiritual substance inasmuch as the spirit lacks parts

negatively and by inability to have any; on the contrary, the body deprived of quantity lacks parts privatively and retains its ability to have parts. We do not say that it has parts in act, for it does not have parts rendered distinct and multiple by extension, viz., placed outside of each other; confusion brings all its parts back into each other in a sort of unity. The effect of this confusion should not be restricted to place.[9] What is left is an entity *designed to* have extended parts, not an entity *set in order by* the extension of its parts.

Second objection. So long as substance is determined by quantity, it has distinct parts not only in the order of accidents but also in the order of substance; therefore, when quantity is removed, this substantial distinction can endure.

Proof of the antecedent. It is not by quantity alone that the hand is made distinct from the arm. If they differed by quantity alone they would not be two parts of substance; thus, the body of Christ in the Holy Sacrament and in Heaven is not two bodies, in spite of diversity with regard to the accident of place. Likewise, if these parts differ in the order of substance, quantity is not the principle of their distinction.

Confirmation. Unity and division follow upon the way in which the thing exists. Now every substantial part owes to itself, not to quantity, the privilege of being substance. Correspondingly, it owes not to quantity but to itself its unity and substantial distinction. The *major* is plain, since unity is a property of being, and several unities are the properties of several beings. Therefore, substantial unity and distinction are properties of substance and consequently do not depend upon quantity. St. Thomas says (*Com. on Met.* 5. les. 15. Cathala 983) that quantity alone, after substance, admits of a division into proper parts. Thus, St. Thomas holds that substance has proper parts.

Second confirmation. The quantity of the hand does not exist in the foot or vice versa. Thus the quantity of one part is not received in another part. Prior to quantity, there are already such things as parts distinct from each other, since the quantity which is received in one part is not received in the other. *Moreover,* quantity being removed, the entity of the hand and that of the foot and the entities of the other parts remain in the substance. But the entity of the hand is not the whole entity of the substance.

Therefore it is a part. And it cannot be said that it is reduced to an indivisible entity as if it were a spiritual substance, for in a spiritual entity there is no entity of hand and foot as there is in the corporeal substance after quantity has been removed.

In *answer* to the main argument, let it be said that the parts of a substance determined by quantity are distinct in two ways, viz., substantially and accidentally. But quantity is needed for the substantial distinction to be actualized: it [i.e., quantity] plays the role of a condition without which this distinction of the substantial order would not become actual. Likewise, substance does not proceed into the act of influencing and operating without a quality being posited as the instrument by which it operates; if this quality is removed, substance does not remain operating except in a radical sense [i.e., inasmuch as it contains the root of operation]. Thus, what remains when quantity is removed is confusion and indistinction: substance cannot proceed into the act of a substantial distinction through the extension of its parts, which would remove its confusion;[10] yet the whole thing remains radically *capable of* distinction through quantity.

To sum up: the constitution of parts has its principle in substance; the principle that sets things in order and removes confusion through extension lies in quantity; the substantial distinction itself depends upon this order as upon a required condition.

Answer to the first confirmation. Indeed, unity and division follow upon entity. Yet they do not always follow upon it unconditionally; sometimes unity and division follow upon entity in dependence on something different and extrinsic without which the distinction would remain potential. In other words, unity follows upon being, but is not indifferent to the state of the thing [upon whose being it follows], for sometimes unity involves a *state*, e.g., unity of individuation, unity of universality, unity of order, etc. Such states may depend upon accidents acting at least as conditions without which a certain state cannot be realized; thus the state of individuation depends upon a collection of properties belonging to one individual rather than to another, and upon the determination of matter, which is effected by quantity.[11] Likewise, the distinction of integral parts depends upon quantity in so far as such distinction is impossible unless the confusion of the parts is removed by the appropriate order. It is because of the

role played by quantity that St. Thomas (*Op.* 70) [*Exposition of Boethius' Treatise on the Trinity*] calls these parts "accidental and material parts."

To the argument drawn from Book 5 of the *Metaphysics*, let it be answered that to have parts of its own, if *having* is understood in a merely radical sense, substance needs nothing else than its own entity; but, by reason of quantity, it has parts in a formal sense and its parts are set in order. *Further:* substance has, of itself, proper parts, viz., matter and form, but these are physical, not extended and integral parts.

Answer to the second confirmation. Although the quantity of the hand is not received in the foot, it does not follow that prior to quantity the hand and the foot are formally distinct parts; all that follows is that there is a thing capable of receiving the quantity of the hand and the quantity of the foot. This thing is anterior to these parts radically and so far as capacity is concerned; it regards them as admitting of being set in order, not as actually ordered. Thus, diverse quantities are received in diverse parts, but far from presupposing the diversity of these parts, they cause it. Likewise, in the theory which posits a [real] distinction between existence and essence and describes matter as inseparable from some form, existence is received in an existing subject and form is received in an existing matter; but the existence of the subject and the matter is not presupposed: this existence is nothing else than the existence received; all that is presupposed is an ability to exist. Likewise, when it is further remarked that, all quantity being removed, the entity of the hand is not the whole substance [of a man], we answer that the reason why the hand is not the whole substance is just a lack of adequacy. Such lack does not suffice to give the hand the character of a part in a formal sense. The entity of the hand is a part in a radical sense, inasmuch as it does not admit of the quantity and arrangement residing in the whole, but it does not, of itself and independently of this quantity and arrangement, possess actually the place and the distinction of the part. We are not suggesting that a bodily entity becomes spiritual when its quantity is removed; though actually without quantity, it remains capable of quantity, and the spirit has no such capacity. However, a body without quantity has a certain mode of spirituality, like the body of Christ in the Holy Sacrament.

Last objection. Substance acquires parts not simultaneously but successively; when the generating agent produces a part, the part produced is not identical with the previously existing one, but distinct from it. It is not only new quantity which is produced, it is a new substance, for there is production by nutrition, which is an action distinct from increase. (Increase is formally relative to greater quantity.) If nutrition (or aggeneration), which is relative to substance, is distinct from increase, its formal term must be, in relation to substance, distinct from the term of increase. But the term of nutrition (or aggeneration) is not the whole substance, for substance considered as a whole is rather the term of generation. Consequently, it is a part, and thus, prior to quantity, there are parts in substance.

Confirmation. The parts of a substance are united substantially; therefore, there is, among them, diversity in substance and not only diversity in quantity, for every union presupposes the diversity of the united extremes. Likewise, if the parts become confused when quantity is removed, they necessarily are united in a way different from the way in which they were united under quantity. Why should it not be possible for God to preclude this new way of union? If he does, the parts remain free from confusion though deprived of quantity.

Lastly: it is not absurd to suppose, in the mystery of the Holy Eucharist, that half a host *(a)* being consecrated, the other half *(b)* should remain nonconsecrated; between the two parts there would be a distinction not effected by quantity, since the quantity of the part which is no longer bread is preserved. Thus, the halves can be distinguished from each other without quantity playing any part in this distinction; consequently they can be kept existent without quantity by the power of God.

Answer. Substance is the formal term of nutrition and of any successive acquisition of parts; yet substance terminates such processes inasmuch as it [i.e., substance] is modified by quantity, in virtue of which parts are formally distinct from each other. Again, the formal term of increase is constituted by quantity as inherent in substance, so that substance has the character of a condition for increase. Thus, nutrition and aggeneration are distinguished from increase on the part of the formal term, for the term of nutrition is substance, though not the whole but a part of it.

Now, the character of part is not traceable to the essential term of nutrition, but to the additional condition of quantity. If nutrition or aggeneration were terminated by a substance deprived of all quantity, their term would be a part not in a formal sense but only in a radical sense.

Answer to the confirmation. The substantial union of the parts cannot take place independently of quantity acting as a condition necessary to the arrangement and the determination of the parts. On the basis of this determination, parts are united with each other in their substance. Likewise, in the theory of St. Thomas, matter determined by quantity as by a prerequisite condition is the principle of substantial individuation; without determination by quantity, matter would be a principle of confusion rather than a principle of division and individuation. *Moreover:* substance without quantity does not comprise any arrangement of parts and consequently cannot effect a substantial union among these parts considered as set in order. Substance remains confused and without substantial union between formally distinct extremes; extremes, in it, are distinct only in virtual fashion.

To the further consideration that when quantity is removed the confusion of the parts implies a new union, we answer that no new union is involved but merely the suppression of every union. When quantity is removed, the parts are not folded, they do not penetrate each other, and they are not reduced to a point: all these hypotheses would require a positive union; they are merely left in a negation of every kind of divisibility.[12] *(See Com. on the Sent. ii. dist.* 30. q. 2. a. 1.) This negation does not require a positive union. What is left is not a multitude of parts which would be united by positive confusion but only an entity capable of having parts and of being divided into parts: this is negative confusion.

Finally, here is our answer to the argument drawn from the consecration of half a host: The half which is no longer bread *(a)* is distinguished from the half which is still bread *(b)*, not as a part co-ordinated to another part and distinct from it, but as a whole, for it has become the body of Christ, which possesses its distinct quantity. Suppose, now, that part *(a)* is separated by God without being converted into another substance, and suppose that the quantity of *(a)* remains united to the other half of the host, *(b)*.

(a) would be distinguished from *(b)* by separation and in the capacity of whole, not by ordered union and in the capacity of part, and it would imply a relation to the divided and diverse quantity that it demands [on the part of *(b)*] in virtue of this separation.

ARTICLE 2

WHETHER DISCRETE QUANTITY IS A TRUE SPECIES OF QUANTITY

One kind of quantity, by its extension, unites parts [with one another] and is continuous. Another kind, by its extension, separates [parts from one another]: this is discrete quantity or number. The two notions are equally hard to understand.

Any discussion of number presupposes the common distinction between numbering number and numbered number. Numbering number is the principle by which the intellect elicits the act of numbering; two, three, four, etc. are the principles [or forms] by which we count every matter. Numbered number is constituted by the things themselves that are counted; it is, in other words, the matter subjected to the act of counting. Yet, 'numbered number' can be taken in two senses. Broadly understood, it designates every multitude which in some way or other can be counted by the intellect, including the sort of multitude that spiritual things constitute. More specifically, it designates the quantitative multitude which by reason of quantity plays, in counting, the role of measure in a sense distinctively its own. With reference to this role of measure, the name of numbering number is sometimes given to the separating power that quantity exercises on substance stance. This separating power can be called numbering number inasmuch as it renders a thing numerable quantitatively. See St. Thomas, *Op.* 48 [*Summa of the Whole Logic of Aristotle*] , On Quantity, chap. 1.

The main difficulties center about the following questions: (1) Does the notion of number, in discrete quantity, possess the essential [per se] unity without which number could not constitute a true species of quantity? (2) Granted that the parts of number are really separated and divided, from what form does number receive its unity?

Considering the multitude out of which number is made, many

authors declare that number is not a per se being, but an accidental being, to be excluded from the essential species of quantity. See Fonseca, *Com. on Aristotle's Metaphysics* 5. chap. 7. q. 5. sec. 1 and 2; Suárez, *Metaphysical Disputations*, 41, sec. 1; Vasquez, *Com. on St. Thomas' Summa theol.*, i. disp. 26. chap. 3; the Philosophers of Coimbra, *Com. on the Whole Dialectic of Aristotle*, On Quantity, q. 2. a. 1.

Others hold the opposite view and say that number possesses in essential fashion the kind of unity proper to discrete quantity, although it would appear devoid of unity if the standards of continuous quantity were applied to it. This view is received both in the school of St. Thomas and in that of Scotus; however, the unity of number is interpreted in divergent ways. *Some* hold that it is a unity of order; St. Thomas seems to support this interpretation when he says (*Com. on Met.* 7. les. 17. Cathala 1673) that syllable[13] and number receive from order their specific determination. Yet, if unity of order is understood abstractly, it pertains to relation rather than to quantity. *Others* hold that the last unit gives form and unity to number. This is what St. Thomas says expressly in *Com. on Met.* 8. les. 3. Cathala 1725. (*Last* is understood in relation to the other units.) But a difficulty immediately arises: the unit described as last in a multitude is not determinately one unit rather than another; therefore, such a unit will never remain determinately one thing in the real world. *Others* say that discontinuity itself is the formal constitutive of number; the units which make up the multitude would be the subject and the matter of discontinuity. This view is common among the disciples of Scotus (see Merinero, *Com. on the Whole Dialectic of Aristotle*, chapter on Quantity) and seems to be supported by St. Thomas in *Op.* 48 [*Summa of the Whole Logic of Aristotle*], tr. 3. chap. 1. Yet it is not easy to see how discontinuity can be *one* form, fall directly under the genus of quantity rather than under relation, and inhere really in a subject made of things diverse and really separated. Moreover, discontinuity seems to be nothing else than division, and division is not a form capable of impressing upon number a character of specific unity; it rather gives number the character of a multitude and distinguishes it from continuous quantity; but multitude as multitude is not a species of quantity.

Finally, *others* point out that every number is a plurality or multitude not designed to constitute a single principle of operation; however, number would be a species of quantity inasmuch as it has the character of a measure. They hold, further, that the unity of number is entirely derived from our intellect; in the real world, number would not possess unity but only measurability, which would be nothing else than the numerosity of its parts. See Torrejon, *Exposition of the Whole Dialectic of Aristotle,* On Quantity, disp. 3. q. 5. This theory absolutely excludes number from the category of quantity, since it deprives it of real unity and allows it only the nonquantitative character of measure possessed by every multitude, whether spiritual or corporeal. Notice, also, that the unity of number is not defined in relation to any operation; neither is continuous quantity a thing essentially related to operation.

What we consider more probable and more in line with the doctrine of St. Thomas can be expressed in two theses.

First thesis. Number, inasmuch as it is made of quantitative units,[14] is a species of quantity in a genuine and proper sense.

Within the doctrine of Aristotle, there can be no question of rejecting this thesis. It is expressed not only in the *Categories* but also in *Met.* 5. 13. $1020^{a}8$. In the latter place, Aristotle enumerates the essential species of quantity and leaves out the things quantitative by accident: number is mentioned among the species of quantity understood in an essential sense. *Some interpreters* say that by including number among the species of quantity Aristotle does not imply that it has genuine unity. They account for the presence of number in a category by remarking that number has, in its own way, extension and multiplicity and, further, that it is commonly conceived as a thing endowed with definition and properties. They go on to say that not all things placed in a category have unity in a proper and essential sense. Such a theory welcomes absurdity and destroys the principle of predicamental order. If number does not possess genuine unity and is merely a being by accident, it admits of no essential definition and thereby is excluded from all categories. A thing that does not have a quiddity endowed with essential unity does not admit of any essential definition. Consequently, it does not have *one* genus and *one* difference, nor does it find place in any cate-

gory, for a category is an arrangement of genera and species according to their differences. Since Aristotle denies the possibility of defining beings by accident (*Met.* 7. 4. $1030^{b}4$), how could he describe number as a being by accident and yet place it directly in a category? A thing directly placed in a category is supposed to have a genus and difference, which is the same as to be definable. The ideas of Aristotle on this subject are not in the least uncertain.

The ideas of St. Thomas are still less problematical. In several places, he clearly affirms that quantitative number is a per se being and falls under the category of quantity. See *Com. on Met.* 5. les. 15. Cathala 978; *Com. on Met.* 4. les. 2. Cathala 560; *Com. on Sent.* i. dist. 24. q. 1. a. 3; *On the Power of God* 9.7; i. 11. 1 ad 1; *Quodlibetal Questions* 10.1. It is unnecessary to quote his statements one by one, since everywhere he says that number is a species of quantity and is one in an essential sense. Some contend that St. Thomas is speaking metaphorically when he says that the last unit constitutes the species of a number: either they have not read or they do not want to understand many other texts where St. Thomas says, without any qualification, that number possesses essential unity and finds place in the category of quantity. When he says that the last unit determines the species of a number, we understand that he speaks of a species having essential unity and of a genuine species, not of a metaphorical one. Let us quote *Com on Met.* 7. les. 13. Cathala 1589: "The number 'two' is not [merely] two units; it is *something made of* two units. If it were just two units, number would not be a per se and genuine being, but merely an accidental being, like things that are thrown together." Here St. Thomas obviously excludes metaphorical composition and incidental unity; but, if these are excluded, there is no longer any ground for excluding number from the category of quantity. The same ideas are in *Com. on Met.* 8. les. 3. Cathala 1725 and 7. les. 17. Cathala 1674-77.

This thesis rests upon two foundations, one a priori and the other a posteriori, both of which are set forth by St. Thomas in *Quodlibetal Questions* 10.1.

A priori foundation. Number implies genuine extension and a measure born of the division of the continuum. A mere multitude, confusedly understood like a heap or a pile, fails to express

the notion of such a measure. Let this latter notion be explained as follows: number, inasmuch as it is founded upon divided quantity, exercises measurement genuinely and properly, by way of extension and multiplicity. Through extension and multiplicity it can exhaust the parts and the extension of the continuum and make itself equal to them.[15] Notice the difference between time and motion, on the one hand, and number, on the other hand: time and motion are not extended by reason of their own essence but by reason of the [underlying] continuum; consequently, measurement and extension belong to them accidentally. But number, which divides and dissolves the continuum, cannot be said to derive from continuous quantity its own discontinuous way of measuring. Therefore, the kind of measure and extension that it possesses is not accidental quantity—viz., quantity had by reason of something else—it is a measure and extension distinct from the way of measuring proper to the continuum. Now, in order to understand that the measure proper to number is measure in the genus of quantity and extension, it suffices to consider that number exercises measurement according to the properties of quantity, e.g., through such patterns as equality and inequality, evenness and oddness, accretion and increase.[16] Thus, the measure proper to number is quantitative. This is why St. Thomas says (Com. *to Annibald* i. dist. 24. q. 1. a. 1 ad 3): "Number, absolutely understood, is such that the numbered make up an aggregation." By counting units and adding them to each other, we bring about an orderly process of aggregation and growth; this process is rendered orderly by a measure implying priority and posteriority. In number, we find extension, i.e., a multiplicity whose parts are held together and set in order. Between number and continuous quantity, the difference is that, in the latter, the parts are united and, in the former, separated. All this is implied by the common teaching of St. Thomas that unity understood as the principle of number implies, over and above the unity that is a transcendental property of being, the character of measure. See *Com. on Met.* 4. les. 2. Cathala 560; 5. les. 8. Cathala 875 and i. 11. 1.

To sum up: It is obvious, on the one hand, that number is made up of units; if, on the other hand, units exercise, in the constitution of number, the capacity of principles of measurement, number implies a special kind of measurement and extension.

You might *object* that all these properties are also present in a spiritual multitude. Here also, adding one unit causes a plus, which shows that such addition involves aggregation. Likewise, there is evenness and oddness, since three angels are odd and four are even. Thus, the kind of number found in spiritual things seems to have the properties described as distinctive of the quantitative number.

Answer. In a spiritual multitude, there is neither extension nor the sort of aggregation that the division of the continuum brings about. As St. Thomas remarks (*Com. on the Sent* i. dist. 24 q. 1. a. 3), a spiritual multitude implies only the kind of aggregation that results from the affirmation and the negation of being. Thus we do not have here [i.e., in a spiritual multitude] an aggregation and a division commensurate to continuous quantity and belonging to the same genus as continuous quantity. But quantitative number, being caused by the division of the continuum, has by its very essence the property of measuring and exhausting the parts of continuous quantity. This may be the reason why Averroës (*Com. on Met.* 10. text. 2) says that the character of quantity or measure belongs primarily to discrete quantity. He probably means that we measure the continuum by counting its parts and that no kind of measure is clearer than measure by counting. St. Thomas says in so many words (*Op.* 36 [*On Instants*], chap. 1) that "the character of measure is found primarily in discrete quantity." Number, understood as a member of the genus quantity, implies, over and above multitude commonly understood, the property of exhausting the measurement of continuous quantity and of causing aggregation and addition of one unit to another unit. This is what multitude does not bring about in spiritual things. However, so far as the numbering number is concerned, we count angels as well as quantities.

The second argument of St. Thomas [announced in the foregoing as a posteriori foundation] runs as follows: Quantitative number is the proper object of arithmetic;[17] therefore, it is a per se being. The antecedent is plain, for the object of arithmetic is nothing else than number or discrete quantity. To perceive the necessity of the consequence, consider that the principle of a science is the definition of its essential object; now, in order to have a definition of its own, an object must be a per se being.

Therefore, number is a being in an essential sense, and there is no reason why it should not be placed among the species of quantity.

To this argumentation the following objections are made: (1) Number is a being by accident in the context of reality, although it is a being per se in the context of knowability. It is the object of arithmetic because it has numerable unity. (2) The unity of number is formally a unity of reason. Our reason treats number as if it were something one. In order to be an object of science, a thing needs no more than such a unity of reason. (3) The proposition that arithmetic deals with number must be understood in a material sense, i.e., inasmuch as 'number' designates continuous quantities, not in the formal sense, in which 'number' designates a plurality of units.

The *first* of these replies is badly defective. If number is something accidental in the real and something essential from the point of view of science, it follows that there can be science of accidental being. What is accidental in being would be essential from the standpoint of science. But, this is altogether impossible, as was often proved by Aristotelian principles. Accidental being, having no quiddity of its own, is not definable in essential fashion. Since definition is the principle of demonstration and of the whole scientific process, what admits of no definition cannot be an object of science. See *Post. An.* 1. 8. $75^{b}31$.

The *second* argument is not any better. The unity of reason that this argument attributes to number either has a formal and essential character or it is, like the unity of reason enjoyed by every nature in the state of universality, merely accidental. The latter part of the alternative cannot provide a solution, for just as universality, which is a condition of scientific knowability, is not the essence known scientifically, so this unity of reason will play only the role of a condition. The first part of the alternative holds that number derives its formal unity from the activity of the reason; consequently, it implies that number is formally a being of reason. Thus, a being of reason would constitute the object of arithmetic. It is strange that this conclusion should be held by authors who deny that logic deals with beings of reason. The numbered number considered by arithmetic would then no longer be distinguishable from the numbering number, for unity of reason

does not accrue to number except as an effect of the numbering reason. If number, the object of arithmetic, has no other unity than a unity of reason, it will have no unity distinct from that of the numbering number. But the arithmetician does not consider this denomination of reason. At least, he does not consider it essentially and directly.

The *third* argument is still worse. When they say that number, as the object of arithmetic, is understood materially and stands for continuous quantities, what do they mean by continuous quantity? Either continuous quantity is formally considered as continuous, or it is taken materially—though with reference to division and discontinuity, for it is clear that the *things* informed by quantity are not the object of arithmetic. Continuous quantity formally understood concerns not arithmetic but geometry. And with regard to continuous quantity divided and rendered discrete, let it be said that arithmetic is essentially concerned with number, not with continuous quantities. From the standpoint of arithmetic, it is entirely incidental that the proportions of numbers should reside in lines or surfaces or any other kind of continuous quantity.

Second thesis. The essential unity of number is procured neither by the multitude of the units nor by their aggregation nor by their discontinuity; all these pertain to the material aspect of number and are accidental beings. Number is given essential unity by its last unit considered as that under which several units are set in order.

The form of discrete quantity does not inform all parts, but it sets all parts in order. Continuous quantity, on the contrary, informs all its parts. Indeed, discrete parts cannot be extended in any other way than by being set in order under the last unit. The unity of number behaves like the unity of place. Several surfaces succeed each other within one and the same distance, and these surfaces entertain several relations to the poles of the world. Yet place remains formally the same with regard to this fixed limit [i.e., each of the poles], in spite of material plurality (*Ph.* 4. 4. 212^{a}19; Com. of St. Thomas, les. 6. Leonine 14-17).[18] In number, likewise, there is a last unit which terminates the other ones. Whether the function of last unit is exercised by this particular unit or by that one has only a material and accidental significance.

This thesis is taken from St. Thomas. In his commentary on *Met.* 7. les. 13. Cathala 1589 he says: "The number 'two' is not [merely] two units: it is something made of units. If it were just two units, number would not be a per se and genuine being, but only an accidental one, like the things that are thrown together." In this text, he obviously distinguishes the mere multitude of units, also realized in a heap, from number, which enjoys essential unity. The same idea is expressed in the often quoted sentence of Aristotle (*Met.* 5. 14. $1020^{b}7$; commented on by St. Thomas, les. 16. Cathala 989): "Six is not twice three but once six." Number does not consist in the mere division of the continuum; it also implies essential unity resulting from this division and from the multitude itself. Attention must be called, further, to the explanation given by St. Thomas (*Com. on Met.* 8. les. 3. Cathala 1725) with regard to the form constituting the specific unity of number: "Number is essentially one inasmuch as the last unit confers upon it specification and unity, just as, in things made of matter and form, unity and species are received from the form. This is why those who speak of the unity of number as if number were not one by itself cannot say by virtue of what it is one—if it is one at all. Indeed, since number is composed of many units, we are confronted by the following disjunction: either number is one absolutely speaking or it is not. If it is not one absolutely speaking, units are aggregated in it as in a heap, the resulting unity is not unqualified, no species is constituted, and number is not a species of being. If some hold, on the other hand, that number enjoys unity in an absolute sense but does not have within itself the principle of its unity, they should say what gives unity to the multitude of its units: but to this question they have no answer." This is how St. Thomas teaches, in unambiguous terms, that the last unit confers essential unity upon number. If unity is not conferred by the last unit, no thing made of many units or resulting from units would confer a species upon number. Thus, in multitude—or discontinuity, or division of quantity—the only thing able to constitute the essential species of a determinate number is the last unit considered as presupposing the other units and having them subordinated to itself.

Does this suffice to give number unqualified unity and to raise it above the condition of being-by-accident? St. Thomas an-

swers this question in the affirmative (*Com. on Met.* 7. les. 17. Cathala 1673). His purpose is to explain the difference between the kind of composition which brings about unqualified unity and the kind of composition which brings about relative unity. "The reason for this diversity is that sometimes *(a)* the composite receives its species from something that is one; it may be a form, as in the mixed body, it may be an arrangement, as in a house, and it may be an order, as in a syllable and in a number; in all such cases the composite whole is necessarily one in an absolute sense. But sometimes *(b)* the composite receives its species from the multitude of the parts put together, as in a heap, a people, etc. In such cases the composite whole is not one absolutely speaking but in a relative sense." This theory must be attentively kept in mind when there is a question of distinguishing from each other the diverse modes of essential and accidental unity. Things that are described as one are not all said to be one in the same sense, and there are diverse degrees of unity. The angel and the heaven, which do not admit of any variety, possess a unity more perfect than that of animals and other living bodies, which go through a continual process of increase and decrease, and more perfect than that of a river. Neither in matter nor in form is the river which is flowing right now the same as the river which was flowing twenty years ago; the only factor of unity is the place where the river flows. Likewise works of art possess unity merely on account of their artificial form. However, all these unities fall under the concept of unqualified unity, by virtue of this rule of St. Thomas that those things are one unqualifiedly that receive their species from something one, whether it be a form, an arrangement, or an order. The only things whose unity is merely relative are those that receive their species not from one thing but from a multitude. Thus, in the analysis of number, we say that what pertains to multitude is a being by accident. But multitude, as well as the discontinuity which divides quantity, plays a material part and cannot procure essential unity. If the species of number were derived from them, it would be derived from multitude itself and the resulting unity would be merely relative. The reason why number has both essential unity and discrete extension consists in the ordering of its units under the last of them, acting in the capacity of term. With regard to this termination, let it be pointed

out that it concerns units precisely considered as quantitative and endowed, accordingly, with *(a)* the property of adding a divisible unit to another divisible unit, *(b)* the property of being able to equal the continuum, and *(c)* the property of being terminated by one last unit.

Number cannot be constituted by discontinuity itself or any other form pertaining intrinsically to number as a whole. In order to understand this point, consider that any such form would exist really either in all the units or only in one of them. If in several, it would either be divided into them or remain undivided. If divided, it is multiplied and consequently no more able than the multitude itself to bring about essential unity. If undivided, it cannot be identified with a plurality of separated and divided units. Now, if this form [i.e., a form pertaining intrinsically to number as a whole] exists only in one of the units, we are back to our thesis that something one, i.e., the last unit, confers a species upon a number. Thus, it is not in the capacity of intrinsic form that a unit specifies a number. The unity that St. Thomas finds in number is not of the type brought about by a form but of the type brought about by order, inasmuch as nonultimate units are related to the last unit as to the one that terminates the series and closes it. See *Com. on Met.* 7. les. 13. Cathala 1589.

The form of continuous quantity extends parts and sets them in order by informing them, but discrete quantity cannot extend and set in order by informing; it brings about extension and order by co-ordinating units with each other in such a way that the determinate quantity of a number is derived from the last unit. That a number should be, for instance, three or five or any determinate number depends upon the last unit by which it is terminated and accordingly determined.

But, at this point, the upholders of the present theory are usually tortured by the following difficulty: How can the last unit be certain and definite? In any number, e.g., four, any unit can be the last: it all depends upon its being designated [as the last] by the numbering intellect. Such designation is a being of reason.

Answer. In the real world, every number comprises a unit which is the last one, so far as formal determination and designation are concerned, i.e., with regard to the effect of terminating

the units and closing their plurality. But in a material sense, there is not, in the real world, any unit determined and designated as the last of a number. The number 'four' does not go beyond four units, otherwise it would not be four: this is a fact belonging to the world of reality. Now, whether such termination results determinately from this or from that unit has only a material and accidental significance, for any of the units is capable of producing the termination of a number. To be the last with regard to designation and to be the last with regard to the effect of termination are not, for a unit, identical conditions; the latter condition exists in the real world, the former may depend upon the act of designation by the intellect, but it is related merely in accidental and material fashion to the constitution of number. The difficulty with which we are confronted here can be formulated in general terms as follows: a certain formality exists really and so does its effect, yet the material designation of the subject or part in which this formality resides depends upon the intellect. There are many other instances of this difficulty. In a circle, which is a finite and determinate quantity, there is necessarily a beginning, a middle, and an end, otherwise the figure would not be a finite quantity; however, any part can be designated as beginning or middle or end; this designation is not effected by the nature of the thing. Likewise, a point in the middle of a line is the end of one part and the beginning of another; yet that it be the beginning or the end of this determinate part or of another one depends upon a designation effected by the intellect. But all this is an issue of merely material significance. The unity of a place and the unity of a river call for the same interpretation. Designated parts or surfaces concern only in a material sense the unity of a place or that of a river, provided they always retain a relation to one and the same term.

The reason is that the form which gives unity to these things is not designated in entirely absolute fashion; there is some relativity in its designation. When a part is described as beginning or end, last or first, our designation has but relative significance. From the very fact that quantity is finite, there is in the real a last and a first, an end and a beginning, although the designation of these things is all relative. Such designation is variable in a material sense; but in a formal sense it is always fixed, for the

formal character of the last always has the character of a form, never that of a matter; correspondingly all the other parts, viz., those which are not the last one, always have the character of a matter and of a thing determinable. What is called 'last' in a denominative and material sense is variable, and any unit of a number may receive this denomination. Thus, it is false to say, in a formal sense, that any part of a number can be either the matter or the form of any other part; formally speaking, the character of form belongs only to the last unit. But what is last in merely denominative fashion can lose the denomination of form, and the thing which is form in a merely denominative sense can be denominatively matter and vice versa. However the very formality of *last* considered as such cannot be matter.

You may want to know whether this formality of the last unit is the form of number in a physical or in a metaphysical sense. Assuming, further, that this formality does not enter into the intrinsic composition of number, what is the intrinsic form of number?

Answer. Some are of the opinion that the last unit is the difference of number and its metaphysical form. Their error is plain, for, whereas the difference is predicated of the whole, the last unit is not predicated of the whole number. You cannot say that five is its last unit. Thus, it must be said that the last unit is a partial form which remains extrinsic to the other units. Yet, together with the other units, it makes up a number. This does not imply that an accident is made of matter and form. The relation between the last and the other units should be understood after the pattern supplied by the parts of a figure and the degrees of a quality. One part of a figure determines another part of the same, e.g., a line determines a surface, and a surface a body. Likewise, one degree of intensity determines another one. Yet all degrees belong simultaneously to the entire quality and all parts of the figure to the entire quantity.

If it is asked what the intrinsic form of number is, let it be answered that there is no intrinsic form of number so far as the units are concerned because, as was said, the unity of number is not a unity of form but a unity of order. See *Com. on Met.* 7. les. 17. Cathala 1673. This order is not a pure predicamental relation: if it were, the unity constituted would be one of relation, not one

of number. It is the order of discrete extension. Such order resides formally and principally in the last unit, but by way of participation and presupposition in the other units, subordinated to the last. More on this in the answer to the second objection. Likewise, the whole power of the agent resides in the last disposition, although it also resides, by way of presupposition, in the antecedent disposition. Again, the habitus of a virtue resides principally in one power although it resides in another power by diffusion and disposition and, so to say, by way of presupposition. (See i-ii. 56. 2.)

To sum up: So far as its formal notion is concerned, number does not reside principally and by inherence in several subjects but in one, viz., the last unit; but by way of order and participation, it resides in the other units, subordinated to the last, which last unit is not determined materially but formally.

Objections and Answers

Current objections to this theory of number have two main purposes: to prove that number is not a per se being but an accidental one, and to prove that it is not specified by the last unit.

The first purpose is served by the general argument that number is not essentially one but has merely accidental unity; from this it seems to follow that it is not a species of quantity.

(1) To establish the antecedent, it is pointed out, *firstly,* that the constitution of quantitative multitude—i.e., number—is entirely effected by the division of quantity; every other form is removed. But, as we [i.e., the author] have often shown from St. Thomas, an essence resulting from a multitude does not possess essential unity.

(2) It is argued, *further,* that a thing having essential unity cannot be made of several beings in act. This is a commonly received axiom. The reason why the white is said to be a being-by-accident is that it results from several beings in act, even though these beings in act are united, as matter and form, much more closely that the units of a number. A fortiori, number is a being by accident, since it is made up of units divided and in act. To say that it has essential unity in the genus of discrete quantity, though not in the genus of continuity, is not a satisfactory an-

swer. Indeed the genus of discontinuity is constituted by several beings in act. It is a genus that admits of no essential unity but only of an accidental one. (3) *Again:* Several things cannot merge into one except by virtue of unity or union. Now, among the units of a number there is no union, since they are separated and discontinuous. And how could we speak of unity where there is not even union? Thus number is not essentially one. (4) *Moreover:* Unity is the opposite of multitude and is destroyed by multitude; but number is a kind of multitude. How could it be essentially one? (5) *Lastly:* If number possesses essential unity, it is either by reason of its being a multitude or by reason of its being discontinuous. But the former is not tenable, since number, precisely considered as multitude, does not belong to the genus of quantity and does not imply unity. Neither is the latter tenable, since number, precisely considered as discontinuous, consists only in the privation of continuity and of a link between parts. This is why Aristotle says (*Ph.* 3. 7. $207^{b}7$) that number is several units and (*Met.* 8. 3. $1044^{a}4$) that number is not one being but rather resembles a heap.

Answer. The antecedent must be rejected. In answer to the *first* argument, let it be said that division understood actively does not constitute number formally—is not this obvious?—but efficiently. Nor is number formally constituted by passive division alone,[19] for the condition of divided or multiplied quantity concerns the notion of number in merely material fashion. What division precisely effects is the disruption of the continuum; it does not set parts in order within the determinate measure of number. Of itself, division may be carried out indefinitely and without any limit. It is number which causes division to be effected determinately and within a definite measure. Division is opposed only to unity, or to the union of parts in a continuum. Now, just as the continuum requires, not a union of any kind, but a union that sets parts in order and terminates them, so in the contrary case of discrete quantity, more is required than the mere separation of the parts and their division. Number implies a division related to one last unit and consequently determinate and finite; it is only in this way that it assumes the character of a special, viz., quantitative measure. This is what St. Thomas means when he says that the number 'two' is not two units but a composite resulting from two

units (*Com. on Met.* 7. les. 13. Cathala 1589), that six is not twice three but, formally speaking, once six, and that number does not have a unity of form or of composition but one of order.

Answer to the second argument. If by 'essential unity' we mean a unity of form, a thing having essential unity cannot be made of several actual beings. But if we mean, by essential unity, a unity of order and measure, then several actual beings can make up a thing endowed with essential unity. A work of art, the Holy Sacrament, and a community are beings made of several beings in act. Yet their unity is essential inasmuch as essential unity is understood in opposition to the accidental unity which proceeds not from one thing but from a multitude. Notice that for St. Thomas the thing from which unity proceeds may be one by form, one by composition, or one by order. (*Com. on Met.* 7. les. 17. Cathala 1673.)

To the additional proof derived from the white, let it be answered that the white taken formally[20] is one in an essential sense and is definable on account of the unity procured by its form; however, it implies, by connotation and denomination, a subject which gives it the character of a subsisting entity. On the other hand, if the white is taken not formally but as a third thing made of whiteness and subject, we say that it is a being by accident because its elements do not unite into a third unit.[21] Likewise, number expresses formally a unit which is last in a certain order. But if number were taken as the aggregate resulting from units and order, it would be a being by accident, as is the case with all concrete terms signifying a composite or an aggregate.

To the third argument, let it be answered that there are several modes of unity and union, viz., unity of form, unity of composition, unity of order, according to the enumeration of St. Thomas. Now, number has neither union nor unity of form, continuity, or composition. *Number is a unity of quantitative order under the last unit.* The nature of this unity of order will be explained in the discussion of the second set of arguments to be raised presently.

Answer to the fourth argument. Whereas unity of continuation and unity of form are opposed to multitude and division, there is no such opposition between unity of order and the discontinuity found in number under the last unit terminating the whole system.

Answer to the last argument. It is in the capacity of discontinuous thing that number possesses essential unity. But discontinuity is not understood, here, in the privative sense in which it is opposed to continuity. Privatively understood, discontinuity is nothing else than division. In the present connection, discontinuity is understood ordinatively and formally, inasmuch as it implies discontinuous extension under one last unit. Aristotle does not say that number is several units, but that "number is a plurality of 'ones' and a certain quantity of them" (*Ph.* 3. 7. $207^{b}7$) because, according to the explanation of St. Thomas (*Com. on Ph.* 3. les. 12. Leonine 3), "every number is denominated by one term; this is why it is said in *Met.* 5. that the essence of the number 'six' consists in its being six times one, not in its being twice three or three times two; otherwise there would be several definitions and several essences of the same thing."[22] Clearly, our interpretation coincides with the teaching of Aristotle and St. Thomas. In *Met.* 8. 3. $1044^{a}5$, Aristotle does not say that number is like a heap; he says that if number is one, *either* it is like a heap *or* we have to explain by virtue of what principle it is one. The explanation is immediately given, as he goes on to show that one part of number is like a matter and another part, viz., the last unit, like a form. When St. Thomas says (i. 30. 1 ad 4) that abstract and disengaged number exists only in the intellect, he speaks of the numbering number which is conceived independently of any subject.

A second set of arguments, relative to another part of the thesis, is intended to prove that neither the last unit nor any order connecting the nonultimate units with the last can specify number.

Indeed, an order cannot exist in several subjects except in virtue of the relation by which they regard each other and are related to each other. The resulting unity would be one of relation, not one of quantity, and it would belong to the category of relation. To the consideration that such a relation is not predicamental but transcendental and that a transcendental relation may belong to the category of quantity, they reply that either this [allegedly] quantitative relation is the very plurality of the divided quantities or it is another quantity superadded to this plurality. In the first case, number would be but a multitude or a heap and would have no essential unity. In the second case, we are again confronted by this problem: how can such quantity reside in diverse sub-

jects? and if it resides in only one of them, how can it affect all of them?

Further: a special argument is designed to prove that the last unit cannot be the form of number. This argument runs as follows: If the last unit gave a species to number it would be either *(a)* because it is a unit or *(b)* because it is the *last* unit. [Both *(a)* and *(b)* are ruled out.] *(a)* If the last unit were specifying in the capacity of unit, the first unit also would specify number. *(b)* The last unit cannot be specifying in the capacity of *last* unit, for its being last is due to designation by the intellect. So far as the nature of the thing is concerned, *this* unit is not any more determinate than *that* unit. But without a determinate form there is no determinate species.

Secondly. It is not easy to see how the last unit can be united with the others in such a way as to make up with them a thing possessed of essential unity. As already said, the last unit is not, for the other units, an intrinsic form but merely an extrinsic one. But who would believe that a unit existing in India unites with a unit existing in Spain in such essential fashion as to make up number two or any other number?

Thirdly. Either the last unit is the form of number by virtue of its own entity, or it is the form of number by virtue of some superadded entity. If the first is true, number does not add anything to unity, for any unit would suffice, all by itself, to constitute a number, provided that other units are extrinsically presupposed; if the second is true, it is hard to determine the nature of this superadded entity. Is it a mode or a thing? Is it found in all units considered in themselves or only in one of them which happens to be the last? Since the designation of the last unit is effected by the intellect, nothing real can result in the last unit from its being designated as the last.

Finally. If this last unit is considered apart from the other ones, either it has or it does not have the mode or form of number (whatever this mode may be). If it does, a single unit suffices to make up a number, which is absurd. If it does not, both its being last and its being the form of number are brought forth by the intellect and have no reality.

Answer to the first part of the argument. The last unit, which is the form of a number, is not a form inhering in all units. Yet

there is in all units a relation to the last one. The unity of a number is not merely a relative unity of order, it is also a quantitative unity. This does not mean that there is a certain quantity inhering in all units: if such were the case, quantity would be continuous, and number, contrary to St. Thomas' statement, would have unity of form, not of order. What is meant is that number involves a new system of measurement, characteristic of discrete extension. We describe as 'quantitative in number' an order which depends materially upon continuous quantity, as a solid depends upon a surface and a line, although, in a formal sense, it implies another kind of measurement, viz., measurement by extension and aggregation. This is why number, in so far as it constitutes a special measure—which, in discontinuous fashion, exhausts continuous quantity—is found only in the genus of quantity. St. Thomas says (*Com. on Met.* 5. les. 8. Cathala 875) that the one which is convertible with being is defined by indivision alone, whereas the one which is the principle of number includes measurement in its definition. The difference between unity of order in number and the unity of an army or city (which are beings-by-accident) can be characterized as follows: in the latter [i.e., the army or the city] there is only an *order of relation*, which does not suffice to constitute essential unity. Indeed, relation obtains formally between several extremes; consequently the unity of order, when it is merely relative, derives from plurality rather [than from unity]. But the unity of quantitative order, i.e., of extension, which exists in number, is not just a unity of relation; it is a distinction of quantities that are divided from each other within the limit set by the last unit. Under the last unit, the other units are set in order and, as it were, enclosed, inasmuch as they assume a new method of measuring proper to discrete extension and quantity.

Answer to the second part of the argument. *(a)* Answer to the *first* proof. It is not in the capacity of unit, but in that of *last* unit, that the last unit confers a species upon number. So far as material designation is concerned, the last unit is made to be last by the intellect, but it is in a different respect that it formally constitutes number. The effect and formality of ultimation, i.e., the enclosing of all units within a determinate limit—so that the number does not remain undetermined and indefinite—is not a being of reason: it belongs to the world of reality.

When it is argued, further, that without a determinate form a species cannot be made determinate, let it be granted that no determinate effect can be brought about unless the determining form is itself determinate at least in a formal sense. [But the form does not need to be determinate so far as material designation is concerned.] If the formal aspect of the form is determinate, there is in the real world, absolutely speaking, a determinate species, even though material designation be left indeterminate. Likewise, the unity of a river is real, although the water does not remain the same. Now, it is *this* water, later *that* water. Yet it remains the same river because water always retains the same relation to the river bed. The same holds for the unity of place when diverse surfaces succeed to each other within the same distance. As an effect of designation by the intellect, diverse units can succeed each other in the same capacity of last unit and thus they are really one in a formal sense, though not in a material sense.

(b) Answer to the second argument. So far as the essence of number is concerned, units that are distant from each other unite in the same way as units that are not distant from each other. At all events, they are supposed to be divided and separated from each other and it makes no difference whether the distance is great or small. Further, their union is not one of continuity or conjunction but one of order and discontinuity, in which each element results from a quantitative addition to another. Again, there is no reason why another intrinsic form should be sought. Never forget that in the doctrine of St. Thomas and ours, number does not have a unity of form, but one of quantitative order. In more specific terms, let it be said that number, inasmuch as it embodies a distinct method of measuring which exists formally in the last unit and by way of presupposition in the other ones, has unity of order in discrete quantity.

Answer to the third argument. A unit, considered in itself, is the matter of number, though inadequately and partially; considered as *last* unit, it is form. The material designation of the last unit is effected by the intellect, yet the last unit possesses really the privilege of being last with regard to the effect and formality of terminating a series of units and enclosing all of them within the limits of a determinate number. This termination, or character of being the last, is something real in every determinate number, for

the function of enclosing the units and ultimating them in the intelligible structure of a number, e.g., five or six, is really exercised in the real world. This capacity of being a term seems to be the mode by which the other units are terminated inasmuch as they are co-ordinated to it and co-extensive with it in the system of discrete extension. This is a distinct method of termination. Such an essence or mode cannot be separated from the divided units on account of the very fact that they are determinately divided in act, for there is no determinate division unless a term is posited. Thus the last unit, considered as last unit, is not separable from the other ones, with regard to which it is last, unless the number is destroyed and changes, e.g., from five to four.

Answer to the last argument. The reason why the unit separated from the other units does not have the character of being the last does not consist in any deficiency of its own; all that is necessarily presupposed and required, for a unit to be the last, is the absence of further units. In answer to the remark that 'being the last' is nothing, except as an effect of consideration by the intellect, let us recall a now familiar distinction: with regard to the designation of the material unit treated as the last, the remark is granted; with regard to the effect and formality of terminating a series of units and enclosing them within a definite measure and a definite system of discrete extension, it is denied. Lastly, when it is said that number requires only the positing of several units, this is our answer: In number materially understood or on the part of the matter, nothing is required except a plurality of units; but if number is considered formally, viz., inasmuch as it bears a new character of extension and discrete measurement, something more is required, viz., the order of the units under one last unit acting as their term. As already explained, this order is quantitative.[23]

ARTICLE 3

WHETHER TIME AND MOTION, PLACE AND SPEECH SHOULD BE EXCLUDED FROM THE SPECIES OF QUANTITY

All these, with the exception of motion, are expressly counted among the species of quantity in the book of the *Categories*, but Aristotle leaves them out of the genus quantity in *Met.* 5. 13.

$1020^{a}28$ (Com. of St. Thomas, les. 15. Cathala 978-86). Neither in the *Metaphysics* nor in the present explanation of this category does Aristotle mention motion in the division of quantity. We shall find an entirely satisfactory account of this difference [between the treatment in the *Categories* and the treatment in the *Metaphysics*] in a text of St. Thomas to be quoted later.

What is place? What is time? What is motion? Some discuss these questions here [i.e., in the logic of the categories], but this is not where they really belong: their treatment is the business of the physicist. It suffices, in the present connection, to have a hint of what they are, and this can be achieved by borrowing their definitions from physics.[24] Place is defined as "the innermost motionless boundary of the container" (*Ph.* 4. 4. $212^{a}20$), in other words, a surrounding surface with unchanging distance. Motion is "the fulfilment of what exists potentially in so far as it exists potentially" (*Ph.* 3. 1. $201^{a}10$), in other words, an act passing successively, in which something is in potency and something in act. Time is "the number of motion in respect of 'before' and 'after'"[25] (*Ph.* 4. 11. $219^{b}2$), in other words, the measure of the duration of motion according to anterior and posterior parts.

Whether these should be included, as species, in the category of quantity, or excluded from it, is a question on which authors are divided; even the Thomists are not unanimous. Almost all authors consider that place and motion should be excluded, but they do not agree as to why they should be excluded. Some hold that time belongs to successive and continuous quantity and speech to discrete quantity; others exclude both.

First thesis. According to the theory of St. Thomas, and according to truth, motion, time, and place are not in an essential sense species of quantity, but are things quantitative by accident. The reason why they are excluded from the genus of quantity is the same for all three of them.

This theory is held by most Thomists; see Sanchez, *The Logic of Aristotle Explained in Seven Books,* 5. q. 14 and Araujo, *Com. on Met.* 5. q. 3. a. 5. The testimony of St. Thomas is clearer than light, and it is hard to understand why some of his disciples have doubts on this subject. This is how he expresses himself in *Com. on Met.* 5. les. 15. Cathala 984: "Aristotle acknowledges two modes of accidental quantity. *(a)* Things are said to be quantita-

tive by accident from the sheer fact that they are the accidents of quantitative things; e.g., the white and the musical are quantitative by accident inasmuch as they are the accident of a subject which is quantitative. *(b)* Apart from all reference to the subject in which they reside, things are said to be quantitative by accident on account of their being divided according to quantity and in correspondence with the divisions of some quantity. Thus, motion and time are said to be quantitative and continuous because *(a)* the things of which they are [the motion and the time] are divisible and because their own division [i.e., the division of motion and time] follows upon the division of these things. It is on account of motion that time is divisible and continuous; it is on account of magnitude that motion is divisible and continuous. (I refer not to the magnitude of that which is moved but to the magnitude in which motion takes place.) Motion is quantitative because this magnitude is quantitative. And from the fact that motion is quantitative, it follows that time is quantitative. These things can be described not only as quantities by accident, but also and more accurately as quantities in a secondary sense, inasmuch as something anterior to them determines in them divisions of quantitative character." St. Thomas concludes that they should not be described as species of quantity, for such species are defined in relation to the way of being proper to quantity. Things that are, of themselves, foreign to this way of being are not counted among the species of quantity, even though they share in this way of being by virtue of something distinct from themselves; St. Thomas says that they are quantitative by accident, like motion and time.

Some hold that for St. Thomas time and motion are quantitative in an essential sense, though in a most imperfect manner. The notion of a thing quantitative by accident would imply its being quantitative by reason of its subject alone—as in the case of the white. A thing whose divisions follow upon those of something else would be imperfectly, but not accidentally, quantitative. The text just quoted shows that this is a misinterpretation of St. Thomas. He plainly calls both modes "quantity by accident"; he does not say that one is accidental and the other essential, though imperfect. Moreover, regardless of conceivable elaborations on the concept of quantity by accident, it is certain that for St. Thomas motion and time are quantitative in such accidental fashion

as to be excluded from the category of quantity and its species. So far as our problem is concerned, all there is to say is that they are quantitative by accident.

It is universally held, with little argument, that place is not a species of quantity. All that is quantitative about place is reducible either *(a)* to the concept of surface or *(b)* to the concept of a thing surrounding and circumscribing what is placed. The first [i.e., place as surface] is not a quantity distinct from the species known as surface, and whatever new intelligible feature is involved in the second–i.e., place as a surrounding thing–pertains not to quantity but to inclusion or application. This is why St. Thomas *(loc. cit.)* briefly excludes place from this category. He holds that place is not counted among the species of quantity because, in spite of the new features that it implies as a measure, it does not imply any new feature as a quantity.

Motion and time are successive and every succession is either continuous or discrete. Here, we consider principally continuous succession, for discrete succession, which does not admit of any continuity between its parts, is made of indivisibles or instants and therefore is found in spiritual things. Continuous succession, whose parts are fluent and not permanent, can possess quantity or extension on three grounds: (1) On account of the result or form which is brought about part by part. The reasons why a result is not brought about all at once but part by part are either *(a)* the imperfection of the agent, which is unable to produce simultaneously the whole effect of its action or *(b)* the resistance of a contrary principle in the patient. In the latter case, the thing comes into existence gradually because a resistance has to be overcome. (2) On account of the flux or delayed action by which the parts come in successively. (3) On account of the space, whose magnitude and distance cannot be overcome except by extension.

Some acknowledge only the first of these factors of accidental quantity in motion and lay emphasis either on the weakness of the agent or on the resistance of the contrary principle. *Others* acknowledge only the second factor. St. Thomas omits both, and traces the magnitude and quantity of motion only to the space in which motion takes place. The reason is that motion considered in relation to its term is something incomplete; it is a way to its

term, it is the becoming of its term, and it is reduced to the genus and category of its term. Now, the terms of motion are only 'where,' quality, and quantity. (See *Ph.* 5. 2. 226[a]23). Thus, the relation of motion to its term makes it impossible that the quantity belonging to motion should constitute a distinct species of quantity. On the one hand, not every kind of motion has quantity for its term; on the other hand, when motion has quantity for its term, motion is not, by reason of its term, erected into a species of quantity distinct from that of its term. On the contrary, any quantitative character possessed by motion is derived from the term of motion. As to the succession of motion, which is defined in reference to the flux and delay by which motion endures, it constitutes time, which does not give quantity to motion, but rather receives quantity from motion.

Moreover, if motion were quantitative by reason of time, time and motion would not be two distinct species of quantity because they would not be two quantities. Motion would be rendered quantitative by [the quantity of] time. But it is impossible that the duration of a thing be its quantity in a primary and essential sense, for duration is nothing else than the continued existence of a thing. This continuation may be divisible and quantitative, as in us, or indivisible, as in angels: such particularities do not result from the sole essence of duration, which in either case is continued existence; they are traceable to the nature of the thing that endures. Duration is not quantity by reason of its own nature, but by reason of its subject. The fact that there can be much motion in a short time, and vice versa, signifies that the quantity of time does not quantify motion in essential and primary fashion.

Thus St. Thomas was entirely right in deriving the quantitative character of motion from the quantity of that in which motion takes place, in other words, from the space or distance separating the terms between which there is motion. In local motion there is a space made of several places, in qualitative motion there is a space made of several limits or degrees within the same quality or —if diverse qualities are involved—a space made of the transition from one quality to the other, and in increase there is a space made of several parts of quantity. The divisibility and quantity of motion are relative to these distances to be traversed. Considered in itself, motion implies only the transition by which a being is in process of becoming and is partly in potency and

partly in act. This transition is marked by quantity inasmuch as the terms between which there is transition are separated by divisibility and distance. If there is no distance at all, as between privation or negation and form, there is change from the nonexistent to the existent, and such change is effected in an instant. When change takes place between positive terms, motion is divisible, for there is distance between these terms. Thus motion derives its quantity from distance or space. It does not, of itself, give quantity. It causes its subject to be moved, not qualfied.

The same principles show that time is not, of itself, quantity, but is quantified by something distinct from itself. The quantity of time is the quantity of enduring motion. Priority and posteriority in time follow upon priority and posteriority in motion. (See *Ph.* 4. 12. $220^{b}32$.) The divisibility and extension of time, which are nothing else than before and after in time, are derived from before and after in motion. Time possesses divisibility and extension not on account of itself but on account of motion. It is quantitative *by accident*, viz., by reason of something distinct from itself. It is not in any essential sense a species of quantity.

According to *some*, the proposition that the quantitative aspect of time is derived not from time itself but from something else concerns only efficient causality and origin; it should not be understood in a formal sense, for time possesses in itself indivisibles distinct from those of motion, viz., instants, and consequently parts distinct from those of motion. Surface presupposes line and solid presupposes surface: yet each of these is a species of quantity in an essential sense; likewise, time merely presupposes the parts of motion.

Against this view, let it be said that time and motion are related to each other as duration and the thing that endures; now, no thing produces its own duration any more than its own existence. Neither can the quantity belonging to motion produce the quantity belonging to time. Further, if time possessed, in essential fashion, a quantity distinct from motion, time would necessarily imply, over and above the parts of motion, a new extension or a new system of parts. Thus, surface implies, over and above the extension and parts of line, new extension and new parts. The same holds for solid in relation to surface; and likewise

number, by dividing the continuum, brings about a new way of extending and measuring, characterized by discontinuity. But the divisibility and extension of time are not different from those of motion, for time is 'before and after in motion.' If time added distinct parts to the parts of motion, it would not be merely the duration of motion and the number of motion according to the before and the after; it would number something else than the parts of motion, viz., the parts added by it [i.e., time] to those of motion. In the answer to the second argument, we shall show how the indivisibles of time, which are instants, are undistinguished from the indivisibles of motion.[26]

Second thesis. Speech is not a species of quantity in any essential or proper sense, but only by metaphor.

Indeed, Aristotle did not number speech among the species of quantity in *Met.* 5. The thesis that we are holding is also that of Cajetan (*Com. on the Cat.* chapter on Quantity).

Speech is called quantity inasmuch as it is made of long and short syllables; this concerns entirely the faster and slower utterance of voice. But voice is quality, not quantity; it is the sound emitted by an animal. Utterance is motion, and speed and slowness are modes following upon motion; if these modes caused quantity in speech, they would also cause quantity in motion. Thus speech and its syllables are not species of quantity in an essential sense, whether you consider voice, which is a quality, or motion and its speed and slowness, which are quantitative by accident.

Some point out that pauses and the durations involved in the utterance of syllables seem to involve some extension. But, in the real, these pauses are nothing else than time, which is the duration of motion. With St. Thomas, we counted time among accidental quantities. In fact St. Thomas (*Op.* 48 [*Summa of the Whole Logic of Aristotle*] tr. 6, chap. 9, reduces speech to the measure of discontinuous time or to that of the utterance of sound. For *others,* the quantity of speech consists in a harmonic consonance resulting from the parts of speech. But this blending of sounds, or harmony, is not a quantity; it is a proportion and as such belongs to the category of relation or conceivably to that of quality. The metric proportion found in poems is entirely artificial in origin; further, it is not common to every speech but is proper to

poetry. Considering, on the other hand, the harmony and proportion of speech in expression itself and the liveliness of appropriate signification, it should be said that all this is the effect of human initiative. These things do not belong to real quantity. Proportion and harmony in vocal utterance do not determine a species of quantity any more than a proportion of parts in any motion. *Others*, using ignorance as a way to elude all criticisms, say that speech is discontinuous quantity, but of unnamed and unknown species.

To sum up our argument, let it be said that if speech is not a significative sound with relations of brevity and length in uttered syllables, it does not have the character of a special number; now, such characteristics do not belong to speech by nature, but exclusively by human initiative; therefore it is only in a metaphorical sense that speech is a species of quantity.

But we still have to explain why Aristotle in the *Categories* and St. Thomas in *Op.* 48 [*Summa of the Whole Logic of Aristotle*] tr. 3, chaps. 2, 6, and 7, count place, time, and speech among the species of quantity. Here is St. Thomas' answer (*Com. on Met.* 5 les. 15. Cathala 986): "...in the *Categories* Aristotle considers time as quantity in an essential sense; in the *Metaphysics* he considers it as quantity in an accidental sense. The reason [for this difference] is that in the first place [i.e., in the *Categories*] he distinguishes the species of quantity according to the diverse forms of measure. Time, which is an extrinsic measure, and magnitude, which is an intrinsic measure, are essentially diverse as measures. But here, in the *Metaphysics*, he considers the species of quantity in reference to the very being of quantity. Accordingly, things which are not quantitative except by reason of a reality distinct from themselves are not considered here as species of quantity, but as quantities in the accidental sense."

You might say: If time is quantity by accident, how can it have in essential fashion the character of a measure? Is not measure a property of quantity?

Answer. According as quantity is modified and applied in diverse ways, diverse measures may spring from the same quantity. Measuring is effected in one way by a quantity that has the character of an intrinsic form, and in a different way by a quantity that is but extrinsically applied. In time, in magnitude, and in

motion, quantity is the same; therefore these three do not constitute diverse species of quantity in an essential sense; yet they constitute diverse ways of measuring, on account of diversity in the mode of application. The case of number is quite different. Number is distinguished from continuous quantity not only by the way in which it measures but also by the way in which it procures extension, for number divides and dissolves continuity.

Objections and Answers

First objection. Although place is materially the same thing as surface, it has formally the character of a different measure, for surface exercises extension by informing, and place by surrounding. Now surface is also, in a material sense, made of lines, and number is made of continuous quantities; yet they constitute distinct species of quantity. The principles by virtue of which surface and number are considered distinct species of quantity seem to demand that place, also, be considered a distinct species of quantity.

Answer. The alleged similarity does not hold, for surface implies, over and above the extension proper to line, a new system of parts and a new form of extension. Number disrupts the mode of continuous extension and substitutes discrete extension, which is different from continuous extension [not only as measure but also] as extension. But over and above the features which constitute surface, place implies only application to something extrinsic that it surrounds.

Second objection. The parts of motion and time imply a new mode of extension, viz., an extension determined by the diverse delays and successions in which the flowing of motion and time takes place. They have also diverse indivisibles by which the parts are successively linked to each other, viz., in motion, the 'being mutated,' and in time, the instant. Thus they do not lack any of the features required for a thing to be quantity in an essential sense. Quantity does not essentially require extension in local space, but it suffices that there be extension in the space of duration. In this space there is a genuine extension of successive parts, one of which does not penetrate into the other one but succeeds to it. Clearly this successive quantity depends upon con-

tinuous quantity, but this does not prevent motion and time from being genuine quantities; solid depends upon surface and yet it is a genuine quantity.[27]

Answer. The successive parts of motion do not imply, over and above the parts of magnitude or space, any new extension. What they contribute is a new mode describable as opposed to permanence, inasmuch as the parts of motion, viz., the terms acquired in space or distance, do not exist simultaneously, but pass on. This fluent way of existing does not constitute formally a new kind of extension; it is a lack of permanence, as anybody can see. But from the fact that motion does not imply a form of extension distinct from magnitude, it follows that time, which is its duration, does not have a quantity distinct from motion. Again, time is the duration of motion and has no other parts than the parts of the motion of which it is the number according to the before and the after. Yet not every kind of motion coincides with time, buy only the more regular and uniform motion. If you compare *(a)* motion and time in relation to magnitude with *(b)* solid and surface, you find this great difference that solid, which indeed presupposes surface, implies new parts over and above the parts of surface, whereas time does not add new parts to motion, and motion does not add new parts to the magnitude of the space or distance in which it occurs.

Concerning what is said, further, about the indivisibles of motion and time, let it be answered that just as the parts of time do not differ from the parts of motion, so the indivisibles of time—i.e., the instants—are not distinguished from the indivisibles of motion—i.e., the changes undergone within the motion which is the subject of time. Likewise, the indivisibles of motion are nothing else than the indivisibles of space—viz., the terms acquired through motion in space and distance—so understood as to connote succession and the negation of continued existence in these indivisibles.[28] But these questions will be more extensively studied in physics. (See *Phil. of Nat.*, i. q. 18.)

Third objection. In metric or harmonious speech diverse parts are determined by the length and shortness of the utterance; these parts are of distinct duration; speech comprises also diverse systems of priority and posteriority in relation to the number of utterances, which [utterances] are measured by syllables

just as number is measured by units. Why, then, should it not be a distinct species of number?

Answer. None of these things is quantitatively distinct from discrete or continuous motion or from time, which is the duration of continuous motion. Thus, speech is quantified in discontinuous fashion by the utterance of voice, which is a discontinuous motion, but speech itself is not a new principle of quantification. If, further, there are acute and base tones, harmony, speed, and slowness in vocal utterance, these are qualities of speech rather than quantities.

ARTICLE 4

WHETHER LINE, SURFACE, AND SOLID ARE GENUINE SPECIES OF QUANTITY

Aristotle expresses the difference between these three quantities as follows *(Met.* 5. 13. $1020^{a}11$ and *Com.* of St. Thomas, les. 15. Cathala 978): Magnitude continuous in one dimension is length; magnitude continuous in two dimensions, breadth; magnitude continuous in three dimensions, depth. From this we derive the following definitions: Line is "dimension in length," surface is "extension in breadth," and solid is "extension in depth." The continuity of solid is assured by surface, that of surface by lines, and that of line by points. The point is "indivisible in every respect." We imagine line as generated by the motion of a point, surface by the motion of a line in breadth, solid by the motion of a surface in depth. Continuous quantity, the common genus of all these quantities, is defined as the quantity "whose parts are linked by a common term"; in other words, continuous quantity has parts united by a single indivisible and they touch each other. If they touch each other by means of a double indivisible, they will be contiguous, not continuous.

Solid is unanimously considered to be a genuine species of quantity, for it is divisible in all dimensions. The quantitative body, or solid, which belongs to the genus of quantity, signifies depth, and the substantial body, which belongs to the genus of substance and is defined in opposition to spirit, is a substance which demands the possession of this depth. As to the other two

species, viz., surface and line, some authors exclude them from the category of quantity (see Cabero, *Digest of Logic*, On Quantity, disp. 2. diff. 5; Hurtadus, *Philosophic Disputations. Metaphysics* 13. les. 6.) yet they classify them under quantity in the capacity of things incomplete and indivisible, just as the point is quantitative by reduction inasmuch as it terminates, begins, or continues extension.

Such is, accordingly, the *first* argument in favor of this opinion: Line and surface, as well as point, are intrinsically things incomplete; therefore they cannot constitute, in essential and direct fashion, species of this category. No incomplete being may constitute a species in any category.

Proof of the antecedent: Line and surface are, in essential fashion, component parts of solid, therefore they are, by essence, things incomplete. Just as point, which is essentially designed to make up line, does not belong to the category of quantity, so line and surface, which are essentially designed to play the role of parts in the making of solid, are not species of this category—at least not in essential and direct fashion.

As a *second argument* in favor of this opinion, it is pointed out that if line and surface were species of quantity their differences would be entirely negative. Line differs from surface by the absence of breadth alone, for it has length, and surface differs from solid by the lack of depth alone; therefore, they do not have any positive difference by which they would be constituted as positive species. This opinion derives increased power from the consideration that in line there is only length and lack of breadth. Line cannot be constituted as a species of quantity by a mere lack, and the possession of length makes it something incomplete whose function is to make up surface and to unite its parts. Thus line does not have what it would need in order to be a complete being in the genus of quantity.

Thirdly. These indivisibles admit of penetration with the other parts; therefore they are not, in an essential sense, species of quantity, for quantity is impenetrable. The antecedent is plain, since a continuum is a thing whose parts are united by one indivisible term. This uniting term must be within each of the united parts, otherwise it would not unite them. Since line holds together the parts of surface, and surface the parts of solid, it

[i.e., the line] must be penetrated by the parts of both and lie within both of them; thus it does not resist penetration and thereby fails to satisfy the requirements of the concept of quantity.

Confirmation. If two equally level solids touch each other, one surface is penetrated by the other *(a)* because they touch each other in every point of their surfaces, which implies penetration and *(b)* because they are contained in the same indivisible space. To ascertain the latter consideration, suppose that these two solids are contained in two indivisible portions of the surrounding air; since one solid is in immediate contact with the other, it follows that two indivisibles are in immediate contact in the air; but this is impossible, for in a continuum every indivisible is followed by a part.

In spite of these arguments, *the opposite theory is that of Aristotle (Met.* 5. 13. $1020^{a}11$) and of St. Thomas. In *Com. on Met.* 5. les. 15. Cathala 978, St. Thomas says that there are three species of magnitude, viz., those enumerated by Aristotle, i.e., length, breadth and depth. The same doctrine is in *Op.* 48 [*Summa of the Whole Logic of Aristotle*], On Quantity, tr. 3, chap. 5, and in *Com. on Sent.* iv. dist. 40. q. 1. a. 2 ad 3. In the last place, he writes: "Line is sometimes understood in the sense of dimension itself, which is the first species of continuous quantity." Such is the theory commonly received among authors and among the followers of Aristotle. See the *Course* of the Carmelites, on the Categories, disp. 13. q. 4.

This theory is based upon the proposition that line and surface, taken independently of solid and considered in their proper essences, are extended and divisible in parts. Line is made of parts of length and it does not borrow this extension from solid; it should rather be said that solid receives length from line. Thus, line and surface, considered in themselves and in their essential constitution, participate in the concept of quantity; in other words, they participate in extension and in divisibility into parts. The generic concept of quantity does not require divisibility in all respects and in every way. Therefore nothing prevents line and surface from being quantities in proper and essential fashion.

Moreover, line, surface, and solid are specifically distinct from each other. *(a)* For one thing, the positions of extension are diverse, viz., according to length, breadth, and depth. *(b)* Then,

the properties following upon line, surface, and solid are diverse: a line is short or long, a surface is broad or narrow, a solid is high and deep. Thus these three are distinct species of dimension. Further *(c)* the factors of continuity are diverse: points in line, lines in surface, surfaces in solid body. These are so many signs of specific distinction.

It is not astonishing that one of these species should enter into the composition of another. This is traceable *(a)* to the special character of quantity. Since quantity is essentially constituted by extension of parts, any species of quantity which contributes a position of parts may be subservient to another species, in such fashion that an unbroken continuum results from the joining of parts. Again *(b)*, the less perfect species may contribute to the composition of the more perfect or be materially presupposed by it; thus, the element enters virtually into the composition of the mixed, the wall is a component of the house and number three is a component of number six. The units comprised in a number or multitude make up that number or multitude not by reason of the negation that unity implies, but by reason of what is positive in unity, even though each of these units, considered in itself and apart from the multitude, may be a species distinct from number. Likewise, line and surface make up solid on account of their divisibility which supplies parts; what they supply by reason of their indivisibility is not parts but continuity.

Answer to the first argument. We have just shown how line and surface are true and complete species of quantity although, in a material sense, they make up solid. It should be noted, further, that their formalities do not consist precisely in their being designed to make up a whole (as in the case of matter and form in substance). Even taken separately and apart from solid, they are extended in a genuine and proper sense, just as the parts of a solid retain genuinely the essence of quantity when they are separated from the rest of solid. For that matter, the argument is not better established in the case of line and surface than in the case of the parts of solid, since a solid is composed of lines just as much as of other parts. The parts of solid, taken by themselves, are genuine quantities, although in a material sense they can make up another whole. Likewise, line and surface are genuine quantities. The case of the point is different, for the point has

absolutely no parts and consequently no quantity. But how can a species enter into the composition of another species in spite of their being opposite to each other? Let the answer be that a species *a*, precisely considered as opposite to another species *b*, does not play a formal role but rather a material one in the composition of the latter, inasmuch as the entity of a is presupposed by the entity of *b*. Thus, a mixed quality, such as whiteness, taste, etc., presupposes the primary qualities—viz., cold and heat—from which it results. Likewise, unit enters materially into the composition of number, and one number into that of another.

Answer to the second argument. Line is formally distinguished from surface not by the lack of breadth but by the positive entity of length. Notice that surface does not include length formally and by reason of its being a surface, but rather by reason of the line which it presupposes. Thus, length which plays a material part in surface plays the formal part in line. Likewise, number three plays a material part in number six.

From this it clearly results, *in answer to the confirmation,* that length is not something incomplete in its genus: it has genuine quantity apart from solid. However, it can play a material part in the constitution of another species of quantity, not only in the capacity of indivisible, but also by contributing the parts that it has, just as a proposition enters into the composition of another one, a wall into that of a house, and a number into that of another number.

Answer to the third argument. The indivisible which unites parts, in so far as it is indivisible, is not penetrated, since it has no parts. It even causes the parts that it unites not to be penetrated by each other since parts united by an indivisible are united by their extremities. Considered as having parts, line and surface are not penetrated, for their parts are extended and considered as indivisible; they are not penetrable because they have no parts.

Answer to the confirmation. Two even solids touching each other fail to penetrate each other—whether one of them surrounds the other or not—because the surfaces by which they are in contact have no parts in the dimension of depth. Their immediate contact does not entail penetration. There are no parts to be penetrated, for the surfaces, on the side of their contact, have no

parts. It is true that two contiguous surfaces correspond to the same indivisible in the surrounding air; but this does not mean that one surface enters into the other and that the surfaces compenetrate each other. Several indivisibles can correspond to the same place; one thousand or infinitely many indivisibles do not occupy more place than one. It should even be said that an indivisible is not, in an essential sense, in a place. See St. Thomas, *Op.* 48 [*Summa of the Whole Logic of Aristotle*], On the Category of Where, chap. 2. Finally, it must be noticed here that line, surface and solid are ultimate species. This is asserted by St. Thomas, with regard to line, in Eth. 10. les. 5 (Pirotta 2014). All diversity within these species, such as between the straight and the curved, the square and the round, results from diversity in shape and situation. But shape, which belongs to quality, is merely an accident of quantity.

CO-ORDINATION AND TREE OF THE CATEGORY OF QUANTITY

The supreme genus is quantity. It is divided into two species, viz., continuous and discrete. Discrete quantity, from the standpoint adopted by Aristotle in his Logic, is divided into number and oral speech. Speech is divided into various species and arrangements of meter and harmony according to the length and shortness of uttered sounds, but these are artificial rather than natural quantities. Number is divided into all species of number; the addition of any unit produces a diverse species of number, as two, three, etc. According to the theory just established, speech does not belong to this division.

Continuous quantity, from the standpoint adopted by Aristotle in his Logic, is divided into intrinsically measuring and extrinsically measuring. Intrinsically measuring quantity has a position in the continuum; it is divided into three species, viz., line, solid and surface, each of which is an ultimate species. Extrinsically measuring quantity is divided into permanent—place—and successive—time. Place can be divided into diverse distances and ways of measuring, such as league, stade, mile, etc., and also into the measures which exercise measurement by containing things and, as it were, giving them a place, such as peck, quadrantal, jar, etc. Time is divided into days, months, years, etc. But for the metaphysicians there are only three species of continuous quantity, viz., line, surface, and solid.

IV

On the Categories

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QUESTION 17

ON RELATION

ARTICLE 1

WHETHER ANY RELATIONS ARE REAL AND HAVE THE CHARACTER OF INTRINSIC FORMS

If relation is understood in all its amplitude, as comprising both the trancendental and the predicamental relation, both the relation according to expression and the relation according to existence, nobody, so far as I know, would deny absolutely the reality of relation. Even the ancient philosophers did not refuse to acknowledge relations according to expression. (See *Cat.* chapter on *Relatives* [7. $6^{a}36$ ff.].) [1] It is, however, in opposition to their views that Aristotle defined the predicamental relation, a thing altogether different from any absolute being.

Following Aristotle's theory, let us consider relations as distinguished from all absolute entity. Only relations according to existence fit this description. *Some* authors maintain that they are nothing else than extrinsic denominations and beings of reason. This opinion is attributed to the nominalists and to those who do not distinguish real relations from their foundation; but what the latter actually mean is widely different from the views held by the nominalists, as we shall see later when we come to this problem. According to *others,* relations accrue to things in objective existence alone. Relations would be nothing else than the intentional affections by which we compare one thing to another; they would consist not in respects, but in comparisons. In the real, all relations would be relations according to expression, for the related is held to be nothing else than an

absolute thing known by comparison with another thing. They claim that this is the theory of Aristotle in *Cat.* chapter 7 and in *Met.* 5. 15. 1020b26. *Others* quote St. Thomas, who teaches (i-ii. 7. 2 ad 1) that a thing is described as related not only by reason of what inheres in it but also by reason of what is extrinsically adjacent to it.

Let us begin with the second theory and say that it cannot, by any means, be ascribed to Aristotle. The definition of the Ancients covered only the relatives according to expression;[2] if this definition were true the related would include substance itself and any being whose notion implies dependence upon and comparison with another:[3] this is the declared reason why Aristotle, in the Chapter on the Relatives (*Cat.* 7), rejects this definition. His own definition of the relatives is: "Those whose whole being refers to something else."[4] In the theory which admits only relations according to expression, it cannot be said that the whole being of the related refers to something else. Such relative entities possess, in the real, an absolute existence and involve relatedness only inasmuch as they are known by comparison with something else. Thus, such related [entities] do not satisfy the definition of Aristotle: "...whose whole being is related to something else." There would be no point in Aristotle's correcting the definition of the Ancients, if he posited only relations according to expression. The Ancients did not reject these relations, and they did not deny that they are known by comparison with something else. This is why Cajetan (*Com. on Cat.* 7) rightly points out that, in this definition, Aristotle is concerned with the nature of relation, not with the way in which relation is known or expressed; accordingly he says "those *are* relative . . ."[5] not "those are expressed by way of reference to something." On the contrary the definition of the Ancients reads, "those are expressed by way of reference to something." Thus, Aristotle maintained that there exist real relations distinct from relations according to expression.

So far as St. Thomas is concerned, no doubt is possible. He expressly opposes those who maintain that relation is not a thing of nature but a being of reason. See i. 13. 7; 28. 2; 39. 1; *C.G.* ii. 12; *On the Power of God* 7. 8 and 9; 8. 2. In a thousand other places, he repeats what he says in these texts with particular clar-

ity, viz., *that relation is something real and an inhering accident.*

The foundation of this thesis can be described as follows: on the one hand, relations according to expression have an absolute being and do not consist entirely in relatedness; on the other hand, relations of reason have no existence except in an apprehending intellect from which they receive an objective being; now, there are, in the real and apart from consideration by any intellect, things that have no other being than an entirely relative one. Thus, there exist real relations which are not relations according to expression and consequently can constitute a category distinct from those of absolute things.

Proof of the antecedent. Apart from consideration by any intellect, there are in the real some things to which it is impossible to assign any absolute being. For example, there is order, as in an ordered army, an ordered universe; there are resemblance, dependence, fatherhood, and other such things, which cannot be understood in terms of any kind of absolute entity and in which the entirety of being is related to something else. When the appropriate term does not exist, there is no resemblance or fatherhood. This is a sign of the purely relative nature of certain things. If the being of such things as resemblance or fatherhood were absolute in any way, the mere absence of a term would not bring about their annihilation. On the other hand, to deny that these things exist in the real, to say that they do not exist unless they are formed and constructed by an intellect is to deny a truth familiar even to the most illiterate of men.

St. Thomas often uses this argument. He also mentions (*Com. to Annibald,* i. dist. 26. q. 2. a. 1) another argument drawn from the mystery of the Holy Trinity. Divine relations, inasmuch as they are really distinct from each other, do exist really; if they did not, there would be no real distinction between the relative persons, which is heretical. But they are not distinguished from each other except as pure relations according to existence. If they were distinguished in any capacity other than that of pure relation, there would be division, in God, not only of the relative, but also of the absolute. Therefore, there are real relations in God; however, by reason of supreme simplicity, they are identified in him with substance. Why, then, should there be anything absurd about such relations existing in the world of

creatures, where they do not have to be identical with substance and where they do not have to be infinite?[6]

Lastly, how does the intellect form purely relative entities, if the only patterns that it can use in forming them are absolute things and relations according to expression? If there are not, in the real, genuine and pure relations to be used as patterns, the relations formed by the intellect will be mere figments.[7] After having denied that such relations exist as intrinsic forms, to grant that they exist as extrinsic denominations would still be short of the truth, for every extrinsic denomination results from a real form existing in another subject; e.g., to be seen or known results from the cognition existing in the knower. If relation is an extrinsic denomination, it results from a form existing in another subject. Either this form, considered in itself, is a relation or it is an absolute entity. If it is a relation, the reality of a form which is both relative and intrinsic is granted, and what can really exist in that subject can also exist in another one. Suppose, on the other hand, that it is an absolute form exercising information in extrinsic fashion; how can a relative denomination result from it? A relative formal effect cannot emanate from an absolute form, whether intrinsically or extrinsically; [when it is said that the wall is seen,] "to be seen," conceived as a sort of accident existing in the wall, is not a denomination of relation, but of termination: we conceive it by way of relation, but in the real it is not a relation.

Finally, it would be extremely difficult, for such a theory, to explain how there are in God three relative persons really existing and really distinct from each other. Relative persons would be extrinsic denominations; it is hard to say from what absolute form such denominations could conceivably proceed. Now, if relations, in God, are not extrinsic denominations, but intrinsic forms, though substantial and identified with divine substance, why should we consider absurd the statement that there is in creatures such a genus of relative being, not identified with substance? The foundation of such relation is more easily assigned in creatures than in God, since it is in creature rather than in God that we find dependence upon, connection with, and subordination to something else.

Objections and Answers

First Objection. Relation does not posit anything real in its subject over and above the extrinsic denomination of the coexisting extremes. If the mode called relation and considered distinct from all absolute forms is an intrinsic one, it is not easy to see how it may come to a thing without intrinsic change of the latter, or how it is newly caused by the mere position of its term at any distance. For instance, if something white is produced in India while I am in Spain, a relation results [in me] by virtue of a term which is as far away from me as India is from Spain. Moreover, this relation is not caused by the agent which produced whiteness here, for this agent, when the relation is brought about, often has ceased to exist and to act.

Secondly. [In the theory that we hold] it seems than one and the same subject becomes the bearer of an infinite multitude of relations with regard to all things that are similar or equal to it, that act upon it, that are acted upon by it, etc. The seriousness of this difficulty is better realized if you remark that one relation can supply a foundation to other relations, for two relations are no less capable of resemblance than two absolute things: thus, the number of relations will grow to infinity.

Finally. There seems to be no necessity for multiplying these relative entities by distinguishing them from the absolute ones. For, by the very fact that two white things are posited, they will be similar, without any further entity or mode, and by the very fact that a man has generated he will be a father, without any further addition of entity. [*To sum up*: on the one hand, we have no experience of those relations; on the other hand, the rational consideration used to prove their reality is sufficiently safeguarded by the sheer position of the two extremes.] Thus, the theory that these relations are intrinsic forms does not seem to rest on a firm foundation. This is why St. Thomas says (*Op.* 48 [*Summa of the Whole Logic of Aristotle*], On Relation, chap. 3) that relation does not differ from its foundation except by reason of its extrinsic term. And in the text quoted in the foregoing (from i-ii. 7. 2 ad 1), he teaches that the related is denominated not only by 'what inheres in,' but also by 'what is

extrinsically adjacent to.'

Answer to the first objection. Relation comes to its subject without any mutation whose direct and immediate term would be the relation itself, but it certainly requires a mutation of which it is the mediate and indirect term. Just as the power of laughter comes into existence through the action which produces man, so the production of a white thing involves the production of resemblance with any other existent white thing. If another white thing should not exist, then, as a result of the production of the white thing, resemblance remains, as it were, in a state of virtuality, from which it will be brought into existence as soon as its term is posited. The same holds for every relation. Distance is neither an advantage nor an obstacle, for these relations do not depend on local situation; whether near or far, a son is in the same way the son of his father. It is not the term, when posited by some exercise of causality, which produces relation in the other extreme, rather, the position of the term plays the part of a condition. An antecedent act of production has brought into existence a foundation [e.g., whiteness in A] which entails relation to whatever corresponds as a term to such a foundation [e.g., B, another white thing]. When the term is posited [e.g., when B is produced], relation comes into existence by virtue of antecedent production [viz., by virtue of the production of whiteness in A]. Even if the generator has ceased to exist, it still endures in its power inasmuch as it has left a foundation sufficient for the emergence of a relation, just as the generator of the heavy body remains virtually in the heavy body, so that the latter is moved downward by its generator as soon as the obstacle to its fall is removed.

A further difficulty might be derived from Aristotle's often repeated statement that relation is not the term of any mutation. It is true that relation is not essentially and directly the term of a physical mutation, but Aristotle does not deny that it is a term of mutation accidentally, that is, *through another* thing, and in secondary fashion. This is why St. Thomas teaches explicitly (*Com. on Ph.* 5. les. 3. Leonine 8) that real mutation takes place in real relations; what is meant here by 'real mutation' is a new determination on account of which what merely existed in foundation is unfolded in act. Further, in his *Com. on Met.* (11. les. 12. Cathala 2385), St. Thomas says that "in the genus of the relative there is no motion except by accident."

Answer to the second objection. There is no reason why these relations should not be multiplied whenever foundations and terms are multiplied. Notice, however, that in the theory of St. Thomas the number of relations is kept down by the consideration that a relation numerically one may concern numerically diverse terms. (See iii. 35. 5.) On the other hand, St. Thomas absolutely denies that a relation can be founded upon another relation. More on this later. See *On the Power of God* 7. 9 ad 2 and i. 42. 1 ad 4.

Answer to the third objection. Acknowledging this genus of relative entity is no less necessary than acknowledging the genus of quantity or quality. Because we see the effects of quantity and quality, we come to know that such forms exist. Likewise, experience reveals that there are in the physical world such effects as: things subjected to order, things related to each other, resemblance, fatherhood, order, etc. In these instances, *regarding*, which is the effect under consideration, is not combined with any absolute essence: the whole being of resemblance, fatherhood, order, etc., consists in a respect. Just as from absolute effects we gather that there are absolute entities, so from these data of our experience, we gather that there is a genus of relative entity. The knowledge of relation does not require an experience of higher grade than the knowledge of other accidental forms; in the case of the latter, we experience effects, but not their distinction from substance. And if God allowed two white things to exist without the emergence of a relation, these two would be alike fundamentally but not formally.

Concerning the texts of St. Thomas. (1) To the argument drawn from *Op.* 48 [*Summa of the Whole Logic of Aristotle*]: the meaning is that relation is differentiated by virtue of an extrinsic term, in other words, that it receives its distinction from its term; but it is not denied that relation, considered in itself, is an intrinsic form, as St. Thomas teaches in so many places. In particular, St. Thomas teaches (*On the Power of God* 7. 9 ad 7) that relation is an inhering accident. (2) In the text from the i-ii, St. Thomas says merely that relation derives its denomination not only from what inheres—i.e., from its own entity as an inhering thing—but also from what is external to its subject, i.e., from its term and from its tendency toward it. This does not rule out its

inherence but, on the contrary, presupposes it. St. Thomas explains his own position in these very words. See *On the Power of God, loc. cit.*, and i. 28. 2.

ARTICLE 2

WHAT CONDITIONS SHOULD A RELATION SATISFY IN ORDER TO BE PREDICAMENTAL?

Predicamental relation must be distinguished both from the relation of reason and from the transcendental relation, also called 'relation according to expression.'

For the sake of clarity, let us recall the commonly received doctrine that the genus of being named relation requires the concurrence of three things: subject, foundation, and term. Relation requires a *subject* as all accidents do. The subject is that which is informed and denominated by the relation. The *foundation* is required as the intelligible principle and the cause from which relations derive their entity and their existence. The *term* is required as that toward which the relation tends and in which its movement comes to an end.[8] True, every entity and form requires a cause, but relation requires a *foundation* in a special sense. To wit: whereas other forms need a cause to be brought into existence and to exist, relation needs a foundation not only to exist, but also to be capable of existence, i.e., to be a real thing. This special requirement follows upon its having but a minimum of entity and upon its being, by reason of its proper constitutive, '*to* something.' For St. Thomas (*Com. to Annibald* i. dist. 30. q. 1. a. 1), ". . . relation is nothing else than the reference of the one to the other; thus, its distinctive essence does not give it the property of existing in the thing of which it is predicated; relation sometimes has this property, but if so, it owes it to its cause." He uses almost the same words in *Com. on the Sent.* i. dist. 26. q. 2. a. 1, and i. 28. 1; ". . .relation in its own proper meaning signifies only reference to another. Such reference to another sometimes enjoys real existence, as in those things which by their very nature are referred to each other."

In order to understand this [unique state of affairs] consider [again] that relation, because of the minuteness of its being,

does not depend only upon a subject, as other forms, which are absolute, do; it has the character of a third entity consisting in and resulting from the co-ordination of two extremes; consequently it cannot have existence in the world of reality unless its co-ordination to a term is effected by the foundation. A subject and a productive cause do not suffice.

With these remarks in mind, it is not difficult to see the difference between relations according to expression and relations according to existence,[9] and between real relations and relations of reason. The relatives according to existence and the relatives according to expression are distinguished from each other by the very way in which the act of being relative is exercised in them. In the relatives according to existence, the whole intelligible essence, the whole act, consists in referring; consequently, the term to which these relatives refer has the character of a pure term. On the other hand, the act or intelligible essence of the relation according to expression does not consist purely in referring to a term; it is an act distinct from 'referring to,' but upon which a relation follows. Hence the felicitous remark of St. Thomas (*Com. on the Sent.* ii. dist. 1. q. 1. a. 5 ad 8) that these relatives comprise both foundation and relation,[10] whereas the relatives according to existence do not comprise anything besides relation itself. To characterize the way in which relatives according to expression behave toward their term, it should be said that they ground the relation rather than exercise it actually. Thus, their term does not have the character of a pure term but possesses some other formality, e.g., that of cause, that of effect, that of object, etc. In relation according to expression, the thing primarily signified is not relation but another entity upon which a relation follows: this is what the distinction between relation according to expression and relation according to existence always means in the doctrine of St. Thomas. When the thing primarily signified is relation itself, when, in other words, it is not a thing absolute [in any sense], there is relation according to existence. This is what St. Thomas clearly teaches in the following places: i. 13. 7; *Com. on the Sent.* i. dist. 30. q. 1. a. 2; *Op.* 48 [*Summa of the Whole Logic of Aristotle*], tr. 5 chap. 1.

From this it results also that in the case of transcendental relation—which is nothing else than relation according to expres-

sion—the object principally signified is not a relation but something absolute upon which a relation follows or may follow. Unless it implies some absolute entity, a relation will not be transcendental—i.e., capable of realization in diverse genera—but will belong to only one category. Thus, a transcendental relation is not a form that accrues to a subject or absolute thing; it is embodied in its absolute subject and nevertheless connotes something extrinsic on which the subject depends or with which it is concerned. Examples are: the relation of matter to form, that of the head to that which has a head, that of creature to God. Thus the transcendental relation coincides with the relation according to expression. Some authors divide the relation according to existence into transcendental and predicamental: their error is plain, since the transcendental relation resides in an absolute entity and enjoys no being distinct from that of the absolute entity in which it resides. Of the transcendental relation, it cannot be said that the whole of its being consists in being related to something else, which is a necessary feature of the relation according to existence.[11]

The division into real relations and relations of reason concerns the relation according to existence. The relation of reason is distinguished by the absence of some condition needed for a relation to be real. According to St. Thomas (*Op.* 48 [*Summa of the Whole Logic of Aristotle*], tr. 5, chap. 1) these conditions are five, two of which concern the subject, two the term, one the relative. The *subject* must be a real being and must contain the real foundation [of a relation], i.e., a real principle in which a relation can be grounded. The *term* must be a real thing, a thing really existent, and it must, further, be really distinct from the other extreme. The *relatives* must belong to the same order. The relation of God to creature does not satisfy this last condition: accordingly it is not real. Likewise, the measure is not really related to the measured if measure and measured belong to diverse orders. This doctrine agrees with what St. Thomas teaches in *Com. on the Sent.* i. dist. 26. q. 2. a. 1 and i. q. 28. a. 1. However, if we consider what is formal and principal, all the difference between the real relation and the relation of reason is that the real relation has a real foundation with a co-existing term, whereas the relation of reason lacks such a foundation. See St. Thomas, *Com. to Annibald* i. dist. 30. q. 1. a. 1.

Thesis. So much for presuppositions. Let our thesis be formulated as follows: In order that a relation be predicamental, it is necessary that it possess the properties distinguishing such a relation from the relation of reason and from the transcendental relation, called also relation according to expression. Thus, the predicamental relation is defined as *a real form whose whole being is relative to something else.*[12]

The first part of the definition distinguishes the predicamental relation from the relation of reason, which is not a real form. The second part distinguishes it from the transcendental relation and from any absolute entity as well; of no absolute entity can it be said that its whole being is relative to something else, since it possesses in itself the character of absolute reality.

The conditions to be satisfied by the predicamental relation are three. (1) It must be a relation according to existence; (2) it must be real, and this covers all the conditions required by the real relation; (3) it must be finite. Scotus adds to these a fourth condition, viz., that it should "accrue intrinsically," in other words, that it should arise immediately and without any mutation as soon as its foundation and term are posited. He places in the last six categories the relations which "accrue extrinsically." These relations are not brought about immediately and, as it were, from within, as soon as their foundation and term are posited; they need an extrinsic mutation to be brought about. When we treat of the last six categories (q. 19.), we shall show that these so-called extrinsically accruing relations are not genuine relations.

The first condition to be satisfied by the predicamental relation excludes all relations according to expression (called also transcendental relations). The second condition excludes all relations of reason. The third excludes all divine relations: these do not belong to any category, since they are pure act.

One of the features of real and predicamental relation calls for further elaboration. When it is said that the extremes must be really distinct, does the distinction concern only the things, i.e., the extremes considered materially, or does it concern also the forms upon which relations are founded? In other words, must there be real distinction between proximate foundations?

Answer. The school of St. Thomas and that of Scotus are at

variance on this issue. According to Scotus (*Com. on the Sent* i. dist. 31. q. 1) all that is required is a distinction between the things that are the extremes; no distinction is required between the forms upon which the relations are founded. St. Thomas requires both. In i. 42. 1, he says that there is not between the divine persons any real relation of resemblance and equality because the foundation [of such a relation] is the same in all the divine persons: it is the divine essence, on account of which they are said to resemble each other; the case would be similar if a numerically one whiteness were posited in two stones. The reason for it is found in Cajetan (*Com.* on this text of the *Summa*) and in other commentators; it is as follows: in these relatives, the material extremes are related because the grounding principles themselves are related; things white are alike because whitenesses are alike. If, on the contrary, whitenesses are [said] not [to be] alike because [we assume] that there is only one whiteness, white things cannot be [said to be] alike in whiteness: they are [said to be] one and the same, since [we assume that] there is only one and the same whiteness. If they are [said to be] alike, it will be in something else, not in the formal essence of the white. Let these suggestions suffice with regard to a difficulty which concerns theologians and metaphysicians rather than logicians.

Objections and Answers

The *first objection* is derived from a well-known and difficult passage (i. 28. 1), where St. Thomas says that the relatives alone admit of being either real entities or beings of reason. Many think that this statement raises a difficulty. To wit: either St. Thomas speaks *(a)* of the predicamental relation or *(b)* he speaks of relation in general, which is not determinately real or of reason. *(a)* In the first case it is objected that there are no relations of reason among predicamental relations. If there are any, we were wrong in saying that predicamental relation is necessarily real. *(b)* In the second case, relation attains a state of abstraction where it comprises both real relation and relation of reason, but it is not true that relation alone admits of such ambivalence. In the genus of substance also, it is possible to conceive fictitiously an

entity which would be called substance of reason (chimera, goat-stag, etc.); in quantity there is imaginary space; similar fictions can be constructed in the other genera. Thus, it is not in relation alone that entities of reason are found. The answer of Cajetan (*Com.* on *Summa theologica* i. 28. 1) to this problem makes things more difficult: according to him what is peculiar to relation is that for it to exist in the reason alone is not a diminishing condition; he says that the relation of reason is a true relation. However, it is clear that if it were a true relation its subject would be relative truly, not fictitiously, not in virtue of apprehension but in virtue of reality.

Many found in this difficulty an occasion to misunderstand St. Thomas badly, or to work out a mediocre philosophy of relation. *Some (a)* consider that real relation is divided into two concepts, viz., that of accident, which they call '*in*' and that of respect, which they call '*to*'; the first is real, and of the second it should be said either that it constitutes a being of reason or that it does not determinately constitute either a real being or a being of reason. For *others (b)* all that St. Thomas means is that the reason can think out relations patterned after the predicamental relation. Finally, *others* (c) think that he speaks of relation in the widest sense, which comprises indeterminately the real relation and the relation of reason.

But the first *(a)* deprive the category relation of genuine reality, since according to them what belongs properly to this category, viz., the respect and the notion of 'being *to* something' has no reality. The second *(b)* do not mention anything peculiar to relation, since some beings of reason can be constructed after the pattern of other genera, e.g., after the pattern of substance and quantity, etc. Yet St. Thomas means to express something belonging to relation in distinct fashion.

One point of the third interpretation (c) is certainly correct: St. Thomas speaks of relation understood in all its amplitude, as abstracting both from real existence and from existence of reason. He does not say that there are some beings of reason in the category of relation: he says, with no further specification "in those that are relative," and thus gives us to understand that he speaks of relation absolutely, not with the determinations which make it a genus. People who read St. Thomas rather carelessly should

pay attention to this. St. Thomas speaks of relation in the most formal sense as an essence relative *to* something; he says that inasmuch as it refers to a term this essence has a positive character and is not determinately a real form, but admits of being either a real being or a being of reason.[13] Nevertheless the predicamental '*to*...' has a foundation and is real. St. Thomas did not mean to say what relation is real and what relation is not; he merely shows on account of which one of its sides relation admits of being either real or of reason: such indifference has its basis in the side of the relation which regards its term. Indeed, reality can be found there, but it does not originate there. This is what St. Thomas says in *Com. to Annibald* i. dist. 26. q. 2. a. 1.: "Relation can be considered in two ways, *(a)* inasmuch as it contains the concept of 'being *to* something'; this is what gives it the character of relation; so far as this aspect is concerned, relation does not determinately posit something in reality, but it is not, either, determined to be nothing. Indeed, some respects are something in reality and some are nothing. *(b)* Relation may be considered with regard to that in which it exists. Whenever relation affects a subject, it inheres in it really."

But in what sense is this state of affairs peculiar to relation and foreign to the other genera? *Answer:* the proper and most formal essence of the other genera cannot be understood in positive fashion without being understood also in entitative fashion. Their positive essence is concerned with itself alone and it is absolute; consequently, it is not understood positively without being also understood entitatively. Whatever is concerned with itself is an entity. Relation alone is both being and '*to* being'; in so far as it is '*to* being,' it has a positive character, but this positive character does not necessarily imply real entity. The reality of relation originates in one side, viz., in the foundation, and the positive essence expressed by the preposition 'to' originates in the other side. This positive essence derives from the term, and the term does not bring forth the property of being but that of being relative to being. However, what is expressed by 'to' is genuinely real when it has a foundation. To admit of being considered positively without being considered entitatively and really, this is strictly proper to relation. Cajetan means nothing else when he says (*loc. cit.*) that the relation of reason

is a true relation; he does not mean that it has the truth of an entity and of an informing form: its truth is that of an objective and positive tendency toward a term. Moreover, Cajetan did not say that in the predicamental relation the 'to' is a being of reason; he even explicitly says that it is truly rendered real.

To the objection that the other genera also, in like fashion, can be described as beings of reason, that a chimera is a substance of reason, imaginary space, a quantity of reason, etc., the *answer,* as mentioned in the foregoing (q. 2. a. 1), is that one does not call being of reason that after the pattern of which something is constructed, for being of reason is constructed after the pattern of real being. What is called being of reason is the nonreal object conceived after the pattern of real being. Accordingly, there is no substance of reason and no quantity of reason. True, some nonbeing is conceived after the fashion of a substance, e.g., a chimera, and some after the fashion of quantity, e.g., imaginary space; however, neither substance itself nor any particular kind of substance is conceived by the reason and given existence after the pattern of another real being. This negation or nonbeing that we call a chimera and this nonbeing that we call imaginary space are described as beings of reason. But we have to do here with the being of reason called negation; there is no substance of reason, since it cannot be said that substance itself, as a being of reason, is conceived after the pattern of some real thing: in truth, what is constructed after the pattern of substance and quantity is but negation and nonbeing. The relative calls for another intepretation. To say that some nonbeing is conceived after the pattern of a relation is an incomplete statement of the case. In so far as relation is something *to* something ['to be *to,* is, here, set in contrast with 'to be *in*'], that which is conceived and formed after the pattern of the real relation is itself a true relation. Thus, relation is not only that after the pattern of which a being of reason is formed: the being of reason formed after such a pattern *is* a relation. This is why there are relations of reason, whereas there are no substances of reason.

Second objection. The supreme genus of this category is a genuine real relation and yet it does not refer to any term distinct from itself. Therefore, those are mistaken who say—as we did—that such reference is necessary for a relation to be

real and predicamental.

Proof of the minor. The term is either something relative or something absolute. We are soon going to show (art. 5) that the formal term of a relation is not something absolute but something relative. Moreover, if it were something absolute, it could not exist really in the individual. On the other hand, relation in general cannot regard as its term, in determinate fashion, an individual thing. If it did, all relations would regard this determinate individual. But an object abstracted from individuals does not exist in the real and consequently cannot terminate a real relation. If, on the other hand, the term is something relative, it is either equal in logical extension to relation in general, or inferior to it. If it is equal, there will be two supreme genera of relations. If it is inferior, it will behave toward relation in general as a subject of predication; accordingly, it will be the term of a universal rather than the essential term of a relation.

Answer. Relation in general does not regard any term in act and in exercise; it is merely conceived as the essence and quiddity of relation itself and as the superior degree by which inferior relations are constituted as beings which regard a term. Relation in general is not that which exercises the act of regarding: this act is exercised by the inferiors of relation. Likewise, primary substance understood vaguely and in general is that which stands under accidents, not that which exercises the act of standing under them. The reason for this is that relation considered as a genus does not express opposition but rather the unity of a common nature. In the generic concept of relation, relatives and correlatives are in agreement and not in opposition; but there is no relation to a term without a certain kind of opposition, viz., that of relation.[14] Thus, relation taken in its generic concept lays aside the state of opposition and expresses merely the essence common to all relations; it does not express the act of regarding a term, although it is the principle of such act in its inferiors. Even in the theory that the term of the relation is something absolute, it is not possible to consider the term in general as something one. Indeed, according to this theory, terms of relations are found in every genus; but it is not possible that out of all genera there results one term which would face relation as such. By reason of its generic character, relation in general is not faced

by any determinate term.[15]

Third objection. Of transcendental relations also it should be said that the whole of their being is relative to something else. The whole essence of matter is relative to form; the whole essence of habitus and act is relative to object, for it is from their object that they derive the whole of their species. On the other hand, it cannot be said that the whole being of the predicamental relation is relative to something else since the predicamental relation is an inhering accident which has existence *in* a subject, not *to* a subject.

Confirmation. The transcendental relation, like the relation according to existence, depends upon its term. Therefore, there is no reason why the transcendental could have its term in the nonexistent, whereas the predicamental could not.

Answer. The predicamental relation refers to something else in primary and essential fashion; the transcendental relation does not. Indeed, the whole of the latter's species and essence is derived *from,* or depends *upon,* something else, but does not refer *to* something else; e.g., matter depends upon form and act upon object as upon causes from which they receive existence and specification; by way of consequence, form and object assume the character of terms regarded, the first by matter, the second by act. But to be primarily and essentially related to something else as to a term is an exclusive property of predicamental relation. This is why it is said that predicamental relation regards its term as pure term. It refers to it as *to* something else; not as being *from* something else or *about* something else or according to some other causal connection, as the transcendental relation does. The fact that the predicamental relation is said to exist *in* a subject does not prevent the whole of its being from consisting in a reference to something else; but, when I say *the whole,* I mean all that is proper and peculiar to its being and by which it differs from the other genera, which are absolute. Of course, the common essence of the accident is presupposed; this common essence,[16] viz., to be *in* something, is not that by reason of which relation consists in a reference to something else, but this common essence of the accident does not exclude this purely relative character of relation.

Answer to the confirmation. As just said, the transcendental

relation is not primarily and essentially referred *to* something else; it rather is *from* something else or *about* something else, as in the case of dependence, causality, etc.; such a state of affairs may sometimes be brought about by something which does not exist in fact, but can be in agreement with the thing under consideration or demands such agreement. On the contrary, predicamental relation, because the whole of its being refers to something else, cannot be brought about except by the positing of its extremes. Consequently, if one extreme is lacking, there is no relation.

ARTICLE 3

DIVISIONS AND SPECIES OF THE PREDICAMENTAL RELATION

In the division of the predicamental relation, two lines can be followed: the first has to do with the accidental conditions of relation, the second with its species and essential differences.

Along the first line, relation is divided into mutual and nonmutual: further, mutual relation is divided into symmetrical and asymmetrical. There is mutuality when relations of the same order or entity are found in both extremes and connect them with each other. In other words, a real relation is mutual when it is real in both extremes, a relation of reason is mutual when each extreme is related to the other by a relation of reason. E.g., father and son are related mutually. To establish the mutuality of a relation, the mere possibility of transposition by converse relation does not suffice, for even terms that are not mutually related admit of such transposition, e.g., one is looking and the other is being looked at. There is nonmutual relation when only one extreme bears a genuine relation, a relation properly so-called, as in the case of the relation of creature to God, and of the relation of science to the scientific object.

The symmetrical relation is a mutual relation in which essence and denomination are the same on both sides; thus, in the relation of resemblance and in that of equality, each extreme is denominated similar or equal. There is asymmetrical relation when the extremes have different denominations; thus, father is relative to son, not to father, master is relative to servant, not to another

master. These divisions are described as accidental because such properties as mutuality and nonmutuality, symmetry and asymmetry are not determined directly by the foundations and the terms; they follow upon the way in which the relation involves its foundation and its term—by which [foundation and term] the species of the relation is determined.

Along the second line, a division into essential species is determined by the foundations. Notice that there is necessarily correspondence between the foundation and the formal term of a relation. According to Aristotle (*Met.* 5. 15. $1020^{b}26$; St. Thomas' *Com.* 5. les. 17. Cathala 1001 ff.), three foundations divide the whole genus of relation. The first foundation consists in unity and number; relations of similarity and dissimilarity, agreement and disagreement, etc., are founded upon these. The second foundation is constituted by action and passion; such is the foundation of all relations of effect and cause. The third foundation is constituted by measure and the measurable, as in the case of the powers which are measured by the objects which specify them.

In his commentary on this text of Aristotle, St. Thomas shows that this division is adequate. In order to understand the meaning of this division, notice that although every absolute category can be the subject of a relation, inasmuch as it is the matter that receives it and is denominated by it, the only things that can be foundations of relations are those having the property of relating one thing to another. From which it follows, as St. Thomas says (*On the Power of God* 7. 9) that substance and quality, considered in their proper concepts, do not refer a thing to something else but only to itself. It is only by accident that substance and quality supply foundation for reference to something else, inasmuch as quality, substantial form, or matter have the character of an active or passive power, or inasmuch as a quantitative aspect—i.e., unity, identity, or number—is considered in them. Thus, the only foundations of relations are the things which convey the notion of referring something to something else. Now, everything that is related to something else is related either *(a)* according to being or *(b)* according to operation or power or (c) according to proportion, number, or agreement. If there is reference [of one thing to another] according to being, we have the foundation of measure and measurable, for those things are measured which receive being

and specification from something else. If there is reference according to operation and power, we have the foundation of action and passion. If there is reference according to proportion and agreement (Aristotle here speaks of reference according to quantity, i.e., unity and number), we have the foundation of unity and diversity, agreement and disagreement. All grounds of relations are reducible to one or another of these three.

Concerning these foundations, several controversial issues, which belong to metaphysics, must as least be touched upon in logic, for without some acquaintance with them it is not possible to know well the category of relation. These issues can be reduced to three. (1) Can real relations supply foundations to other real relations? (2) Are all the relations grounded in these three foundations predicamental in character, or are some of them mere relations according to expression? (3) Do the relations of the second genus have for their immediate foundations action and passion, or active and passive power? As we discuss these problems, we shall also explain the proper meaning and nature of these foundations.

First problem. With regard to the first problem, there is disagreement between the school of St. Thomas and that of Scotus. Scotus holds that a relation can be the foundation of another predicamental relation. This is his main argument: Consider two relations, e.g., two fatherhoods or two sonships. By reason of their specific features, these relations agree with each other and are distinct from everything else; if they are held incapable of grounding a relation of identity and agreement, one does not see how such a relation could be grounded by other natures, whether substantial or accidental, which likewise agree with each other and are distinct from everything else by reason of their specific features. One might object that relations do not seem to need other relations in order to be similar or dissimilar, since relations are, by nature, relative forms. This objection is futile. Fatherhood, for instance, is a relative form so far as 'father' is concerned, but not so far as 'similar' or 'dissimilar' are concerned; consequently, two fatherhoods will need other relative forms in order to be similar or dissimilar.

Confirmation. Proportionality is defined by Euclid (*Elements*, bk. 5, def. 3, 4, 7) as resemblance of two proportions. Thus,

upon proportions, which are relations, another relation is founded, viz., that of resemblance.

Yet, St. Thomas holds expressly the opposite (i. 42. 1 ad 4), and he is followed by many. His principle, in rejecting the theory just described, is that it would entail an infinite regression in relations. If fatherhood grounds a relation of resemblance with another fatherhood, it will also ground a relation of dissimilarity with sonship and any relation of different kind. Again, this relation of dissimilarity will ground another relation, viz., of resemblance with a similar kind of relation, and this relation of resemblance will ground dissimilarity with another kind. And thus, in never-ending alternation, resemblance will ground dissimilarity with the other and resemblance with the similar. Now, there are two arguments against the positing of infinite relations. The first is general and refers to the notion of actually existing infinity.[17] The second is special and consists in the consideration that there cannot be infinite process in causes with regard to an effect, since infinity can be traversed neither by motion nor by causality. No effect preceded by infinitely many causes and effects can be designated as last effect. Now, the foundations of relations are the causes or principles from which relations result; therefore, they do not admit of infinite regression.

Our opponents contend that such an argument can be refuted in two ways. *(a)* Infinite regression in relations can be admitted, just as one admits the infinite division of the continuum into parts that cannot be designated. *(b)* According to others, the regression terminates with relations of the same nature; e.g., two fatherhoods ground the relation of identity, but the relation of identity so grounded does not ground another relation of resemblance and identity: it is *by itself* [not by reason of any other relation,] that it regards every identity.

But the *first reply* assumes the possibility of infinite regression in causes, a view that Aristotle rejects (*Met.* 2. 2. $994^{a}1$.). It is obvious that if one effect requires infinitely many co-operations and causalities, it is never possible to designate a last effect, since no last causality can be designated. Moreover, although the problem of the possibility of actual infinity in terms of the absolute power of God is still in doubt, everyone knows for sure that actual infinity cannot be produced naturally.[18]

Thus, there cannot be infinite regression in the causation of relations. The example of the division of the continuum is irrelevant, for the infinity involved does not concern actually divided parts; it is a quantity divisible in potency and syncategorematically; but in our case, relations would be infinitely many in act.

The *second reply* is invalidated by the argument just proposed. We do not say that a relation of resemblance alone is founded upon a relation which, all by itself and not by any superadded relation, resembles others; we maintain that dissimilarity also is grounded upon the very same relation on which resemblance is grounded. Thus, there will be, by alternation, infinite regression, as we ground dissimilarity upon a relation of resemblance, and resemblance upon a relation of dissimilarity. Moving from the one to the other, we always find a new relation and the process goes on infinitely. Again, this absurdity is not excluded by the theory which considers only relations of one and the same essence.

Concerning the principle from which the opposite theory is derived, let it be said that resemblance and agreement between relations of the same species possess a quasi transcendental character; they are not predicamental relations, and therefore infinite regression is avoided. This state of things can be explained a priori by the [ontological] weakness of relation: its entity is so minute that it does not suffice to ground a real relation. Indeed, every foundation must be more perfect than that which is founded upon it, e.g., an accident cannot, by standing under another one, support it in being (see the foregoing, q. 15. art. 2), because one accident does not have a way of being more perfect than that of another. Since all relations are equal in the relative way of being, one cannot be the foundation of another.

In answer to the confirmation, let it be said that Euclid's definition of proportionality must be received. But Scotus has still to prove that this resemblance or equality of proportions is a relation distinct from and founded upon the relations which constitute the proportions. Transcendental equality suffices.

Second problem. With regard to the second issue, *some* said that relations of the first and third genera are not predicamental, but this theory branches into several interpretations. *Some* hold that these are relations of reason; they point out that the founda-

tion of the relations of the first genus implies a being of reason, i.e., a formal or essential unity common to many; without such a being of reason, these relations could not be founded upon unity.

According to *others,* these relations are transcendental, for unity and number, upon which they are founded, are transcendental and present in every genus. There is no reason why the relation of unity and number should be restricted to quantitative number; even among angels there are relations of resemblance and difference.

Finally, *others* exclude the relations of the first genus from the category of relation; they hold that such relations are extrinsic denominations. Their arguments are as follows: *(a)* if these relations were not extrinsic denominations, the multitude of relative entities would be immensely multiplied, since relations of agreement and disagreement are almost infinitely many; *(b)* in God, fatherhood and sonship are not the foundation of real relations of resemblance and diversity; therefore these relations are not real by essence; (c) coexistence and distance determine an extrinsic denomination. (Think of the extrinsic relation brought forth in a column which is said to be 'on the right side.') Likewise, diversity and resemblance will be extrinsic denominations.

The relations of the third genus are excluded by *some* from the category of relation because they are considered transcendental relations. It seems superfluous to posit, in the relation of science to the scientifically knowable object, both a predicamental relation and the transcendental relation that still exists in science after the destruction of its object. *Others* hold that they are extrinsic denominations, for, although science grounds a predicamental relation to the scientifically knowable, this relation does not belong to the third genus but to the first or the second. In this third genus, Aristotle does not include the relation of science to the scientifically knowable, or the relation of the measured to the measure, but, conversely, that of the scientifically knowable to science, and that of the measure to the measured. (See *Met.* 5. 15. $1020^{b}30$). The relation of measure is not a real relation.

Thesis. Both the first and the third kinds of relations [i.e., relations grounded upon *(a)* unity and number and *(b)* measure and the measurable] are predicamental. This thesis is currently re-

ceived; it is held by Aristotle, by St. Thomas, and by Scotus.

It is sufficiently established by the consideration that we find in these relations, no less than in relations of the second genus, all that is required to constitute a predicamental relation. In the first and third genus, we find *(a)* real correlatives really distinct from each other, viz., the things between which there is resemblance or diversity, and the things between which there is measurement and measure; *(b)* I postulate, at this point, that we find also an existing term; if the term does not exist, the relation disappears, but the same holds for the relations of the second genus; (c) there is also a real foundation; in the relations of the third genus, the real foundation is dependence in respect to specification by the object, just as in the second genus there is dependence of effect upon cause; the foundation is distinct from the relation of the second genus itself because, as St. Thomas points out felicitously (*Com. on Met.* 5. les. 17. Cathala 1026-29), the foundation of the third genus is commensuration to the specifying object, not proportion or unity, as in the first, and not action and efficiency, as in the second. Likewise, in the relations of the first genus, the foundation is something real; it is not any kind of common unity existing in many, it is an agreement or conformity of such nature as to exist in distinct subjects. In the real, there is community of features between Peter and Paul, diversity of features between Peter and horse. Thus, the essence of the predicamental relation is no less fully realized in these than in the second genus.

It might be *objected:* in the relations of the second genus, the grounding principle is distinct from the subject, viz., action is distinguished from power; but in the first genus, the grounding principle is unity or agreement, and it is not distinct from the subject.

Answer. For one thing, this is false in the case of accidental resemblance. Further, in the case of essential resemblance, why should the grounding principle be distinguished from the subject? A real distinction is required only between the extremes of relations. For what reason should a real distinction be required between the subject and the grounding form? If it is permissible to apply to creatures an argument drawn from divinity, let us remark that in God a grounding principle, viz., generative power, is

indistinct from the Father, and yet the relation founded is real.

Again, no objection can be derived from the fact that in these kinds of relation you sometimes find transcendental relations, as between science and the knowable, and sometimes between extremes of the same description. For one thing, if this were a valid objection, relations of the second genus also should be written off; indeed, there is a transcendental relation between effect and cause, e.g., creature and God, since the effect regards the cause not as a pure term but as a cause.

Further: in the relations of resemblance and diversity, we see that the destruction of the term entails the disappearance of the relation. Therefore there was not only a transcendental relation—relations of this kind are not destroyed by the destruction of their terms—but also a predicamental one. This is still clearer in the relation of accidental resemblance, which is founded upon something superadded, but has no transcendental character.

Let us now turn to the arguments of the opposite theory.

Answer to the first argument. The relations of the first genus are not said to be founded upon unity inasmuch as unity means indivision, for relation requires divided and distinct extremes; rather, such relations are founded upon unity inasmuch as unity means such kind of agreement and conformity as can be found in several subjects. Thus, we should not expect to find here a formal unity brought about by the reason and positively undivided.

Answer to the second objection. In a material sense, the foundation of this relation can be present in all genera, but in a formal sense it is always one, viz., it is agreement or unity, in no matter what genus or category it is found. Similar views hold for the arguments against relations of the second genus. For action and passion, cause and effect are also found in diverse categories. All things are effects of God and most are also causes, at least material or formal.

Answer to the third objection. This multitude of relations will not frighten us into denying that there exist such relations. No matter how great, this multitude is finite. Moreover, the theory, held by St. Thomas, that one relation can be terminated by several terms numerically distinct from each other keeps the multitude down to a reasonable size. We say that the principle governing the case of relations is different, for, as mentioned above, real

relations are not founded upon other relations. From this, however, it cannot be argued that a real relation of resemblance or diversity cannot exist in created absolute things. With regard to coexistence and distance, I state that there is no reason why the character of real relations should be denied to them any more than to resemblance and difference. The case is not the same with right and left; right and left have no real existence except in the animal, in which the heart and other organs give the right part particular strength and energies. There is nothing of the kind in a column, which is said to be 'on the right' in purely denominative fashion as a result of the fact that an animal is placed alongside it.

Answer to the objections concerning the relations of the *third genus*. *Answer to the first part of the argument.* Although there is transcendental relation, the predicamental one is not superfluous; it should even be said that in most cases the predicamental relation is founded upon a transcendental one, e.g., the predicamental relation of the effect to the cause is founded upon a transcendental relation. Let it not be said that the transcendental relation is of no use; when the term is removed and destroyed, the transcendental relatedness remains, not the predicamental one.

Answer to the second part of the argument. Aristotle's meaning must be derived from the antecedent text where he asserts that there is in the measurable a relation to the measure: "Other relatives behave as the measurable toward the measure" (*Met.* 5. 15. $1020^{b}30$). Then he gives the examples of "the knowable to knowledge and the sensible to sensation," in order to show that these relations are not mutual; this can be done most clearly by considering the extreme *(a)* which is not the subject of any relation, but receives a denomination from the other extreme *(b)*; genuine relations, not extrinsic denominations, are found in this other extreme *(b)*.[19]

But why should the relations of the third genus not be mutual? St. Thomas gives the explantion in i. 13. 7 and *On the Power of God* 7. 10. Here the extremes are not of the same order. One depends upon the other and is subordinated to it, but not vice versa, since one is measure, the other measurable, one perfecting, the other perfectible. Clearly, the perfecting as such does not depend upon the perfectible: it is the other way around. Thus, they are

not related to each other but only one is related to the other. God is outside the order of creature, the sensible is outside the sense, the intelligible is outside the intellect. All these [viz., God, sensible, intelligible] exercise action or specification without their undergoing any changes; thus, they are outside the order of their correlatives, i.e., beyond the range of the changes undergone by their correlatives, so that they are not dependent or related reciprocally.

Third problem. On the third point, the authors dispute, and some of them with a great deal of anxiety. To me, the thing does not seem of so great importance. By general agreement, action is required at least as condition, and a twofold principle of action, proximate and radical, is also required. But Scotus (*Com. on the Sent.* iv. dist. 6. q. 10 and *On Met.* 5. chap. 14) says that, since action passes and relation endures, action cannot be the foundation of relation. True, a relation perishes with the withdrawal of the foundation to which it adheres or with which it is identified. Thus, action is needed as the condition for the grounding of the relation and its coming into existence, but it is not needed, as a foundation, to keep the relation in existence.

Others—like Suárez (*Met. Disp.* 47. sec. 12. No. 5), seeking to account more certainly for the preservation of relation, say that relation is grounded not upon action and not upon the proximate power, but upon the radical power, i.e., substance itself. Indeed, a father retains actually the relation of fatherhood not only after the act of generation has ceased, but also when the power of generating is lost; thus, this relation cannot be grounded upon the proximate power. If the power of generation were the foundation of fatherhood, the destruction of this power would entail the disappearance of this relation, for relation does not endure when its foundation is removed. This argument is particularly important in the theory of those who distinguish between proximate and radical powers. This is how they are bound to argue: *(a)* assume that the relation of action is founded upon a power; *(b)* assume, further, that the destruction of the foundation entails the destruction of the relation; (c) assume, finally, that the power on which the relation of action is founded is the proximate one: it follows that the destruction of the proximate power entails the destruction of the relation of action. Accordingly, if this relation endures after

the proximate power is lost, its foundation must be the radical power. But Scotus does not distinguish proximate from radical powers and consequently does not admit that the proximate power can be removed without the substance being destroyed, although he recognizes that without destruction of the substance a power can be prevented from acting if the organ on which it depends is impaired.

Thesis. St. Thomas' theory holds that action and passion are more than a necessary condition; they constitute the proper foundation of the relation of the second genus.

This is implied by the general requirements of relation. As St. Thomas says (*Com. on the Sent.* i. dist. 9., in the explanation of the text), a new relation cannot be given real existence in a subject except through motion—I mean through a motion whose mediate term is the relation itself and whose immediate term is either the foundation or the term of the relation. We do not doubt that some relations are founded immediately upon active power, e.g., the heating is related to the heatable. But this foundation is prior to action, since the relation just described does not concern an effect but an object to be produced, precisely considered as object of this power; rather than a relation of the second genus, it is one of the third genus, i.e., one by way of commensuration. (See St. Thomas, *Com. on Met.* 5. les. 17. Cathala 1023.)

With regard to the relation of the second genus, which is not concerned with an object to be produced but with a thing produced or effected, St. Thomas always says that it is founded upon action and passion. (See i. 28. 4.; *Op.* 48 [*Summa of the Whole Logic of Aristotle*], tr. 5, chap. 4; *C.G. iv.* 24.) His best and most explicit statement is found in *Com. on the Sent.* iii. dist. 8. q. 1. a. 5, where, after having said that these relations are founded upon action and passion, he further declares: "It must also be considered that some relations are not born of actually existing acts, but rather of acts that once existed; thus one is called father after action has brought about its effect; these relations are founded upon what is left in the agent by the action, whether it be a disposition or a habitus, or a right and a power, or something else of the same sort." The meaning of these words is as follows: Actions can be considered either in the process of becoming or as having attained their term; it is not in the phase of becoming but in the state of

completion that they ground relations. In the effect, actions leave the very fact of its production; in the cause, they leave a determination relative to the completed effect. This determination may be a habitus or a disposition or a right or anything of the same kind. A created cause, after its action has been completed and its effect produced, holds to this effect a relation that it did not have before; thus, after action is no longer a thing of the present, there remains in the cause a determination or change traceable to it. Before, the cause was related to the effect as to a thing that it could produce; at the term of production, such relation no longer exists, either extrinsically or intrinsically, since a created cause cannot produce again a numerically identical effect. The transcendental relation or respect of the cause to the effect changes when the effect which used to be possible to such a cause no longer is so. This effect is no longer possible to this cause since this cause regards it as produced; there remains in the cause a determination or change relative to the produced effect, a relation by which the cause regards the effect as produced and no longer as possible.[20] To conclude: after action has been consummated, we still have that on which a relation can be founded; this foundation is not the naked power, but the power determined by action, even though the action itself has become a thing of the past. Thus, relation is truly founded upon action, considered not in its becoming but in so far as it remains in the cause through the determination left in the latter.

In answer to the principle of the opposite theory, let it be said that removal of the foundation entails removal of the relation. But in the present case, the foundation is not the radical or proximate principle of action taken all by itself. Such a principle expresses the relation of that which is able to act, not the relation of agent. One does not call father the man who can generate but the man who has generated. Thus, the relations of the second genus require as specifying foundation, not merely as necessary condition) action itself, not merely power. The specific nature of these relations is determined not by ability to act but by action. Now, that from which specification is derived has the character of a foundation and not of a mere condition; foundation consists in action, not inasmuch as action is a thing of short duration but inasmuch as it leaves a determination of its own in the power—

not only in the proximate, but also in the radical power. This determination is not removed, so long as the radical principle of action endures, even though action passes and even if the proximate power is destroyed.

ARTICLE 4

WHETHER THERE IS A REAL DISTINCTION BETWEEN RELATION AND ITS FOUNDATION

The proper treatment of this difficulty comprises two parts: (1) is there a real distinction between relation and its foundation and (2) if the distinction is real, what kind of real distinction is it? the kind that obtains between a thing and a thing, or the kind that obtains between a thing and a mode? We are speaking of the predicamental relation alone, for the transcendental ones are not anything distinct from the thing absolute. They are,in truth, absolute entities. They do not make up any special category but enter into all categories. By reason of their transcendence, they enjoy the property of being embodied in the thing absolute rather than distinct from it.

Authorities are divided about this difficulty. At one extreme, *some* hold that between relations and their foundations there is no real distinction, but merely a distinction of reason. This opinion is generally attributed to the nominalists whom we critcized in article 1. Notice, however, that among *those* who, against the nominalists, posit predicamental relations, *some* concede that there is but a distinction of reason between the relation and its foundation. Such is the theory of Suárez (*Met. Disp.* 47. sec. 2). At the other extreme, *some* hold that all predicamental relations are really distinct from their foundation. This is the theory commonly received among Thomists; yet, for *some* of them, foundation and relation are distinguished as a thing from a thing, whereas for *others*, they are distinguished as a thing from its mode. A *third* theory takes a middle course: some relations would be really distinct from their foundations, other relations would not. There are relations whose foundation can be given without the relation itself, e.g., fatherhood, resemblance, etc. Such relations are said to be really distinct from their foundation. But there are

also relations whose foundations cannot be given without the relations themselves; e.g., there cannot be creature without relation to God, and these relations are said not to be distinguished from their foundations. This is the theroy of Scotus; it is commonly received among his disciples, on whom information can be found in Merinero, *Com. on the Whole Dialectic of Aristotle*, chapter on Relation. Notice that the relations which accompany necessarily their own foundations are identified with transcendental relations. If any predicamental relations are founded upon such transcendental relations, they are, by that very fact, conceived as distinct from the transcendental ones.

First Thesis. Every predicamental relation is really distinct from its remote foundation, which is its subject.

This conclusion is derived from many texts of St. Thomas. In i. 28. 2 ad 2, he says that "what is comprised in the creature, above and beyond what is contained in the meaning of relative name, is another thing, but in God it is not another thing." Now it is plain that relations are founded upon some absolute entity. If what is comprised [in the creature] above and beyond the meaning of the relative noun is a thing other than relation, it follows that the foundation is a thing other than relation. Likewise, in *C.G.* iv. 14 ad 6, he says: "In us relations have a dependent being, since their being is distinct from the being of substance: consequently, they have their proper way of being, proportionate to their own essence, as happens also in the case of the other accidents." Same teaching in *Com. on Met.* 12. les. 4. Cathala 2457. Likewise, he says (*On the Power of God* 7. 9. ad 7 and 8. 2) that relation is an inhering accident.

This thesis rests upon the previously established theory that relations are not extrinsic denominations but bring about an intrinsic formal effect[21] (See art. 1). Experience shows that this formal effect can be destroyed without concomitant destruction of the subject. The form which procures such an effect can be taken away without the subject itself being taken away. Thus, there is some sort of real distinction between this form and this subject. Indeed, whenever a thing can be really removed from another thing, there is real distinction between them: separation is the best possible evidence of distinction.[22]

The *antecedent* is obvious. The white that is really similar

to another white loses resemblance if the latter becomes black. Before he generates, a man is not a father; after generation he is a father. Clearly, a subject is not destroyed by the sheer fact that the relation which it once had no longer resides in it.

You might say that the reality of a relation is not destroyed even when its formal effect ceases to exist, that this reality remains as long as the foundation remains, just as it [i.e., the reality of relation] appears in the foundation, without any real change, as soon as the term is posited.

Against this, consider that the formality which is destroyed or posited when relation is destroyed or posited[23] either is something real or is nothing. (*a*) If it is not something in the real, no reality of relation is destroyed when the term is destroyed; consequently, after the destruction of the term, there remains not only the reality of relation but also the real formality which existed before; this implies that the primary formal effect remains also. It is absurd to suppose that a form can be posited in a subject without its proper and primary formal effect being also posited. If the whole reality remains and if the formality remains real, the whole formal effect remains also real. (*b*) If the formality which is destroyed is something real, either it is purely extrinsic, and we fall into the theory of the nominalists criticized in article 1, or it is intrinsic and informing, and thus, it is really distinct from its foundation or subject.

Other objection. When the term is destroyed, the formal effect of relation is directly impeded, since the entity of relation is relative; yet the entity itself is not destroyed. In hypostatic union, the soul cannot receive the formal effect of grace so far as adoption is concerned, but the reality of grace remains entire with regard to other effects. Likewise, the whole reality of relation survives the destruction of the term, but, because of the absence of a necessary condition, viz., the co-existence of a term, the subject is rendered incapable of the formal effect [that relation tends to bring about].

Answer. A state of things which suffices to render a subject incapable of a primary formal effect suffices also to remove entirely the form from the subject. Where the primary effect is not present, there is no primary and immediate communication of the form; consequently, the form does not exist in the subject or,

at least, does not exist in it in connatural fashion. I do not intend to discuss the question whether grace or intellection can exist in a stone as a quality borne by a substance, without producing their proper and specific formal effects. If such a thing is possible at all, it certainly cannot happen according to the connatural course of events, nor by the power of nature. On the contrary, it is entirely natural for a subject to endure without the formal effect of relation. In the example just mentioned, adoptive filiation is a secondary effect of grace which follows upon the primary effect produced by grace, viz., the participation in divine being: filiation is founded upon this primary effect.

Some might say that the form called relation is entitatively something absolute, though relative in a secondary capacity, and that this effect [viz., its being, secondarily, a relative thing] is impeded, in a given entity, by the destruction of the term. This may be considered reducible to the theory of the nominalists who pretend that all entities are absolute, that there does not exist anything purely relative, and who altogether deny relations. It may also be said that such an interpretation confuses predicamental relations with transcendental ones, and makes it necessary to reject the definition of Aristotle, according to which the whole being of relation is *to* something else. In their view it should rather be said that the whole being is primarily absolute and secondarily *to* something else, i.e., relative: this is what St. Thomas says of transcendental relations, as we saw in article 2.

The relation called predicamental is one of the ten categories. If it were in no way really distinct from the other genera of being, it would not be a distinct category, since a category is made only of real natures. A distinct predicament must be made of natures that enjoy real, and not only logical, distinction.

Now, granted that a predicamental relation is a thing really distinct from its subject, there is still real distinction if the relation is inseparable from its subject: this is the case when its term cannot cease to exist. Such inseparability does not cause the predicamental relation to lose its nature and to become identical with other predicamental entities. The nature of these relations demands that they be really distinct from their subject. Consequently, there is real distinction in all cases.

Second thesis. With regard to the *proximate* foundation, the more probable interpretation, in the theory of St. Thomas, is that relation is not distinguished from it as a thing from a thing, but merely as a mode from a thing. However, through this foundation with which it is identified,[24] there is no reason why it should not be really distinguished from its subject, if this foundation is itself really distinguished from this subject.

That relation is merely a mode can be proved not without efficacy by the statement often made by St. Thomas that, of all genera, relation has the weakest and most meager being. See C.G. iv. 14 ad 6, and *Com. on Met.* 12. les. 4 Cathala 2457. Some other genera are merely modes, not realities, as 'where,' 'position,' etc. Thus, if among all genera relation is the one whose being is the weakest, it will have less entity than those which are modes. Relation will not be a reality,[25] for if it were it would be more perfect than these genera. Moreover, some relations, such as those of resemblance and dissimilarity, effect and cause, etc., can be founded upon 'where' and 'position.' An entity resting upon a foundation cannot be more perfect than the entity upon which it is founded; if the foundation of a relation is a mode, the relation itself cannot be a reality. But if in a single case relation is a mode, all other relations will also be modes, since they all are of the same quiddity and genus, and consequently of the same entity. Objects belonging directly and essentially to the same genus cannot be subject to such variation that one of them be a thing and another a mode.

Attention should be called, however, to the diversity found in the texts of St. Thomas and in the opinions of the Thomists. In i. 28. 2 ad 2, St. Thomas says: "What is comprised in the creature, above and beyond what is contained in the meaning of the relative name, is another thing." In *Op.* 48 [*Summa of the Whole Logic of Aristotle*], treatise on Relations, chap. 2, he says that the relation of resemblance [between two white things] is not a thing other than whiteness itself. Also, in *Com. on the Sent.* i. dist. 33. q. 1. a. 1 ad 1, he says that relation, inasmuch as it is an accident, unites with its subject by way of real composition. But in *On the Power of God* 7. 8, he says that what is traced to another as proceeding from it [i.e., from this *other*, say, *a*] into something else [say, *b*], does not unite with it [*a*] by *way* of

real composition; an example is action and agent. In C.G. ii. 12, St. Thomas says that if real relations really came to exist in God, God would be changed either in essential or in accidental fashion. In the *Com. on Physics* 5. les. 3. Leonine 8, he says that when a thing begins to be equal to another, nothing new happens, and that my being equal to another requires only a change in the term.

In order to reconcile these contrasting texts with each other, let us make use of the distinction just proposed: relation can be considered either in connection with its foundation or in connection with its subject—also called remote foundation. Between relation and its [proximate] foundation, there is only modal distinction. Between the relation and its subject, there is the same distinction as between the subject and the [proximate] foundation with which the relation is identified. Likewise, in the case of habitus, the degree of intensity and the measure of extension are but modally distinct from the quality but are distinguished from the substance, which is the subject of quality, in the same way as the quality with which they are identified.

This makes it possible to understand how relation can be founded upon any kind of mode. This would not be the case if relation were, by essence, a reality distinct from its foundation. We can also see how relation can be said to result from the position of its term without any physical change: a statement often made by St. Thomas, after Aristotle. See in particular *Com. on Ph.* 5. les. 3. Leonine 8; *Com. on Sent.* i. dist. 26. q. 2. a. 1 ad 3. In these texts, St. Thomas says that relation ceases to exist without any change taking place in the thing related; what he means is that there is no physical and entitative change. St. Thomas does not deny that a new mode is brought about; he even clearly maintains that such is the case, since he says (*Com. on Ph.* 5. les. 3. Leonine 8) that the root of the relation present in a subject receives a new determination when a relation to this and that term is posited, even though nothing novel happens.

The texts where St. Thomas mentions a distinction of the 'thing-from-thing' description do not concern the couple constituted by the relation and its foundation, but the couple constituted by the founded relation and its subject. Sometimes he speaks expressly of the subject, as when he says that relation possesses a being distinct from its subject (*Com. on the Sent.* i. dist. 20. q. 1. a. 1 and dist. 33. q. 1. a. 1.). Sometimes he speaks of "that

which is spoken of in relative fashion": but this is nothing else than the subject. See i. 28. 2. ad 2: "Just as, in creatures, what is said in relative fashion involves not only a regard, etc." No serious objection can be derived from the statement (*Com. on the Sent.* i. dist. 2. q. 1. a. 5 ad 2) that the term 'thing' is one of the transcendentals and consequently holds both for absolute and relative beings. When he makes such a statement, St. Thomas uses the term 'thing' transcendentally, and in that sense it covers entity and mode as well. When he says that relation and subject unite by way of real composition, he implies that the foundation, which is distinct from the subject, acts as intermediary in this union. Relation enters into a modal composition with its foundation and, through its foundation, into a real composition with its subject. By this, we mean to propose an acceptable interpretation of the texts (*Op. 48* [*Summa of the Whole Logic of Aristotle*], On Relations, chap. 2) where St. Thomas says expressly that relation is not a thing distinct from its foundation. We must not deny that this Opusculum, which we so often quoted as expressing the authority of St. Thomas, is his work.[26]

Objections and Answers

Against the first thesis the following objections are made. (1) If relation is really distinguished from its foundation, God has the power of preventing it from coming into existence in spite of the position of its foundation and of its term, for those things are really distinct that can be separated from each other or prevented from accompanying each other. But it is absurd to imagine two white things which would not have, by reason of their unity of essence, the relation of resemblance. (2) If relation is distinguished from its foundation, there is no reason why there should not be, in essential fashion, *movement to relation*, since every entity, even purely modal, is capable of movement, as evidenced by place, position, etc.; now Aristotle declares (*Ph.* 5. 2. $225^{b}11$) that there is not, in essential fashion, movement to relation. (3) Take the relation of double, as in the number 'four' compared with the number 'two'; this relation necessarily belongs to the whole number 'four'; but if a relation is some-

thing distinct from its foundation, one real accident or mode will exist in several subjects. (4) The thesis entails the existence of infinitely many proportional parts, each of which has a relation to another. It is unreasonable to posit such a multitude of distinct entities.

Answer to the first objection. Granted that relation is impeded, these two white things would remain fundamentally similar, though not formally; the function of relation is to make things related formally, not fundamentally. It can *also* be said that if *a* is really distinct from *b*, it is not always possible to infer validly that *a* is separable from *b* (assuming that *a* is a thing) or that it can be prevented from accruing actually (assuming that *a* is a mode). In St. Thomas' theory, matter cannot be separated from every form, and determinate quantity cannot be separated from every shape.

Answer to the second objection. It is not true that there can be, in an essential sense, movement to every kind of real entity. Emanation suffices, as in the case of the properties which are not the term of a distinct production but merely result from the production of a substance. Relation has the character of an entity obtained through its foundation and term. On the contrary, the modes mentioned in the argument are not obtained through the production of something else, they are by themselves things that can be produced. Accordingly, they constitute the essential term of a mutation and do not, like relation, terminate merely a new emanation. On this see St. Thomas, *Com. on Ph.* 5. les. 3. Leonine 7-8.

Answer to the third objection. The relation of double or [generally] of proportion which exists in number 'four' has for its subject the last unit alone, although, by way of presupposition, it requires the other units. See what was said on number in the preceding question: this relation is strictly connected with the very essence of number. If number is not a being in an essential sense, but merely a multitude, the relation of a greater number to a smaller, or vice versa, is not a simple relation. It should be said, then, that each unit has its own relation inasmuch as it is a component part of a multitude and is in excess by comparison with the parts of the other number. Likewise, when several men are pulling a boat, each of them is not unqualifiedly related to the boat as one who pulls; rather, he is related to the boat as co-operating

in the act of pulling and playing his part in the constitution of this act.

Answer to the fourth objection. In the theory of St. Thomas a relation may have several terms distinct in merely numerical fashion. One part may be related by a single relation to infinitely many other parts. Thus, the argument does not present any serious difficulty. The truth is, however, that these nondesignable parts are not infinitely many in act but only in potency. It is in a syncategorematic sense that there is possibility of a division repeated infinitely many times. The theory does not imply that each part of a continuum has infinitely numerous relations in act, but only in potency. More on this in our discussion of *Ph.* 3. (*Phil. of Nature*, i. q. 15. a. 2.

ARTICLE 5

WHETHER THE FORMAL TERM OF RELATION IS ABSOLUTE OR RELATIVE

Let us see precisely where the difficulty lies. There is no doubt that the term of the relation, understood denominatively, is something absolute; e.g., what 'father' regards as denominated term is not sonship; a man is not the father of sonship but of the substance generated by him. Peter is not similar to the relation existing in Paul; he rather is unlike it, since he belongs to another genus than relation. But he is similar to the human individual whose name is Paul. The difficulty concerns the formal character by which a thing is said to be the term of a relation. What is it that formally constitutes the term of a relation?

All theories held on this subject are reducible to three. (1) At one extreme, a first theory says that all relations, whether mutual or nonmutual, find their term in something absolute. Those who hold this theory almost identify the aspect by which termination is effected with the thing which is denominated or grounds the termination; they would say, for instance, that the reason why the son terminates the relation of fatherhood is not his being related to the father but his being generated. This theory is held by the disciples of Scotus who derive it from their master's *Com. on the Sent.* (i. dist. 30. q. 2); by Suárez (*Met. Disp.*, 47. sec. 16), Vas-

quez, *Com. on Summa theol.* i. disp. 159, chap. 6) and some others.

(2) At the other extreme a second theory holds that all relations, whether mutual or nonmutual, have their term in something relative. This theory considers that the aspect by which a relation is terminated is the termination as such rather than the ground of the termination; e.g., the reason why the son terminates the relation of fatherhood is not any property possessed in reference to himself, but the fact that he is something *to* or *of* the father. This theory is the more commonly received among Thomists. See Cajetan *Com. on Summa theologica* i. 13. 7.) Bañez, Zumel, Nazarius (same place), Araujo (*Com. on the Whole Met. of Aristotle*, 5. 5. a. 7) and some others.

(3) Lastly, others see a difference between the case of mutual relations and that of the nonmutual ones. Mutual relations would have their term in something relative, but nonmutual relations, by the very fact that there is no relation in the other direction, would have their term in a thing absolute. The extrinsic denomination, which, as a result of relation, exists in the other extreme, cannot terminate a nonmutual relation because it is itself posterior to termination; indeed, it is by virtue of the actual termination of a relation that such and such a thing is said to be the term of this relation. This is the theory of Sylvester of Ferrara (*Com. on C.G.* ii. 2) and of some followers of his.

First thesis. The formal character of the relative term, precisely considered as term, cannot be something entirely absolute and concerned only with itself.

This thesis derives from two considerations. (1) The term, as term, is formally the term *of* something; nothing terminates without terminating something distinct from itself. Thus, the term of a relation involves relativeness. If the relation is predicamental, its term is pure term, i.e., has no function besides that of terminating a relation, being opposite to it, and being something of it inasmuch as the relation regards it. Thereby the term differs from the foundation, for it is the function of the foundation to provide relation with existence by inherence. (This existence by inherence is what relation has in common with the absolute accident.) What the term gives to the relation is not being, but opposition of termination. Therefore the for-

mality of term is not something absolute.

(2) A second reason is pointed out by St. Thomas (*Com. to Annibald* i. 30. q. 1. a. 1 ad 3): the concept of term makes no sense except within a system of relative opposition. In *C.G.* ii. 11. St. Thomas says: "A thing cannot conceivably be spoken of in relation to something else unless the latter, in turn, is spoken of in relation to the former." Relation as relation implies opposition, no less than contrariety and privation do; but the only thing to which relation is opposed is its term; therefore, the term as term is opposed, in relative fashion, to the relation. Accordingly, just as relation would be unintelligible if it were not opposed to its term, so the term, considered formally, would not be intelligible if it did not have a character of opposition. But its opposition is of the *relative* type; therefore, the term, as term, is something relative.

Adversaries of this theory say that there are two kinds of opposition in the relatives, one of which they call terminative, and the other relative. In *terminative* opposition the extremes are distinct, one of them regards and the other is regarded: no more is implied. Extremes are distinct inasmuch as they cannot be identified in one and the same thing, for between a thing and itself there is no relation. On the other hand, there is *relative* opposition when one relation *(a)* regards another relation *(b)* not precisely as term but as founded upon a term, springing from it and opposed to itself *(a)*.

Further: if this terminative opposition implies merely that extremes are distinct and cannot be identified in one and the same thing, we have to do with a feature common to every opposition, whether contrary or privative or relative. What constitutes this so-called terminative opposition as a distinct species remains to be explained.

There are only four species of opposition, as shown in the chapter on the Opposites [*Cat.* 10. 11.], viz., contradictory, privative, contrary, and relative. 'Terminative' opposition is neither contradictory nor privative, since both of its terms are positive. It is not contrary because its extremes do not fall under the same genus. [In opposition of contrariety] the *term* is described as something absolute and cannot belong to the same genus or category as relation. And it is not relative, since the au-

thors of this theory distinguish between relative and terminative opposition. Thus it belongs to no kind of opposition. Moreover, relative opposition cannot imply merely that two relations accompany each other in such a way that whenever one [relation] refers extreme *a* to extreme *b*, the other refers extreme *b* to extreme *a*. Relative opposition, as opposition, implies that the extremes are mutually terminated and referred. Thus, one relation either has its term in the other relation formally considered, or in the subject of the other relation. In the first case, it is granted that the term of relation is found in a relative entity: such is our own theory. In the second case, relative opposition coincides with terminative opposition, since it refers to an absolute term. Thus, distinguishing between terminative and relative opposition makes no sense. Relative opposition alone remains.

Second thesis. As a more probable opinion,[27] let it be said that in the relatives of the third order, the correlative term does not have the character of a form, but only that of a proximate foundation.

This is, in short, the theory mentioned above as the third one. It seems to be rightly deduced from St. Thomas, who often says that opposition in the terms of these relations [i.e., of the relations founded upon measure and the measurable] is connotatively understood by the intellect rather than found in the real. See i. 13. 7, especially ad 2. In the *Com. to Annibald* (i. dist. 30. a. 1 ad 3) he says: "To every relation another relation is opposed, which sometimes exists in the thing in which the relation has its term, and sometimes exists only in the intellect. In the latter case, the intellect does not play the part of a thing related, but understands an object from the angle of a certain relation." St. Thomas means that the term implies relative opposition; yet the opposite relation does not always reside in the terminating thing; sometimes it resides in the intellect, and then there is not in the real any term understood in a formal sense. This thesis follows clearly from the preceding one, for the formal character of term [of relation] consists in opposition to a correlative; this opposition does not exist formally in the other extreme [i.e., in the extreme which faces the subject of the relation], for it bears no real relation and consequently no relative opposition; therefore, there is not, in reality, any entity having formally the character of a term.

Let us now prove that there is [in the real] a term having [not the character of a form but] that of a proximate foundation. The term is extrinsically denominated by a relation existing in the other extreme. Thus God is called Lord on account of the relation of servitude existing in the creature, and Christ, according to St. Thomas (iii. 35.5 and *Com. on the Sent.* iii. dist. 8. q. 1. a. 5), is said to be the Son of a Virgin on account of the relation of motherhood existing in the Virgin. See on this *Com. on the Sent.* i. dist. 40. q. 1. a. 1. ad 2: "In the relatives a subject is sometimes denominated by something that exists in it, as father by the fatherhood that exists in him; but sometimes it is denominated by what exists only in another subject; such is the case when relation is real in one of the two and in the other is merely a relation of reason." These views are founded upon a remark made by Aristotle (*Met* 5. 15. $1021^{a}29$) and often repeated by St. Thomas: a thing is said to be measurable and knowable because reference to it is involved in the expression of something else; thus a thing is said to be knowable because there is knowledge of it. As soon as this denomination is made, it can supply a proximate foundation to the concept of an opposite relation having formally the character of a term.

Third thesis. In mutual relations, the formal term is not the mutual relation *as mutual*, that is, as real both ways. Rather, it is the mutual relation *as opposite*, for the term is formally constituted by opposition. But because in relations opposition is not another relation superadded to a prior one (see St. Thomas i. 42. 1 ad 4, and our proof in the preceding article), it should be said unqualifiedly that one relation *(a)* has its term in the other *(b)*, inasmuch as *b* is correlative to *a*.

The reason for this thesis is derived from the preceding discussion. The formal constitutive of a term must be considered from the angle of the opposite relation, and as opposite to this relation. Consequently, such formal constitutive is not the relation of the term as mutual but, rather, the relation of the term as opposite. The essence of the term is not constituted by a relation considered as concomitant and similar to another relation, but rather by a correlation, in other words, by a relation *posited against* another. Termination and opposition are effected in one and the same way. Hence, in the mutual relatives it is not as

similar, or mutual, or of the same character, that each relation has formally the character of term, but as opposed [to another relation] and as grounding not relation but correlation. Yet relation and correlation are one and the same thing.

Objections and Answers

First objection. Nonmutual relations have a formal term existing in the real; yet on the side facing the subject, there is not any real relation; therefore, the term of nonmutual relations is not relative. The *major* plainly holds, for the relation under consideration is not devoid of a term in the real; if it were it would not remain a relation. How could there be regard in a formal sense unless regard finds rest and term in something? Likewise, if there is action in the real, there is necessarily a term of action in the real. The *minor* is obvious since we are speaking of a nonmutual relation. If it is argued that the relation existing intrinsically in one term denominates the other extrinsically, the reply would be that, according to our own exposition, this denomination results from a terminated relation. Such denomination does not constitute the term: it presupposes it.

I answer by denying the *minor* [of the argument designed to establish the *major*]. When that which is regarded by a relation is the proximate foundation of a term and is such that the relation rests in it as in an extreme, though not as in an opposite, such a relation does not remain nonterminated.

In a relative term, the character of thing *ultimate* and that of thing *opposite* ought not to be confused. The character of thing ultimate belongs to every term, in the genus of substance where the term is subsistence, as well as in the genus of quantity where the term is point. But the essence of the term, formally considered as term of a relation, consists in being opposed to a relation by way of relative opposition. Consequently, in nonmutual relations the formality of term is missing in so far as this formality implies the character of a thing opposite and relative, but not in so far as it implies the character of a thing ultimate. There is a thing ultimate where the relation, though nonmutual, comes to an end; its movement is not continued into a correlative. The case of

action is not the same, for here the formal meaning of term is constituted by 'being produced,' not by 'being opposite.' But the formality of the relative term does not imply only its being ultimate, it also implies its being ultimate in a definite way, viz., as opposite by way of relation.

In answer to the last reply, let it be said that the extrinsic denomination results from a relation that has a term in an extreme; yet its termination is not effected formally by an opposite extreme, but merely by a thing ultimate which, however, has extrinsically the character of an opposite.

Second objection. Relation is brought into existence as soon as its foundation and its term are posited; therefore it cannot have as its term an opposite relation. The *antecedent* is a common axiom. *Proof of the consequence:* the relatives are simultaneous in nature, therefore, one does not presuppose the other; yet every relative presupposes a term; therefore, the term is not an opposite relation.

Confirmation. If relation has its term in a relative, this is due either to its being a relation or to its being mutual. The first does not hold, for if it did, it would hold also in nonmutual relations. Nor does the second hold, because even if there were no relation in the other extreme there still could be in it the term of a relation. This would be the case, for instance, if there were fatherhood without a corresponding relation being brought into existence. Thus St. Thomas holds (iii. 35. 5) that there is in the blessed Virgin a real relation of motherhood to her son although there is not a relation of real sonship to her in her son.[28] Remark, also, that the white does not terminate the relation of resemblance precisely because it has relation but rather because it is white; it is in whiteness that it agrees with another white. Therefore, the relation of resemblance between two white things has its term in whiteness, not in resemblance; therefore, such a relation[29] has the character of a concomitant in mutual relations but does not have formally the character of a term.

In answer to this objection, let us explain in what sense relation is brought about by the very fact that its foundation and its term are posited. Term is not considered here formally as opposite; it is considered as a thing which grounds opposition and has a character of ultimacy. Considered as opposite and correla-

tive, the term and the relation are simultaneous in nature; relation does not depend upon its term as upon a thing 'from which' but as upon a thing 'to which,' for it does not derive its being *from* its term, as it does from its foundation, but it exists [in relation] *to* its term, and consequently is opposed by it. Thus, it is not necessary that the term should precede the relation as an opposite; it suffices that it should precede it as a thing ultimate.

Answer to the confirmation. The reason why relation finds its term in a relative is neither precisely that it is a relation nor precisely that it is mutual, but precisely that it is opposite. Thus, it does not follow that in case of nonmutuality, relation should have its term in a thing formally relative. As said, this case does not admit of a term having formally the character of term. The same should be said of the relation of motherhood in the blessed Virgin according to St. Thomas. Likewise, the white terminates *fundamentally* the relation of resemblance by its being white, and it terminates it *formally* by its being opposite (in the sense of relative opposition). Thus, as already said, it is not as mutual but as opposite that a relation terminates a relation. In the terminating relation, the character of term and that of opposite are simultaneous in nature.

Third objection. It is plain that a relative is defined by its term; yet, it cannot be defined by its correlative taken formally; therefore, the term is not constituted by relation formally understood.

Proof of the minor. (1) The relatives are simultaneous in cognition. A relation cannot be defined by its correlative because everything that is defined is defined by something better known and therefore anterior to it in cognition, not simultaneous with it. (2) Further, there would be a circle in the definition of the relative. The relative is defined by its term, e.g., father by son; if, on the other hand, 'son,' which is the formal term of father, is defined by father, which is its formal term, the definition of the relatives will be circular. Since it is possible to replace the defined by the definition, we would say that father is "the one who is relative to son" and we would say that the son is "the one who is relative to the father"; and it could be said that the father is "the one who is relative to the one who is relative to the father," and so the term to be defined will be a component of the definition.

Now, in definitions a circle is always vicious, for a definition must be made of terms better known than the defined. We call better known than the defined things whose cognition does not depend upon that of the defined. If there is a circle the defining is not better known than the defined, for it depends upon the latter with regard to being known.

I *answer* by denying the minor. In reply to the *first proof*, let it be said that correlatives are simultaneous in cognition in so far as they are considered formally as opposites. In the capacity of opposites, they are not better known than, but just as well known as, the relatives which they serve to define. They are not that upon which relation depends as upon a principle (foundation), but that to which relation refers as to a pure term. The relatives are simultaneous in nature; consequently, one does not exercise causality with regard to the other taken formally. However, one relative essentially refers to the other as to that to which it is opposed, not as to that from which it is derived. (More on this in the following article.) It is not necessary that every component of a definition should be better known than the defined according to a priority of cognition; even though *a* and *b* be simultaneous in cognition and nature, *b* may still be needed for the explanation of *a*. The definition requires only that all the defining elements taken together should be better known than the defined; it is not necessary that any of them, taken separately, should enjoy such greater clarity. (See *Short Treatises*, bk. 4. chap. 4.) This is particularly true in the case of relations, since relation is not defined by its term as by a cause: it is defined by its term on account of its own reference *to* its term, as we shall see in the next article.

In *answer* to the *second proof*—concerning circularity in definition—let it be said that there is not circularity in any formal sense since 'relation to term' and 'term to relation' belong to diverse genera of causes. When two objects are opposed to each other, it is not absurd that one should be placed in the definition of the other, for it is not in the same intelligible capacity and formality that they play the role of defining elements. Likewise, since causes are causes of each other, it is necessary that a cause be included in the definition of another, and vice versa. But these inclusions are effected under diverse formalities; consequently, there is no circle in the formal sense. One cause in-

cludes the other, but not in the same line or genus. The formal circle alone is vicious, as we shall see in the *Posterior Analytics;* the material circle is not.

In answer to what is said of the defined as being included in the definition, let it be remarked that in this definition: "father is the one that is relative to the one that is relative to father," there are two definitions, viz., of father and of son; of 'father,' as having its term in son, and of 'son,' as having its term in father. Thus, 'father' is not included in the definition of itself but in the definition of son which is involved in the complex expression quoted.

ARTICLE 6

WHAT DETERMINES THE SPECIFIC AND THE NUMERICAL DISTINCTION OF RELATIONS?

This question involves two problems of general significance, one of which concerns specification by extrinsic principles, i.e., objects, and the other the individuation of accidents by their subjects. The treatment of both belongs elsewhere (*Phil. of Nature* 1. 9. 5.).

With regard to the first problem, we postulate here the commonly received theory that powers and acts can be specified by objects. For the proof of this theory, see St. Thomas, i. 77. 3. Powers and acts are specified by objects taken not materially but formally, that is, in so far as they concern the formality and order of the thing to be specified. (More on this in the books On the Soul, *Phil. of Nature* 4. 2. 3.)

Relation depends upon its foundation and its term as upon a principle and an end; now, the reasons why objects are said to exercise specification are precisely the characters of principle and of end (see St. Thomas i-ii. 1. 3.). It seems, consequently, that relation should receive its species from its principle and its term. In the present connection, 'term' is not taken materially and the 'foundation' considered is not the remote one. It is clear enough that one and the same term, materially considered, terminates several relations. Thus the relation of father, that of similar, that of cause, that of effect, and indefinitely many others are

terminated in one and the same man. Likewise, several relations can be based upon the same subject or remote foundation.

With regard to specific unity and diversity we shall examine two questions. (1) Whether they are derived from the foundation alone or from both foundation and term. (2) Assuming that the latter is true, we shall have to determine in what distinct ways foundation and term contribute to specification. With regard to numerical unity, the only question is whether it results from the unity or plurality of the terms, or from the unity of the subject, even though the terms might be numerically several.

First question. From a certain point of view, it seems that relation cannot be specified by its term. *(a)* Since the correlatives are simultaneous in nature, one of them cannot be prior to the other; nor, therefore, can it specify the other; the specificative, as cause of the specified, is prior to it. *(b)* The term is opposed to the relation; but a species cannot be derived from an opposite, for then it would be the opposite species. *(c)* So far as relation is concerned, the term has the character of pure term; therefore it is not specificative of the relation. A pure term is one that exercises not causality, but reference alone. Now, to specify is to cause something. *(d)* In the son, there is only one relation to father and to mother (see St. Thomas iii. 35. 5.), for his birth is one and so is filiation, since filiation follows upon birth. However, this one relation is terminated by specifically diverse terms, viz., fatherhood and motherhood; these are diverse relations founded upon diverse roles in generation. Thus, the specific unity of relation is compatible with a plurality of specifically diverse terms. Thus, the unity of relation is not derived from its term.

On the other hand, the following arguments can be used to prove that the term alone specifies: *(a)* there is the general consideration that all things relative to something else are specified by that to which they are relative, e.g., habitus and act; this should hold with greater force in the case of relation, whose whole being consists in its being [related] *to* something. Consequently, its whole quiddity and species is relative to something. *(b)* Diverse relations may have the same foundation; e.g., the same whiteness is the foundation of similarity to snow and of dissimilarity to raven. The same causality of the inferior cause is the foundation of relation to effect and of relation to superior

cause. The same sign grounds relation to power and relation to signified. Thus, relations are distinguished by their terms, not by their foundation.

Thesis. Both foundation and term contribute to the specification of relation. Their roles are not exclusive of each other. From its foundation, relation receives its specification as from a cause and a specifying principle. It receives its specification from its term not as from a cause of specification but as from a thing which completes and terminates the principle of specification.

As Albert the Great rightly says (*On the Cat.* treatise 4, chap. 9.; quoted by Soto, *Com. on the Dialectic of Aristotle*, On Relation, q. 1 ad 8), one relative is not defined *by* another, but [in relation] *to* another. *By* expresses causality, *to* expresses relation. St. Thomas constantly derives the specification of relations from their foundations. He says that relation owes its reality to its foundation. See *Com. on the Sent.* i. dist. 26. q. 2. a. 2 ad 4: "Relation would not have any physical existence if it were not for the foundation that it has in the real. By virtue of this foundation it finds place in a genus. Consequently the essential differences of relations are derived from the differences of other beings, as Aristotle makes clear when he says (*Met.* 5. 15) that some relations are founded upon quantity, some upon action, etc. The order of the relations is parallel to the order of the things upon which relations are founded." Thus, this is the reason why in many places St. Thomas derives the specific essence of relations from their foundations. See iii. 35. 5.; Qdl. 1. a. 2; 9. a. 4; *Op.* 2 [*Compendium of Theology*] chap. 212; *Com. on the Sent.* iii. dist. 8. q. 1. a. 5. In the last place (ad 4), he explains as follows the difference between motion and relation: "Every motion is real, but not every relation. Although the references of relation are multiplied by the terms, it is not necessary that relations should be multiplied in reality as motions are multiplied in reality by the diversity of terms." Here St. Thomas always reduces the reality of relations to their foundations; if a foundation is assumed, there is real relation to terms, but the terms do not, by themselves, bring about real diversity as they do in the case of motion. Consider now this general rule formulated by St. Thomas (i-ii. 54. 2.) "All things expressed in relation to something are distinguished

according to the distinction of those in relation to which they are expressed." This implies that relations derive also their specification from their terms. The same view is stated in i. 32. 2: "Two relations are not specifically different if but one opposite relation corresponds to them." We shall later reflect upon this text. These statements follow from principles laid down in preceding expositions. The whole reality of relation proceeds from its foundation in reference to its term, since the whole being of relation is *to* something else, as the definition of relation says. Relation essentially requires both foundation and term; consequently, it cannot be derived from one of them without being derived also from the other.

The second part of the thesis concerns the way in which foundation and term contribute to specification. Let it not be believed that their contributions are partial, as if the foundation supplied one part of the specification and the term another. The truth is that each of them supplies the whole specification, but in a different genus of causality. At this point, *some* would say that the contribution of the foundation is initial and that of the term final. *Others* say that the foundation plays its role in the genus of efficient causality and the term in that of extrinsic formal causality. *Others* say that the foundation exercises specification inasmuch as it virtually precontains the term to which it is proportionate, so that the diversity of the foundations entails corresponding diversity in the terms.

Yet, the following distinction must be kept in mind: the term is taken either in the most formal sense as opposite term, or it is considered, in a fundamental sense, as pertaining to the thing absolute on which, as a term, it is founded. In the first case the contribution of the term to specification is purely terminative. The term, so understood, does not cause specification since it is pure term and simultaneous with relation in nature and in cognition; it cannot be a specifying cause, since the cause is not simultaneous in nature with the effect, but prior to it. If the term is considered in the second way, it assumes the character of an extrinsic formal cause and exercises specification in the manner of an object. Thus, from the foundation and the term, there results a single principle specificative of the relation. By proportion and power, the foundation contains the term in itself, for a foundation

does not refer to such and such a term unless it is itself such and such a foundation, and conversely. Posit a relation implying *(a)* such and such a foundation and *(b)* such and such a term, in correspondence with this foundation: the foundation and the term, inasmuch as they are proportionate to each other, make up one single principle for the specification of this relation.

From this you can gather the nature of the term which is describable as formal in the order of specification. Several relations that are diverse in species can be terminated by the same term if the latter is considered materially, not if it is considered formally. Inasmuch as it is in correspondence with and in adequate proportion to its foundation, the term possesses a form capable of exercising specification. For example, the white constitutes the formal term of the relation of resemblance inasmuch as it [i.e., the white] corresponds to agreement and identity; it is the formal term of a relation of dissimilarity inasmuch as it corresponds to disagreement. Similar views apply to generation in the case of fatherhood and sonship. *To sum up:* with regard to specification, the foundation is considered as determined by the form which is ultimate in supplying foundation, and likewise the term is considered as determined by the proportion and correspondence involved in the act of terminating.

We said "which corresponds completely or adequately," because one total term may correspond to several relations of diverse species, e.g., to filiation correspond both the relation of fatherhood and that of motherhood. Filiation is caused by double generation, i.e., paternal and maternal, but there is only one birth. Such is the teaching of St. Thomas in iii. 35. 5 ad 3. True, he seems to say the contrary in i. 32. 2: "Two relations are not specifically different if but one opposite relation corresponds to them." This difficulty is not removed by those who hold that both father and mother concur actively in generation. Even if both concur actively, they do so in such diverse ways as to supply foundations for the diverse relations of fatherhood and motherhood; likewise both the sun and man contribute to generation actively but in such diverse manners as to supply foundations for diverse relations of causality. A better *answer* would be that one total term or correlative may correspond to two partial relations, though not to two total relations. Father, mother, and, more generally, several

causes of the same order contributing to the same effect are diverse, so to say, as the parts of a whole are diverse. Taken together, they constitute an entire cause and a single total term, even though they are several in the capacity of parts. In the text from iii just referred to, St. Thomas speaks of relations which, on one side, are several and partial: to such relations there may correspond, on the side of the other extreme, only one adequate relation. In the second text (from i), he speaks of relations that are diverse adequately and completely.

Let us now consider the foundations of the opposite theories.

With regard to the first foundation: It is true that the term exists simultaneously with its correlative, and yet specification depends upon the term, not as upon a principle which would cause it but as upon a thing which terminates and completes. The whole priority of the specifying cause concerns the foundation. There is no specification *by* the term, but there is specification in relation *to* the term.

With regard to the second: Because relative opposition is the weakest of all, specification can be derived from the opposite term, in this kind of opposition, as from a thing which terminates and completes, but not as from a thing that would cause specification. In relative opposition, one extreme does not take away the other, but rather posits it or presupposes it, so that the specification of the one may be relative to the other.

With regard to the third: A pure term, considered precisely as term, can specify by terminating and completing, not by causing; it can specify as that in relation *to which* there is specification, but not as that *by which* specification is effected.

The last foundation proposed has been dealt with in the preceding remarks.

Concerning the arguments in favor of the *second theory:* in answer to the *first* it has already been said that the terms specify by pure termination, whereas the foundations specify by causation. Thus the whole being of relation is [relative] *to* the term as to something that merely terminates. In answer to the *second* argument, let it be said that the same foundation, if it is proximate and understood formally, cannot support relations specifically diverse. By reason of agreement, the white grounds resemblance; by reason of disagreement it grounds dissimilarity. Likewise, in

the other examples, if the relations are diverse—a question that I am not considering—the proximate and formal foundations are also diverse.

The second difficulty to be treated in this article concerns the numerical unity and distinction of relations. This difficulty centers about the famous problem whether accidents are individuated by their subject in such a way that there cannot be, in one and the same subject, two accidents distinct from each other in merely numerical fashion. This is not the proper place to treat that problem; we only propose to see *whether a single relation can extend, and point to several terms, each of which suffices to terminate it.* (One father may have several sons.) This seems impossible for several reasons: *(a)* An effect cannot depend upon several total causes of the same order and nature. Now, any son is the sufficient and total term of fatherhood, for the relation of fatherhood is sufficiently and totally specified by its being 'to' one son; therefore the same relation cannot depend upon another son. *(b)* With regard to a new son, there is new generation; therefore there is a new relation identifiable with generation. The antecedent relation cannot undergo a new extension; if there is extension, it is a fresh increase, an addition of relation; it is not a part of a relation, for relation has no parts: therefore, it is a new relation. *(c)* Because relation is an indivisible and simple mode. Suppose that one son dies and another remains: the relation to the latter remains and the relation to the former perishes. [If the father had only one relation to several sons], one and the same entity would endure and not endure, since relation is simple.

St. Thomas holds the opposite theory. See iii. 35. 5; Qdl. 1. a. 2 and 9. a. 4. Besides a proof relative to the common nature of accidents—which cannot be numerically multiplied in one and the same subject—St. Thomas uses an argument derived from a property special to relations, viz., the numerical identity of the cause or foundation. Thus, in a quantitative relation, it is one and the same quantity which serves as a foundation for relationship to all quantities of the same magnitude; e.g., it is by virtue of the same quantity that one cubit is equal to all cubits. The generative power by which a father is related to all his sons is one and the same, though modified by diverse actions. *Moreover:* argument is derived from the necessity of avoiding an infinite multiplication

of relations; in one subject, the proportions of parts are not infinite;[30] in one teacher who has several pupils, there are not several teaching authorities but one; in one master and king, dominions and relations are not as numerous as servants, since several can be taught and ruled by one and the same action. *Finally*, a son is related to his father and his mother by one and the same relation, and a boat is related by a single relation to several men who pull her. Thus, a relation can attain all the terms of its species, for they are inadequate to its extension, although any of them suffices to assure its existence. Even though this individual relation regards this individual term determinately, it does not regard it adequately, but regards all the things in which the formality of such a term is present.

Answers to the opposite arguments. To the *first*. One effect cannot depend formally upon several total and adequate causes; but if plurality is only material, an effect may well depend upon several causes inasmuch as these have in common one way of causing or terminating. For instance, if ten men suffice to move a rock, the moving can also be done by twenty, for these twenty are a multitude only in a material sense: formally, they are united into one causal principle. Thus, the relation of father is sufficiently terminated by one son; yet if there are several sons, the same relation will find its term inasmuch as they are united into one essence capable of terminating a single generative power modified by diverse actions. The relation of fatherhood is founded upon this power so modified, as we said in article 3, following St. Thomas. Lastly, our position is illustrated by various examples showing that when an effect is produced by a sufficient cause another sufficient cause that supervenes does not produce this effect anew, but is related to it in a new way. Thus, alteration produces a quality, [say, heat,] but intensification [say, more heat in the source], when it occurs, does not produce this quality [heat] but merely causes something new in the way of effecting it, even though it may of itself suffice to produce the quality. Eucharistic transubstantiation would suffice to produce the substance of the body of Christ, but this substance has already been produced, so it does not produce it anew but brings about a new mode of its existence. Likewise, one son is all that is needed to terminate the relation of fatherhood. The new son

finds the relation already produced and terminated, and he terminates, not a new relation, but the same relation as extended to him. The theory, held by St. Thomas, that in a composite there is only one act of existence, supplies a particularly fitting example (see iii. 17. 2). Suppose that an existent whole lacks one part, e.g., hand or foot, and suppose that the missing part is restored: no new existence is produced in the restored part, but the existence of the whole is applied to this newly restored part, as to something that belongs to the whole. The same must be said of the simple habitus of a science which extends itself to several conclusions without the addition of a new habitus. Again, an increasingly intense quality becomes more deeply rooted in its subject without the addition of any new quality.

Answer to the second argument. There is new generation with regard to a new son, since he is born at another time and out of another matter. (Notice that several sons may well be brought into existence by the same generation, without diversity of time and matter.) Yet relation is not identified with action and is not founded upon it, except in so far as action determines the generative power, which is only one. (See the foregoing.) When several sons are born at one birth, the relation of fatherhood is necessarily one since it is founded upon one and the same action; it is just as necessarily one when several offspring are produced by several actions. That a power should be modified by one of its actions or by several, in regard to a relation of the same nature, is accidental. Extension of this relation to new terms is not effected by the addition of a new relation, but by the unfolding of one pre-existent relation, because the latter, by virtue of its own entity, regards all terms proceeding from the same foundation. There is actual unfolding of a relation when an action grounds a new term or at least brings a new term into existence. St. Thomas (*Ph.* 5. les. 3. Leonine 7-8) explains that, upon the positing of a term, a relation proceeds from its foundation as from a root wherein it was precontained. By reason of its own nature, a relation admits both of being originated from its foundation and, if it already exists, of being unfolded or applied to a new term which thereby becomes its own term. The novelty brought about when a new term is attained [by an already existent relation] is nothing else than an actual tendency toward, and an actual determination

by, the term respecting which there already was a virtual tendency. Only the nonexistence of the term prevented the actualization of this virtuality. This consideration serves to explain how angelic ideas, without any change in their representative constitution, come to represent an object newly brought into existence.

Answer to the third objection. Relation is simple entitatively, but multiple terminatively; this implies that it is divisible as a relation, indivisible as an entity. Thus, if one of the terms materially given in a particular case goes out of existence, relation ceases to exist with regard to application and extension to this particular term, but not absolutely nor in itself. Something similar is observed in a scientific habitus—a simple quality—which is extended to new conclusions: if a conclusion is wanting, it follows neither that the habitus is wanting with regard to other conclusions nor that it is wanting in itself and entitatively. Again, the same principles show how the existence of a whole is communicated to various parts and how one angelic idea attains some existent objects, though not nonexistent ones. These problems will be examined in the proper places.

ARTICLE 7

ON TWO PROPERTIES OF THE RELATIVES, VIZ., SIMULTANEITY IN NATURE AND SIMULTANEITY IN COGNITION

Every relation depends upon its term; moreover, relation and term are defined by each other. Accordingly, the theory that relatives are simultaneous in nature and in cognition raises difficulty. Rather than simultaneity, there seems to be priority of the one over the other, for where there is dependence there is also priority of nature.

In order to solve this problem it is necessary to premise the two requirements of simultaneity:[31] (1) none of the things said to be simultaneous can be the cause of the other, and (2) things simultaneous imply each other. If one is the cause of the other, by that very fact they are not simultaneous and one is prior to the other. On the other hand, by the very fact that they are simultaneous, one cannot subsist without the other and they imply each

other. Likewise, according to Aristotle (*Cat.* 7. 8^a38) and St. Thomas (*Op.* 48 [*Summa of the Whole Logic of Aristotle*] Treatise on Relation, chap. 5) there is simultaneity in knowledge when the entity of the one is so totally relative to the entity of the other that whoever knows the one necessarily knows also the other. It is not necessary that the one be defined by the other as by a cause; it is necessary that the one be defined [in relation] to the other as to a term: thus, as said above, the term does not specify causally, but in a purely terminative capacity.

First thesis. As Cajetan points out (*Com. on Cat.*, chap. on Relations), the first property is understood to hold for the relatives considered formally, i.e., in so far as they are relatives, and in so far as they are actually engaged in the exercise of relatedness. This view is expressed by St. Thomas (i. 13. 7 ad 6): "In order to know whether relations are simultaneous by nature or otherwise, it is necessary to consider not the genus of things to which they belong but the meaning of the relations themselves. If one relation includes another one in its idea, and vice versa, then they are simultaneous by nature, as double and half, father and son." Thus, there need not be simultaneity in the things upon which relation is founded. In fact, many are founded upon cause and effect, and the father is prior to the son in causality: but in relativity they are simultaneous.

The reason for this thesis is that the relatives, precisely considered in their essence and formality as relatives, do not have causality. One relation does not cause the other, but each of them is caused by its foundation. Moreover, they are interconnected, since one cannot be without the other. Therefore they are simultaneous in nature.

Objections. (1) One relative specifies the other, since it is its term. But what specifies is prior to what is specified, since the former is cause of the latter; therefore, they are not simultaneous. (2) In the relatives of the third genus, one of the extremes is only a relative of reason, since relatives of this kind are not mutual. Now, the relation of reason is not simultaneous with its correlative, for such a relation depends not only on a foundation and a term, but also on knowledge. Therefore, this is not a property in the fourth sense, holding for every predicamental relation. (3) The relatives of reason—e.g., genus and species—also are

simultaneous; thus simultaneity does not belong exclusively to predicamental relatives.

Answer to the first objection. The term, formally considered as opposite and correlative, does not specify the relation in primary and essential fashion. The relation does not derive its specification from its term; rather, it is specified [in relation] *to* it. (See the foregoing.) In the capacity of principle and cause, the foundation also plays a part in specification, but this it does in relation to the term in which specification is completed and terminated.

Answer to the second objection. Nonmutual relations do not imply the simultaneity of the relatives except in a fundamental and proximate sense. As previously said, there is not here any term in the formal sense, for a term of relation is not understood formally unless it is conceived as opposite and correlative. If a term is mentioned in the description of nonmutual relations, it is only because one extreme receives an extrinsic denomination from the relation that the other extreme has to it. There is termination in a fundamental and proximate sense, not in a formal sense; thus, the term is simultaneous with the relation which is *to* it. It is not by virtue of a transcendental relation that the knowable is simultaneous with knowledge (for the knowable, as term of a transcendental relation, is specifying object and cause); nor is it simultaneous with knowledge by virtue of the relation of reason—which is posterior to knowledge. But by virtue of its terminating proximate foundation the knowable terminates, according to its capacity, the predicamental relation involved in knowing. It is also by virtue of this foundation that the knowable is simultaneous with knowledge. You can appreciate here the profound truth of the rule of St. Thomas formulated in the foregoing: the principle that the relatives are simultaneous in nature must be interpreted in relation to the significations of the relatives. If the knowable is considered as object of knowledge, it does not include in its concept the relation of knowledge and is not simultaneous in nature with this relation: here, the knowable is signified according to the transcendental relation of knowledge. If, on the other hand, it is considered not as object but as that which terminates, at least in a fundamental and proximate sense, the predicamental relation of knowledge, then it is signified as correlative—at least

extrinsically—and, therefore, as simultaneous in nature.

Answer to the third objection. Relatives of reason are not simultaneous in nature because they *are* not, but *are known*. They are no more simultaneous in nature than the cognitions from which they result.

Second thesis. The second property, viz., that the relatives are simultaneous in knowledge, is understood to hold for the relatives formally considered in the exercise of relation. It concerns neither the *things*, which are relative in a merely material sense, nor relation as informing [i.e., as accident existing *in* a subject]. It concerns exclusively relation as regarding [i.e., as thing relative *to* a term].

That which pertains to the matter and foundation of relation can be known prior to the term since it can be the cause of the latter, its specifying principle or its object. Thus, although relation cannot be defined without its fundamental and material condition, there is no simultaneity between relation and this condition which, as defining principle, rather causes relation to be known and explained. Simultaneity belongs exclusively to the relatives considered as behaving correlatively and exercising opposition; respects and pure terms have connection, not causality. If relation itself is considered in the capacity of form and in expressed act, i.e., as exercising in a subject the function of informing, not as exercising the function of referring to a term, then it need not be simultaneous in knowledge with its correlative. So considered, its mode is that of inherence, which is common to the relative and to many absolute things. In such a context, it is not necessary that it be simultaneous in knowledge with its correlative. There is such simultaneity only when the relation is known in what is proper to the relative, viz., in the exercise of the function of regarding. Thus, in God, when we conceive the relation of fatherhood as subsisting and constituting a person, we do not necessarily conceive it as terminated in the Son: it suffices that it be understood to subsist as principle of the Son.

From all this it follows, firstly, that the relatives are simultaneous in knowledge both with regard to quiddity and with regard to existence. With regard to *quiddity*, because the proper and quidditative essence of the relative is relatedness *to* something else. Consequently, the relative requires, by virtue of its essen-

tial principles, connection with something else, and not causality, but termination: such connection implies simultaneity. With regard to existence, because a relative cannot really exist without a term and a correlative. As often stated, real relation demands a really existing term.

Another consequence is this: although the foundation is sometimes included in the definition of the relative (e.g., "A father is one who generates something similar to himself in nature"), simultaneity in cognition does not result, in these cases, from the foundations as such (foundations, in some cases, would rather entail priority and dependence); it results from the nature of correlative opposition, although this opposition is not always posited explicitly; there are even cases—viz., nonmutual relations—where it is posited neither intrinsically nor formally.

CO-ORDINATION OF THE CATEGORY OF RELATION

The supreme genus is the real relation according to existence. It is divided into three immediate genera, the first of which is founded upon quantity and proportion, the second upon action and passion, the third upon measure.

The first genus is divided into relations of equality and inequality, resemblance and dissimilarity, agreement and diversity, proportion (as double and sub-double), etc. All these are ultimate species.

The second genus is divided into relations of cause and effect, of action and motion or mutation, of vicinity and remoteness in so far as these depend upon motion. Each of them can be divided into diverse species according to diverse forms of cause and of effect. Thus the relation of efficient cause is different from that of material cause, of formal cause, etc. The relation founded upon motion of generation differs from the relation founded upon motion of alteration, and from the relation founded upon the act of creation, etc.

The third genus is divided into relation to the measure described as object and relation to the measure described as exemplar or prototype. Relation to object is divided into relation of power, relation of habitus, and relation of act. Each of these is divided into various species according as the power is active or

passive, cognitive or appetitive. These, in turn, are divided into the various species of the cognitive, e.g., the visible, the audible, the intelligible, etc. Likewise, exemplars can supply foundation to specifically diverse relations, according as they are said to exercise in diverse ways the functions of exemplars and ideas.

IV

On the Categories

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QUESTION 18

ON QUALITY

ARTICLE 1

WHERE THE FORMAL ESSENCE OF QUALITY AND ITS DEFINITION ARE EXPLAINED

Aristotle defines quality "that on account of which we are said to be such and such."[1] Some authors criticize this definition sharply. Their reasons are as follows: (1) It looks futile. If, in like fashion, whiteness were defined "that on account of which we are said to be white," we would reply that we precisely care to know on account of *what* we are said to be white. (2) It seems to be circular. Just as quality is defined by our being such and such, so "such and such" will be defined, conversely, as 'that which has quality': the circle is obvious.[2] (3) The definition is not clearer than the defined: quality, an abstract term, and "such and such," a concrete term, are equally obscure.

Yet this definition, taught by Aristotle and unanimously received in his school, cannot be rejected. But, first of all, recall that supreme genera admit of no genus and no difference: consequently, this is not a definition; it is a description which uses effects clearer than the thing described.

We may consider the effects of quality in two ways: (1) with regard to *state*, according as quality is taken abstractly or concretely; the state of concreteness is clearer for us and closer to sense experience, [consequently, the abstract can be explained by the concrete] and this is how St. Thomas explains this definition in *Op.* 48 [*Summa of the Whole Logic of Aristotle*] Tr. 4, chap. 1. Such a method of definition would not be appropriate if

the object to be defined were not a supreme genus.

(2) The effects of quality may also be considered from the point of view of the *form* itself. Among all accidents, quality has the property of rendering a subject formed and qualified, as St. Thomas, following Aristotle, points out *(Com. on Met.* 5. les. 16. Cathala 996). Of all accidents, quality is the one which properly improves and qualifies a subject. Quantity, on the contrary, quantifies and rather materializes a subject by extending and ordering its material parts. Other categories either refer a subject to something else, as relation, or depend upon some extrinsic principle of order, as the last six categories. (More on this in the following question.) Quality alone is essentially relative to the improvement and qualification of the subject—or to the contrary of improvement and qualification. Now, to render something such and such [i.e., to qualify it] means to affect it by what is actual, to determine it in the way proper to form. This is why the essential difference is said to be predicated after the fashion of a quality: it contracts and determines the genus, and, by determining it, forms it and qualifies it. What the essential difference does in the order of essence, quality does in the order of accidents: both, of themselves and in strictly proper fashion, form and qualify what is potential and formless. True, other accidents perfect and actuate subjects, but they do not do this in primary and direct fashion; primarily and directly, they quantify matter, relate a subject to something extrinsic, or depend upon something extrinsic in the denomination which they exercise. Thus, quality is rightly said to be "that on account of which we are said to be such and such," which means: formed, qualified, and improved.

Answer to the first objection. This definition is not futile and it does not use the same to manifest the same. For one thing, it uses, as means of explanation, the state of concreteness, which is clearer; again, in order to explain the accident quality, it uses the special effect of this accident, which is to qualify and to improve. By virtue of quality, we are said to be such and such because the special effect of quality is to qualify and to improve.

Answer to the second objection. There is no circle in definitions of this kind because they are not definitions [properly so called] but descriptions. Further, the abstract and the concrete do not play their parts in the same order of causality, since one of

them expresses the form and the other connotes the subject. More importantly, notice that the abstract term "quality" is defined not only by reference to concreteness but also by reference to the effect of quality, which is to improve its subject and to render it qualified. When, on the other hand, "such and such" is defined, the definition concerns only the state of concreteness and uses [as its proper instrument] the notion of "having a form." Thus, there is no circle.

Answer to the last objection. This definition is not made of terms as obscure as the term to be defined, for it derives clearness from the effect of quality, viz., the rendering such and such [or qualification], and from the state of concreteness in a subject; such effect and such state are clearer for us than the qualifying form and the abstract state of this form. It is still less open to the criticism of including the defined, for quality abstractly considered is defined by its effect, not by quality itself.

From this you will gather that, of all formulas designed to express the essence of quality, St. Thomas coined the best when he wrote (i. 28. 2): "...what is called quality is a disposition of substance." Again, in i-ii. 49. 2, he writes: "...the term 'quality' conveys a certain mode of substance; now, a mode is that which a measure determines."[3] Thus, "quality" conveys a certain determination according to a measure. The proper essence of quality is said to consist in mode and determination inasmuch as mode signifies formation and right disposition of a thing. Here, 'disposition' does not designate the first species of quality but is taken in the general sense defined by Aristotle (*Met. 5. Com.* of St. Thomas, les. 20. Cathala 1058) as "order of that which has parts." We thus come to understand that both quantity and quality have the function of setting parts in order, but the parts with which they have to do are not of the same kind and their ways of effecting order are different. Quantity orders material parts by way of extension, so that a part is placed outside another in relation *(a)* to itself and *(b)* to place. The parts set in order by quality are not material, and the method of ordering them is not extension; they are virtual parts and may be called 'parts of perfection' inasmuch as they achieve an appropriate or inappropriate arrangement, whether *(a)* in relation to nature itself and the termination of its quantity or *(b)* in relation to action and the term

of action[4] or even *(c)* in relation to the intensity of quality and the extension of habitus. Briefly: I call quality every disposition describable as an appropriate commensuration or proportion—whether in corporeal or in spiritual things—of virtual or of formal parts. Quantity, on the other hand, unites only material parts by setting them outside other parts: this is extending, it is not disposing rightly and duly. Notice that the determination of quantity with regard to limitation is effected by shape, which is a quality. Such seems to be the most probable explanation of a thing involving as much obscurity and diversity as quality does.

ARTICLE 2

WHERE THE DIVISION OF QUALITY INTO FOUR SPECIES IS EXPLAINED

In the division of this category Aristotle posits four pairs of species: the first is habitus[5] and disposition; the second, capacity and incapacity; the third, passion and passive quality; the fourth, form and figure.

Is this division sound and is it adequate? By common opinion, it is adequate; but authorities disagree with regard to the systematization of these species and the explanation of their natures. Scotus conceives their systematization as follows (*On Cat.* q. 36): Quality, considered in itself, is a disposition of substance. Accordingly, it is either interior or exterior. If exterior, it either is or is not essentially and primarily sensible. If it is sensible in essential and primary fashion, it belongs to the third species, viz., passion and passive quality. If it is an interior disposition, it exercises disposition either as an innate principle of operation, in which case it belongs to the second species, viz., capacity and incapacity, or it is a principle of operation that is not innate but comes from outside, in which case it belongs to the first species, viz., habitus or disposition.

Other authors, in more recent times, propose the following systematization: Either quality is designed to supplement the perfection of substance, or it is related to action. If it is related to action, it has either the character of a principle or that of a term. If it is a principle of action, this principle either is inborn

and intrinsic or comes from outside. If it is intrinsic, it is capacity or incapacity. If it comes from outside and does not have the character of a term, it is a habitus; if it comes from outside and is the term of an action, it may also belong to the species disposition: thus the terms of knowledge, i.e., the concepts, are dispositions. On the other hand, if quality is designed to perfect substance or supplement it, its purpose is either to preserve and enhance substance itself—in which case it belongs to the third species—or to perfect the term of extension, and then it is the fourth species.

These systematizations are defective in many respects. (1) They make use of assumptions that are both very extrinsic and, in themselves, rather uncertain, e.g.: that quality inheres only in the surface of its subject or both in its surface and in its interior; that it is primarily and essentially sensible; that every habitus, disposition, or capacity must be described as an active quality. True, passive capacity is not active, and grace, health, and beauty, which all belong to the first species, are not active qualities. (2) Moreover, the meaning of 'disposition' cannot be restricted to the terms of immanent actions, e.g., concepts, since some qualities unsteady by nature are not the terms of immanent actions considered as such: think of opinion, vice, a passing disease, etc. (3) Finally, the general idea of "supplementing substance" does not apply to quality alone; there is no reason why it should not apply also to quantity, which supplements by extending, since it sets parts in order. On the other hand, one might just as well say that 'supplementing substance by assisting it and preserving it' is a characteristic of the first species, i.e., disposition; if a disposition is good, it assists and preserves; health, which does more than anything else to preserve the animal, is placed in the first species by Aristotle (*Ph.* 7. 3. $246^{b}4$) and St. Thomas (i-ii. 50. 1).

St. Thomas proposes another way of systematizing these species (i-ii. 49. 2). Consider that 'quality' conveys the notion of an accident whose property is to lay upon a subject a determination and mode of accidental character; consider, further, that every mode and determination can be understood either *(a)* in relation to nature itself or *(b)* according to action and passion—which follow upon the principles of nature—or (c) in relation to

quantity. Modes relative to quantity belong to the fourth species, viz., shape and figure, since shape results from the termination of quantity. Modes affecting the subject in relation to action and passion find place in the second or the third species. Capacity is essentially relative to action and passion. Passion and passive quality result from passion[6] and motion. Mode and determination in conformity with the nature of a thing pertain to *habitus* and *disposition*. These qualities are primarily and essentially relative to agreement and conflict with nature. To understand why ease and difficulty are referred to in the definitions of habitus and disposition, just consider that nature is a term of generation and motion, and that motion is a thing effected either arduously or easily.

Against this systematization, the following objections can be raised:

1. One and the same quality would find place in two species; e.g., heat, which is said to be a passion or a passive quality inasmuch as it is caused by a motion of alteration, would also be a quality of the first species inasmuch as it agrees with nature, as it does in fire.

2. There is something confused about the method used by St. Thomas in distinguishing the second and the third species; he says that the mode relative to action and passion pertains to the second and third species of quality, but he does not explain in what different ways this mode pertains to the second and to the third species, and how these species are distinguished from each other. It does not suffice to mention such features as easy and difficult, passing and lasting: these are not essential differences holding equally for the second and the third species; further, these features do not distinguish capacity and incapacity from each other.

3. Habitus and disposition have also the character of determinations or modes relative to action, since active habitus play the part of principles in the eliciting of actions; thus, not every habitus should be explained in terms of agreement with the subject.

4. To be the term of action or motion seems to be, for a quality, a condition thoroughly accidental and consequently incapable of defining the third species. This condition does not even have sufficient amplitude: if it were said that the third

species comprises only qualities which terminate a motion of alteration, it would follow that light, which is produced in the air without alteration, does not belong to the third species of quality, yet the commonly received theory holds that it does. If, on the other hand, the third species is said to embrace all qualities terminating any kind of motion, even instantaneous, it follows that immanent acts and concepts (which are produced by such [i.e., instantaneous] motions) and intentional forms belong to the third species of quality; but, by general agreement, they belong to the first.

Answer to the first objection. No quality belongs to more than one essential species; however, if there is a question of accidental state and mode, a quality belonging to one species may take over the mode and state of another species. This can never have essential significance, but it often happens that a quality takes over the mode of another so far as state and accidental mode are concerned; thus a disposition may, by virtue of extrinsic principles, be hard to remove, although its intrinsic principles do not make for stability, and a habitus may be easy to remove on account of an imperfect state, viz., because it has not been completely acquired. Likewise, to be a term of alteration belongs to heat in essential and primary fashion, but accidentally and by virtue of extrinsic principles it has modes of agreement or disagreement with nature. Heat possesses such modes inasmuch as it is the property of a certain thing or because it gives birth to an appropriate harmony, such as health, which implies agreement with nature, but it is not given such modes by its own formal essence. Conversely, a quality implying agreement with nature in primary and essential fashion may be a term of action by accident and by way of consequence. *To sum up:* no quality belongs, in essential fashion, to two species, but a quality which belongs, in essential fashion, to one species, may happen to enjoy the modes and state of another species. This interpretation of St. Thomas' statements in i-ii. 49. 2 ad 1 is suggested by St. Thomas himself in i-ii. 50.1 ad 3.

In order to determine, in particular cases, what is primary and essential and what is accidental and secondary in a quality, one should consider either the effects of this quality or the principles by which it is produced. If one sees that a certain

formality is always present in a quality—as heat is always the term of alteration—and that another one is not always present, one gathers that the latter is of accidental status. If, on the other hand, a quality is directed, by its principles, toward *(a)* action or passion, or *(b)* agreement or conflict with nature, these directions should be considered essential to it.

Answer to the second objection. The distinction between the second and the third species is not expressly formulated here[7] by St. Thomas, but it results from what he says in *Com. on Met.,* 5. les. 16. Cathala 993, viz., that the third species comprises those passions of mutable subjects according to which [passions] bodies are changed by alteration. Thus, qualities of the third species are those which things possess on account of their being subject to alteration or motion. ('Alteration' is taken here is a broad sense and stands for every physical change of quality.) On the other hand, capacity and incapacity, which constitute the second species, belong to the subject inasmuch as it possesses, essentially and primarily, the character of a principle of action and passion; they are not grounded in the property of being alterable, and in order for a thing to have capacities, it is not necessary that it should be subject to alteration. The attributes of being easy or hard to change do not have in the second species the same meaning as in the first; in the second species, these attributes express the faculty of resisting or not resisting, of acting or yielding to an agent; they constitute active and passive capacity inasmuch as passive capacity yields easily, active capacity arduously. As to the properties of being lasting or quickly passing, they do not concern the second but the third species.

Answer to the third objection. The essential and primary function of habitus and disposition is to dispose a nature according to what agrees or disagrees with it. If the nature is active, these qualities dispose to action. Habitus are not primarily and essentially active, but the nature which they dispose is active and cannot be conveniently disposed unless it is disposed in view of action. (More on this in the next article where we shall refer to the teaching of St. Thomas in i-ii. 49. 3.)

Answer to the last objection. Let it be said, first of all, that to be the term of alteration is not extraneous to quality.

Since one kind of motion, viz., alteration, is essentially relative to quality (see *Ph.* 5. 2. 226[a]26), some qualities must be, by essence, the qualities of a subject considered as moved and altered. Further, it is our opinion that this third species comprises the qualities which terminate motion in essential and primary fashion. In other words, the qualities of the third species are qualities of the subject as altered, even if alteration or mutation are instantaneous, as is the case when air is illuminated. It does not follow that immanent actions and concepts should be placed, like light, in the third species; they do not have the property of changing the subject, in other words, of being the term of alteration properly speaking; alteration takes place only in corporeal things. [Even if it should be said that immanent actions and concepts effect, in some improper fashion, an alteration of their subject,] their first and principal function is to dispose appropriately the cognitive nature precisely considered as cognitive. Thus, they belong to the first species of quality, and the essence of this species is principal in them because it is proper and essential; yet, by accident, immanent acts may involve alteration, as happens in the sense organs.

From all this it results that this division is adequate and complete.

Besides habitus and dispositions, which manifestly are what these terms mean, all immanent acts and concepts, as well as impressed ideas[8] are reduced to the first species; they are good or bad dispositions of powers according as they represent their object successfully or not. Grace belongs also to this species (see i-ii. 110. 3 ad 3), as well as the supernatural habitus which are given in order to elevate a power and, accordingly, presuppose the latter, although, in this loftier genus, they supply the whole of the virtue relative to acts that have no other entity than a superelevated one.

All instrumental virtues are reducible to the second species; their function is either just to act or to help an active power, it is not to dispose a nature well or badly. St. Thomas (iii. 63. 2) reduces the sacramental character to this species, for the special function of the sacramental character is not to elicit right or wrong action, but to receive or to give sacraments validly and truly. Let us mention, finally, that some authors

reduce the rough and the smooth, the subtle and the dense to a mere diversity in the position of the parts; the rough is said to have parts arranged unevenly, the smooth evenly, the subtle is said to have parts more removed from each other, the dense parts more pressed against each other and contained in a smaller place; all this concerns the category of position. Such views are true so long as these things are considered in themselves. However, since hardness and softness, which Aristotle counts among qualities in *Cat.* 8. $10^{a}16$-17, are sometimes associated with the rough and the smooth, the rough and the smooth are generally called qualities on account of these concomitants.

Is this division essential? Let the answer be affirmative. Quality is a supreme genus; it must contain within itself essentially distinct species, and none can be determined besides these four. There is no doubt that a specific distinction exists between some qualities and other qualities, as between habitus and capacity and shape; it is even certain that a specific distinction obtains between qualities belonging to the same dual system, e.g., between two habitus or two capacities. The one thing which may cause doubt is the fact that sometimes one and the same quality seems to belong to two species; heat, for instance, seems to be both a quality of the third species, because it is a term of alteration, and a quality of the first, because it agrees with a nature. But we have already said that such a quality belongs to one species alone according to a formality that the quality possesses essentially and always, or according to the principles which govern in essential fashion the birth of a quality. For instance, heat always possesses the character of term of alteration and does not always constitute the disposition of a nature. If it sometimes has the character of a disposition, this character is accidental to it, not essential, does not belong to it directly and primarily, and consequently does not constitute the species.

ARTICLE 3

INQUIRY INTO THE SPECIES OF QUALITY

First Species

The first species is habitus and disposition. It is customary to elaborate on the numerous meanings of the word 'habitus,' but

these are reducible to two basic ones: 'habitus,' or 'having,' is used in the context of the categories and in the context of the postpredicaments. In the latter context, it is the same as the mode of possession, divided by Aristotle into eight ways of possessing (*Cat.* 15. $15^{b}17$). In the context of the categories, 'habitus' means (1) the last category, viz., 'to be clothed' or 'to have garment' and (2) a certain species of quality, by reason of which a person does well or does badly.

Likewise, 'disposition,' in a generic sense, is the "order of that which has parts" as Aristotle says (*Met.* 5. 19. $1022^{b}1$); so understood it finds place not only in the category of quality but also in those of quantity and position. In a specific sense, it means 'to be well or badly disposed'; whether a thing does well or does badly usually depends on the relation of that thing to its own parts. Between habitus and disposition, there is the following difference: we speak of habitus when a thing is held and possessed firmly; otherwise, we cannot say without some sort of reservation that we *have* it; but disposition, by generic import, is a tendency toward a form. In relation to the form toward which it tends, disposition arranges things and sets them in order; it does not convey the notion of a form possessed firmly and completely. Therefore habitus is described as a quality hard to change and disposition as a quality easy to change.

Two problems call for examination here: one of them concerns the general nature of the first species: Is it an *operative* quality? The other concerns differential principles within the first species: Are habitus and disposition essentially different from each other?

First problem. Several authors think that habitus should be defined as an acquired operative principle; its being acquired would distinguish it from the quality of the second species, which is described as an innate principle of operation.

But St. Thomas teaches the opposite (i-ii. 49. 2). A general argument (1) can be drawn from the fact that some qualities of this species are not operative, e.g., health and beauty, which Aristotle expressly places in the first species (*Ph.* 7. 3. $246^{b}23$, quoted by St. Thomas, i-ii. 50. 1); supernatural grace is another example. Moreover (2) it can be proved, with special reference to the present problem, that even an operative habitus is not pri-

marily and essentially a principle of activity; it is [primarily and essentially] a principle designed to dispose nature for better or for worse; since, however, the nature disposed is an operative power, to be well disposed means, for it, to be well disposed in regard to operation. As Aristotle says *(loc. cit.)*, habitus, whether of body or of soul, are dispositions of the perfect to the best; 'perfect' designates what is disposed according to nature. Since nature and form make up the end for the sake of which things are caused, the first species implies an essential reference to good and evil. (The good has the character of end.) Thus, by reason of habitus and disposition, things are said to be had well or badly, i.e., in agreement [or not] with [the requirements of] form and end. Habitus and disposition may have the character of operative principles *(a)* inasmuch as the end of nature is operation or its effect, or *(b)* inasmuch as the nature which the habitus disposes is an active power, fittingly related to its operation. Habitus is not said to exist for the sake of operating considered absolutely, but for the sake of operating in such and such a way, i.e., in appropriate or inappropriate fashion; capacity, not habitus, is the first principle of action; a habitus presupposes a capacity and exercises influence upon the substance of the act by disposing conveniently the capacity that it presupposes.

Second problem. Scotus *(On Cat.* q. 36) and many others deem that there is only an accidental difference between habitus and disposition; a text of St. Thomas *(On Evil* 7. 2 ad 4) is quoted in favor of this opinion. Argument is drawn from the fact that one and the same individual entity is called habitus when it is firmly possessed by a subject, disposition when it is possessed in unsteady fashion; thus Aristotle says *(Cat.* 8. $8^{b}27$) that science is a disposition when it has hardly any roots in the knowing subject, a habitus when it has been made more enduring.

Confirmation. Easy to change, hard to change are differences found also in other genera and differences; thus, passion and passive quality, and slow and fast motion are said to endure lastingly or to pass quickly. Therefore they cannot be the essential difference of this first species. An essential difference cannot be found outside of its own essence.

However, St. Thomas and the Thomists think differently. In i-ii. 49. 2 ad 3, St. Thomas writes: "Disposition, properly so

called, can be divided against habitus in two ways. First, as perfect and imperfect within the same species. Thus we call it a disposition, retaining the name of the genus, when it is had imperfectly, so as to be easily lost; whereas we call it a habitus when it is had perfectly, so as not to be lost easily. And thus a disposition becomes a habitus just as a boy becomes a man. Secondly, they may be distinguished as diverse species of the one subaltern genus, so that we call dispositions those qualities of the first species which by reason of their very nature are easily lost because they have changeable causes, e.g., disease and health; whereas we call habitus those qualities which, by reason of their very nature, are not easily changed, in that they have unchangeable causes, e.g., the sciences and the virtues. In this sense a disposition does not become a habitus. The latter explanation seems more in keeping with the intention of Aristotle." In the text of the *On Evil* referred to in the foregoing (7. 2 ad 4), St. Thomas expresses the same views but he describes the opposite opinion without pronouncing himself against it as he does here.

We are now in a position to say what it means for a quality to be, by reason of its nature, easy to change or hard to change—a subject of tense inquiry and stubborn argument for conflicting thinkers.

Let it be said that 'to be by nature hard to change' means 'to have by virtue of proper and intrinsic principles,' causes that cannot be easily changed. Cajetan says (*Com. on Cat.* chapter on Quality) that sometimes a quality implies, by reason of its own species, causes that render change difficult, whereas, in other cases, resistance to change results from an individual condition. It happens that in a particular subject there exists a disposition to endure or a cause of enduringness not required by the nature of the quality. To be easy or hard to change is not the same as to last [in fact] for a long or short time. The latter is accidental. A mere disposition may last for a long time and a habitus for but a short time. Duration is continuation in existence; since continued existence depends upon extrinsic causes of conservation, it often happens that a thing which, of itself, does not require unchanging and enduring causes finds in a subject a cause and a disposition which will preserve it for a long time. Thus, light

will remain long in the air, if the luminous body remains present, the act of seeing will last long if the will applies for a long time the power of seeing, and an ordinary disease will last long if, instead of medicine, one takes the kind of food which opposes healing. Thus, the essence of the habitus does not consist in the *fact* of being hard to change, but in the property of being hard to change; the essence of the disposition does not consist in the fact of being easy to change, but in the property of being subject to easily effected change. Both subjection to easily effected change and resistance to change are understood in relation to the intrinsic causes of the qualities, not to extrinsic factors which, by accident, cause a thing factually to last or not to last. Thus science, so far as its intrinsic principles are concerned, is a habitus, for it proceeds from evident causes, which are firm, and the same holds for virtues, which proceed from the practical principles known and directed by the synderesis. On the other hand, opinion and vice, so far as their essences are concerned, depend upon causes that render change easy, for vice is contrary to reason and opinion leaves reason in fear.

I am aware that others seek elsewhere the reasons of this essential distinction; *some* would say, for instance, that a quality easy to change is one that depends upon its productive cause in preservation as well as in production; on the other hand, a quality hard to change would be one whose preservation does not depend upon its productive cause. *Others* say that a habitus has no contrary, whereas a disposition has one. But all such remarks are senseless. Experience shows that many dispositions endure even in the absence [of their productive cause]; yet they remain specifically distinguished from habitus; thus, disease, vice, and opinion last in the absence of their productive causes. On the contrary, infused virtues, such as grace and charity, depend upon their proper agents in preservation as well as in production—just as light depends upon the sun, as St. Thomas says (ii-ii. 24. 12)—and yet they are habitus. Moreover some habitus have contraries, as science, error, and virtue, vice, etc.

Objection. From the theory of St. Thomas, it would follow that the act of demonstration is a habitus, for the principles which generate it are immutable, immediate, evident, and certain. It would also follow that there is no habitus of opinion and no habitus

of vice; impressed ideas would not, either, be habitus, in spite of what St. Thomas says (i-ii. 50. 6), for none of these has immutable causes.

Answer. Neither the act of demonstration nor any act has immutable causes, for actual operation consists in emanation itself, not in any thing produced; operation is, of itself, mutable, for it exists in process and in becoming, not in finished being, even though it may be conversant with an immobile object. On the other hand, habitus does not have the character of exercise and operation, but that of an effected form which leaves the power immutably determined. With regard to opinion and vice, we consider that they are probably not habitus, since their nature does not allow them a firm adherence to their objects but only a fearful one, even though they may, through the repetition of acts, acquire firmness with regard to mode and accidental state. Thus, St. Thomas sometimes says that a habitus of opinion is generated by the repetition of acts; see i-ii. 51. 3 and 53. 1. But here the word 'habitus' is applied to a mode, not to an essence. Since opinion does not possess, by virtue of its species, any immutable principles, it simply is not a habitus, even though it may be given firmness, in an individual subject, by some extrinsic cause. The same holds for vice; inasmuch as it has a morality contrary to reason, it is devoid of firm principles; yet, because there is such a thing as a goodness relative [not to reason, but] to sense, vice can acquire firmness in the sense, which is a relative and qualified firmness. Thus, to say that opinion can have the *mode* of a habitus, i.e., lastingness, and science not have it is one thing, and to say that it has the *nature* of a habitus, i.e., that it possesses firmness by intrinsic nature and principles, is an entirely different thing.

Answer to the argument at the beginning. The same entity cannot be both a habitus and a disposition by reason of its nature and intrinsic principles but only so far as its state is concerned. Aristotle's examples are generally relative to firmness or unsteadiness in the state of a thing, because this kind of firmness is the more familiar and helps to understand the more hidden kind, viz., the firmness that results from a nature. St. Thomas points out (i-ii. 50. 1 ad 2) that Aristotle does not call health a habitus, but says that it is like a habitus, as may be seen in the Greek

(*Cat.* 8. $9^{a}3$.). Along the same line, if Aristotle does not describe imperfectly possessed sciences as habitus, it is because of their state, for he does not deny that they are habitus by reason of their natures.

Answer to the confirmation. When we speak of things easy or hard to change, the primary reference is [not to quality but] to motion. However, we use the differences of motion as an approach to the differences of quality. When we apply to quality names derived from motion, we do not thereby identify the things pertaining to quality with the things pertaining to motion. Qualities of the other species are also easy or hard to change, inasmuch as they are enduring or fleeting, but in them such easiness or difficulty has nothing to do with the definite function of disposing a subject well or badly: this function belongs essentially to the first species.

Second Species

It is called capacity and incapacity. By 'capacity' we understand the proximate principle of action which does not confer upon a subject an inclination to act well or badly but enables it to act in a basic sense, i.e., to elicit the very essence of action. Why the substantial nature of things is unable to act by itself and needs a superadded quality, as eliciting principle, to go into action, is a subject [customarily] considered in the *Treatise on the Soul* and in *Metaphysics*. See St. Thomas, i. 54 and 77.

The word 'capacity' covers both active and passive capacities. That there is such a thing as passive capacity in the genus of quality is evidenced by the powers of immanent operation, which receive what they elicit. Whether, on the other hand, any quality is a purely passive capacity and in no way an active one[9] is a question which does not pertain to the present treatise but to *Met.* 5. Nor does the question of the *neutral* power pertain to the present discussion. (What is meant by "neutral" power is a purely indifferent power, without any inclination toward act. Scotus speaks of something else when he posits a power that is neither active nor passive; see the criticism of his theory by Cajetan, *Opuscula,* t. 3, tr. 3. q. 1.)

By 'incapacity' we do not understand a complete absence of

ability, but a weak and imperfect ability, as in the case of a dull mind, of a feeble power of generation, etc. Between capacity and incapacity so understood, there is not a specific distinction, or if there is any, it does not result from the essential concepts of capacity and incapacity. One and the same capacity is called an incapacity so long as it is imperfect and weak, and a capacity as soon as it has become strong and perfect. Unlike habitus, there is no room, in the case of capacity, for a distinction between two kinds of immobility or firmness, viz., the one that results from an accidental state and the one that results from the intimate constitution of a nature and its intrinsic principles. Every capacity is, so to speak, a property innate and generated by the principles of the specific nature;[10] consequently every capacity possesses intrinsic firmness. Since capacities are not, like habitus, acquired gradually, firmness cannot be imperfect on account of incomplete acquisition. However, a power can be impeded and weakened by an extrinsic factor: in this case there will be incapacity, which differs from capacity only by reason of extrinsic factors. True, a more imperfect nature gives birth to a less perfect capacity, and the latter, in comparison with the capacity of another nature, looks like incapacity. But this is not incapacity properly so called. It is a capacity which, though smaller than that of another genus, is provided with all the powers and energies demanded within its own genus. The ant is less powerful than the lion; yet there is no reason to speak of incapacity in the ant, since, within the limits of its genus, the ant has capacity. Otherwise the supreme power alone would be capacity.

From this, it is easy to see how the first species differs from the second. The quality of the first species is not, absolutely speaking, a principle of operation; it is a principle designed to dispose appropriately a nature which may be active or nonactive. Capacity, on the other hand, is, absolutely speaking, a principle of action or passion. We said above that infused virtues are not capacities but habitus, and that the [sacramental] character is reducible to capacity. These questions, anyway, concern the theologian rather than the logician. Why is it that Aristotle, in his enumeration of the species of quality in *Met.* 5, omits capacity? The answer of St. Thomas *(Met.* 5. les. 16. Cathala 995) is that the subject of capacity has been sufficiently treated and

explained a short time before [5. 12].

Third Species

It is *passion* and *passive quality*. Leaving aside the other meanings of 'passion' enumerated by Aristotle *(Met.* 5. 21. 1022^b15; les. 20. Cathala 1065-69 in St. Thomas' commentary), let it be said that 'passion' stands here for the quality according to which there is alteration. In a most general sense, 'passion' designates any reception of form considered as emanating from an agent; in a special sense, 'passion' stands for this particular kind of passion which implies change by alteration. We commonly say that a thing 'suffers' or 'undergoes' when it is altered and taken away from its disposition. The reason why the acts of the sense appetite deserve with particular propriety the name of passions is that they imply physical transmutation. See i-ii. 22. 2. The property of a thing is also called its proper passion because the subject receives it as its own property.

Two points call for explanation: (1) In what do these species properly consist? (2) How do passion and passive quality differ from each other?

Some say that the third species is a quality designed to perfect and adorn the subject, but neither as power nor as habitus nor as shape. They do not explain what this quality is but rather declare what it is not. *Others* say that it consists in being a quality caused by alteration or causing it. St. Thomas favors this interpretation in *Op.* 48 [*Summa of the Whole Logic of Aristotle*], treatise on quality, chap. 4; in *Com. on Met.* 5. les. 16. Cathala 993 and 998; and in i-ii. 50. 1 ad 3. *Others* do not define this quality in reference to alteration but rather consider it as the cause of passion in the sense; thus, the third species is said to comprise only sensible qualities, i.e., the qualities to which the senses are naturally related as to their movers. This view is held by the school of Scotus. St. Thomas also favors it when he says (iii. 63. 2 ad 2) that this species of quality comprises only sensible passions or sensible qualities. Lastly, *some* (among whom Cajetan, *Com. on Cat.* chapter on Quality) interpret 'passion' as meaning here the act of the sense appetite and 'passive quality' as designating the quality which is by na-

ture designed to cause the passions of the appetite or to be caused by them. Inasmuch as it objectively excites or stimulates these passions, this quality is called passion or passive quality. A few more recent authors hold the same view, without mentioning the name of Cajetan.

All these interpretations are probable, and they are not seriously divergent. The act of the sense appetite comprises two components, viz., an immanent act, which is the more formal part of it, and a corporeal change, which takes place on the material side; it is from the latter component that the operations of the sense appetite receive the name of passions (see i-ii. 22. 2). In keeping with this, it is not by reason of immanent action precisely considered as such that qualities can be called passive, but by reason of the corporeal alteration and change with which the act of the appetite is bound up. If the acts of the appetite are called passions by reason of the alteration that they imply, it is clear that the main and most distinctive reason why this quality is called passive resides in alteration. Accordingly, the nature of this third species, passion, is better explained by saying, as St. Thomas does in *Com. on Met.* 5. les. 16. Cathala 993 and 998, and in *Op.* 48, *loc. cit.*, that the quality of the subject, considered as moved and altered, is the quality which constitutes this species. Now, all corporeal alterations are perceptible to the senses—some to taste and touch alone, others to sight alone, as illumination, coloring, etc.—; consequently the only qualities placed in this third species are sensible qualities, as St. Thomas says in the above quoted text from the iii. *Further:* alteration of quality precedes passion according to sense, for the former is the object of the latter, and it suffices to think of the passion of alteration to understand why qualities of the third species are called passive qualities and passions. In our understanding of these qualities the primary reference is to alteration, for they are primarily conceived as causing alteration or caused by it; their property of causing passion in the sense is secondary, and follows upon their relation to alteration.

Turning to the distinction between passion and passive quality, the common opinion is that they differ only in extrinsic fashion and by extrinsic causes of duration. Considered in its species, the redness of shame, which quickly disappears, is of

the same kind as the redness of good health, which lasts a long time. Because passion is short-lived, Aristotle says that we are not denominated such and such on account of it; in all rigor of terms denomination implies a state and cannot result from a passing accident.

Fourth Species

It is called form (shape) and figure. 'Form' has three senses; it designates (1) the substantial form, which gives fundamental being, (2) any informing act, and (3) the convenient arrangement of quantity on account of which people are said to be well-formed and shapely.

'Figure' has two modes; it designates (1) sign, as in I Cor. 10. 11: "All things happened to them in figure" and (2) the mode resulting from the termination of quantity. This termination may be intrinsic, as when we speak of the figure of a hand considered in itself, and then it is a quality; it may be extrinsic and positional, e.g., the same hand clenched and the same hand opened show diverse positional figures. The latter kind of figure may change—and may even be entirely removed, as it is from the body of Christ in the Holy Eucharist—without any change in the first.

In the present connection, figure is taken in the second way, and form in the third. According to the common opinion, their difference is but accidental. 'Figure' expresses the termination or mode of quantity considered abstractly and almost mathematically. 'Form' conveys, further, the notion that the termination of quantity observes the convenient proportions and, as it were, the requirements of beauty. It does not abstract from sense qualities, but, rather, is modified by them; a figure formed or conceived with proportions is called a form; it is found more properly in works of art [than in things of nature]; the 'figure' of a house or of a tower is called a form. On this, see St. Thomas *Ph.* 7. les. 5. Leonine 1-5.

Co-ordination of the Category of Quality

The supreme genus is quality. It is divided immediately into four genera which are habitus and disposition, capacity and incapacity, passion and passive quality, shape and figure. Each of

these genera is divided into various species, the determination of which in the respective genera cannot be effected here.

The only thing to be pointed out is that the last two genera comprise only corporeal qualities. The third species is caused by alteration or causes alteration in primary and essential fashion. Shape and figure result from the termination of quantity.

In the first two genera, there are both corporeal and spiritual qualities. Habitus can be divided into operative and nonoperative; nonoperative habitus into corporeal, as beauty and health, and spiritual, as grace. Operative habitus can be divided, likewise, into sensible and spiritual; sensible into the various habitus of the sense appetite, such as temperance, courage, etc.; spiritual into intellectual and moral; intellectual into five species, viz., wisdom, science, understanding, prudence, and art; moral into good and bad; bad (if it is truly a habitus) into all the genera of vices; good into all the genera of moral virtues, e.g., justice, religion, piety, to which the corresponding supernatural virtues should be added.

Capacity is divided into active and passive; active into incorporeal and corporeal; corporeal embraces vital powers and nonvital powers, vital embraces sentient powers, vegetative powers, etc; vegetative powers are nutritive, generative, etc. Sentient powers embrace internal senses, external senses, and the sense appetite. Incorporeal powers comprise will and intellect and reductively the supernatural power called character. Some would reduce to this genus the impressed ideas, which perfect the power of knowing. But impressed ideas do not procure a power of operation; rather, they accomplish the disposition of the knowing power in relation to the object; when they are permanent, they fall under habitus. See i-ii. 50. 5 and 6.

V

On Signs,

Cognitions, and Concepts

QUESTION 21

ON THE SIGN CONSIDERED IN ITSELF

ARTICLE 1

WHETHER THE SIGN BELONGS TO THE GENUS OF RELATION

The sign was defined in the *Short Treatises* (Bk. I. chap. 4) as "that which represents something other than itself to a cognitive power." This definition is phrased in such broad terms as to embrace all genera of signs, both formal and instrumental.[1] The ordinary definition, borrowed from St. Augustine *(On Christian Doctrine,* ii. chap. 1. n. 1 [Migne P. L. 34. 35] and generally mentioned by theologians in their explanation of the beginning of *Sent.* iv, applies only to the instrumental sign: "A sign is that which, over and above the impression that it produces in the sense, causes something to be known."

In our definition, the sign in general consists of two intelligible components. The first is the notion of a thing *manifestative* or *representative,* the second is a relation to *(a)* the thing represented, which must be different from the sign, for nothing is a sign of itself—nothing signifies itself—and *(b)* the power to which the sign manifests and represents a thing distinct from itself.

Let it be pointed out, first of all, that the manifestative, considered as such, does not express a relation. (1) A thing can be manifestative of itself, in other words, can manifest without reference to anything distinct from itself. For instance, light manifests itself, an object represents itself so as to be seen, etc. (2)

A thing *(a)* can be manifestative of another thing *(b)* without *a* depending upon it *(b)*, nay, with dependence of *b* upon *a*. Thus, the principles manifest the conclusion, light manifests colors, and, according to the best theologians (i. 12 and 14), God clearly seen manifests the creatures. In all these cases, the illustration and the manifestation of the other are effected without dependence of the manifestative upon the manifested or subordination of the former to the latter.

But what manifests *in the capacity of sign* implies *(a)* a relation to something else for, even though a thing can represent itself, nothing is a sign of itself, and *(b)* dependence upon the thing signified, for the sign is always *less* than the signified and depends upon the latter as upon a measure.

We propose to determine whether the formal notion of the sign consists, primarily and essentially, *(a)* in a relation according to existence or *(b)* in a relation according to expression or *(c)* in a thing absolute which would ground the relation that the sign implies.

We have studied, under *Relation* (question 17) the relation according to expression, the relation according to existence, the transcendental relation, and the predicamental relation. We speak, here, of the relation according to existence, not of the predicamental relation; for the sign in general, with which we are concerned, includes not only the natural sign but also the conventional one, which is a being of reason. Thus, the relation we speak of here cannot be a predicamental being and cannot be a predicamental relation, although it can be a relation according to existence. Recall St. Thomas' doctrine (i. 28. 1, explained in our question 17), that pure relations alone comprise both real relations and relations of reason. [2] The relation of reason is obviously not a predicamental relation, but it is called relation according to existence because it is purely relative and does not involve anything absolute.

Some authors consider that the essence of the sign in general does not consist in a pure relation to the thing signified and to the cognitive power, but in a mixed relation, viz., in an absolute thing which would ground a relation to the thing signified and to the cognitive power. They describe as the essence of the sign the property of leading knowledge to something else. This prop-

erty seems to be the foundation of the sign; St. Thomas says (*Com. on the Sent.* iv. dist. 4. q. 1. a. 1) that the sign involved in the sacramental character is founded upon something, because the sign, over and above the impression that it produces in the senses, causes something else to be present in knowledge. Thus, the sign would not consist formally in a relation but in the foundation of a relation. The thing leading to the knowledge of something else is itself identical with the representative or the manifestative, understood not in all its amplitude—i.e., as including also the representation of a thing by itself—but as restricted to what manifests something else than itself. The manifestative, so understood, refers to the cognitive power in the same way as does the object itself; more precisely, its reference to the cognitive power belongs to the same order and follows the same line as that of the object. An object consists neither in a predicamental relation to a power nor in dependence upon a power.

Thesis. The essence of the sign, considered formally, does not consist in a relation according to expression but in a relation according to existence.

I say "considered formally," for the sign considered materially and in its presuppositions implies the notion of a thing which manifests and represents another thing; such a notion involves more than a pure relation, as we soon shall see. Thus, it is impossible to reduce the notion of sign, formally considered, to that of a thing representing another thing. Many things represent or manifest, but not in the capacity of signs, things other than themselves. God represents creatures and every cause its effects; the principles manifest the conclusions, and light manifests colors, yet none of these has the character of a sign. True, a sign is necessarily a thing that represents another thing, but it does not consist in this trait alone. Over and above the property of representing, a sign implies a trait of its own. Formally considered, a sign is a thing which represents something else *in a defective manner, dependently* upon the thing signified and by acting, so to say, as the *substitute* of the thing signified. It regards the signified not only as a thing that it manifests and illuminates but also as the principal object to be known. The signified is the measure of the sign. The sign substitutes for the signified. In conveying the signified to the cognitive power, the

sign plays the part of the signified.

We declared in the thesis that the sign consists in a relation according to existence, without deciding whether this relation is real or not; this point will be discussed in the following article. We use the word common to both kinds of relation; we do not speak determinately of real relation or of relation of reason.

So specified, our conclusion is derived from the doctrine of St. Thomas, who says that the sign belongs to the genus of the relation founded upon something else. A relation founded upon something else is a relation according to existence, and if it is real, it belongs to the category of relation. Thus, the sign consists in a relation according to existence.

The consequence is valid. The minor is derived from this statement of St. Thomas (*Com. to Annibald* iv. dist. 4. q. 1. a. 1.): ". . .relation is a thing of such nature that it is always founded upon some other genus of being." The relation "founded upon something else" is contradistinguished from the other genera of being on which it can be founded. Consequently it differs from the transcendental relation and the relation according to expression, for these relations are not distinguished from the other genera of being; they are not pure relations but absolute entities related to, or dependent upon, something else. (See question 17, On Relation.) Thus, the relation founded upon another genus of being is always a pure relation, and if it is real, it will be predicamental.

A clear proof of the major is found in St. Thomas. See *Com. to Annibald* iv. dist. 4. q. 1. a. 1; *Com. on the Sent.* iv. dist. 4. q. 1. a. 1; iii. 63. 2 ad 3. In the last text, he phrases the following objection: the sign belongs to the genus of relation; therefore the sacramental character belongs to the genus of relation, since it is a sign. His answer is that a sign implies a relation founded upon something distinct from itself; since the relation of sign involved in the sacramental character cannot be founded immediately upon the essence of the soul, it must be founded upon some superadded quality: antecedently to its being a sign, the sacramental character is this quality. Thus St. Thomas holds that the relation of sign is a relation founded upon something else. If sign were only a mixed or transcendental relation, St. Thomas would not deny that the sacramental character consists in such a

relation, for a quality may well be a mixed relation; e.g., science is relative to its object and every act or habitus is relative to that by which it is specified. Since St. Thomas places the sacramental character in quality and excludes it from relation, he certainly excludes it from the predicamental relation and the relation according to existence, in other words, from the category of relation. To place it in the category of quality does not suffice to exclude it from the mixed relation, since mixed relations are found in the category of quality. Now, St. Thomas places the essence of the sign in the very same relation from which he excludes the sacramental character. Thus it is clear that for him the essence of the sign consists in a relation according to existence, more precisely in a predicamental relation.

This thesis is founded upon the very nature and quiddity of sign. Again, the essence of the sign does not consist only in the property of representing and manifesting something different from itself, but also in a particular way of manifesting, characterized by the inferiority of that which represents to that which is represented, the former being related to the latter as the less important to the more important, the measured to its measure, the substitute and the vicarious agent to that for which it substitutes and acts vicariously. Now, the relation of measured to measure, and of substitute to what is substituted for, is a predicamental relation. Thus the relation of sign to signified is predicamental.

The minor is plain, for the relation of measured to measure is a relation of the third genus in the category of relation. (See question 17.) The major also is clear, for the relation of sign as sign regards directly the signified as the principal thing to be known, and as the thing to the knowledge of which the sign leads the cognitive power. The function of the sign is to act as an intermediary and to substitute for the signified which it is supposed to manifest to the cognitive power. A sign is rendered necessary by the fact that the thing does not disclose itself directly, but only through such an intermediary. If the thing suffices to manifest itself, the *raison d'être* and the function of the sign disappear. Thus, a sign is related to the signified as a thing that substitutes for the signified, ministers to it, acts for it, and is measured by it. The closer a sign stands to the signified, the better it signifies. True, inasmuch as a sign is connected with the signified

and manifests it in virtue of its own [i.e., the sign's] nature, there is a transcendental relation of the sign to the signified; but this transcendental relation, though necessary, does not suffice to account for the properties of the sign. The son is the effect of the father and, considered as an effect, is transcendentally related to him. Yet if the son is considered as son, viz., as a being characterized by resemblance with another being from which it proceeds, the relation is not transcendental but predicamental and according to existence. Likewise, the sign is transcendentally related to the signified inasmuch as it manifests it and represents it. But inasmuch as the sign has the character of a thing that is measured by the signified, substitutes for it, and, so to say, serves it as a being of greater importance, the sign's relation to the signified is a pure relation.

At this point, it is easy to perceive the difference between the manifestative and the significative. The cognitive power is what the manifestative regards principally; it is the term toward which the manifestative tends and the subject that the manifestative moves. Likewise, the act of representing *a* to *b* implies that *a* is rendered present to *b* in the capacity of knowable object; for St. Thomas *(On Truth* 7.5 ad 2), the conditions of such a presence are satisfied if *b* contains a resemblance of *a*. Now a thing may contain the resemblance of another without there being any pure relation between the two. (1) Containing a resemblance may be an absolute perfection, free from all dependence upon the thing represented. God represents creatures in his ideas. (2) The property of containing a resemblance may be preserved and possessed in act even when there exists no term and consequently no predicamental relation, as in the representation of a thing future or past. (3) Lastly, consider that representation concerns the motion of the power to which the object is rendered present. From this, it follows that 'being represented' belongs to the object essentially and directly. Now, the object does not consist in a pure relation to the cognitive power; on the contrary, if we speak properly, we must say that the object does not regard the power and does not depend upon it. It is the power which depends upon the object inasmuch as the object specifies the power. Representing and manifesting do not, therefore, consist in pure relations.

'To signify' or 'to be significative' is understood in relation

to the signified for which the sign substitutes and whose role it plays as the intermediary by which the signified is conveyed to the power. The sign is the servant of the signified inasmuch as it carries it and presents it to the cognitive power as the main thing to be represented. If a man is the servant and deputy of another person, we can distinguish in him two features, viz., *(a)* his subjection to the person in whose name he acts, as to the more important person, and *(b)* the work for which he acts as servant and deputy. It is true that in the act of representation the sign regards the cognitive power; in this act the purpose of the sign is to manifest the signified to the power; such is the effect that it is destined to produce and for which it is used; so considered—i.e., as related to the power—the sign does not consist in a pure relation. But if the sign is considered in its subordination to the signified, viz., as a thing referred to the signified as to a being of greater importance and the measure of its own entity, it must necessarily consist in a relation to the signified, just as the servant implies a relation to his master and the minister or instrument to the principal cause.

Objection. A sign does not regard the thing to be signified as a pure term, but as the object of its signification; thus a sign does not consist in a pure relation, but in a transcendental one; likewise the intellectual power and the scientific habitus are [transcendentally] related to the object, and yet the object measures both science and the intellectual power.

Answer. The intellect and science regard their object as the matter with which they are conversant. On the contrary, the sign behaves as the substitute of the signified, plays the role of the signified, and acts as its proxy in representing things to the intellect. Since the sign implies *directly* such substitution and vicariousness, it is formally something relative to that for which it substitutes. Intellect and science do not imply the same kind of relation to the object. They have the character or principles and powers which, in their operation, are conversant with something; to speak properly, this character does not pertain to relation. To act is not the function of a relation, but to be subject and to substitute are functions of relation. Science and intellect, and act and habitus regard the object as their measure in a fundamental sense, but they are not formally relative to it. On the

contrary, a sign is formally a thing subordinated to the signified, inferior to it, and destined to play its part. This is what St. Thomas means when he says (i. 13. 7 ad 1) that "...some relative terms—e.g., master and servant, father and son, etc.—are meant to signify the relations themselves; these are said to be relatives according to existence. Other relative terms are meant to signify things of such nature that relations follow upon them—e.g., mover and moved, head and headed—these are relatives according to expression." 'Science' and 'intellect' signify realities and principles upon which there follow relations to definite objects; but 'sign' expresses directly a relation to the signified to which it is subordinated as a substitute to that for which it substitutes.

It is now easy to understand the distinction between the power—or the light, which is a virtue of the power—and the idea. Both are concerned with the object but, whereas the idea is related to the object in the capacity of proxy and as a thing which, so to say, contains it by substituting for it, the virtue of the power *tends* toward the object to be apprehended. The relation of the power to the object must be characterized in terms of acquisition and tendency; it is the kind of relation which obtains between the principle of motion and its term. But the idea must have with the object the proportion implied in the notion of substitute and proxy. Thus, if the sign is to play perfectly and adequately the part of vicar for the object, complete commensuration between them in representative being is required. Because of this necessity, a corporeal representation cannot be the idea of a spiritual object, and a created representation cannot be the idea of an uncreated object. If the representation is uncreated, the entity of the idea must be uncreated also.

Objections and Answers

The main argument of the opposite theory is that a sign may signify, in formal fashion, a thing that does not exist. For instance, the hoofprint of an ox may signify an ox that is no longer alive, and a painting may signify a dead emperor. These are signs in a formal sense. From act to power, the inference holds, and it is safe to say: "It signifies, therefore it is a sign."

However, such signs are not relations in a formal sense, for there cannot be a predicamental relation to a nonexisting term. It seems, therefore, that the sign does not consist formally in a relation.

Confirmation. The essence of the sign entirely consists in being genuinely and formally that which leads the power to the signified. Now the proper intermediary, in leading a power to the signified object, is not a relation but rather a proportion and a connection between the sign and the signified. This proportion and this connection constitute the foundation of a relation. Therefore the sign consists formally not in a relation but in the foundation of a relation. The *major* results from the definition of the sign: if a sign is "that which represents something to a knowing power," it is that which leads the power to the signified. *Proof of the minor.* In order that a sign should represent something to me, it is not necessary that I know the relation implied in it. An ignorant peasant knows an animal from its track without thinking of the relation involved. Animals use signs, as we shall see later (art. 6), yet they do not perceive any relation, and all they know of the signified is apprehended in the sign itself. If it is possible to apprehend the object without knowing the relation, we must conclude that what leads the power to the object is not the relation itself. Thus, the formal essence of the sign is not constituted by a relation.

Answer. This argument is entirely invalid in the theory of those who hold that the relation of signification is always a relation of reason, even in the case of natural signs. (They consider that the relation of signification is founded upon the knowability of the sign.) If, on the other hand, it is granted that the relation of signification is real in the case of the natural sign, the answer is that after the death of the emperor his picture is not a sign in a formal sense, but only virtually and fundamentally. Now, it is not by virtue of its relation that the sign moves the cognitive power, it is by virtue of the foundation of its relation. Likewise, the father does not generate by virtue of a relation, but by virtue of the generative power; yet, as father, he consists formally in a relation.

In the proof: "whatever signifies formally, i.e., in act, is formally a sign," we deny the consequence unhesitatingly, for, in

order to signify actually, a thing needs only to be a sign virtually. To explain: *A* causes and produces an effect in act, therefore it is really a cause in act. Now, a cause that no longer exists in its own right can still exert its causality through the power left behind it. Moreover, this causality is exerted formally, since an effect is produced in a formal sense.

Suppose, then, a sign and a signification existing virtually: the cognitive power is led formally to the signified and yet the sign does not exist formally, but in virtual and fundamental manner. Since it is in the capacity of thing representative that the sign effects the motion of the power, it still can act as substitute of the signified after the relation has disappeared. The ability to move the power remains. Likewise, the servant and the minister can still discharge their instrumental functions after the death of their master. Yet the essence of the servant or minister consists formally in a relation to a master.

With regard to the *confirmation*, let it be said that the notion of 'a thing which leads the power to its object' comprises two features: *(a)* the ability to, or property of, leading the power to its object through the exercise of representation and *(b)* the relation of subjection to, and of substitution for, that for which this thing substitutes. Likewise, the notion of master comprises *(a)* the power of governing or constraining his subjects and *(b)* a relation to them; in the servant, there is the capacity to obey and a relation of subjection. Consider, now, the power of leading the cognitive faculty to its object by way of representation: we grant that such power is not a pure relation, it is a proportion and a connection between the sign and the signified. This proportion and connection constitute the foundation of a relation. But the formal essence of the sign is not a proportion or a representation. The sign is subservient to the signified, substitutes for it, and consists formally in the relation of representative substitution. Likewise, to be servant or to be master is a relation in a formal sense; yet the right to obligate and the duty to obey are not pure relations.

Second objection. The sign consists formally in ability to lead the knowing power to the signified. By reason of this ability, the sign is possessed of signification (signification is the form of the sign) and deserves to be defined as "that which represents to

a cognitive power something distinct from itself." But it is by reason of a transcendental relation that the sign, in the capacity of intermediary and instrument, can lead a cognitive power to the signified. Thus, the sign consists formally in such a transcendental relation.

Proof of the minor. That which enables the sign to act as intermediary in leading the power to the signified is nothing else than that by which it is able to manifest the signified to the power. Now, it is not in virtue of a predicamental relation but in virtue of a transcendental relation that the sign possesses the latter ability, for as soon as one knows the transcendental relation of cause or effect or image or any connection between two things, the term is attained immediately.[3] The transcendental relation accounts fully for the function of leading or being able to lead to the signified; therefore a predicamental relation is not necessary. It would be irrelevant to say that this transcendental relation is the foundation of the relation of sign, for what possesses a property in merely fundamental manner cannot produce the corresponding effect in formal manner. Thus the generative power cannot constitute the father formally, and the quality does not constitute the similar formally, although they [i.e., the generative power and the quality] are the foundations of these relations [i.e., fatherhood and resemblance.] If the transcendental relation merely grounds the relation of sign, it does not bring about formally the formal effect of the sign or its exercise.

Confirmation. It is absurd to say that conventional signs do not remain signs formally when they do not actually refer to the signified. When a book is closed, nobody knows the particular signs or letters contained in it; they do not have in act the relation of signification, since a relation of reason depends upon actual knowledge. Thus the sign cannot consist formally in a pure relation.

Proof of the antecedent. The sign, in a closed book, retains its intended function, therefore it retains also its signification, which can be actualized by opening the book; since it actually retains its signification, it is a sign formally and in act.

Answer. This argument does not prove more than the preceding one. We say that a sign is essentially a thing capable of leading the mind to the knowledge of the signified; this ability,

however, in so far as it pertains to the sign as such, implies the character of a thing subjected to the signified, substituting for it, and inferior to it. Thus there are two things to consider in a sign, viz., (*a*) the force which moves the power and *(b)* the relation of substitution for the thing in lieu of which it moves. The first is a transcendental relation, the second a predicamental one. The sigr consists in the second, not in the first, for the first, viz., the manifestation of the other, belongs also to things that are not signs. We say that light manifests colors, that the object represents itself, that God represents creatures. When an effect is seen, the cause is known, and when an image is seen the model is known; yet the formal essence of the sign is not expressed, unless we include the particular relation of representation by substitution, etc. But then we are describing a pure relation.

In reference to the supporting proof, let it be said that the foundation of the sign does not formally constitute the essence of the sign so far as subjection and substitution are formally concerned; yet it does constitute the sign so far as the ability to move is concerned. Likewise, the generative power in the father constitutes the ability to generate but does not constitute the formal relation of fatherhood, which consists in a principle that causes resemblance and has authority over the son.

Answer to the confirmation. Opinions are divided on the present issue so far as conventional signs are concerned. The reason for this division is that in things which signify by convention the relation of sign (if there is any) is not real, but is a relation of reason. On this, there is universal agreement.

Some think that the relation of reason not only denominates [its subject] but also enjoys some sort of existence—at least an imperfect and inchoative one—by [participation in] the existence of its foundation. Consequently, the relation of reason would be able to exercise denomination prior to its being apprehended in act. This view fails to solve two difficulties. (1) Assuming that such [imperfect and inchoative] existence is granted, it would not account for the complete exercise of a denomination: the denomination allowed would be inchoative and imperfect. Thus in the case of a closed book or of a word uttered without anybody actually apprehending its relation [to the thing signified], there would not be sign in the full sense of the term, but only in inchoative

and imperfect fashion. The character of sign would not be brought forth completely until the relation is actually apprehended. The difficulty which prompted this solution remains unsolved. How can a sign written in a closed book or voiced but not grasped in its relation signify perfectly and lead the knower to the signified? The word 'man' does not represent less perfectly what it signifies if its relation is not perceived than if it is, for when this relation is not perceived the word retains, nevertheless, its sense and complete signification. Thus, prior to the perception of the relation, a word is a sign perfectly and fully, not inchoatively, for it signifies and is a sign as perfectly as when the relation is actually perceived. (2) This imperfect and inchoative existence either is merely fundamental and virtual with regard to the sign, or also actual. If it is merely fundamental, the sign itself does not exist formally; its foundation alone exists. If it is actual, it is hard to see how real existence, which is that of a foundation, renders actually existent, prior to actual apprehension, what is but a being of reason and has no existence except an objective one. If such were the case, the relation of sign—in the conventional sign—would not be a pure being of reason, since it would be capable of a real existence, although imperfect and inchoative.

Others consider that there is sign in a formal sense even prior to the formal existence of the relation of sign. Still *others* speak of a sign understood in a merely moral way; they say that the meaning persists morally. Whether this means that the sign exists in act or not is not clear. The adverb 'morally' weakens the meaning of the expression 'in act'; it is as if one said 'in act fundamentally' or 'in act virtually'; this 'morality' of the lasting meaning cannot be anything else than a foundation of relation.

Therefore it should be said unqualifiedly that the import of a thing, in other words, its destination as sign of such and such another thing, is merely the foundation of the relation of sign. This import or destination establishes a connection between the two and a subordination of the one to the other in such a way that the former should signify the latter, not naturally but as an effect of human decision. Likewise, the abstraction of a nature is the foundation of universality. Just as a natural sign signifies by reason of its foundation, even if there is no actual relation of sign to signified (because the signified does not exist, as in the case

of the dead emperor), so the spoken or written word, even if its relation to the signified is not actually conceived and does not exist in a concept, still signifies and represents by reason of the meaning that it once was given. The sheer fact that a word has been given meaning does not cause it to be a sign formally, but causes the proximate foundation of its being a sign. (On this, see the following question, art. 5). In those things relative according to relations of reason, there is nothing absurd about saying that the formal existence of a certain form and the formal denomination resulting from such existence cease, when actual cognition of the form ceases, and reappear as soon as there is again actual cognition. The fundamental denomination holds at all times. Likewise, in the case of the universal, the fundamental denomination of 'universal' remains as an effect of abstraction alone even when there is not, in act, any comparison or relation. The metaphysical universal is still there when the logical universal is suspended. Likewise, the conventional sign, when the relation is not actually known, remains morally, fundamentally, and, as it were, metaphysically a sign; in other words, it remains a sign by virtue of its being related to the effect of the representation, not formally and, as it were, logically, but with regard to the intention of the relation.

Further objection. This passive imposition of meaning does not produce anything real in the sign; therefore, it does not give a thing the ability to move a power or to lead it to the signified object; a power cannot be moved by what is nothing; the moving object actuates and perfects the power, but this cannot be done by this imposition of meaning. Thus it does not remain, even fundamentally, a sign, i.e., a moving and representing force.

Answer. If these views were valid, they would also hold in the case of a conventional sign existing in act and completely, for, under all circumstances, a conventional sign is an entity of reason. And thus we say that the conventional sign moves [the cognitive power] in virtue of the meaning imposed upon it. It does not exercise any motion on the basis of its own knowability or in virtue of its own being. As in the case of the other unreal beings, all it does is done mediately and in virtue of something else. *To conclude:* it is in virtue of the knowability gratuitously given to it that the conventional sign is capable of moving and

representing as well as of being known.

Third objection. The genus of the sign is constituted by the notion of the representative and by the notion of an intermediary knowable object—an ultimate object would be the signified itself. Now the concept of 'representative' and that of 'object' are constituted, not by pure relations, but by mixed ones. Moreover, the formality of the knowable as such is not being in a formal sense, it only presupposes being. This formality is a property of being and hence is not a determinate form of being, as relation is. The sign cannot be what its genus is not.

The consequence is plain, for if the genus does not fall under the relative, how could the species belong to the category of relation? The *minor* is granted by us. The *major* follows from the definition of the sign, viz., "...that which represents to a power of knowledge...." Thus, the character of thing representative and that of object—i.e., of thing knowable—belong to the sign in essential manner. A sign cannot lead the mind to the knowledge of the signified without standing as an object in front of a power and representing itself to this power. Thus, 'representative' is predicable of sign essentially. But it cannot be predicated of sign as species or difference, since it belongs also to other things; therefore, it is predicated of sign as genus.

Confirmation. The sign *in general* cannot consist in a relation; therefore the sign, considered absolutely, is not a relation. The antecedent can be proved in two ways. (1) Signs are either formal or instrumental; the formal sign is not a relation but a quality since it is a cognition or a concept, as we shall see later. (2) Signs are either conventional or natural; now, if we assume that the relation involved in the natural sign is real, the only relation common to these two kinds of sign is indeterminately real or of reason; but the relation of sign is more determinate and restricted than a relation so broadly defined as to abstract both from reality and from nonreality. If the sign in general expressed a pure relation, it would have to be placed determinately in a member of the division, viz., in the genus of real relation or in that of the relation of reason.

Answer. The representative is not the genus of the sign but its foundation; likewise, the generative is the foundation of fatherhood, not its genus. Moreover, if the representative is

conceived without additional specification, it is but a remote foundation of the sign. The proximate foundation of the sign is a particular kind of representative, viz., the one which substitutes for the represented and is subordinated to it in the acts of representing and of conveying an object to a cognitive power. The sign depends essentially upon its foundation and consequently cannot be defined without mention of its foundation; this is why the definition of the sign says that it falls under relation. If the relation is one of cause to effect or one of effect to cause or one of exercise, the whole exercise of the relation is elicited by its foundation. As known, the relation according to existence admits of no act besides the act of regarding. Consider the relations of fatherhood, mastership, ministeriality, and signification: it is in virtue of the foundation of these relations that the father generates, the master commands, the minister substitutes for and acts, and the sign represents. In the sign, the character of object and of thing representable belongs primarily to the sign itself; the sign confronts the power and in the capacity of object it directly regards the power as a measure regards the thing measured. But this does not pertain to the distinctive features of the sign, which is more principally related to the signified; representation itself, in the case of the sign, is essentially subordinated to the signified. It is with the relation of *substitute for the signified* that the distinct nature of the sign begins. Inasmuch as the representative assumes the character of a substitute and thereby becomes connected with the signified, it is the foundation of this relation. Such connection is substitution understood fundamentally.

Answer to the confirmation. Cognitions and concepts are qualities in so far as they are acts, or images of objects. The relation of formal sign, in which the sign consists essentially, is founded upon such acts and images inasmuch as they substitute for objects. Likewise, St. Thomas says *(loc. cit.)* that the sacramental character is a sign in a fundamental sense: in itself it is a quality, but a quality which grounds the relation of sign. Concepts and cognitions are qualities in so far as they play the role of forms, but in so far as they play the objective role of signs they ground the relation of formal sign. (We call 'formal' the sign which represents and signifies by being the form of a cognitive power.)

With regard to the second part of the argument, let it be said that the sign in general expresses a relation more determinate than relation in general, which embraces both transcendental and pure relation. Notice that this part of the argument cannot be removed by holding, contrary to our theory, that the sign consists in a transcendental relation. How can the sign in general be a determinate being, an inferior of being as such, and yet be divided into real sign and sign of reason? If sign is a transcendental relation it will be a real relation in the case of the natural sign and a relation of reason in the case of the conventional sign; [the question remains to be answered]. This argument does not propose any special difficulty against our theory that the relation of sign is a relation according to existence. Here is our answer: there is no reason why things logically inferior should not assume an analogous concept and be divided analogously just as well as things logically superior, although within narrower limits. Inasmuch as objects are placed under an analogous concept they are not placed under a determinate and univocal member of the division of the superior, but belong analogically to both [members of this division]. A well-known example is that of the term 'wisdom.' Wisdom is a concept more determinate than being, and yet it does not designate determinately created or uncreated wisdom, but admits of division into these two, since it admits of analogous meaning. If 'wisdom' is taken univocally, it designates determinately either created or uncreated wisdom. Likewise, if the term 'man' is taken as abstracting from genuine and painted, living and dead, it is logically inferior to being, but it does not belong to any definite member of the divisions of being; it is used analogously, it is not considered determinately one and it is not determinately placed in one member of the division of being. The sign in general is divided analogously into natural sign and conventional sign, true sign and fictitious sign, real sign and sign of reason; it does not belong to any determinate division of being or of relation, but each of its inferiors belongs intrinsically to a determinate genus.

QUESTION 23

ON COGNITIONS AND CONCEPTS

ARTICLE 1

WHETHER INTUITIVE AND ABSTRACTIVE COGNITIONS ARE ESSENTIALLY DIFFERENT FORMS OF KNOWLEDGE

Let us recall the definitions proposed in the *Short Treatises* (bk. 1. chap. 3): intuitive cognition is "the cognition of a thing present," abstractive cognition "that of a thing absent." Presence and absence, here, are not taken in the intentional sense, as if 'presence' meant the union of an object with a power. Clearly, such presence cannot be lacking in any cognition, since no cognition can be elicited unless an object is united with and present to a cognitive power. What we are considering here is the cognition of a *thing* present and that of a *thing* absent; the presence and absence referred to are those which belong to things in their own order. St. Thomas says *(On Truth* 3. 3 ad 8) that the science of vision—which is the same as intuitive cognition—implies, over and above mere cognition, something that is extraneous to the genus of cognition, viz., the existence of things. Plainly, he refers to real existence, for intentional and objective existence is not extraneous to the genus of cognition. St. Thomas says also *(Com. on the Sent.* iii. dist. 14. q. 1. a. 2. sec. 2) that "an object of vision, in the proper sense of the word vision, exists outside of the seeing subject." Thus, the kind of existence that intuitive knowledge requires must be real and physical.

With regard to the problem under consideration, several theories are reported. Some authors think that the distinction between these cognitions is relative to the principle of cognition, viz., the impressed idea.[4] Sylvester of Ferrara *(On C. G.* ii. 66) refers to authors who say that intuitive cognition is effected without an intelligible idea, whereas abstractive cognition would require the mediation of an idea.

This opinion must be absolutely rejected, for no cognition can be elicited without an idea. Every cognition depends upon an object and a power; the object, no matter how closely present in

its own reality, cannot inform the power intentionally without the mediation of an idea. The only exception is the case of an object possessing in its own reality an intentional and spiritual being actually united with the cognitive power.

For *others,* whereas intuitive cognition attains things through proper ideas, the ideas used by abstractive cognition are extraneous. It is also held that intuitive and abstractive cognition can be distinguished by their relation to evidence, for intuitive cognition is always evident, inasmuch as it is knowledge of a thing in its own reality, whereas abstractive cognition can be obscure as well as evident. When abstractive cognition happens to be evident, its evidence is not that of a thing immediately attained in itself. It is only the kind of evidence that a thing admits of when it is known through its causes, its principles, a resemblance or image, and, more generally, through another thing in which it is contained, regardless of whether it is present or not.

For *others* the distinction between intuitive and abstractive cognition is relative to the *term* of cognition, i.e., to the object precisely considered as that which terminates the act of knowing. According to the definitions proposed in the foregoing, one kind of cognition is said to be of things absent, the other of things present. This theory is the most commonly received among Thomists. Distinctions between proper and extraneous ideas, between the thing attained in itself and the thing attained in something else, between obscurity and clarity are not derived from formalities proper to the intuitive and abstractive considered in their essences. A cognition attaining its object mediately or in something else may still be intuitive. A cognition as clear and evident as an intuition may still be abstractive. Likewise, the essential features of the abstractive may still be preserved when cognition and idea are immediate.

The first point is well established, since future creatures are seen in the divine essence as in an idea not their own: yet God sees them intuitively. This vision of future things is also a mediate cognition and a cognition *in* something distinct from the known object. Likewise, the angel can see intuitively, through its own essence acting as an idea, the accidents that inhere in him; again, he can see, through an idea representing another substance, the accidents present in the latter. *Further:* in the theory

of St. Thomas, the intellect has no direct idea of individual things, yet it is able to know corporeal individuals intuitively when they are present in virtue of the senses. Thus, neither a proper idea nor immediate and direct knowledge are necessarily required for cognition to be intuitive.

The second point is exemplified in God himself, who knows possible creatures abstractively with as much evidence and clarity as if they were present. Likewise, God can give somebody infused knowledge of a possible quiddity outside of the Word: this quiddity will be known through its proper idea, and yet abstractively. An angel has a proper idea of a future eclipse; he knows its futurition and its existence by proper idea, yet such knowledge is abstractive. Likewise, when we remember, by a proper idea, a thing absent that we have seen, our cognition is abstractive. Even if the existence of a thing is the object with which we are concerned, cognition may remain abstractive: this is what happens when, through the effects of God, I know that God is present.

Let us conclude that these oppositions (i.e., without an idea versus with an idea, through proper ideas versus through extraneous ideas, clear versus obscure) do not account satisfactorily for the distinction between intuitive and abstractive cognitions. We must return to the consideration of the known term: one kind of cognition is terminated by a thing that is present in the proper sense, i.e., in the physical sense; the other is terminated by a thing absent.

Within this interpretation, there remain two ways of explaining the distinction of abstractive and intuitive cognitions. Each of these explanations is received by a number of Thomists. According to *some*, absence and presence are represented as distinct features and forms; now, diversity in the represented objects entails intrinsic and essential diversity in the representations; therefore intuitive and abstractive cognitions are distinguished essentially by presence and absence.

According to *others*, the difference is accidental. Their argument is derived from the consideration that intuitive and abstractive cognitions do not formally require diverse representations: one and the same object, viz., a thing known and represented in expressed act with its existence and presence can be represented

both in intuitive and in abstractive cognition. Between these two cognitions, there is only an accidental difference, resulting from diversity in the exercise of termination. If the object itself is rendered present in its own reality and if its presence itself is represented in cognition, cognition is thereby rendered intuitive. If the physical presence of the thing—by which physical presence the object terminates cognition—is suppressed without any further change in cognition and representation, cognition is rendered abstractive. This is why *some* go so far as to say that 'intuitive' and, abstractive' are merely extrinsic denominations, resulting in knowledge from the existence or absence of the thing considered in its own reality. *Others*, considering that the object terminates knowledge in different ways according as cognition is abstractive or intuitive, say that the intuitive and the abstractive are intrinsic modes of cognition; however, these modes are said not to change essentially the representation itself.

Thesis. Considered in the formality and propriety of their concepts, the intuitive and the abstractive do not diversify knowledge essentially and intrinsically, but only in accidental manner. By accident, however, i.e., through their association with a thing distinct from themselves and by reason of this thing, they may determine specifically diverse cognitions.[5] The first part of this thesis is derived from the above quoted texts (*On Truth* q. 3 and *Com. on the Sent.* iii, dist. 14. q. 1. a. 1. qcl. 2), where St. Thomas says that the science of vision, which is the same as intuitive cognition, includes, over and above the sheer essence of cognition—as realized in abstractive cognition—something that is extraneous to the genus of cognition, viz., the existence of the thing. Thus St. Thomas holds that 'intuitive' and 'abstractive' do not express essential and intrinsic differences, for the essential and intrinsic differences of cognition are not extraneous to the genus of cognition: they pertain to the order of the knowable as such. Now, if the thing superadded is external to the seeing subject and external to the genus of knowledge, this thing is accidental and extrinsic.

This thesis is based upon the consideration that 'intuitive' and 'abstractive' do not signify diversity in the formal principle of knowability. The intuitive or abstractive character of cognitions results neither from the means or factors of knowledge, nor

from its specifying principles, nor from diversity in immateriality (immateriality is the root of knowledge), nor from diversity in the formal aspect *which* causes a thing to be represented, nor from diversity in the formal aspect *under which* it is represented. Thus, 'intuitive' and 'abstractive' do not designate intelligible traits of such nature as to cause, by themselves and in virtue of their own constitution, essential diversity in the modes of cognition.

Proof of the antecedent. We shall examine at greater length, in the next article, the following question: *In what capacity* are presence and absence of special significance to the intuitive and the abstractive? Briefly, the answer is this: not as represented things, in other words, not as quasi-quiddities, but only inasmuch as they affect and modify the object in its own reality and render it co-existent or non-co-existent to knowledge. The idea which represents presence objectively, i.e., as a thing represented, can be found in abstractive cognition, as when I know that God is present to me, that the soul or the intellect are present to the body, or when we discuss about their presence; we see intuitively neither the soul nor God. The same holds for angelic ideas: they represent things, their existence, and their presence before things come to exist, and yet do not procure an intuitive vision except when things actually exist in their own right. Thus, presence and absence, taken in the capacity of things represented, do not determine in essential and direct manner the distinction of the intuitive and the abstractive: again, presence, as represented, can be found in abstractive knowledge. But, in order to cause intrinsic variation in the genus of the knowable, presence and absence must be represented, they must be knowable directly, in other words, they must constitute objects in their own right. They cannot cause such variation if their capacity is that of mere modifications of and concomitants to other objects, as we soon shall see. Therefore the formal notion of intuition is not an essential difference in the genus of the knowable.

Confirmation. Presence causes knowledge to be intuitive and absence causes knowledge to be abstractive inasmuch as presence and absence are modes of the thing knowable and represented. Thus, presence does not have the character of an object represented primarily and directly: it merely modifies the object represented. By reason of presence, cognition has for its term

an object present and co-existent to knowledge. But presence itself, as an object of representation, does not distinguish the intuitive. Again, it can be attained by abstractive knowledge. When it is attained as a thing represented, it is represented in the way proper to abstractive knowledge, i.e., after the pattern of a quiddity. Thus, in so far as presence modifies the object, it concerns intuitive knowldege, in so far as it constitutes an object, it does not. It is not, of itself, an essential difference [of knowledge], because it does not play any role on the part of the specifying principle, which is the representable object or aspect, as *aspect which* or *aspect under which;* rather, it presupposes the main represented object, of which it is a mode. Inasmuch as presence co-exists with the object terminatively—in other words, plays its role on the part of the term—it modifies the terminative function of the object, but does not constitute the form by which the object moves the knowing power. Thus, the variation undergone by knowledge, as an effect of presence or absence, is entirely accidental. It can be likened to the modification of the proper sensible by the common sensible: the white can be seen in motion or without motion, in one position or in another position. These particularities do not bring about any essential variation in the act of seeing, for the difference involved does not concern the object essentially and formally, but accidentally. Such is the way in which the modification of termination by presence or absence concerns cognition.

From this, it follows that if two cognitions differ because one regards presence as directly represented and known and the other does not, these cognitions can differ essentially on account of objects that are diverse in the very capacity of representable objects, but they do not differ only as intuitive and abstractive: they differ also by the diversity of the objects attained as quiddities and things represented.

The second part of the thesis raises no particular difficulty. Intuitiveness and abstractiveness sometimes modify knowledges that are, in other respects, distinct by species, viz., knowledges that represent diverse objects or are determined by diverse means and specifying lights. Thus there is intuition of God (in beatific vision) and abstractive knowledge of Him in faith, intuitive knowledge of Peter and abstractive knowledge of the horse. *Further:*

this essential diversity is not derived, formally and precisely, from the features proper to the intuitive and the abstractive, but from other formal aspects which determine these knowledges in the genus of the knowable. To these formal aspects, the intuitive and the abstractive are superadded as accidental and secondary features: they do not have the character of constitutive forms.

Granted that the intuitive and the abstractive are not, by themselves, essential differences of cognition, we have to determine whether they are intrinsic modes existing in cognition in such a way as to modify it really, or merely extrinsic denominations born of physical co-existence. And if they are neither of these, what are they?

Answer. Some think that the intuitive and the abstractive consist merely in extrinsic denominations, according as the object is said to be present–in other words: co-existent to knowledge–or non-co-existent to it. This opinion draws some power from the example of truth and falsehood. One and the same knowledge is said to be now true and then false by merely extrinsic denomination, according as its object, taken in itself, is or is not. Likewise, since 'intuitive' expresses the physical co-existence of the object and 'abstractive' denies such co-existence, cognition will be termed intuitive or abstractive by merely extrinsic denomination according as such co-existence is or is not a fact. This interpretation holds certainly in the case of God for in Him one and (numerically) the same cognition, which is science of mere intelligence with regard to possible objects, is rendered intuitive by merely extrinsic denomination when the thing moves from the state of possibility to the state of future and actual existence; nothing is posited in divine science itself, except an extrinsic denomination. Again: it is by purely extrinsic denomination that divine science is "science of approbation." Notice that with regard to "including a feature extraneous to the genus of cognition" St. Thomas puts on the same level the science of approbation and the science of vision. See *On Truth* 3. 3 ad 8.[6]

This theory is not devoid of probability. Nevertheless, greater probability attaches to the theory that the intuitive and the abstractive, by reason of their genus, concern cognitions intrinsically, so that when created cognition from intuitive becomes abstractive or vice versa it undergoes a real change.

The reason for this is found in the particular meaning assumed by 'physical presence' in the definition of intuitive knowledge. The proposition that intuition implies a physical presence co-existent to knowledge must be specified as follows: not just any kind of co-existence causes knowledge to be intuitive, but only a co-existence involving attention, which means that the physical co-existence of a thing is treated by intuitive knowledge as term of its tendency and modifier of its object. Now, if the character of the term changes, as an effect of attention given to the thing co-existent, an intrinsic change takes place in knowledge itself. Abstractive knowledge involves neither such attention nor such termination by co-existent presence. In this respect, there is much difference between the truth or error of a proposition and the intuitive or abstractive character of a cognition. Truth consists in conformity with the existence or nonexistence of a thing. Suppose that a person pays no attention to the existence or nonexistence of a thing but utters a judgment at variance with what the thing actually is: this person is deprived of truth, but if the thing changes and becomes such as he said it was, his judgment acquires truth without any intrinsic change in knowledge. On the other hand, intuitive vision requires more than the actual presence of the thing known; it requires that the knower be attentive to the presence of this thing, that he know it as co-existent to him and not merely as a thing represented. If such attention is lacking, there is no more intuition, even though the thing remains actually present, for its presence no longer terminates attention and cognition. God is actually present to my knowledge of him, the soul and the things of the soul are actually present, and yet I do not see them intuitively. Thus, a distinct act of attention terminated by an object precisely considered as present and co-existing modifies cognition intrinsically. However, cognition is not changed essentially, for the modification of the object is but accidental. Likewise, the modification of the proper sensible by the common sensible does not cause any essential change in cognition, even though it determines a distinct act of attention and a distinct kind of termination. To sum up: presence as co-existent *(a)* modifies the object directly, *(b)* does not specify an essentially distinct kind of knowledge, yet *(c)* concerns the act

intrinsically by determining a distinct kind of attention.

To the objection derived from the intuitive knowledge of God, this is our answer: just as an act of the divine will is both necessary, by reason of its eminence, and free by reason of its intrinsic perfection—in spite of its connoting a relation of reason to an object and an extrinsic denomination by it—so one and the same [divine] science, by reason of its eminence, is intrinsically abstractive, intuitive, and approbative; it is simultaneously practical and theoretical, efficacious and inefficacious with regard to diverse things, although it connotes a relation of reason to an object and an extrinsic denomination by an object. This science and this act [of will] do not consist in their relation of reason to the object, but without such a relation the former would not be denominated intuitive and the latter would not be denominated free. The perfections exercised in God by a single act require several acts in us because of the limitations of our nature

Objections and Answers

A *first objection* is derived from St. Thomas, i-ii, 67. 5. Faith knowledge, St. Thomas says, cannot remain identically the same in Heaven "because, when a specific difference is removed, the substance of the genus does not remain identically the same"; thus "it is impossible for one and the same knowledge, which previously was obscure, to become clear vision." St. Thomas starts from the principle that "when a specific difference is removed, the substance of the genus does not remain identically the same"; he is led to the conclusion that "it is impossible for one and the same knowledge, which previously was obscure, to become clear vision." This argumentation would be altogether inconclusive if St. Thomas did not assume that 'clear vision' is a specific difference of cognition. If the concept of intuition or vision contributes only an accidental difference, it is possible to remove it and yet to retain the whole substance of this form of knowledge.

Confirmation. Intuitive and abstractive knowledge are formally opposed to each other and exclude each other formally from any subject. Their opposition is that of the clear and the obscure with regard to the presence of the thing, for the intuitive intrin-

sically implies evident perception of the presence of the thing: the abstractive does not. By reason of this evidence and certitude, intuitive cognition excludes abstractive cognition. Their repugnance to exist in the same subject is not like that of two accidents of the same species; if it were, intuitive and abstractive cognitions would not be more opposed to each other than two intuitive cognitions or two abstractive cognitions. There is no opposition between faith and vision of glory except inasmuch as the former is abstractive and the latter intuitive.

Answer. St. Thomas speaks of plain vision and obscure knowledge: these two kinds of cognition depend upon different means and their opposition includes more than that of the intuitive and the abstractive. As already pointed out, the intuitive and the abstractive, without being essential differences of knowledge, may accompany or presuppose specifically distinct forms of knowledge and be bound together with them. This happens when they [i.e., the intuitive and the abstractive] are found in knowledges constituted by diverse means—or lights—and representations. St. Thomas explains in the most felicitous terms how obscure knowledge and plain vision are distinguished from each other by a diversity of means. See his Com. on St. Paul's *First Epistle to the Corinthians,* chap. 13, les. 4.

Answer to the confirmation. The contrast of evidence and inevidence involved in the distinction between the intuitive and the abstractive does not always affect knowledge in an essential manner. In other words, evidence and inevidence, in intuitive and abstractive cognitions, are not always derived from the formal means which constitute the specific form of knowledge. In some cases, abstractive cognition enjoys evidence with regard to the things *represented by* intuitive cognition and yet does not enjoy evidence in regard to the presence of the object *as co-existent.* Such evidence does not distinguish essentially one cognition from another, for it does not pertain to the specifying formal aspect, but to the co-existence and application of the object. This is why St. Thomas says (*Com. on the Sent.* iii. dist. 14. q. 1. a. 2. qcl. 3) that "clarity of vision is traceable to any one of three factors, viz., *(a)* the strength of the cognitive power, e.g., a person who has a good eyesight sees more clearly than a person whose eyesight is weak; *(b)* the strength of the light, e.g., one sees more

clearly in the light of the sun than in the light of the moon; (c) the conjunction or application of the object, one sees close things more clearly than faraway things. The evidence of intuitive cognition, if related to the distinctive features of intuition, proceeds exclusively from the third factor (viz., application of the object.) This clarity or evidence is accidental and extrinsic, since it derives only from the application and co-existence of a more or less neighboring presence.

As to what is said of the opposition between the intuitive and the abstractive in one and the same subject, let it be replied that they are formally opposed by a formality of accidental significance to cognition, though of essential significance to intuition as such. Likewise, it is not essential for a line to be terminated by a point, and yet a line cannot be both terminated by a point and not terminated by a point. Again, one and the same knowledge cannot be both true and false—opposition between terminations by objects makes it impossible—and yet truth and falsehood belong to knowledge accidentally. Faith and beatific vision do not differ only by intuitiveness and abstractiveness, they differ also by the diversity of their proper means, inasmuch as faith is based upon the testimony of a witness, vision upon the representation of the thing itself. In like manner, St. Paul's vision of the divine essence and the act of memory, by which he remembered having seen it, differ not only as intuitive and abstractive cognitions, but also by diversity in the means of representation. He saw God by immediate representation of God in himself, but his remembrance was exercised through a created idea representing immediately a created effect, viz., the fact of his vision of God.

Second objection. The intuitive and the abstractive differ by diversity of formal objects and by diversity of things represented. Therefore, they imply essential differences in the genus of knowledge. The consequence is plain, since formal objects are the only conceivable factors of essential distinction between knowledges, and representations are distinguished from each other by the diversity of the things represented.

Proof of the antecedent: the intuitive, as intuitive, regards the object as formally present, and it is by this formality that it differs from the abstractive. The presence of the thing is represented in intuitive knowledge, since it [i.e., presence] is known

and attained in the capacity of being known. It does not suffice that the object be present: unless its presence is also represented in cognition, there is no intuitive knowledge. For instance, there is no intuitive cognition in the case of a man who does not pay attention to the thing that passes in front of him. Think also of the other examples just cited. Thus, the intuitive does not imply, on the part of the thing known, a physical presence understood in a purely entitative and physical sense, and as a mode extraneous to the genus of cognition; what it implies is presence represented and attained cognitively.

If it is said that this presence is represented in exercise but is not a thing represented directly, two additional arguments are brought forth. The *first* is relative to the inflected forms of the noun and the verb. As we said in the *Short Treatises* (q. 2. a. 3) the concepts of these inflected forms are physically (though not categorematically) distinct from those of the direct forms. However, the difference does not stem from a diversity of things represented, but from the exercise of diverse connotation in the representation of one and the same thing. The *second* argument is relative to the formal aspect *under which*. This formal aspect is that by which one knowledge is essentially distinct from another, and yet it is not represented or attained by any direct knowledge—if it were, it would be an aspect *which*, not an aspect *under which*.

Confirmation. 'Present' and 'absent' cause essential distinction in the acts of the appetite, therefore they also cause essential distinction in acts of knowledge.

The *consequence* holds because the good and the true bear the same relation to the present and the absent. *Proof of the antecedent:* fear and sadness differ only inasmuch as the object of sadness is present evil and the object of fear absent evil. Likewise, all the difference between hope and joy is that the object of joy is present, the object of hope, absent. Thus, these acts are diversified by presence and absence alone.

Answer to the main argument. The intuitive and the abstractive are not distinguished from each other by formal objects diverse in the sort of being and formality proper to the knowable; they are distinguished by objects diverse in the sort of being and formality which befit a mere condition and an accidental mode. A trait can be formal and essential in reference to the intuitive

without being formal and essential in reference to knowledge itself. Likewise, being disintegrative of sight is essential to the white considered in its essential distinction from the black, and yet it is not essential to man. The presence and the absence of the object, assuming that 'presence' means co-existence to knowledge and application of the object [to the knowing power], are features essential to the intuitive and the abstractive, but not to cognition itself. Thus, the intuitive and the abstractive, like the white and the black, differ from each other essentially and by their definitions, yet their differences are accidental in regard to knowledge as such. Presence and absence, as referred to by intuitive and abstractive cognitions, do not determine diverse forms of knowability and immateriality. The truth is that presence, as a mode affecting the term of knowledge, determines the application of the object to the knowing power by way of physical co-existence.

In *answer* to the argument drawn from diversity in representation, let it be said that the intuitive and the abstractive, considered formally and in their proper meanings, do not differ by a diversity of things represented. So far as things represented are concerned, even abstractive cognition can represent presence; I know that God is present to me and I know with evidence, through effects, that my soul is present to me: however, I see intuitively neither God nor my soul. The representations [called intuitive and abstractive cognitions] differ neither *(a)* by the diversity of the things represented nor *(b)* by the connotation of, or a relation to, any diversity in represented content, nor *(c)* by distinct 'aspects under which' directly conducive to representation, but only by diversity in modes of termination, according as the term of knowledge involves or does not involve a presence co-existent with knowledge. Not every variation in representation is essential. No such variation is essential unless it is reducible to a diversity in the 'aspects which' or 'under which' that characterize representations. Likewise, essential diversity in external vision is not brought about by just any kind of change. If, for instance, change affects only a common sensible—e.g., if the white is seen first in motion and then at rest, first in one position and then in another, first with one shape and then with another, vision is not changed essentially but accidentally. On this see Bañez, *Com.*

on Summa theologica i. 78. 3. diff. 8.

Presence and absence, inasmuch as they imply termination of knowledge by a thing co-existent to knowledge or by a thing devoid of such co-existence, do not cause essential diversity in knowledge. But if presence and absence assume the character of things represented, they may, in the capacity of diverse objects, diversify cognitions. Again, they do not cause essential diversity in knowledge when their role is but that of conditions relative to the co-existence of the object to the cognition.

The arguments derived from the adduced examples can be answered easily. If the diverse cases of a noun express essentially distinct concepts, it is because they bear in their object diverse relations to the thing represented or diverse connotations of this thing. For instance, the thing happens to be represented as an agent or as a possession, as a 'which,' or as an 'of which' or as a 'to which.' These relations are understood to affect the thing represented and to be grounded upon it. What holds for cases holds, with greater force, for a diversity of 'aspects under which.' But the intuitive and the abstractive, considered in their formalities, do not express presence or absence as things representable. Again, the presence of a thing can be represented by abstractive knowledge, as when I know abstractively that God is present. Suppose an act of abstractive knowledge which does not represent presence (in the capacity of thing represented) and an act of intuitive knowledge which does represent it (again, in the capacity of thing represented): the representations with which we have to deal are essentially different, not by reason of intuitiveness and abstractiveness, but for the general reason that they represent diverse objects. The definite formalities of the intuitive and the abstractive imply neither a diversity of things represented nor a diversity of relations or connotations founded upon the thing itself: the diversity that they imply concerns the termination of knowledge and the application of the object to the act of knowledge by way of co-existence. Thus, if the intuitive and the abstractive are considered from a strictly formal standpoint, they do not cause essential variety in concepts. Likewise, motion and rest do not cause essential diversity in the vision of the white, and knowledge is not diversified essentially when it is rendered true or false by the co-existence of a real state of things.

In *answer* to the *confirmation,* acts of appetition and acts of cognition do not admit of similar interpretations, for the appetite is relative to the good and the evil, whose notions are essentially diversified by diversity in agreement and conflict. Now, agreement and conflict depend, in the most essential manner, upon the presence and absence of things. The object present causes appetite to rest, the object absent causes it to move, for the appetite has the character of an inclination and a weight. A weight behaves differently according as it is placed in the center or away from the center. Presence and absence have much to do with diversity in the formal notion of object when what is relative to the object has the character of an inclination. But knowledge attains perfection within the knowing power by drawing things to itself; therefore, what confers achievement upon knowledge always is the presence of the things *in knowable and intentional being.* Unless this presence undergoes variation, no variation affects knowledge in its essential notion. What concerns only the physical presence of the object (i.e., its being physically co-existent to knowledge or not) remains external to knowledge and has only accidental significance: it does not concern intentional presence.

Last objection. Assuming that the intuitive and the abstractive do not diversify cognitions essentially, but in merely accidental fashion, let us consider that they must be either extrinsic or intrinsic denominations. *(a)* They are not extrinsic denominations, for, if they were, a cognition numerically one and the same could be now intuitive and then abstractive, just as one and the same cognition can be now true and then false. If presence and absence are said to be related to intuitive and abstractive cognition in the same way as the common sensible to vision, this comparison clearly shows that we do not have to do with an extrinsic denomination. Tendency toward the common sensible is not an extrinsic denomination in vision. *(b)* If, on the other hand, the intuitive and the abstractive are intrinsic modes, they cannot be anything else than a tendency toward the object and a relation to the object: such tendency and such relation cause essential diversity in knowledge. Further, it is not easy to see how these modes may cause accidental diversity in the concept without diversifying representation itself in its relation to the thing represented.

Moreover, a division of knowledge that proceeds from intrinsic modes is necessarily an essential division. A distinction according to the clear and the obscure does imply essential diversity in knowledge and yet obscurity is not a formal aspect, but only an intrinsic mode of knowledge.

Finally, it is possible to adduce examples which seem to show that this distinction [i.e., of intuitive and abstractive cognition] is essential. The practical and the theoretical are essential differences, and yet the practical implies a relation to a work, which is something external to the reason. Good and evil are essential differences of human acts, and yet evil may result from an intrinsic circumstance.

Answer. The intuitive and the abstractive are accidental modes which, in the capacity of modes, pertain reductively to the genus of knowledge. They are not essential species of knowledge, and, as said, the greater probability is that they are intrinsic modes. When it is said that they constitute a relation to and a tendency toward the object, our answer is that formally and directly they cannot be identified with the very relation of knowledge to its object precisely considered as represented object. They are modifications of this relation inasmuch as they cause knowledge to tend toward the object not only as represented but also as co-existent to knowledge. The relation to the object as represented and known has the significance of a formal constitutive. The relation to the object represented as co-existent to knowledge has only the significance of a modifier. The comparison between the intuitive and the relation of the sense to the common sensible holds inasmuch as the common sensible is not what is represented primarily by sense knowledge. The common sensible is represented as modifying color, and such a modification concerns visibility in merely accidental manner. Likewise, presence does not have, in the intuitive, the character of a thing directly represented—it can be directly represented in abstractive cognition just as well—it has the character of a thing which accidentally modifies the represented object. But this accidental modification is relative to co-existence, and, at this point, the example drawn from the common sensible no longer holds.

When it is said that a division by intrinsic modes is also an essential division, let us answer that modes can be called intrin-

sic on either of two grounds: *(a)* inasmuch as they modify the constitutive formal notion, in which case they are intrinsic to the very constitution of the thing, and *(b)* inasmuch as, without modifying intrinsically the constution of the thing, they bring about a denomination which is not purely extrinsic. Division according to modes of the first genus is also an essential division, for such modes cannot change without a consequent change in the constitution which depends upon them; but a division according to modes of the second kind is accidental.

With regard to the examples, let it be said that the practical and the theoretical differ essentially because the relation to an external work originates in principles and ways of knowing different from those implied by the formal features of the theoretical. Diversity does not concern only, as in the case of the intuitive, the application of the object to knowledge and the co-existence of the object to knowledge. The formal principles themselves are diverse: in one case, they determine knowledge of the object by synthesis and, in the other case, by analysis. With regard to what is said of the difference constituting moral evil, let it be said that it is, indeed, an essential difference if the act is considered within the genus of moral reality; however, an evil moral act does not derive its essential species from a circumstance, unless a circumstance becomes a principal factor by assuming the condition of object (i-ii. 18. 10). But the intuitive and the abstractive always retain the condition of mere circumstances, for what they posit or remove is merely co-existence to knowledge.

ARTICLE 3

MEANING OF THE DIFFERENCE BETWEEN DIRECT AND REFLEX CONCEPT

Three problems must be examined in this article: (1) Is there a real distinction between reflex and direct concept, and what is the cause of the reflex concept? (2) What knowledge does the reflex concept procure, and what object does it represent? (3) Is there an essential difference between direct and reflex concept?

First problem. Some maintain that in order to know my own

concept I do not need to express it in another concept. On this, consult Sylvester of Ferrara, *Com. on C.G.* i. 53. Yet St. Thomas says explicitly (i. 87. 3 ad 2) that "the act by which the intellect understands a stone and the act by which it understands that it is understanding are two distinct acts." Since a distinct act produces a distinct concept, the reflex concept is distinct from the direct concept. St. Thomas holds the same view with greater clarity in *On the Power of God* 9. 5: "With regard to this it makes no difference whether the intellect knows itself or something else than itself. Just as, when it knows something else than itself, it forms, of the thing known, a concept which may be expressed by a word, so when it knows itself, it forms a concept of itself, which can also be expressed by a word."

Some authors find it very hard to account for the necessity of a reflex concept in the knowing of one's own concept. However, it seems that a satisfactory explanation can be easily derived from the doctrine of St. Thomas in i. 87. Let it be recalled that the intellectual power alone can reflect upon itself; the sensible power is incapable of reflection. The reasons for this difference are two. *(a)* Whereas the intellect is related to the universality of being and accordingly comprises itself within its object, the sensible power, considered in its act, is devoid of the quality that it knows; e.g., vision is not colored and consequently cannot attain itself. *(b)* A body cannot act upon itself; true, one part of a body can act upon another part of the same body, but part of an organ does not suffice to elicit cognition. On this, see St. Thomas, *Com. on the Sent.* ii. dist. 19. q. 1. a 1; iii. dist. 23. q. 1. a. 2 ad 3, and our own Treatise on the Soul, q. 4.

Thus, in intellectual powers, reflection is entirely traceable to the fact that our intellect and its act, in this life, are not objectively intelligible except in dependence upon sense experience data. A concept which is present formally is not present objectively so long as it is not fashioned after the pattern of a sensible quiddity. But such a fashioning can be effected only by a reflective process using the sense object as point of departure. In angels, i.e., in separate substances, a reflex concept is not necessary. Pure spirits know their substance directly, and they know their intellect and whatever there is in them as accidents of their own substance. They are able to attain all these accidents in

the idea by which they know their own substance. They do not know themselves reflectively, therefore they do not know reflectively their own concept. Their concept, from the first instant of its production, is as intelligible to the separate intellect as the separate substance itself.

The principle which commands the whole issue is that things are knowable in so far as they are actual. (See St. Thomas, i. 87.) Now, an intellectual operation is not, like a transitive action, an act by which an agent dedicates itself to the perfection of another subject: rather, it is the ultimate perfection of the intellect. Thus, the act of understanding is that which is primarily understood by the intellect [in intellectual self-knowledge]; it is the most actual determination of the intellect, consequently the most primarily and perfectly intelligible. Now, diverse intellects are diversely related to their own acts of knowing. There is an intellect, viz., that of God, which *is* its own act of knowing; for God, to know that he knows is the same as to know his essence, since his essence is his act of knowing. In the angel, intellect and knowing are not identical, but the first object attained by the act of knowing is the essence of the knower. Though the angel's knowledge of his own knowledge and his knowledge of his own essence are intelligibly diverse, it is at the same time and by the same act that he knows both, for the act of knowing his own essence is the proper perfection of his own essence. An act which attains the proper perfection of a thing attains also the thing itself. The intellect of man is not its act of knowing, and its primary object is not its essence but an extrinsic object, viz., the nature of the material thing. Thus, the human intellect knows primarily the material things; in the second place, there is knowledge of the act by which the object is known; then, through the act, there is knowledge of the intellect itself, whose perfection is the act of understanding. This is how St. Thomas treats the question.

At this point, it is easy to see that the reflection of the concept upon the act and power of understanding is entirely traceable to the objective requirements of the [human] intellect. Concept and cognition are formally present to the intellectual power without being present to it objectively; now, as Cajetan remarks in such felicitous terms (*Com. on Summa theologica* i. 87), formal

presence does not suffice to render a thing directly knowable: objective presence is required. But a thing cannot be present objectively to a power without taking on the conditions proper to the object of such a power. Since the proper object of our intellect is the quiddity of the material thing considered in itself, a thing is not directly present to our intellect, in objective fashion, unless it is the quiddity of a material thing. In order that concepts and intellectual acts take on the conditions proper to such a quiddity, reflection is necessary. Our concepts are intelligible in themselves, but they are not, in themselves, intelligible after the pattern of a material quiddity. They are not capable of objective presence, in primary and direct fashion, until they have been conditioned according to such a pattern. The sensible object alone can supply the conditions needed. Within the intellect, acts and concepts receive from the external object—known directly—the conditions without which they cannot achieve objective presence. Accordingly, they are said to be known reflectively and to be reflectively rendered intelligible by the intelligibility of the material being. Nothing of that is of any relevance in the angels or in God, who know directly and primarily their own essence and all there is in it.

If it is asked what impressed idea is used in the reflex knowledge of the concept, St. Thomas answers (*On Truth* 10. 9 ad 4 and ad 10) that the things known by reflex knowledge are known neither in their own essence nor through their own idea; we know them by knowing the object and through the idea of the things with which [things] acts and concepts are conversant. These acts and concepts call for reflection in so far as they need to be shaped after the pattern of the sensible object that the concept regards directly; therefore the idea of such an object is needed in order that the concept be shaped and known after such a pattern.

This is why St. Thomas says (*Com. on the Sent.* iii. dist. 23. q. 1. a. 2 ad 3) that "the intellect knows itself in the same way as other things, for it is not through an idea of itself, but through an idea of the object—which idea of the object is also the form of the intellect—that it knows the nature of its act; from the nature of its act, it goes down to the nature of the intellectual power; from the nature of the intellectual power, to the nature of the essence [of the soul] and, by consequence, of the other powers. Our intellect

does not possess distinct likenesses of all these things, but, in its proper object, it knows not only the truth about things but also every knowledge present in it." Here, St. Thomas shows clearly how the idea of the object serves to the knowledge of the act: the idea of the object can be used to know the act because it represents, in the object, the character of *known* object. The idea which remains in the memory does not only represent the object, it also represents the fact that it has been known; starting from the relation of *known*, the intellect comes back to knowledge itself and to its principle. The *idea* of the object can itself be attained, not in itself, but as something of the known object, through the idea of the *object*. Moreover, there is no reason why the intellect should not, afterward and separately, construct ideas of concepts, powers, and other such things in the way in which, out of antecedently conceived ideas, it constructs new ones, e.g., the idea of golden mountain out of the ideas of mountain and of gold. See St. Thomas, i. 12. 9 ad 2.

With regard to the *second problem*, two points call for explanation.

1. We must describe the material object of reflective knowledge and show what things reflective knowledge is conversant with. Briefly, this object comprises all things which *(a)* exist in the soul and *(b)* derive from the knowledge of [external] objects the aspect and mode of the sensible quiddity. Thus, by regression, the intellect achieves knowledge not only of the concept and the act but also of the habitus, the idea, the power, and the nature of the soul, as St. Thomas says in the text just quoted from the *Com. on the Sent.* The reflex concept is defined as the concept of a concept: this definition means that it is indeed the concept of all the things which contribute, within the soul, to the production of the concept. (See *Short Treatises*, bk. 1. 6.) One may also interpret this definition as meaning that the first object attained by reflection is another concept; then come the power and the soul.

2. Then we must describe the *formal aspect* with which the reflex concept is concerned. Referring to the same text of St. Thomas, let it be said—again, briefly—that the reflex concept is formally designed to know the nature of that upon which it reflects in so far as this nature can be known, through effects or

connotatively, after the pattern of sensible quiddities. True, the objects known by the reflex concept are physically present in the intellect, but they do not achieve objective presence directly. They become objectively present by resemblance with the sensible quiddity and in so far as they are connoted by the latter. Their objective presence is exercised, so to say, in something distinct from themselves. This is why, in spite of physical presence, we are not said to perceive intuitively our concepts.

Accordingly, the reflex concept, in so far as it reverts to the direct concept, represents the latter as a quality and as an image in signified act. The direct concept is represented as a thing whose essence is to be an image. The thing signified by the direct concept is not represented in the reflex concept, except in very remote fashion and obliquely. The reflex concept envisages the thing signified [by the direct concept] as the starting point of reflection; it does not represent that thing as if it were its own object and the term intended by its power of representation; it merely connotes it as the term where reflection begins. True, the reflex concept attains the direct one as an image, but the proposition that "a movement toward an image is also a movement toward the thing imagined" does not hold when the image is considered separately and in itself. (This proposition refers to the image taken in the exercise of its proper function, which consists in leading to the prototype. See Aristotle, *On Mem.* 1. $450^{b}20$ and St. Thomas, *Com. on On Mem.* les. 3. Pirotta 337-340.) In the reflex concept, there is movement in the opposite direction, viz., from the object to the image. We know the object directly, then we exercise reflection in order to know the concept which is its image. Thus, reflection leads the intellect to an image that it attains as a quiddity and in signified act. There is no reason why, through this image, it should tend toward the thing signified. However, as mentioned, the thing is attained obliquely, inasmuch as it is the point of departure of this reflective movement.

In brief answer to the last question, let it be said that the direct and the reflex, in so far as these words designate certain movements of the intellect, do not seem to imply essential differences in the genus of knowledge. Likewise, discourse and freedom from discourse do not diversify science in essential fashion if the object is the same. Yet, inasmuch as direct and reflex

concepts involve diverse representations and diverse represented objects—the direct concept is a resemblance of an object, the reflex concept is a resemblance of a concept, an act, or a power—they are, absolutely speaking, different by species, like all cognitions and representations that are conversant with diverse objects.

Objections and Answers

Against our treatment of the first problem, it is argued that the intellect knows by the same act its concept or word and the object represented in it. Likewise, the intellect is carried by the same act toward its object and toward its act. (Such is the teaching of St. Thomas, *Com. on the Sent.* i. dist. 10. q. 1. a. 5 ad 2.) Thus no reflex act is needed to know a concept and an act.

Confirmation. Concepts and acts are present and united to the intellect much more intimately than the object itself, which is united to the intellect through the means of the concept. Moreover, they are immaterial and intelligible in ultimate act; this is why concepts are described as the light by which the object is illuminated. (See St. Thomas, *Op.* 14 [*On the Nature of the Intellectual Word*]). Now, what is intelligible in ultimate act can be known without the help of another concept or intelligible form. St. Thomas says expressly (*Com. on the Sent.* ii. dist. 23. q. 2. a. 1) that the eye knows light not by means of a resemblance, but by the very essence of light. This statement appears in a context where he is distinguishing between the way in which light is seen and the way in which a stone is seen. For St. Thomas, light is not perceived through a similitude brought about in the eye, but through information of the eye by the essence of light; on the contrary, a stone is seen through a similitude of itself brought about in the eye. The same theory is in i. 56. 3. Of the impressed idea, St. Thomas is used to saying that it is knowable by itself. What holds for the impressed idea holds with greater force for the concept, which is more actual than the impressed idea.

Answer to the main argument. The proposition, "the intellectual power is carried by the same act toward its object and toward its act," is true if 'act' is considered as knowledge, not if 'act' is considered as thing known. In order for the act of knowledge to become the thing known, a reflex concept is necessary. In the

text of St. Thomas quoted by the argument, 'act of understanding' is referred to according as it is attained as knowledge of the direct object. So considered, it is attained by the very act which attains its object. The same holds for the concept or mental word; if the mental word is taken as form expressing the object at the term of knowledge, the concept and the thing represented are understood by one and the same act. This is why it is even said, occasionally, that the mental word is knows as 'that' when the object is known: it is known as placed on the side of the term *that* is known, not as placed on the side of the principle of knowledge, i.e., of that *by which* the thing is known.

An answer to the confirmation can be derived from St. Thomas (*On Truth* 10. 8 ad 4, second set of answers) and Cajetan (*Com. on Summa Theologica* i. 87. 3). The mental word or concept is present to our intellect in the capacity of form, not in the capacity of object. It is the inhering form by which the object is known but it is not, in itself, an object provided with the kind of intelligibility that our intellect requires, viz., an intelligibility patterned after that of sensible quiddities. So far as our intellect is concerned, it is, by itself, neither intelligible nor understood in act. However, in separate substances, the concept is, by itself, intelligible formally and objectively, for separate substances understand not only the sensible quiddities but anything that is purely spiritual.

As to what is said, further, about light, an answer can be derived from St. Thomas, *On Truth* 10. 8 ad 10, second set of answers. Light is not seen by its essence except in so far as it is a principle of visibility and a form giving actuality to the visible. But light such as it exists in the sun is not seen through a resemblance of itself in the eye, as a stone is seen. When St. Thomas says, in his *Com. on the Sent.* ii, that light is seen by its essence, the meaning is that light is, by reason of its own essence, the form of visibility. Because it is such a form and renders the color visible in act, it is not seen by a distinct resemblance. The only resemblance involved is the one emitted by color when it is visible in act. Concerning the impressed idea, let us say that it is knowable by itself as *that by which* [what is known is known], not as *that which* [is known], and not as a thing known. In order to be a thing known it needs a reflex concept.

Second objection. Spiritual things, i.e., God, angels, and anything that is not a material quiddity, cannot be attained by the [human] intellect unless they assume the mode proper to the sensible object. However, they are not known by reflex cognition. Therefore, the sheer fact that our concepts and acts are known after the pattern of the sensible object does not entail their being known reflectively. If they were known such as they are in themselves, they would be known directly in the way in which angels know their own acts and concepts.

Confirmation. Reflex and direct concepts are formed by distinct ideas; since concept and object are diverse things, the ideas representing them are necessarily different from each other. They do not behave like reflex and direct movements, for a reflex movement must necessarily be in continuity with a direct movement and proceed from the same principle. If two distinct movements proceed from distinct principles, the one cannot be reflex in relation to the other.

Answer. The notion of reflex concept does not imply only that a thing is known after the pattern of another thing; it implies, further, that the known belongs to the knowing principle. Then, and only then, is there regression from the object to knowledge or to the principle of knowledge. When an external object takes over the mode of another object, there is relation of the one to the other and comparison of the one with the other, but there is no reflection.

In answer to the confirmation, let us say that whether or not the concept is known by ideas distinct from the ideas of the object, it must be known reflectively, for in either case the movement of cognition originates in the object. It is by the knowledge of the object that the mind is moved to work out a cognition of the concept and ideas by which the object is known. Thus, this distinction of principles does not suppress the reflex character of cognition; it rather is conducive to it, since the principles of knowledge (i.e., ideas) are formed by a reflex movement continuous with, and derived from, the knowledge of the object.

ARTICLE 4

MEANING OF THE DISTINCTION BETWEEN ULTIMATE AND NONULTIMATE CONCEPT

'Ultimate' and 'nonultimate' are understood relatively, like 'end, and 'means.' Thus any concept *(a)* which is the term and the

end of another concept *(b)*, in such a way that the latter *(b)* is teleologically related to the former *(a)*, can be called an ultimate concept. Likewise, one operation of the intellect is teleologically related to another, the principles to the conclusion, and discourse to final judgment. In all these cases, there is an ultimate thing in which knowledge rests, and a nonultimate thing through which a tendency toward the ultimate is exercised.

But among dialecticians, who treat of names and significative sounds, ultimate and nonultimate concepts are distinguished as follows: the ultimate concept concerns the things signified, the nonultimate concept the significative sounds themselves. This remark may be of great help when there is a question of ascertaining the object of logic. Logic does not treat of the things themselves considered in their real existence, as the physicist does, but of the instruments by which things are known. Significative sounds, as properly disposed and set in order, make up most of these instruments.

From this, it can be inferred that 'ultimate' and 'nonultimate' are not, in direct and formal fashion, essential differences of concepts. Indeed, they do not concern the object as knowable object, but the relation of one concept to another concept, or that of a cognition to another cognition. When 'ultimate' and 'nonultimate' modify 'concept,' all the additional meaning that they contribute concerns relations or references to objects considered, not as knowable and specifying, but as set in order in the capacities of means and term. Now, essential differences of knowledge are derived from the object considered as mover, as principle of specification, and as knowable entity: all the rest is made of adventitious relations and connotations. However, it sometimes happens that these relations presuppose a distinction of objects that they do not constitute formally; this is how 'ultimate' and 'nonultimate,' in the sense in which these words are taken here, apply to distinct concepts, one of which concerns the thing signified, the other the signifying sound. These concepts are distinct on account of presuppositions, for they have diverse objects, but they are not distinct formally by virtue of their being ultimate and nonultimate.

Some authors say that the concept of the significative sound signifies conventionally the object of the ultimate concept. They

do not contend that the [nonultimate] concept itself is conventionally used as a sign, but they derive argument from the consideration that its object, viz., the sound, signifies by convention. This interpretation is not tenable, for the concept is a natural resemblance of the object and cannot receive from its object, in any way whatsoever, a conventional signification. True, the [nonultimate] concept signifies naturally the conventional signification of the sound. It is an image of the significative sound, and the conventional signification of the sound is not the signification exercised by the [nonultimate] concept: it belongs to the object signified by this concept.

The problem to be examined here can be formulated as follows: Does the nonultimate concept of a sound represent only the sound itself, without its signification, or does it represent both the sound and its signification?

By almost unanimous agreement, a nonultimate concept implies necessarily some relation to the signification of the word. If the word is taken nakedly, as a sound emitted by an animal, the concept, which represents it, is ultimate, for the sound is then considered as a certain thing; this is the way in which the philosophy of nature considers sounds.

Some authors say that the signification of the word is not necessarily represented by the nonultimate concept; it suffices—so they say—that this signification be exercised or be known habitually.

But truth is better approached by saying that the signification itself must be expressed in the nonultimate concept. Such concept is called nonultimate inasmuch as it serves to conceive a thing in which the mind does not rest. Again, the nonultimate concept is a means to an ulterior term. Now, signification alone can give to a word the character of a means to the thing signified. If the signification is not conceived, that by which the nonultimate concept is a means and is nonultimate is not conceived either. To say that signification is exercised would not be adequate, for it should rather be said that the word represented in the nonultimate concept does not exercise its conventional signification. All the signification exercised in this concept is natural; therefore, the conventional signification of the conceived word is not exercised but represented.

It remains to be determined *what* knowledge of this signification is required. Let it be said *(a)* that it is not necessary to attain the very essence of the conventional signification and meaning, *(b)* that knowledge of the signification as a fact suffices, and *(c)* that the habitual knowledge of the signification or meaning is far from sufficient. Habitual knowledge is merely knowledge in initial act. Clearly, if knowledge of signification does not reach the state of second act, it cannot be said that there is ultimate concept in act, for a concept is an actual representation. A nonultimate concept cannot be described as actual on account of merely habitual knowledge of the signification.

First objection. An ignorant person, upon hearing the Latin word *animal*, whose signification he does not know, forms a concept of this word. This concept is nonultimate since the thing signified is not attained, and yet he does not know the signification. Thus, a nonultimate concept does not necessarily imply the representation of the signification.

Confirmation. Concepts signify the same for all, as Aristotle says (*On Interpretation* 1. 1. 16^a6). Now, the significations of words are not the same for all. Therefore nonultimate concepts do not represent the significations of words. If they did, they would not signify the same for all.

Answer. When an ignorant person hears this [Latin] word, he either knows at least the fact that it has a signification—because he hears men who use it—or he is totally ignorant of its having a signification. In the first case, he forms a nonultimate concept, for he truly knows this word as a bearer of signification. In the second case, the concept will be ultimate, for all it represents is the word as sound: the sound as sign and means leading to another thing is left unrepresented. [Back to the first case:] If he knows merely the fact that a sound has a signification and does not yet know to what thing this signification applies, the concept should be described as nonultimate; this concept does not, in fact, lead the mind to the thing signified as to a term designated in its particularity, but it leads the mind to a term which, as a result of deficiency in the subject who does not know the signification, remains in a state of generality and confusion.

Answer to the confirmation. Because concepts are natural similitudes, they signify the same for all when they are conversant

with the same objects and fashioned in the same way. Thus, all nonultimate concepts representing words as significative represent the same to all minds in which these concepts have been so fashioned as to represent words as significative. But if they are not fashioned in this way in all minds, because not all know the signification of a word, they will not be the same concepts and will not signify the same for all.

Second objection. Let it be assumed that the nonultimate concept represents the signification of a word. If this word happens to be equivocal, either several concepts or only one will be formed. If only one, there will be equivocity in the mind, for this concept will convey several significations nonsubordinated to each other. If there are several concepts, there will never be in the mind a concept of the equivocal 'man,' [7] for it is not possible to represent one word with a plurality of significations; now, what cannot be conceived by the mind cannot, either, be uttered by the mouth. If I fashion several concepts of this word, each of which concepts has only one meaning, I have but several univocal concepts and the equivocal term escapes conception.

Answer. The concept of an equivocal term—say, dog—is only one nonultimate concept, for it represents one word having several significations, just as the concept of man is one concept, even though man has several attributes. It does not follow that the concept is equivocal, for these several significations are not present in it formally: they are present in it objectively. It represents an object that has several significations, viz., the equivocal word; but a single word, no matter how many meanings it bears, is represented by a single natural similitude. There would be equivocation in the mind if, and only if, one and the same concept had several formal significations; but the formal signification of a concept is a natural similitude and there cannot be several of them in one concept. On the other hand, there is no reason why one concept should not represent several significations of one sound or sign: these significations assume the character of a thing represented, and the concept represents them by one formal representation.

Along the same line, an *additional objection* is this: The nonultimate concept of an equivocal term is related to several ultimate terms since it is related to several signified objects, not

by one relation, but by several, which all belong to the representative function of the concept. Just as there is equivocation in the word because of the relation of several significations to several signified objects so the concept will be said to be equivocal because of several relations to several ultimate concepts.

Answer. This nonultimate concept is related to several ultimate concepts by a single relation on the part of the object represented. It represents, by a single signification and natural representation, a word related to several things signified by several imports. Thus, so far as its object is concerned, it represents the several relations connecting a single word to several things and several ultimate concepts. This concept expresses several relations in the capacity of things represented, but in a formal sense, it has a single representation of the word which bears several relations.

Last objection. If a word loses its signification, the concept of this word, a nonultimate concept, will become ultimate inasmuch as the word will be signified as a thing constituting the final term of the concept. Thus, there is no essential distinction between a nonultimate and an ultimate concept, since the former can become the latter without undergoing any intrinsic change. It cannot be said that this word [which has lost its signification] will, by the very fact that it represents itself, play the role of term in regard to itself. If this were the case, every thing representing itself would be the object of a nonultimate concept, inasmuch as it represents itself.

Answer. As already shown, the reason why these concepts differ essentially is not that one is ultimate and the other nonultimate; rather, they derive essential diversity from the relations that they imply to diverse objects. Consider, now, the case of a word that has lost its signification. Suppose that the intellect is aware of this loss and forms the concept of a word devoid of signification: this concept is distinct from the nonultimate one that the intellect previously had of the same word when it was significative, for the new concept considers the word as a thing, not as a sign: accordingly it is an ultimate concept. If the intellect is not aware that the word has lost its signification and continues to use the concept as a significative word, this concept remains nonultimate, but it has become false; it is changed with regard to

falsehood, though not with regard to essential signification.

Notice, further, that the relations expressed by 'ultimate' and 'nonultimate,' though specifically distinct as diverse modes of concepts, do not specify the concepts themselves formally. Thus, they cause a specific distinction between modes, but there is no specific diversity in the intrinsic essence of the concepts, except inasmuch as they have, in other respects, specifically distinct objects.

VI

On Demonstration and Science

QUESTION 24

ON COGNITIONS ANTERIOR TO DEMONSTRATION AND ON PREMISES

ARTICLE 1

WHAT OBJECTS MUST BE KNOWN AND WHAT NOTIONS POSSESSED PRIOR TO DEMONSTRATION

Concerning the objects which must be known prior to demonstration, Aristotle's teaching consists of four theses. *First:* every intellectual discipline proceeds from pre-existing knowledge. This thesis is the foundation and root of the other three. 'Intellectual' is understood here in opposition to 'sensible,' for not every sense cognition arises from a preceding cognition—this would imply regression to infinity—but the term of the regression is found in the knowledge of external senses, which does not arise from any anterior knowledge.

Second: the things which must be known prior to every discipline and doctrine are three, viz., the subject, the property, and the premises or principles. Demonstration is made out of these, for we use better-known principles to demonstrate that a property belongs to a subject. Now, what must be known about those things in order for demonstration to be possible is twofold, viz., *whether* they are and *what* they are. However, because principles are not simple objects of intellection, but complexes, what must be previously known about them is not whether they are or what they are, but that they are true. The reason why principles must be true is that in a demonstration they not only entail the conclusion but also prove its truth.

The *third* thesis is that there is an order among antecedently

required cognitions. This does not concern the subject and the property, but the principles or premises, for the major can be known before the conclusion, whereas minor and conclusion are known at the same time.

Fourth: prior to demonstration, the conclusion cannot be known formally, since it is that which is to be demonstrated, but only in virtual fashion, inasmuch as the premises, in which the conclusion is virtually contained, are already known.

The last two theses will not be discussed here. The fourth involves no difficulty, and the third is dealt with later (art. 3). Let us explain the first two.

The first calls for two remarks: (1) Authors disagree with regard to the meaning of the expression 'intellectual doctrine and discipline.' The question is whether it designates, without specification, every kind of knowledge, or only the knowledge that is discursive or scientific. True, it can be held that every intellectual knowledge arises from some antecedent knowledge, inasmuch as the second operation [of the intellect] arises from the first, and the first, i.e., apprehension, from sense cognition. But this is not what Aristotle means. He is referring only *to probative knowledge, proceeding by way of argument and discourse,* whether scientific or probable. (See St. Thomas, *Com. on Post. An.* 1. les. 1.) The word 'doctrine' designates knowledge as teaching and causing us to know; the word 'discipline' designates the reception of knowledge from another [i.e., a master].

To establish this interpretation, it suffices to consider that Aristotle's purpose is only to show how new objects can be known and new science had without regression to infinity in proofs, and without the circular proof of one proposition by another and vice versa. Accordingly, the only relevant consideration is that of knowledge acquired through proof and inference, in other words, of knowledge that is proved and gives proof, that is inferred and exercises inference. It is not necessary that proving knowledge should proceed from other and antecedent proving knowledge, for some proving knowledge can be self-evident and not proceed from antecedent proof. But every proved or demonstrated knowledge presupposes other and antecedent knowledge, from which it is proved or demonstrated. True, if knowledge is considered not precisely as proving and proved but rather as intellectual, it nec-

essarily originates, in man, from another knowledge, viz., that of the senses; but this does not pertain to the present issue, which is not whether the intellect depends upon the sense but whether discipline and doctrine depend upon other and antecedent knowledge.

Notice that Aristotle, in his endeavor to explain the generation and acquisition of human science, follows the same method as in his inquiry into the generation of physical things. In his *Physics*, he proves against certain philosophers that forms do not pre-exist actually, though secretly, in matter; rather, they are educed from its potency and thus their coming into existence is really a generation. It is in parallel fashion that science, which is concerned with conclusions, is acquired by man. Against Plato, who held that conclusions are presupposed as actually known, so that new knowledge contains no novelty besides the act of remembering, Aristotle maintains that conclusions are virtually or potentially known in the principles whose operation renders them [i.e., the conclusions] actually known as well as proved.

These remarks throw light on the foundation of Aristotle's thesis that every doctrine or discipline proceeds from pre-existent knowledge. What is meant is that every unknown conclusion is deduced from some principle which is better known and in which the conclusion, though unknown actually, is known virtually and potentially. Likewise, things are actually generated not from nothing, but from a thing, viz., matter, in which they are contained potentially. Thus, what Aristotle speaks of is the knowledge to be acquired, in the way proper to man, through principles and inference, i.e., in discursive fashion.

Concerning the second thesis, careful attention must be given to the reasons why it is said *(a)* that the acquisition of human science presupposes the knowledge of certain objects, *(b)* that the objects to be known beforehand are only three, and (c) that the prerequisite cognitions are two.

(a) Antecedent or presupposed knowledge is necessary because demonstration excludes both infinite regression and circularity. Accordingly, there must be at the term of the regression a cognition that no other cognition proves. This initial cognition, without which nothing could be proved or demonstrated, is not proved and does not presuppose any antecedent knowledge.

(b) What has to be known antecedently is threefold. This follows from the nature of the demonstrable object, i.e., a conclusion in which a property is demonstratively predicated of a subject. It is only in the case of demonstration that Aristotle speaks of things to be known antecedently, but what he has to say about these things may be accommodated easily, in an analogous way, to nondemonstrative syllogisms. Here is St. Thomas' summary exposition of what has to be known prior to demonstration *(On Post. An.* 1. les. 2. [Leonine 2]: "What science seeks through demonstration is a conclusion in which a property is predicatèd of a subject; this conclusion is inferred from principles. Because knowledge of the simple precedes knowledge of the complex, some acquaintance with the subject and the property necessarily precedes the knowledge of the conclusion. Likewise, it is necessary to know antecedently the principle from which the conclusion is inferred, since knowledge of the conclusion derives from knowledge of the principle. Now, the antecedent knowledge of these three objects, i.e., the property, the subject, and the principle, admits of two modes, according as what is known is *that* something is or *what* something is. It is shown in *Met.* (7. 5. $1030^{b}14$ ff.) that complex objects are not definable; there is no definition of 'white man,' much less of an enunciation. Accordingly, since the principle is an enunciation, what is antecedently known about it cannot be what[1] it is but that it is true. On the other hand, it is possible to know what the property is, but since its quiddity depends upon the subject in which it inheres, scientific knowledge of the property [i.e., knowledge of the property as actually inhering in its subject] is attained in the conclusion established by demonstrative inference; antecedent knowledge of it concerns merely the signification of the name, for we cannot know whether something is unless we know what its name signifies. The conclusion does not show what the subject is and, much less, that it is. Thus both 'what the subject is' and 'that it is' must be known antecedently, for it is the definition of the subject which supplies the principle demonstrating that such and such a property belongs to such and such a subject."[2]

From this exposition, it is easy to gather the number of the things to be known antecedently and what one must know about each of them. All this is established by the basic formula that

the inference of a conclusion from definite principles presupposes these principles, in other words, implies that they are known antecedently. Now, principles are propositions, and propositions are made of terms: thus, antecedent knowledge of the terms is, a fortiori, needed. Demonstrative terms are three in number: *subject* and *property* are united with each other in the conclusion, but in the premises they occur as united in the *middle term* by virtue of which their being bound together is inferred. This middle term is the very quiddity of the subject, for every necessary connection of properties with each other arises from a necessary connection of quidditative predicates.

Thus, subject and property need to be known antecedently in so far (and only in so far) as their union in the conclusion requires their presence in the premises. Likewise, the principles need to be known antecedently. They contain the quiddity or definition of a thing; in this quiddity, the middle term is antecedently recognized as the essential, defining predicate on account of which the property belongs [to the subject]. Finally, antecedent knowledge of the principles, inasmuch as they are propositions, is knowledge of their being true.

The quiddity of the subject is not demonstrated, since demonstration proceeds from it; thus, there is presupposition, i.e., antecedent knowledge, of *what* the subject is. With greater force, demonstration requires antecedent knowledge of the existence of the subject.

Since it is impossible to know what something is unless it be presupposed that it is, the question *whether* is presupposed by the question *what*. Notice that the question 'whether a thing exists' is not merely one of actual existence but also one of possibility; in other words it concerns not only the actual—and contingent—possession of existence by the quiddity, but also the latter's aptitude to exist according to its genus, either in the real or through the work of the reason. Briefly, the question 'whether a thing exists' is a question about the thing, not about its cause; it refers to existence or ability to be posited in existence, not to the reason *why* a thing exists or is capable of existence. Again, contingent and accidental existence does not open the way to the question of what the thing is: thus, the question 'whether' concerns the existence of the thing according to its proper concept.

Cajetan (*On Post. An.* 2. chap. 7) shows clearly that this question asks whether a thing *admits of* being posited.

Lastly, we cannot know antecedently either what the property is or whether it is, since both are concluded to through a demonstration in which the property is shown to belong to the subject and thus to be posited in it and possessed by it. All this pertains to the question whether the property is. Through the same demonstration the property is seen in the conclusion to be dependent, in its very intrinsic nature, upon the subject; and this pertains to the question of its quiddity. Thus it remains that the required antecedent knowledge concerns only what its *name* signifies, such knowledge being indemonstrable.

Objections and Answers

An objection to the *first* thesis distinguishes two possible interpretations of Aristotle's statement that "every doctrine and every discipline, etc." This statement concerns either every knowledge, with no exception, or only discursive and probative knowledge. In the first case, an objection is derived from angelic knowledge. Angels enjoy a most perfect science which does not arise from pre-existing cognition but attains principles and conclusions in a single intuition. An objection can even be derived from human conditions: since regression cannot be infinite, it is necessary to come to some knowledge that does not arise from pre-existing knowledge. In the second case, the proposition of Aristotle does not seem to hold, for discourse comprises not only the conclusion but also the premises; thus, discursive knowledge does not proceed from pre-existing knowledge; it rather proceeds from itself inasmuch as the conclusion is deduced from the premises that discourse comprises.

Confirmation. This proposition of Aristotle does not refute the argument by which Plato proved that we never learn anything new. The Platonic argument runs as follows: either we know what we seek or we are ignorant of it; if we know it, we already have the science of it; if we are ignorant of it, we shall not find it—it is as if somebody were looking for a man unknown to him. This argument still holds if every doctrine is said to proceed from pre-existent knowledge, for, no matter how much pre-existent

knowledge I have, if it does not show me what I seek, I shall never find it, and if it shows what I seek, there remains nothing to be sought.

The answer can be gathered from what was stated previously. The proposition of Aristotle concerns the knowledge which is had by way of proof; this kind of knowledge alone is properly called doctrine or discipline, since the things that disciples intend to learn[3] are those which are acquired by proof. That which is not proved by something else, but is immediately attained in itself, is not learned and is not a discipline. The argument derived from the angel does not hold, since the angel perceives without proof the thing proved and without inference or discourse the thing inferred. There is no infinite regression here, for an initial term is found in a knowledge that proves without being proved by any anterior knowledge: such is the case of the first principles, even though they are ultimately resolved in sense knowledge.

The further remark about *discourse* makes it necessary to consider two meanings of this word. *(a)* 'Discourse' may designate both premises and conclusion. Even if it is taken in this adequate sense, discourse proceeds from pre-existent knowledge. Prior to discourse, the habitus of the principles knows the principles *in themselves:* from this antecedent knowledge of the principles, discourse proceeds to the knowledge of the same principles as capable of producing inference and finally reaches the conclusion. *(b)* When 'discourse' is not taken in adequate fashion, it designates the knowledge proved by discourse, i.e., the conclusion, which alone has the character of doctrine and discipline. So understood, discourse plainly results from pre-existent knowledge, viz., from knowledge of the premises, which is probative. It is as if we said that every doctrine, i.e., every knowledge proved by discourse —or discursive in the sense of proved—results from a pre-existent knowledge endowed with the power of proving.

Answer to the confirmation. Aristotle's statement that every discipline proceeds from pre-existent knowledge refutes the argument of Plato. In pre-existent knowledge the conclusion is attained virtually and in general, in so far as it is contained in the premises, but formally and in particular it is not known. Actual knowledge of the conclusion results from its knowledge in potency. Contrary to the theory of

Plato, actual science of the conclusion is not presupposed.

With regard to the *second* thesis, objections are raised both against the number of the objects to be known antecedently and against the distribution of the antecedent notions.

Against the number of the objects to be known antecedently, it is argued that in order to infer a conclusion the validity of the consequence also must be an object of antecedent knowledge; yet it is not taken into account by Aristotle. Further, the middle term is known before the conclusion, since the conclusion is inferred by the virtue of the middle term. Thus, subject and property are not the only terms to be known antecedently.

Against the distribution of the antecedent notions, it is argued that sometimes an inquiry conducted within a certain science concerns the existence and nature of the very subject of this science; thus, in theology we ask whether God exists, in physics, whether there are such things as motion, generation, etc. Moreover, when a thing is defined, the appropriateness of the definition is generally controverted. All these issues are treated by science and discourse. Thus, our antecedent knowledge of the subject is not such as Aristotle says.

Further: Antecedent knowledge is said to include the answer to the question 'whether the thing is' with regard to the subject, though not with regard to the property.[4] Such a question may conceivably refer either to existence or to truth. In fact, if it referred to truth our antecedent knowledge of the subject would be of the same kind as our antecedent knowledge of the principles. We need to know that the principles are true, but it would be absurd to say that we need to know that the subject is true. Nor can this question refer to existence, for a subject can be scientifically knowable without being existent; nay, the object of science abstracts from existence. If it is said that what is required is *possible* existence, the following difficulties arise: *(a)* there is such a thing as a science of the being of reason; this science, whose name is logic, does not presuppose the possibility of its subject, for its subject, indeed, is not a possible being; *(b)* to be possible is the same as not to be fictitious, in other words, it is the same as to be true. Thus, the presupposed answer to the question 'whether the thing is' would be an answer to a question of truth, not to a question of existence.

Lastly, it is not true that, so far as the property is concerned, the only thing to be presupposed is the signification of the name; the answer to the question 'whether the thing is' is also presupposed, as evidenced by the following reasons: (1) It is not possible to assume the signification of a name without assuming that there is such a thing as the property signified by this name. (2) From the fact that a property belongs to a notion, it is inferred that it belongs to the subject [of this notion]. Thus we say, "Every rational being is capable of laughter, every man is a rational being, therefore every man is capable of laughter." In the premises of this argumentation, it is posited that 'capable of laughter' belongs to rational, and it is inferred that it belongs to man. Therefore, 'capable of laughter' is presupposed in the premises with regard to existence and even with regard to whatness, since it is assumed that this property belongs to that from whose essence it follows and with which it is essentially connected. Thus it should not be said, respecting the property, that the meaning of the name alone is presupposed. It is not through the signification of the name that we prove a property; we rather prove a property through its connection with the subject, for we must presuppose that by which it is proved.

Answer to the first part of the argument. Aristotle does not mention the validity of the consequence among the things to be known antecedently because the antecedent knowledge relative to it is prioristic, not posterioristic; the question has been treated in the *Prior Analytics*. As to the middle term, it is known antecedently, but not apart from the principles, for the principles must be informed by the middle term in order to infer the conclusion. On the contrary, the subject and the property are antecedently known apart from the principles because they belong to the conclusion as the matter out of which the conclusion is made; they do not play a [formal] part in the premises as the middle term does.

Answer to the second part of the argument. Considering the proper and adequate subject of a science, which [subject] does not admit of proof by an intrinsic middle term, let it be said that a science always presupposes an affirmative answer to the question 'whether there is such a thing as this subject.' However, both the existence and the whatness of a subject sometimes can

be proved in the science treating of this subject. Such proof cannot be effected by an intrinsic middle term and a priori; it is *(a)* either an a posteriori proof or *(b)* a proof through instruments that are not proper to the science under consideration, but borrowed from another science; it also may happen *(c)* that the science under consideration is subalternated to another science and receives from the latter the proof of its own principles. Thus, when theology proves the existence of God, it borrows arguments from metaphysics; likewise, logic borrows from metaphysics the arguments needed to prove that beings of reason are admissible. The physicist does not prove that there is motion in the general sense of this term, and he does not prove that mutable being exists—for motion in general, or mutable being, constitutes the adequate subject of physics—but he does prove that there is such a thing as generation—a partial and inadequate subject of physical science.

Answer to the third part of the argument. The question 'whether a thing is' does not refer to actual existence but to possibility, and even being of reason has a possibility of its own: though incapable of existing, it is capable of being known. (The possibility of a thing is not a presupposition of truth understood formally, in complex fashion and in the form of a statement, as in the case of the principles; rather, the truth of a thing is transcendental and subjective.) More precisely, the question 'whether it is' does not refer to possibility considered in expressed act—i.e., as a quidditative predicate by which an essence is distinguished from impossible and fictitious being, a predicate that points to the causes in virtue of which this essence is possible. What the question does refer to is possibility as the very exercise of a relation to the act of existing—which act is extrinsic to quiddity—without pointing to the causes of such possibility.

Answer to the last argument. According to some authors, the existence of the property must be known antecedently because the being of the property follows upon the being of the subject. However, since this derivation takes place through a middle term, by virtue of which the property belongs to the subject and is proved to belong to it, the existence of the property is not presupposed, but demonstrated. Thus, when we know what the name signifies, the thing signified is not known as actualized by existence but as actualized by signification, or, more exactly, it is known as

actualized by the kind of "existence" which belongs to the signified as such. Now, consider in what sense the premises imply the knowledge of the property. The agreement of the property with the middle term is disclosed in the premises, and because of this agreement the property agrees with the subject and is convertible with it. But the property is an accident whose existence is altogether relative to the subject; in the premises, this relation to the subject is not perceived formally and expressly, but in merely virtual fashion, inasmuch as this relation [of property to subject] is contained in the middle term. Thus, with regard to the question 'whether it is' the property is not presupposed, but proved, for its existence as a property is altogether relative to the subject and results from agreement with the subject, although this agreement is mediated by a third term. Now, if knowledge of the property's existence is not presupposed, much less presupposed is its quiddity. [It might be objected that the connection between property and subject cannot be inferred if one knows nothing about the property except the signification of the word.] But, although the signification of the word designating the property is supposed to be known antecedently, there is no question of inferring the agreement of property and subject from the signification of the name alone; rather, it is inferred from the connection between property and middle term, which is known antecedently in the premises.

ARTICLE 2

WHETHER THE INFLUENCE OF THE PREMISES UPON THE CONCLUSION BELONGS TO THE GENUS OF EFFICIENT CAUSALITY OR TO SOME OTHER GENUS OF CAUSE

Premises can be considered either formally or objectively. Considered formally they are assents, i.e., intellectual acts by which we pass judgments on propositions; objectively considered, they are things attained by assent and proposition. Let it be recalled that logic sets in order and presents to the intellect the objects themselves inasmuch as they are connected with each other in such capacities as subject and predicate, antecedent and consequent, etc. Logic is conversant with things known, and the

difficulties that it has to solve concern exclusively the arrangement and attainment of these things: it is not concerned with the real production and ordering of the acts of knowledge. Along this line, Aristotle says (*Ph.* 2. 3. 195[a]18; *Com.* of St. Thomas, les. 5. Leonine 9) that the contribution of the premises to the conclusion takes place in the order of material causality. The premises contribute the matter out of which the conclusion is made, for the terms which make up the conclusion must be antecedently present in the premises.

Thus, the whole problem concerns the premises formally understood, i.e., the acts of assenting to the premises: do they cause, in any genus of causality, the assent to, and the inference of, the conclusion? A similar problem arises in the theory of the will, where it is asked in what way an act, e.g., intention, is the cause of another act, e.g., choice. On this, see i-ii. 9 and 12.

Nobody doubts that the assent to the conclusion in some way depends upon the assent to the premises and is connected with it. Aristotle says that every doctrine and discipline proceeds from pre-existent knowledge and this is the same as to say that every proved conclusion proceeds from some proving cognition; the intellect is moved, by assent to the premises, to assent to the conclusion, just as the will is moved by the volition of the end to the volition of the means. Plainly, these assents cannot be interpreted in terms of final or material causality. Even if the object or truth with which the assent to the premises is concerned should be an end or should provide a matter to the object of the conclusion, nevertheless, the act concerned with the object of the premises is neither the end nor the matter of the act (i.e., the formal assent) concerned with the conclusion. Correspondingly, the act of intention is not the end of the act of choice.

Thus the question narrows down to formal and efficient causality. Some hold that the premises play their role in the genus of extrinsic formal cause, as specifying principle of the conclusion; they point out that the whole specification of the assent to the conclusion proceeds from the means or middle term of the demonstration, and that the action of the intellect in assenting to the premises is, properly speaking, nothing else than one of specification and determination. This theory is founded upon the consideration that one act of the intellect cannot cause another ex-

cept inasmuch as it bestows upon the intellectual power some determination by virtue of which the power elicits another act. Efficient causality belongs not to the act itself but to the power determined and applied by the act.

Thesis. It is a commonly received proposition that the acts of the premises exercise efficient causality upon the act of the conclusion.

This thesis is derived from several texts of St. Thomas. In *Com. on Post. An.* (1. les. 3. Leonine 1) he says that the premises have the character of an efficient and active cause with regard to the conclusion. In *Com. on Ph.* (2. les. 5. Leonine 10) and in *Com. on Met.* (5. les. 3. Cathala 778) he says that "so far as the power of inference is concerned the premises have the character of an efficient cause." Lastly, in i. 14. 7 he says that the discourse in which conclusions are arrived at is a discourse according to causality.

These texts contain the foundation of our thesis. If principles and conclusion are connected by discourse according to causality, the influence of the former upon the latter can be described as follows: the light of the premises so affects and determines the intellect as to manifest the conclusion and to produce, by illumination, assent to the conclusion. But the external light which inheres in the luminous body and spreads through the medium is the efficient cause by which an object is illuminated and a power comes to know this object. Correspondingly, the premises which cause the conclusion by illumination and through discourse, as through a medium external to conclusion itself, exert influence in the order of efficient causality on the assent to the conclusion.

But discourse is likened to motion, in which one passes from one point to the other; since one part of motion is not the efficient cause of another part of motion, we might be tempted to say that we pass from the premises to the conclusion as from one part of motion to another, not as from an efficient cause to an effect. Along this line, some said that assent to the premises is related to the conclusion as a mere point of departure. Such an interpretation fails to account for the difference between discourse according to succession and discourse according to causality. Discourse according to causality does not imply only a succession

of cognitions following each other like the parts of motion, but it implies also the notion of an illuminating factor, with a process from the better known to the less known. The premises determine the intellect by illuminating and manifesting the inferred conclusion. They cannot behave like a part of motion, which has merely the character of a point of departure and is necessarily left behind as another part is reached. They bring to bear a power which infers and manifests the conclusion. In so far as they cause inference, the premises are not left behind by the intellect on its way toward the conclusion, as a prior place is abandoned in order that a new place be reached. Again, the premises give the intellect the strength, that is, the light that it needs to arrive at the conclusion. On the contrary, the place left behind does not give any motive power to be used in reaching another place.

Let us now consider whether the assent to the premises exercises influence upon the conclusion by way of formal causality. There is no question of such assent being the intrinsic form of the conclusion, but one might be tempted to consider assent to the premises as an extrinsic form determining the intellect with regard to the conclusions. *Against this,* let it be said that an extrinsic form is either *(a)* an object or *(b)* an exemplary idea. *(b)* Assent to the premises is not the idea of the conclusion. The conclusion is not formed after the pattern of the premises even though it is deduced from them according to intrinsic connection. Assent to the one [i.e., to the premises] brings about assent to the other by a manifestation of the latter, not by an imitation of the former. Moreover, since the causality of the idea is practical, an idea cannot be a formal cause in exercise without the will acting as a mover. On the contrary, the influence of the premises on the conclusions is purely theoretical and requires no operation of the will. The intellect is said to be moved to the conclusions by the energy of the premises and not by the will. It is in the order of efficient causality that the intellect moves itself from one cognition to another; accordingly, the power of motion supplied by the premises must also belong to the order of efficient causality. *(a)* To say that assent to the premises is the objective cause of the conclusion would be still more unreasonable, for the conclusion has an object of its own, distinct from the premises and from the assent given to them: this object of the conclusion is the inferred truth.

We shall consider in the following article the question whether simultaneous actuality of the two premises is needed at the time when the conclusion is inferred. Following St. Thomas *(Com. on Post. An.* 1. les. 2. Leonine 9), we shall see that in demonstration the minor exists in the same instant as the conclusion, whereas assent to the major can be anterior in time.

Objections and Answers

First objection. The energy productive of a cognition comprises nothing besides the power itself, the habitus superadded to it, and the ideas. One act is not productive of another act, although one act can determine the power in relation to another act. But the assent to the premises is neither power nor habitus nor idea: it is an act of the intellect. Therefore such assent does not give the intellect a productive energy to influence the conclusion.

Confirmation. The principles are the extrinsic formal cause by which science is specified. Indeed, the formal standpoints whose diversity distinguishes the sciences from each other are themselves determined by diversity in the middle terms which prove and demonstrate (see St. Thomas, ii-ii. 1. 1). A middle term so constituted as to prove and illuminate the conclusion is that by reason of which the premises determine the intellect; it therefore seems that the premises are the extrinsic formal pattern of the conclusion.

Answer. The intellect is the principal and universal agent of the assent to the conclusion; considering, however, that the intellect proceeds inferentially from one cognition to another, it is easy to see that its inferential force is determined by the assent to the premises, in which [premises] the conclusion is contained as the manifestable in the manifestative. When it is said that one act is not productive of another, a distinction is necessary. If one act contains another act virtually, the former can produce the latter by determining the power and giving it the energy that it needs to move itself from the one to the other. Plainly, such determination is impossible if the first act does not contain the second virtually. Thus, we see that in the will the act of intention causes the act of choice, and the commanding act has for its

effect the commanded act. Likewise, St. Thomas mentions peace and joy among the effects of charity (ii-ii. 28 and 29), and he says that joy is an effect of devotion (ii-ii. 82. 4). The distinction between the act and the effect of a virtue should be understood as follows: the act is elicited immediately and the effect is commanded through the mediation of another act. One act is said to determine and to move in relation to another inasmuch as the prior act refers to an object in which the object of the other act is contained virtually. From this, it follows that a power related to a certain object [say, *a*] by a certain act has in itself the energy needed to determine itself in relation to an object [say, *b*] contained in the former object (*a*). Thus, the relation or determination resulting from the prior act *(a)*—whether this determination consists in the impression of a mode or in the representation of the past act—moves and determines the power to go forward with another act.

Answer to the confirmation. If what you consider in the premises is the known object, then it is true to say that the premises supply a means of specification, for every act is specified and formally determined by its object. But consider the assent by which such an object is known: there is no reason why it should not exert efficient causality by directing the power toward a further act; it also plays the role of an interior light giving illumination in a formal way, i.e., by inhering in the soul, not in objective fashion.

Second objection. If the premises exert efficient causality upon the conclusion, it follows that assent to the premises must exist at the very time when assent to the conclusion is elicited, for an efficient cause does not exert influence unless it exists actually. But this is false. The cognition of the premises disappears when the conclusion is reached, since in discourse and motion the intellect goes from one object to another. Moreover, it is impossible to understand several things at the same time, as St. Thomas says in i. 85. 4. But, by reason of this impossibility, the minor could not be known at the same time as the conclusion, which is contrary to the teaching of Aristotle *(Post. An.* 1. 1. $71^{a}17$) and St. Thomas *(Com. on Post. An.* 1. les. 2. Leonine 9). There cannot be two cognitions at the same time because we cannot grasp the many as many. But it is impossible to speak of the

efficient causality of one cognition upon another unless the two are simultaneous. Let the conclusion be that at least one of the premises, viz., the minor, is not an efficient cause. Again, the major cannot be the efficient cause of the conclusion without the minor, for the arrangement of the premises cannot reside in the major alone.

A second absurdity is pointed out. Assuming that the principles are the efficient cause of the conclusion, they cannot be the univocal cause of it, since assent to the principles is of another species than assent to the conclusion. Indeed, these assents are born of specifically diverse habitus. Therefore, they will be an equivocal cause of the conclusion. This is impossible, for an equivocal cause is not proximate and immediate, but universal; now, between premises and conclusion there is no mediating factor.

Finally, if the premises were efficient causes, God could supply the efficient causality that they exercise upon the conclusion; thus, a conclusion could be inferred without premises, which is absurd.

Answer. With regard to the first absurdity, let it be said that when the conclusion is inferred, the cause exercising influence upon it does exist, since the minor and the conclusion are known simultaneously, although the minor is, by nature, anterior to the conclusion, as St. Thomas, following Aristotle, says in *Com. on Post. An.* 1. les. 2. This priority of nature belongs to the minor inasmuch as it contains within itself, in virtual fashion, the major that it determines. (More on this subject in the following article.) Discourse does not require that one act should come after another according to a succession in time. The relations of priority and posteriority essential to discourse hold in the causal succession of cognitions and objects, although cognitions may exist simultaneously. Even if the inferring cognition did not remain actual, it would still exist in the force and determination by which the intellect is moved to infer the conclusion. Nor does St. Thomas deny that several objects can be known at the same time. What he declares impossible is that several objects, known at the same time, be on the same level in cognition and representation. (Several objects are on the same level in cognition when they are not set in order or united by a form, but are disconnected and

separated from each other.) Although minor and conclusion are known at the same time, the former can be the efficient cause of the latter inasmuch as it is prior in nature—though simultaneous in time—and is an act distinct from the conclusion.

Concerning the second absurdity, let it be said that the premises are the efficient cause of the conclusion by way of energy and instrument. An equivocal and instrumental energy can be immediately and proximately related to its effect; thus, in animal life, heat generates flesh and light generates heat immediately and proximately. At this point, some may wonder by what kind of action these assents or acts attain the conclusion. The answer is that they do not attain the conclusion by a transitive action. It is by one and the same immanent action that the conclusion proceeds from the intellect, from the habitus, and from the actual assent to the premises. The habitus is efficient cause of the conclusion in the capacity of additional perfection of the intellect. The assent to the premises plays the role of light; by it the intellect is actually illuminated, determined, and given complete readiness to act.

Concerning the last absurdity, let it be said that efficient causality cannot be supplied by divine action when some particular mode or dependence incompatible with divine action is involved. God can produce a man, but he cannot be father in corporeal generation. He can co-operate in the production of a discourse, but he cannot think discursively. Likewise, he cannot produce, without premises, a conclusion *as* proved.

ARTICLE 3

WHETHER THE PREMISES NECESSITATE THE ASSENT TO THE CONCLUSION IN SUCH A WAY THAT MINOR AND CONCLUSION BE KNOWN AT THE SAME TIME

The premises of which we speak here are those of the demonstrative syllogism, i.e., of the syllogism which brings about the conviction of the intellect and in which assent to the conclusion follows necessarily from the granting of the premises.

It may be asked whether in a probable syllogism, whose premises are granted and in which the consequence holds, the intellect

assents to the conclusion by necessity. Let us briefly answer that in this case the intellect is necessitated with regard to the consequence, but not with regard to the truth of the inferring propositions. Thus, it is not necessitated in an absolute sense. If the intellect grants premises properly disposed and proceeds to the conclusion, it cannot dissent; yet, if the matter is merely probable, the intellect retains the power of not proceeding to the conclusion and of reverting to the premises in order to examine them: since they are only probable, assent can be refused. This cannot happen in a demonstration; here, the intellect not only must proceed to the conclusion, but also cannot retrocede. St. Thomas teaches (i. 82. 2) that the intellect does not assent necessarily to contingent propositions, which can be denied without denial of the principles. Since, therefore, the intellect sees that the rejection of the premises would not entail that of the first principles, it can give up the premises; accordingly, it is not absolutely necessitated. It is bound to assent to probability, if probability is evident, but not to truth.

To show where the difficulty of the present question lies, we must presuppose the common distinction between necessity of specification and necessity of exercise. The first concerns the species of the act, the second its elicitation. The first kind of necessity must be understood conditionally; it means that if the power does elicit an act it cannot help eliciting an act of such and such a species; but it may not elicit any act. The second kind of necessity is to be understood absolutely: it means that the power is factually necessitated to elicit. To this twofold necessity corresponds a twofold freedom: *(a)* freedom with regard to specification, which is called also freedom of contrariety, because it can apply itself to acts of contrary species, like hatred and love, and *(b)* freedom with regard to exercise, called also freedom of contradiction, which is concerned only with the production or the nonproduction of an act.

When, in the present connection, we ask whether the intellect is necessitated to assent to the conclusion, we speak of a formal assent, not of a virtual one. Since the conclusion is contained virtually in the premises, assent to the premises contains a virtual assent to the conclusion. Assenting virtually to the conclusion is the same as assenting formally to the premises considered as setting the mind ready for the conclusion.

It is beyond controversy that the intellect, when confronted by evident premises, is necessitated to assent to the conclusion so far as specification is concerned. The reason is that the true as true cannot be the object of dissent, and that there cannot be assent to the false [as false]. If assent and dissent were equally possible with regard to truth, and similarly with regard to falsehood, it would be possible to assent to contradictory propositions. When true and evident premises have been posited, the conclusion cannot not be true, otherwise we might have a true antecedent and a false consequent. Such a conclusion does not admit of dissent any more than it admits of falsehood, and thus necessitates assent. Hence, all the difficulty concerns necessity in exercise.

Some authors think that the intellect is not necessitated, from the point of view of exercise, with regard to such a conclusion, even after the premises have been posited, but that it can be impeded by the will. This may be interpreted in two ways: it may mean *(a)* that the will can directly prevent the intellect from assenting to the conclusion, just as it can prevent the hand from moving. Or it may mean *(b)* that the will can act indirectly, by moving the intellect to consider some other thought and preventing it from looking at the premises. *Others* teach absolutely and without qualification that the intellect is necessitated in exercise so long as there is assent to the premises.

Thesis. When the intellect is confronted by evident premises, it is directly necessitated, in exercise, to assent to the conclusion. Yet, such assent can be indirectly prevented by the will inasmuch as the intellect is not necessitated to give attention to the premises and to think of them.

This theory is commonly received; it is drawn from St.Thomas who says (i. 82. 2) that by nature and necessity the intellect adheres to the principles and to the conclusions having a necessary connection with the principles. But he treats the question more completely in i-ii. 17. 6, where he says: ". . .the act of the reason may be considered in two ways. First, as to the exercise of the act. And considered thus, the act of the reason can always be commanded, as when one is told to be attentive, and to use one's reason. Secondly, as to the object, in respect of which two acts of the reason have to be noticed. One is the act whereby

it apprehends the truth about something. This act is not in our power, because it happens in virtue of a light, whether natural or supernatural. Consequently, in this respect, the act of the reason is not in our power and cannot be commanded. The other act of the reason is that by which it assents to what it apprehends. If, therefore, that which the reason apprehends is such that it naturally assents thereto, e.g., first principles, it is not in our power to assent to it or to dissent. For in such cases, assent follows naturally and consequently, properly speaking, is not subject to our command. But some things which are apprehended do not convince the intellect to such an extent as not to leave it free to assent or dissent, or at least suspend its assent or dissent because of some cause or other; and in such things, assent or dissent is in our power and is subject to our command."[4a] Thus, St. Thomas distinguishes two sorts of exercise: one concerns the application of attention to this or that object, the other concerns the application of assent. The first application is in the power of the will, inasmuch as the will determines whether or not I shall turn my attention to the premises and think of them. The second application, which concerns assent itself, is not in the power of the will unless the objects are such as not to convince the intellect. If the objects are convincing and necessitating, not only is there no choice between dissenting and assenting—the freedom of contrariety—but there is not even any choice between suspending assent and not suspending it: in other words, there is necessity of exercise. St. Thomas says that in this respect the act is not in our power. [Since under other circumstances] the exercise of an act falls under our power, let it be said that exercise is taken away from us [and reverts to nature].

From this, it follows that if assent to the premises is posited the will cannot, even in exercise, directly prevent assent to an evident conclusion. The reason is that the will cannot prevent the sight of an object if you posit both that this object is illuminated and that the eyes are open. This is a matter of experience and it is easily intelligible, since in such a case all causes are natural agents which cannot be interfered with by the will. Light naturally manifests and illuminates the object, and the cognitive power exercises its operations naturally with regard to an object that is sufficiently revealed. Plainly, evident premises, if they

are properly disposed, illuminate and manifest a conclusion as light does colors. The intellectual power is not free but operates naturally with regard to an object which is sufficiently revealed, i.e., properly illuminated. So long as the object is illuminated and the power awake and attentive, there is necessity of exercise; assent cannot be interfered with by the will any more than the will can prevent open eyes from seeing.

However, the will can indirectly prevent assent to a conclusion inasmuch as it can turn the attention of the intellect away from the premises, likewise, in the presence of a clearly visible object, it is possible to turn the eyes away or to shut them. If assent to the premises is delayed or withheld or if no thought is given to the inferential power of their disposition, illumination of the conclusion does not follow.

From this, you may gather in what sense one should understand, in the present context, these words of Aristotle: "[so far as time relations are concerned], the major is known before the conclusion, and the minor at the same time as the conclusion."[5] He speaks of the major considered in itself and separately. The major is the more universal proposition, and it is not subsumed under another proposition, but assumed.[6] It can be known separately and in itself; accordingly, it can be known antecedently in time. But if the minor is formally considered as minor, viz., as inferior premise subsumed under the major and determining it in such a way as to cause the conclusion determinately, then it cannot be understood without the conclusion being understood simultaneously. Let it be clear, however, that such simultaneous knowledge of minor and conclusion concerns the minor subsumed and set under the major. This should not be understood in a merely negative sense as meaning just that there is no intermediary between the knowledge of the minor and that of the conclusion. Obviously, there cannot be anything between minor and conclusion: since the minor is the last part of the premises, the part which comes next to it and is in immediate relation with it is the inferred conclusion, which is external to the system of the premises. Over and above this negative meaning, this statement has a positive meaning inasmuch as, at the instant in which the minor is known as minor, assent to the conclusion is also produced. This is what St. Thomas teaches in *Com. on Post. An.* 1. les. 2. Leonine 9, his argument

being that if the minor is known formally as co-ordinated with and subordinated to the major, and if, further, the validity of the consequence is known, a light is thereby produced which suffices to make the conclusion clear and which necessarily makes it clear. The conclusion is not made clear by any other light than the inferential light contained in the premises. Illumination takes place in an instant: this holds for spiritual light more than for corporeal light, for the former is more efficacious, more perfect, and less dependent upon the body. Therefore, at the very instant in which the light of the premises has become actual—which light attains ultimate actuality by virtue of the minor—assent to the conclusion results as from a cause which is not interfered with and which operates instantaneously, as was said of illumination.

It might be *objected* that the intellect is a limited power and cannot elicit several acts simultaneously; at least, it cannot elicit, at the same time, several acts in determinate and limited number. Therefore, the ultimate act that the intellect can elicit by natural energy may well consist in the assent to the minor, so that the intellect would be unable to elicit assent to the conclusion.

Answer. In this case, if the intellect cannot give up any of the antecedent cognitions, either because they necessitate the intellect or because the will refuses to move away from them, the intellect does not produce formal assent to the conclusion because of impediment and limitation of power. But in the present connection, we speak of a cause which is not interfered with, and in this case the intellect is unqualifiedly necessitated by the light of the premises, just as fire is necessitated to heat, and the eye to see, provided that there is no impediment and that the action considered is within the sphere of the active power.

Some authors have a still more exacting view of the subject and hold that minor and conclusion are known not only simultaneously, but by one and the same indivisible cognition bearing both upon the principle and upon the conclusion. But such procedure is proper to the angelic intellect, which accomplishes in one act all that our discourse does through several acts. Such unity cannot be achieved by discursive light and requires man's being divinely raised above the connatural ways of human knowledge, which, by general opinion, is the case with the infused

science of Christ. If, on the other hand, we speak of the virtual knowledge of the conclusion, clearly it is attained in the premises by the same act as the premises themselves.

Objections and Answers

First objection. The will is not necessitated by any particular good, for no particular good essentially concerns its specific being. Now, the assent to the conclusion, even after assent has been given to the premises, is a particular good. This follows from the rule formulated by St. Thomas when he says (i-ii. 9. 1 ad 3) that truth itself, which is a perfection of the intellect, is contained as a particular good in the universal good. Therefore, the will is not necessitated by it with regard to exercise.

Confirmation. If the will acted by necessity with regard to the obvious theoretical conclusion, it also would act by necessity with regard to an obvious practical conclusion such as this: do not do to another person what you do not want done to you; now you do not want your property to be stolen; therefore do not steal the property of another person. But the will does not cause assent to this conclusion by necessity, since it sometimes follows the opposite line of action.

Answer. Let us bear in mind the doctrine of St. Thomas on the two exercises, one of which apprehends principles while the other assents to these principles or to the conclusion necessarily deduced from them. With regard to the first, the will is free and may prevent the intellect from thinking of these principles. If such is the case, assent to the conclusion is indirectly suspended; the will stopped it by setting up an obstacle. But the will cannot interfere with the second exercise, if assent to the premises is granted and if the propositions are of such nature as to convince the intellect. This has been explained in the foregoing in the terms of St. Thomas' doctrine.

Answer to the confirmation. The practical syllogism, considered as practical and as actual mover of the will in the order of exercise, does not necessitate the will. (1) For one thing, the will can divert the mind from a correct formulation of the principles, just as it can in theoretical matters ("Thy judgments are removed from his sight," Ps. 9. 5). If the intellect is not diverted

from the correct formulation of the principles, it will be necessitated, with regard to the practical conclusion, in a hypothetical and relative way. (2) Assuming that the practical principles are properly arranged, the only necessary conclusion is that there is a duty to do this, in other words, that this is the thing to be done according to the law, but it is not always the thing to be done according to desirability. In exercise, desirability is accompanied by indifference, unless the object is God clearly seen; accordingly, this practical syllogism does not conclude with a conviction, but with an indifferent proposition, and what the will follows is its agreement with desirability proposed here and now, and not only agreement of the reason according to the law.

Second objection. Even when assent to the premises is posited, the intellect needs a habitus in order to assent to a scientific conclusion: science is the habitus relative to such a conclusion. This implies that the intellect retains some indifference toward its assent, even after the premises have been posited. If no indifference were left in it, the intellect would generate no habitus. When a power is totally determined, there is no habitus, since the function of a habitus is to remove the indifference of a power; but, where there is any indifference, no matter of what kind, there is not absolute necessity.

Confirmation. Consider the case in which, from necessary premises two conclusions are inferred, one direct, the other indirect—e.g., when, from premises in Barbara, Baralipton is inferred. The intellect would assent by necessity to both conclusions, which is false, since one conclusive demonstration produces and requires only one conclusion; thus it is by the will that the intellect is led to select either of these conclusions. *Finally,* if the intellect assents by necessity to the conclusion as soon as the premises are posited, it will also, by necessity, continue to assent so long as these premises are present. Thus, once a demonstration is effected, the mind will never lose knowledge of it [which is contrary to experience.]

Answer. The scientific habitus attains not only the inferred conclusion as soon as there is assent to the premises and valid consequence, it also attains the premises in their active inference, and in the power of their arrangement. On account of all this, a habitus is needed to make it possible to elicit demonstration not

only when it is achieved for the first time, but also afterward. However, it is true that if we consider only the inference of the conclusion upon assent to the premises and proper disposition of the premises, this inference, considered in isolation, does not involve any difficulty calling for a habitus to overcome it.

Answer to the confirmation. When two conclusions are inferred from the same premises, not both of them are inferred with equal immediacy. For instance, the indirect conclusion is inferred by means of some transmutation or conversion of a proposition. Not in any state of affairs, but only if the premises have been properly arranged does the intellect assent by necessity to the first conclusion. Correspondingly, it will not assent to the indirect conclusion by necessity with equal immediacy, but only after the transmutation or conversion mentioned has been effected. With regard to the continuation of assent, let it be said that assent to the conclusion will be continued; but the intellect can be diverted from thinking of the premises, and this is how assent to the conclusion [as such] is discontinued.

ARTICLE 4

ON SELF-EVIDENT AND IMMEDIATE PROPOSITIONS. ON UNIVERSAL AND ESSENTIAL AND STRICTLY APPROPRIATE PREDICATES

Let us now consider the conditions that premises must satisfy for reasoning to be demonstrative. If these conditions were not explained, the problems relative to the knowledge of the premises would be treated incompletely.

First place belongs to the self-evident or immediate proposition. Not every demonstration is formed from self-evident propositions, but every demonstration depends upon such propositions and resolves into them. Since every self-evident proposition is immediate, its nature is explained negatively by saying that it is immediate [that is, free from dependence upon any middle term], and positively by saying that it is self-evident. The immediate proposition is defined by Aristotle (*Post. An.* 1. 2. $72^{a}8$) and St. Thomas (*Com. on Post. An.* 1. les. 5. Leonine 2): "A proposition without means, in other words, a proposition that has no proposi-

tion prior to it." The "means" [or middle term] that the immediate proposition is said to be lacking is the means of an intrinsic and a priori proof (as will be shown at greater length in the following disputation), for an immediate proposition may admit of being proved a posteriori and by extrinsic causes. This is why St. Thomas says (*On Truth* 10. 12) that a proposition is self-evident when the predicate "belongs to the concept of the subject." Notice that this definition must be understood formally; its meaning is that a proposition is self-evident when a predicate belongs to the concept of the subject immediately and directly. If the predicate belongs to the subject by the mediation of another term, there is no reason why the connection between subject and predicate, however essential it may be, should not be proved and manifested by some middle term. For instance, the proposition that man is sentient can be proved by the consideration that man is an animal, and the proposition that a line is not a substance can be proved by the consideration that quantity is not substance. This point, mentioned by Aristotle in *Post. An.* 1. 11. $79^{a}30$ (see also the *Com.* of St. Thomas on this text, les. 26. Leonine 6), is illustrated in i. 14. 1: there St. Thomas proves that God is intelligent by his being immaterial. Intellectuality is included in immateriality and is convertible with it. Likewise, one may prove that Peter is rational by his being a man. In these argumentations, the included is proved by the including.[7]

If the self-evident proposition is considered in *positive* fashion, it is defined as "a proposition known by reason of the terms themselves, or by the explanation of the terms." Thus, a self-evident proposition is not the same as an intuitive proposition, i.e., a proposition known through sense experience. For one thing, what is known by sense is not known as a proposition but as an object of simple apprehension; moreover, it comes to be known not by the mere explanation of the terms but by being attained in external experience. In the sense, the proposition 'snow is white' is known by experience, but in the intellect, it is not a proposition known by reason of terms connected self-evidently with each other; rather, it is a proposition in contingent matter. Lastly, a self-evident proposition is not the same as a proposition known without discourse. In faith, we know without discourse upon the authority of the witness; yet what is believed is not

known self-evidently. Again, the angel knows, in the principles and without discourse, things that come to be known by proof and causes. In the digest[8] of the second chapter [of *Post. An.* 1.] we shall see how the self-evident proposition or first principle divides into *(a)* axioms and *(b)* theses—in other words, into most common principles and less common principles. This problem will be treated more extensively in the following disputation.

The division of the self-evident proposition into self-evident in itself and self-evident to us is well known; it is formulated by St. Thomas in i. 2. 1 and in *On Truth* 10. 12. It is rejected by Scotus (*Com. on the Sent.* i. dist. 2. q. 2) and generally by his school. Against this division, some more recent authors argue that St.Thomas is not speaking properly and that what is known in itself and not to us is not, in a proper and formal sense, a proposition, it rather is the thing signified by the proposition; but a thing is not said to be self-evident or knowable except inasmuch as it is expressed by terms. (Which terms may be either the formal concepts or the words by which the thing is made known.) Thus, if the terms which convey knowledge of the thing are not self-evident but, on the contrary, are proved by something else, the proposition itself, considered as a proposition, will not be self-evident. If the thing signified is expressed by other terms and if these terms are self-evident, there will be a self-evident proposition, but no proposition will ever be self-evident by reason of terms that are confused and need to be proved by something else. This is almost all the argumentation used in favor of the theory which denies that some propositions are self-evident in themselves [without being self-evident for us].

St. Thomas treats the subject of self-evident proposition from a higher standpoint. He does not consider just the formal signification of propositions on the part of concepts and significative words; he considers also the foundation that self-evident propositions have in the thing signified itself. It is not the signification of the terms but the connection of the things signified which causes a proposition to be demonstrable by a middle term or devoid of a middle term and consequently immediate and self-evident. When a predicate belongs to a subject immediately, there is no question of using a middle term to prove that this predicate belongs to this subject, and, so far as the predicate is concerned,

there is the foundation of a self-evident proposition. However, this does not always suffice to make it possible for us to formulate a self-evident proposition, for sometimes the extremes (or terms) of which this proposition is made are not known to us immediately. If the explanation of the terms cannot reveal their connection without expanding into discourse, the proposition is not self-evident for us absolutely speaking. It is self-evident as an effect of discourse, in other words, it is self-evident for the learned. When we speak of the proposition, there is no impropriety in considering it objectively rather than formally, in other words, from the standpoint of the thing signified, which is formally signified by concepts and terms. The standpoint chosen by St. Thomas was the more indicated, since the relevant thing was to explain the truth of a proposition rather than the proposition itself. To determine whether a certain truth is demonstrable or indemonstrable and self-evident, it is necessary to consider [not only the proposition but] also its foundation in the thing signified.

It is now easy to answer the argument used by our opponents. Let it be said that in St. Thomas 'self-evident proposition' designates not only the proposition formally understood but also the proposition understood in an objective sense and in the foundation of its truth. A proposition is self-evident in itself when there is immediate connection in the object, and it is self-evident to us when this connection is manifested and explained by terms of such nature that without discourse and by the mere understanding of the terms we come to know the connection.

In order to understand what is meant by 'predicate holding in every instance' and why such a predicate is needed in the premises of a demonstration, it should be noticed that, as St. Thomas points out (*Com. on Post. An.* 1. les. 9. Leonine 3-5), the expression 'to be predicated of every' has one sense in the context of the *Prior Analytics* and another sense in the present context [i.e., in the context of the *Posterior Analytics.*] There [i.e., in the *Pr. An.*] this expression refers merely to universal predication considered in its form, but here it refers to the matter or necessity [of the connection between subject and predicate.] There [in *Pr. An.*] a predicate is said to hold in every instance if only it belongs, whether necessarily or contingently, to each of the things covered by the subject. Briefly: with regard to prioristic

form, every predicate which bears the mark of universality and distribution, whether on probable or necessary grounds, has the property of 'holding in every instance': such property pertains to the syllogistic form, which is used in demonstrative syllogism and in probable syllogism as well. But the posterioristic 'holding in every instance' implies two conditions, as St. Thomas says *loc. cit.*: (1) The subject does not cover anything to which the predicate does not belong; so far, the posterioristic and the prioristic meanings coincide. (2) There is not any conceivable time in which the predicate does not belong to the subject; by laying down this second condition, Aristotle points to certain and necessary truths. The whole definition is worded as follows: "I call 'holding in every instance' what is truly predicable in every instance—not of one to the exclusion of others—and at all times, not at this or that time only" (*Post. An.* 1. 4. $73^{a}28$).

Universality is understood here in two senses: there is universality of time and universality of supposita. The universality of supposita is either positive or negative. It is positive when a concept factually has several inferiors. It is negative when a concept [, without having, in fact, several inferiors,] does not exclude, or at least is not conceived as excluding a plurality of inferiors; a concept enjoys negative universality so long as the possibility of inferiors is not excluded by its formal features even though it may be such as to admit of no inferiors in the real world. Demonstration requires no more than this second kind of universality. Thus, many attributes can be demonstrated of God and the angels; in the real, 'God' and 'angel' do not have several inferiors, but they can be conceived after the pattern of a thing common to several, as seen above (question 8, art. 3.). A singular term, as Peter or Socrates, does not satisfy the conditions of demonstration, for, by reason of the very way of conceiving that they imply, these terms express singularity and exclude universality.

Likewise, universality in time is understood in two ways: *(a)* unqualifiedly and absolutely and *(b)* in restricted and determinate fashion. Understood absolutely, it holds for every phase of time and for all times. It is understood with restrictions when existence is required for a predicate to belong to a subject, whether continually, as 'blackness' to 'raven,' or at certain times, as 'blossoming' to 'tree.'

Concerning the per se predicate it should be remarked that in common language this expression designates the opposite of the accidental predicate. But 'by accident' has two senses: sometimes it means the same as 'by another,' and sometimes it means the same as 'not essentially but accidentally and contingently.' Likewise, per se sometimes means the same as 'immediately,' i.e., 'not by something else,' and sometimes it means the same as necessarily and essentially.

Aristotle divides the per se predicate into four modes of perseity, which St. Thomas systematizes as follows (*Com. on Post. An.* 1. les. 10): the preposition *per* signifies two things, viz., causality and position. Sometimes to say that a thing exists per se (by itself) is to say that it exists without another and solitarily. When *per* signifies causality it may refer *(a)* to an intrinsic cause, whether formal or material; this is the case when the body is said to live by (*per*) its soul–formal cause–and when a body is said to be colored by (*per*) its surface–material cause–or *(b)* to an extrinsic cause–in most cases, efficient–as when water is said to be warmed by (*per*) fire.

Thus, there is perseity in the first mode when something is attributed to something on account of the latter's form. Since definition is what is most formal in everything, there is per se predication in the first mode of perseity when the definition or some quidditative predicate pertaining to the definition is predicated of a subject.

There is perseity in the second mode, St. Thomas says, when the preposition *per* [by] designates the material cause, i.e., the proper subject of a form which cannot be defined without reference to its proper subject. This is the same as saying that there is perseity in the second mode when a property is predicated of its subject. In this case, the predicate is not of the essence of the subject, but the subject pertains to the essence of the predicate inasmuch as the proper subject is included in the definition of the property.

The third mode of perseity is not a mode of predication but a mode of existence; there is perseity in the third mode when a thing is said to exist *per se*, that is, solitarily. First substance is said to exist *per se;* an accident understood concretely (white, musical, etc.) is understood to exist not solitarily but as a form

denominating something distinct from itself—i.e., a subject—and inhering in it.

Finally, the fourth mode of perseity is neither a mode of predication nor a mode of existence but a mode of causality and is defined by Aristotle: "... when a thing is consequentially connected with another thing. . . ." There is perseity in the fourth mode when what is signified is the very reason why an effect is produced, as in the proposition 'the builder is building'; there is no such connection in the proposition: 'the builder is walking,' for the art of building is not conducive to walking. Thus, in the fourth mode of perseity, there is, as it were, an appellation of the proper form by reason of which a thing causes a certain effect; signification centers about what is conducive to a certain causation, not about what is not conducive to such causation. The thing conducive and the thing nonconducive are one and the same in a material sense. Accordingly, there may be perseity in the first mode without there being perseity in the fourth; the first mode implies only essential identity, but the fourth mode implies the formal relation by reason of which some object belongs to, or is caused by, some other object. Thus, 'animal' and 'rational' are identified and both belong to man in the first mode of perseity, but the proposition 'an animal reasons' does not express perseity in the fourth mode because 'animal' does not designate the formal principle of reasoning.

From all this, you may infer that a predicate which is per se in the first or second mode must be universal because it belongs to its subject necessarily and, therefore, always and in all cases. The third mode of perseity belongs only to the individual; the fourth obtains in all cases, whether individual or universal, in which the formal principle of causation is designated.

Objections. (1) The proposition 'what is capable of laughter is man' is not in the first mode, and yet the predicate is part of the definition of the subject. Therefore, Aristotle is wrong in referring to the first mode that which is placed in the definition, and he is wrong, again, when he says that in the second mode the subject pertains to the definition of the predicate.

(2) The same argument may be held in relation to indirect predications. They are not universal, therefore they are not per se; and yet it happens that one extreme is included in the defini-

tion of the other. When I say 'animal is man,' or 'animal is rational,' 'animal' is included in the definition of the predicate. Likewise, one correlative is defined by the other. Thus, the first mode of perseity is not properly characterized by saying that the definition, or part of it, is predicated of the subject.

(3) All contingent predicates would be per se in the second mode, for the subject is included in the definition of every accident, even if the accident falls under the fifth predicable. This can be gathered from St. Thomas, *On Being and Essence*, chap. 6. Thus, the definition of the second mode of perseity is not satisfactory.

(4) Lastly, contingent predicates are placed in the fourth mode, as when one says: "fire warms," "the builder builds." In this sort of proposition, the predicates signify actions which are contingently connected with active causes and can be interfered with. Such actions cannot be per se predicates, for what is contingently connected with a subject is accidental.

Answer to the first objection. Concerning the proposition in which the subject of the accident is predicated of the accident itself, authors are divided. *Some* declare without any qualification that it is not per se in the first mode, because the subject is not an intrinsic part of the accident and because the proposition itself, being indirect, is neither universal nor per se. Examples are: 'the white is body,' 'the capable of laughter is man.' Cajetan (*Com. on Post. An.* 1, chap. 18) says definitely that these are accidental propositions, although they are, improperly, called per se. (This is how he explains his own statement [chap. 3]. In chapter 3, Cajetan says that such a proposition is per se. He explains this statement by remarking that the subject is part of the definition of the accident, whether directly or obliquely.)

Others say that the subject is predicated of the accident in the first mode of perseity though not in unqualified fashion, but by way of addition and extrinsically, because the quiddity of such an accident depends upon the subject as upon something extrinsic. The subject would be predicated in the first mode of perseity in the same [qualified] sense in which it is said to pertain to the definition. This is why Aristotle mentions, among examples of the first mode of perseity, the triangle which is made of lines, and the line which is made of points. The point is not predicated of

the line except in oblique fashion, as the term is predicated of the relation and the object of the power. When Aristotle says that the subject is predicated by accident of the accidental form, 'by accident' means 'through something else.' It does not mean 'accidentally.' When snub is predicated of nose, 'nose' belongs to 'snub' through something else, that is, through man, who is the subject of snub-nosed. It would be better to say that Aristotle does not speak of the proper subject, but of an extraneous and common subject whose relation to the accident renders the proposition accidental. The text of Aristotle leaves no doubt on this point; see *Post. An.* 1. 22. 83^a1, and *Com. of St. Thomas* les. 33, Leonine 3-6. An example used by Aristotle is 'the white is wood.' The case is different when the proper subject is predicated of a property on account of a necessary connection between them.

The second interpretation seems to enjoy strong probability, although the first is not altogether improbable. Thus, when it is argued that Aristotle places in the second mode propositions in which a property is predicated of its proper subject, it must be replied that such a subject is of the essence of the predicate. On the other hand, if the subject to which the property belongs is predicated of the property itself, Aristotle does not say that it pertains to the second mode.

Answer to the second objection. It cannot be said that indirect propositions are excluded from the second mode of perseity by the very fact that they are indirect. It is alleged that an indirect proposition is not true in every instance, and that, consequently, it cannot be per se. But this does not hold for those indirect propositions in which the subject is convertible with the predicate, in such a way that the predicate belongs to every subject, as when it is said 'what is capable of laughter is man,' 'what is rational is man.'

Thus, in these indirect constructions a proposition is sometimes essential by reason of [material] identity, as when I say 'what is rational is man'; then, by reason of material identity, the proposition belongs also to the first mode, because one extreme pertains to the essence of the other [,again,] by reason of [material] identity. An indirect proposition is sometimes contingent, as when I say, 'animal is man'; then, on account of its contingency, it is not in any way per se or universal. But sometimes the

subject is predicated of the property, e.g., 'what is capable of laughter is man': then there is predication in the first mode of perseity, because the predicate 'man' belongs to the definition and quiddity of the 'capable of laughter' at least by way of addition. (This is the way in which the proper subject is included in the definition of the accident; see *Met.* 7. 5. $1031^{a}2$.) Likewise, when a correlative is predicated of a correlative obliquely, as when I say: 'the father is father of the son,' such a predication is reducible to the first mode of perseity obliquely and by addition, for this is the way in which the predicate pertains to the definition of the subject. As to the proposition: 'animal is either rational or nonrational,' it is necessary and universal by reason of its disjunctive character, and it is reducible to the second mode of perseity. Although rational and nonrational are contingent differences, the disjunction behaves like a property, for it belongs properly and essentially to 'animal' to be contracted by one member of this disjunction.

Answer to the third objection. If common accidents can be related to a proper subject, as heat to fire, cold to water, then they are defined, as properties, with the help of these subjects. The proposition expressing their definition is per se in the first mode with addition, as explained previously. If common accidents cannot be related to a proper subject, then they are not defined by any such subject, so far as their specific notion is concerned, for they are not specified by any such subject. The inherence of such an accident—or, in other words, the accident as capable of inhering—is, indeed, defined by the subject, for aptitude to inhere is essential to the accident, but this aptitude belongs to it generically, not specifically.

Answer to the fourth objection. The per se predicate in the fourth mode may be accidental in predication, but is essential in causation. Thus, 'the hot warms,' in relation to existence, expresses a predication of the fifth predicable, but in relation to causality, it expresses per se causality.

Concerning the predicate which is called 'strictly appropriate' or 'universal,' St. Thomas points out (*Com. on Post. An.* 1. les. 11. Leonine 2-3) that this expression does not designate a predicate universal in the way in which the five predicables are said to be universal in predication; 'universal' here refers to a definite kind

of totality and adequation, inasmuch as neither can the subject be found without such a predicate nor such a predicate without the subject—in other words, subject and predicate are convertible. A thing can be predicated universally without strict propriety, e.g., in the proposition 'every stone is colored'; the predication, indeed, is universal but there is no strict propriety, since it is not *as* stone that the stone is colored, but as mixed body.

This is why the universal or strictly appropriate predicate must satisfy three conditions. (1) It must hold in every instance; in other words, it must be expressed universally. (2) It must be per se in the first or in the second mode; in other words, it must belong to the subject necessarily. (3) It must be convertible with the subject; in other words, belong to the subject by reason of what constitutes the latter in its specificity. Thus, the ultimate difference and its property belong to the subject essentially and primarily, and with strict propriety. E.g., in the propositions, 'man is rational,' 'man is capable of laughter,' the predicate belongs to the subject essentially and primarily and by reason of what constitutes man in his species. But in the propositions 'man is animal,' 'man is sentient,' the predicate does not belong to the subject per se and primarily, although it belongs to it essentially; such predicates belong also to other subjects; consequently, they express a common nature and they are not convertible with the subject or strictly appropriate to it.

This is the definition of the strictly appropriate predicate: one which holds in every instance and belongs to the subject per se and expresses that by which the subject is what it is. 'Per se' refers to the first or second mode of perseity, for these alone are modes of predication. Thus, [the predicative intentions] 'holding in every instance,' 'per se,' and 'strictly appropriate' are related as superiors and inferiors; every predicate that is strictly appropriate is per se, but not vice versa, and every predicate that is per se holds in every instance, but not vice versa.

QUESTION 25

ON DEMONSTRATION

Demonstration, the main subject of this book, results from premises set in order by the syllogistic form and relative to a nec-

essary matter. After having treated of the premises, we have to inquire into demonstration itself. This inquiry can be divided into three main issues: (1) the definition or essence of demonstration; (2) the matter out of which it is made and the matter with which it is concerned; (3) its division into demonstration of fact and explanatory demonstration. As to its effect, which is science, it will be treated in the next question.

ARTICLE 1

ON ARISTOTLE'S DEFINITION OF DEMONSTRATION

Demonstration is defined in two ways by Aristotle: (1) in relation to the effect that it brings about, which effect is also its end; (2) in relation to the matter out of which it is made. The first definition considers demonstration as causing [science]; the second considers it as caused by its own principles.

The first definition is: "Demonstration is a syllogism productive of scientific knowledge." (*Post. An.* 1. 2. 71^b17). To know scientifically is to know the cause by virtue of which a thing is, and that such is the cause of this thing, and that the thing cannot turn out to be otherwise. The second definition is: "A syllogism whose premises are true, primary, immediate, prior to the conclusion, better known than the conclusion, and cause of the conclusion" (71^b20).

In the *first definition,* three terms call for elaboration: 'syllogism,' 'productive of,' 'scientific knowledge.'

'Syllogism' designates the form of argumentation that demonstration requires, viz., the syllogistic one. In the enthymeme, the arrangement [of terms and propositions] falls short of the formal perfection needed for the production of science, unless the lacking proposition is understood; but then a complete syllogistic form is brought about. If there is only one premise, the middle term is not applied to both extremes. In other words, one premise does not suffice to show that the middle term actually agrees with both extremes. But without application of the middle term to both extremes, the inference by which the extremes are united with each other falls short of evidence. Thus, if an enthymeme is conclusive, it is by virtue of the syllogism to which it is reduced.[9]

Since the notion of syllogism, as relative to form alone, does not express completely the nature of demonstration, mention is made of the matter, which must contain a necessary connection if a syllogism is to be demonstrative. This matter is characterized in this first definition by the proper effect of demonstration, viz., the production of science. In the second definition, the matter of demonstration is manifested by its intrinsic characteristics.

With regard to the term 'productive of,' let us consider in what genus of cause demonstration is said to produce science. Briefly: either we are speaking of *actual* science, in other words, of the scientific assent, which is the very act of knowing scientifically, or we are speaking of *habitual* science, in other words, of the scientific habitus, which results from actual science.

(1) In the first sense, the cause of science is not the whole demonstration, but premises properly arranged and assented to. The whole demonstration, inasmuch as it includes premises and conclusion, includes both the scientific assent—in the conclusion—and the cause of this assent—in the premises. We have seen in the preceding question (art. 3) that premises exercise influence upon the conclusion both in the order of efficient causality and in that of formal causality. The role of efficient cause is played by the assents to the premises; these assents are formal cognitions or concepts, and in virtue of them, the actuated intellect brings about, in the capacity of efficient cause, the inference of the conclusion. The role of formal cause is played by the objects or things represented in the premises. These objects specify the cognitive acts in which the premises consist. The truth and objects of the principles, which contain virtually the truth to be inferred, also specify, in a virtual and mediate manner, the assent to the conclusion, which assent regards the truth of the conclusion explicitly and formally.

(2) If we refer, in the second sense of 'science,' to the production of habitual science, it must be said that science is generated not only by the premises, but also by assent to the conclusion; in other words, it is generated by the whole demonstration. Clearly, habitus are generated and acquired by acts similar to the acts toward which they constitute inclinations; now the habitus of science inclines the mind toward assenting to the conclusion as following from the premises; therefore, it is generated, in the or-

der of efficient causality, by a similar act. (The generation of the habitus is treated in the *Metaphysics* and in the books *On the Soul*; see also i-ii. 51.)

The third component [of the definition of demonstration] is 'scientific knowledge.' The common interpretation is that it refers to explanatory science. This interpretation accords with the purpose of Aristotle, who, in connection with his definition of demonstration, proposes a definition of the explanatory type of science: "We suppose ourselves to possess unqualified scientific knowledge of a thing . . . when we think that we know the cause on which the fact depends, as the cause of that fact and of no other, etc." (*Post. An.* 1. 2. $71^{b}8$-11.) Since, however, the demonstration of the fact produces a science of the fact, the definition of science applies easily to both kinds of demonstration. The notions of explanatory science and science of the fact will be explained in article 4.

The *second definition* refers to the propositions of which the demonstrative syllogism is made or should be made; it explains the conditions that premises must satisfy in order that the argumentation of which they are the components be a genuine demonstration.

Thus, demonstration is said to be an argumentation made of premises that are true, primary, immediate, and prior to, clearer than, and cause of, the conclusion.

Instead of 'is' some write 'proceeds from,' and they find a difficulty in 'proceeds from,' which indicates discourse. But Aristotle does not say 'proceeds,' he uses a word meaning 'is' or 'consists of.'[10] In fact, if we consider the inferred conclusion, it is true that it "proceeds from" such premises, and if we consider the demonstrative syllogism as a whole, it is true that it "consists of" such premises and of the conclusion, as of parts.

The first three components of the definition express properties of the premises considered, as it were, absolutely; the other three components express properties of the premises considered in comparative relation to the conclusion and to other propositions.

The first component is 'made of true premises.' The true can be concluded from the false in virtue of the form by postulation of the premises, but the true cannot be scientifically proved by the false, for proof gives certainty and evidence,

and falsehood cannot give such attributes to truth.

The premises of demonstration are said to be primary and immediate, i.e., self-evident. As St. Thomas points out in *Post. An.* 1. les. 4. Leonine 10, such propositions are not demonstrated by anything extraneous to themselves which would act as a middle term. They are said to be *primary* in relation to the propositions that are proved by them; they are said to be *immediate* inasmuch as they admit of no demonstrating middle term, as St. Thomas says. Thus, these two components of the definition involve no redundance; they explain diverse formalities, viz., *(a)* that a proposition is not demonstrated by anything extraneous to itself, in other words, that it admits of no middle term, and *(b)* that it is capable of demonstrating other propositions, in other words, of enjoying primacy over other propositions: this is what 'to be primary ' means. We have explained, in the preceding question (art. 4), the meaning of 'self-evident proposition' and 'immediate proposition.'

The definition includes three more components, viz., 'made of [propositions that are] prior to,' 'better known than,' and 'causes of the conclusion.' Here, Aristotle considers the premises in comparison with and in application to the conclusion. Thus, if you look at the premises in relation to the conclusion, it is necessary that the middle term by which the premises are connected with each other and by which they throw light on the conclusion be the *cause of the conclusion,* at least in knowledge; accordingly, the premises enjoy *priority* over the conclusion in the way in which they are cause of it. Lastly, they must be *clearer* than the conclusion. Since they make the conclusion manifest and known by virtue of being, themselves, better-known principles, they necessarily must be better known than the conclusion; for "that by the causal power of which things have a certain determination has itself the same determination in a higher degree."[11]

With regard to the requirements of demonstration, as expressed in this second definition, a few difficulties will be considered briefly.

(1) Must the premises of every demonstration be self-evident and exclusive of a middle term? Can the premises of a demonstration be propositions which, though devoid of immediate evidence, are evident as an effect of proof by other propositions?

Answer. The latter suffices. Every demonstration will be made of propositions primary and immediate, either formally and in themselves, or virtually. When premises are deduced from propositions which are, by themselves and formally, primary and immediate, the demonstration is made, in mediate and virtual fashion, of primary and immediate premises, for it ultimately resolves into such premises. It suffices that a demonstration be made of propositions which resolve into self-evident propositions. Such is the teaching of St. Thomas (*Com. on Post. An.* 1. les. 4. Leonine 14). Plainly, this is what we do in any science when, after having demonstrated the first or the second conclusion, we proceed to the third, the fourth, the tenth, etc., which are proved by premises themselves dependent either upon an anterior conclusion or upon first principles.

(2) In what sense should it be understood that demonstration proceeds from the causes of the conclusion? Demonstration of fact proceeds from effects or remote causes; explanatory demonstration does not always proceed from causes properly so-called: for instance, genuine causality plays no part when a divine attribute is proved by another, and when certain properties are demonstratively predicated of being. On the other hand, the first property is caused by the essence and is not demonstrated by it, for nothing is intermediary between essence and first property.

Answer. The foregoing is principally a definition of the explanatory demonstration. Yet, as already mentioned, it can be adapted to the demonstration of fact, if we understand, by 'causes of the conclusion,' not causes in being, but causes in knowing and relatively to us; such causes can also be effects. With regard to the examples of explanatory demonstration just adduced, let it be said that the principle of a demonstration has neither necessarily nor always the character of a cause in a formal and physical sense; it suffices that there be causality in a virtual or metaphysical sense, so that the one be the *reason* of the other, even though it does not cause it; thus, immutability is the reason of eternity, perfection is the reason of goodness, etc. Concerning the relation between first property and essence, let it be said that the first property is caused by the essence and emanates from it, but the essence is also the subject of which this property must be demonstrated, and a property cannot be demonstrated of an essence ex-

cept by the essence itself. In the real, there is no intermediary entity by which the first property could be demonstrated, for the only conceivable means of demonstration is identical with the subject; however, we use the definition of the essence as a means of demonstration which is logically, though not really, distinct from the subject.

(3) Why is it said in the definition that the premises are better known than the conclusion? This statement sounds objectionable in several respects. *(a)* Better known cannot mean more true, for truth consists in an indivisible. *(b)* Better known cannot mean more certain, for the premises are physical causes and their influence upon the conclusion is exercised in a physical way. Consequently, they can impart to the conclusion the whole of their certainty, especially when, between premises and conclusion, the distinction is not real but merely logical. It should even be said that, if the intellect gives more attention to the knowledge of the conclusion than to the knowledge of the premises, it will communicate to the conclusion a greater certainty. *(c)* When a theological conclusion is drawn from premises one of which is a proposition of faith and the other a natural truth, the inferred conclusion is more certain than the natural premise; but, if the conclusion can surpass one premise in certainty, it will sometimes be more certain than both premises. *(d)* There does not seem to be any firm reason why a *principle* should be described as *better known.* Reasons for such a description are conceivably two. *One* is this axiom of Aristotle: "That by virtue of which things have a determination has itself the same determination in a higher degree" *(Post. An.* 1. 2. $72^{a}29$); but there are many cases in which this axiom raises difficulties. For instance, you cannot say: "The stone is white by reason of whiteness, therefore, whiteness is whiter"; "Blood is let for the sake of health, therefore, health is more let"; "It is by reason of ideas and habitus that man thinks, therefore, ideas think more...." Since premises are equivocal causes of the conclusion, *another* ground would be the consideration that the equivocal cause is higher than its effect. This principle raises difficulties in the case of causes that are both equivocal and instrumental; these causes are not more perfect than their effect. For instance, the seed is not more perfect than the living organism born of it, and heat is not more perfect than fire. Now, the premises

are the instruments of the intellect, which is the principal agent producing the conclusion.

Let it be *answered* that the premises must necessarily be better known, for if they were as well known as or less known than the conclusion, the latter would not be proved by them in any way whatever. Consider that premises are either indemonstrable and, from their terms, self-evident, or demonstrable by other and antecedent propositions. In the second case, they are demonstrable antecedently to the conclusions deduced from them; therefore, they are known before the conclusion, depend upon fewer consequences [than the conclusion does], and need fewer middle terms; in short, they are better known in the sense of being more independent in their truth. In the first case, since premises are known by mere understanding of their terms, it is obvious that they are better known than the conclusions deduced from them and participating in their evidence.

In reply to the *first* objection, let it be said that 'truth' is taken in two senses: *(a)* as pertaining to the object which it concerns; 'truth' then designates the 'to be' or the 'not to be' with which a proposition is in conformity; *(b)* in another sense, 'truth' concerns the foundation of this conformity and the way in which it is founded; this conformity is in some cases more immutable or more mutable than in other cases and thus, although it does not, properly speaking, ground truth itself, it grounds the certainty and firmness of truth. In the first sense *(a)*, truth consists in an indivisible, although falsehood, which is understood as a movement away from truth, admits of degrees (one falsehood is greater than another. See St. Thomas, C.G. iii. 139). Truth itself concerns an indivisible term, viz., to be or not to be, considered not in becoming but in a terminal condition and in complete being, for it concerns to be or not to be as a real fact. Falsehood, on the contrary, consists in moving away from being and tending toward its opposite. Such a tendency admits of more and less, just as sin does. The case of moral goodness is not similar to that of truth because here conformity is relative not to an indivisible rule placed beyond becoming, but to the discretion of the reason, which is the mean of prudence; such discretion admits of some latitude inasmuch as it is not bound by determinate rules like art, but weighs the pros and the cons in relation to the circumstances.

Thus, theoretical truth is regulated by the 'to be' or the 'not to be' of the thing in itself, whereas practical truth is regulated by agreement or disagreement with reason and prudence. When St. Thomas says (i. 17. 4) that truth and falsehood imply contrariety to each other, he speaks of truth and falsehood in judgments, viz., in acts of the intellect; he does not consider truth and falsehood on the part of the term with which there is conformity when there is truth. Aristotle did not say that the first principles are most true, but most certain or most firm (*Met.* 4. 3. $1005^{b}11$; *Com. of St. Thomas*, les. 6. Cathala 596, 599). Thus, so far as its foundation is concerned *(b)*, in other words, with regard to the firmness and the type of its foundation, truth admits of more or less, for the connection of the extremes is more firm or more immutable in the proposition 'God is' than in the proposition 'a man is sitting' or 'snow is white,' etc. Thus the premises are more true, that is, more certain than the conclusion inasmuch as the latter derives its truth from the truth of the former.

Answer to the second objection. A physical cause can communicate the whole of its perfection to its effect, provided that it is absolutely univocal and of the same essence as its effect, but an equivocal cause cannot. Now the premises are an equivocal cause of the conclusion. The conclusion is sometimes identified with the premises on the part of the thing known, and with regard to entity; in this case, it possesses, by [material] identity, the same certainty as the premises; however, from the point of view of truth, premises and conclusion remain diverse. Since one is inferred and illuminated whereas the other is illuminating, the latter must be clearer, at least for us. We are not speaking here of greater intensity in the intellect; such greater intensity might contribute to a better actual adherence on the part of the knower, but it has nothing to do with firmness on the part of the thing known; in other words, it does not increase the objective immutability of a proposition.

Answer to the third objection. In theological discourse, the conclusion is not clearer than the natural premise so far as evidence is concerned; it is better known than the natural premise with regard to certainty, provided, however, that the natural premise is considered in isolation; but if the natural premise is considered as superelevated and connected with the premise of faith,

then this conjunction of premises is more certain than the inferred conclusion, for it does not involve only the natural truth of a premise, but also the subordination of the natural premise to the supernatural one; in a way, the natural premise belongs to the supernatural one, it unfolds it and applies it to inference. The comparison between conclusion and premise must not regard one premise alone, taken in isolation, it must regard the premise formally as premise, i.e., in the state defined by its being connected with the other premise; it is from this connection that it derives the entire and complete power of inference. In short: the natural theological premise, as connected with the premise of faith, is more certain than the conclusion, though it is not more certain than the conclusion if it is taken in isolation.

Answer to the fourth objection. Both foundations are firm. With regard to the first, this axiom of Aristotle is perfectly true, provided it is understood with the appropriate conditions. St. Thomas treats of these conditions in several places, such as i. 87. 2. ad 3; *Com. on the Sent.* i. dist. 12. q. 1, a. 2 ad 2; *Com. on Met.* 2. les. 2. Cathala 292; *Com. on Post. An.* 1. les. 6. Leonine 3-4. Briefly, the conditions that must be satisfied for this principle to be true are three: The first is that cause and effect be distinct and have not the same form. The second is that effect and cause have the same denomination and that one of them be said to be such and such precisely because the other is itself such and such, so that the denomination of the one be born of the denomination of the other. The third is that the form in which cause and effect communicate admit of more and less. The examples adduced and other similar examples are defective because the second condition is not satisfied; in these examples the principle and what follows from it do not have similar forms and denominations. Whiteness is not white, health is not poured out, and ideas do not understand. The first condition is not satisfied in the following reasoning: 'The Son spirates the Holy Spirit because of the Father, from whom He receives the property of spirating, therefore, the Father spirates more'; the reasoning does not hold because the Father and the Son spirate by the same spirating form. But the following reasoning holds: "The moon is luminous because the sun is luminous, therefore, the sun is more luminous"; it is not indeterminately that the moon is said to be luminous be-

cause of the sun: it is precisely *because of the light* of the sun that the moon is luminous; the form or denomination that cause and effect have in common is the reason why something is such and such [e.g., why the moon is luminous]. This is well explained by Cajetan in his *Com. on Post. An.* 1. chap. 2.

With regard to the other principle, let it be said that premises are truly equivocal causes; they are not purely instrumental, but are principal in their genus, viz., in relation to the conclusion to be illuminated. Yet they illuminate the conclusion inasmuch as they are moved by the intellectual power, in relation to which they behave like an instrument. Likewise, the heaven has the character of an instrument in relation to the angel, and yet, absolutely speaking, the heaven in motion is a principal cause with regard to inferior things. Likewise, every power and virtue of a thing is said to be its instrument. However, to speak properly, a power or virtue is a formal principle of action rather than an instrument. It would be inaccurate to call instrument every habitus acquired by an intellect, for an intellectual habitus is, in a proper sense, the active form of a principal agent, viz., the intellect. The purely instrumental cause presupposes a principal cause actually enjoying perfection; it does not actuate and perfect its principal cause, but serves it and ministers to it. If a cause perfects the principal cause itself, actuates it, and enables it to act, it pertains to the principal cause as factor of its determination and of its readiness; however, such a cause bears some resemblance to the instrument inasmuch as it is an energy belonging to the principal cause, subordinated to it, and dependent upon it. In that sense, the premises are related to the intellect as a form and a light which determines its indifference with regard to the conclusion to be illuminated and inferred.

ARTICLE 2

WHAT CONDITIONS MUST BE SATISFIED FOR A PROPOSITION TO BE DEMONSTRABLE?

A demonstrable proposition must satisfy two conditions: (1) it must be relative to a necessary matter and (2) it must be proved and illuminated by a middle term. By reason of necessity in the

matter, a demonstrable proposition contrasts with opinion; by reason of the middle term, it contrasts with the self-evident proposition, which does not admit of any middle term. Thus, in order to distinguish demonstrable propositions from those which are not demonstrable, we must show in what sense demonstration requires a necessary matter, and what propositions are self-evident.

First point. In the doctrine of Aristotle (*Post. An.* 1. 6 and 7. 74^b5 ff.), it is held certain that demonstration must proceed from necessary and essential premises.

However, some authors in recent times maintained that there can be demonstration even in contingent matter; such is the opinion of Vasquez (Com. on St. Thomas' *Summa theologica* i. disp. 4 chap. 7) and Cabero (*Digest of Logic,* sec. on *Post. An.* disp. 2. diff. 2); according to them, all that is needed is that the acts be certain and evident. In imperfect demonstration, such as the a posteriori demonstration, there can be science of the contingent. This syllogism, "Every animal gets warm when it runs, Peter runs and he is an animal, therefore, he gets warm," is neither probable nor erroneous; therefore, it is demonstrative. A *confirmation* is found in the very existence of physics, which is a true science and yet considers many contingent truths, e.g., it is hot in summer, it is cold in winter, etc.: actual occurrences may be at variance with these propositions. Another confirmation is found in theology, which counts among its conclusion many contingent truths deduced either from two premises held by faith or from one premise held by faith and one held by natural reason; however, theology is an unqualifiedly certain and infallible science. Divine faith itself, by its material object, attains and receives many contingent facts: yet it is infallible.

Some would reply that the certainty of faith proceeds from the divine testimony upon which faith is based formally, not from its material object. But we say the same of science, which by reason of its formal principles and of its act is certain and infallible, even though its material object is not necessary.

Answer. These arguments prove nothing against our theory. Some ancient philosophers were led by the second argument to deny the existence of true science; among them were the Academicians; Heraclitus and Cratylus thought in the same way. When Plato concluded that there is no science of corruptible things, he

gave partial adherence to their opinions. In order not to deny science absolutely, he posited separate ideas, which were supposed to constitute the object of science. We spoke of these things, following the exposition given by St. Thomas, in question 3, article 2.

Science must deal with a necessary object because the scientific assent to the inferred conclusions must be certain and firm; if it were not, there would not be science but opinion, and rather than an intellectual virtue there would be only an imperfect and weak cognition. (Virtue must be a disposition of a perfect subject.)[12] Now, there cannot be certain and firm assent if the connection is not necessary but contingent, for assent must be firmly established in truth, which is conformity between the mind and what is or is not. Suppose I say with certainty and firmness that this is or is not, and suppose that the thing referred to exists contingently. Contingent existence implies the possibility of a change in the real world. In case the real state of things changes, the assent either changes or does not change. If it changes, a definite act of science has been replaced by its opposite. If it does not change, it becomes false, for it is at variance with the actual state of things. Therefore, it is impossible that the firm and certain assent of science be concerned with a contingent object.

Answer to the first objection. A certain and evident act relative to a contingent matter is an impossibility both in a priori and in a posteriori science. The syllogism cited as an example is manifestly not demonstrative but probable, for the minor, 'Peter is an animal and runs,' is not certain, but contingent on account of its second part, 'and runs'; therefore, the conclusion inferred is probable. In the philosophy of nature there are demonstrations about things that can happen otherwise, but these demonstrations are relative to necessary connections, not to contingent ones. For instance, winter raining is contingent if you consider the event itself, but the proposition that in this part of the year rains are normal and will come in most cases, expresses a necessary connection. We can even speak here of absolute necessity.

Answer to the confirmation. Theology is not based upon the connections or truths of the things taken in themselves but considers all things as illuminated by virtual revelation and a supe-

rior light. Even though things taken in themselves disclose contingent connections, when the same things are referred to God and considered in the science that God has of them, infallible connections are brought forth. Our theology is subalternated to the divine science and would not be possible if its own principles were not known with evidence in the divine science and treated there according to infallible and immutable connections. Thus, theology is not concerned formally with contingent connections; by presupposition it is concerned with infallible connections, for theology presupposes that connections are established evidently in the divine science despite their being contingent in relation to proximate causes. This is the doctrine of St. Thomas in i. 1. 2. See also what the commentators have to say on this text. A subalternate science is characterized by its depending, for evidence and certainty, upon a superior and subalternating science, as we shall see in the following question, where we shall discuss, among other things, the subalternation of theology.

The additional remark concerning faith calls for the same kind of answer. Faith does not possess infallibility by reason of the things which it concerns but by reason of the divine testimony: this is what St. Thomas says in ii-ii. 1. 1. (See also the commentators on this text.) In *answer* to the reply, let it be said that there is disparity between faith and science. Science is received from the things themselves and uses one truth to shed light on another truth; accordingly, if truth is not firm and immutable, illumination will not be firm and certain. Thus, from the contingency of the object and the lack of necessity in the connection, it is correctly inferred that knowledge itself is contingent and fallible. But faith does not derive its formal structure from a connection between things: it receives it from the divine testimony which, indeed, is extrinsic to the things themselves but in itself is most certain and infallible, and consequently can deal noncontingently with things contingent.

These considerations make it easy to see why the object of demonstration must satisfy the further conditions of universality, everlastingness, and procession from proper principles. Demonstration is relative to *perennial* things: this requirement does not concern everlastingness in existence but objective everlastingness in grounding a truth independent from any mutable connection.

Demonstration is relative to universals because science is relative to necessary objects. Necessary connections hold only between essential predicates and between a subject and its properties. Now, essential predicates belong to the definition of the thing, and there is no definition of individuals as individuals; every definition concerns the essence of the thing, which essence is common and belongs to the species. As to the property, it emanates from the principles of the essence, not from the principles of individuation; thus, properties are not connected with the individuals as individuals. Lastly, demonstration must proceed *from proper principles,* not from extraneous ones, for it must follow a line of necessary and essential connection. Now, two things cannot be both essentially connected with each other and extraneous to each other, for if *a* depends upon *b* and is connected with it in an essential—i.e., intrinsic—mode, nothing is more proper to *a* than *b*. True, in mathematics, demonstrations sometimes proceed from extrinsic principles; however, these demonstrations presuppose an entirely intrinsic proportion or adaptation of one object to the other, and thus, by reason of the relation implied—which is not one of effect or of cause, but one of porportion—even here, demonstration does not proceed entirely from extraneous principles. What about demonstrations proceeding from supernatural light? This light is extrinsic indeed, but it derives from God, in whom things, no matter how contingent, are subjected to immutable and infallible connections; consequently, the manifestation effected by divine light is resolved into something intrinsic, at least in so far as all creatures imply a relation to the first cause and are set in order by the first cause.

Second point. The question: 'What propositions admit of no middle term and are self-evident?' raises two difficulties. (1) Considering that a middle term can be a priori and intrinsic or a posteriori and extrinsic, we have to determine whether self-evident propositions exclude both kinds of middle term or only the first. Likewise, we have to determine whether propositions which, within a certain science, admit of no middle term, can be proved nevertheless by another science, viz., by a science of higher rank such as metaphysics. (2) A special problem concerns the propositions in which the first property is predicated of the subject: Are these propositions, absolutely speaking, indemonstrable?

First problem. A proposition which can be described, absolutely speaking, as self-evident implies only the absence of any intrinsic middle term; an extrinsic middle term is not excluded and can be derived either from an effect or from an extrinsic cause—efficient or exemplary—or from a reduction to impossibility. If it is by virtue of its own entity and immediately that one term is united to another, the proposition has in itself all that is needed for the connection of the extremes to be known immediately when the terms themselves are known. These terms are immediately united and connected with each other; therefore, their conjunction can be known without any means distinct from themselves. Whenever, by the sole explanation of the terms, *a* is known to be connected with *b*, there is an object for a self-evident proposition, i.e., for a proposition knowable by mere explanation of the terms. Thus, an extrinsic middle term in no way prevents a proposition from being self-evident so long as the proposition is knowable by reason of its own components and from within—in other words, by the sole understanding of the terms. When these conditions are satisfied, a proposition is said to be self-evident in itself. However, by accident and in relation to us, it can be said not to be self-evident if the terms are not commonly understood. By 'terms' we do not mean words and concepts, but the things signified by them, inasmuch as the simple explanation of these things, without any proof, discloses the connection of the extremes. I say 'simple explanation' in reference to angelic knowledge, which by simple intuition penetrates principles and conclusions as well; this simple way of knowing, on account of its loftiness, can accomplish everything that can be accomplished by our discursive science and the use of proofs. [Again,] for a proposition to be self-evident, it must reveal itself by simple explanation of the terms, without there being any part to be played, either formally or virtually, by any means of proof and inference.

a) From this it follows that all propositions containing a definition or an essential predicate are indemonstrable, even though they be not first principles. (First principles are distinguished by their containing the most common predicates.) By the very fact that one object is immediately connected with another and belongs to the concept of the latter, the connection of the extremes is, in itself, knowable by the mere explanation of the terms,

without any indirect procedure and without any proving middle term.

(b) It follows also that there is no reason why self-evident propositions could not be proved by an extrinsic middle term or by reduction to impossibility; these methods do not conflict with the immediate and intrinsic connection of predicates. By such procedure, metaphysics explains and defends all other principles [i.e., the principles of all other sciences], not ostensively but by reduction to impossibility and to this supreme principle: 'everything either is or is not.'

Objection. Reduction to impossibility is equivalent to manifestation of truth, for it manifests the falsehood of the opposite proposition and consequently the truth of the proper principle. Whatever establishes the falsehood or impossibility of one proposition establishes the truth of the opposite, since the same proposition cannot be both affirmed and denied.

Answer. Reduction to impossibility rests entirely upon the supposition that a conclusion is denied and a premise granted. In order to establish a conclusion that somebody denies, the opposite of the granted premise is inferred from the opposite of this conclusion. This method does not manifest the truth of the conclusion determinately and intrinsically; it only shows that if the truth of the inferred proposition is denied, one is bound to accept contradictory propositions in the statement of the premises, but the truth of the conclusion is not demonstrated with regard to mode and origin.

(c) It follows, lastly, that when we accept as premises or principles propositions that another science proves by intrinsic methods—as in the relation of subalternate to subalternating science—these propositions are not principles in an unqualified sense. They are conclusions demonstrated by another science, and consequently they cannot be said to lack every intrinsic and a priori middle term; such a middle term is beyond the range of the inferior science. Moreover, in one and the same science, a demonstrated conclusion can play the part of principle in the demonstration of another conclusion. The discussion held in the following question will show how a subalternate science uses principles proved by the subalternating science.

We now are in a position to understand what Aristotle means

when he says that some principles are indemonstrable in an absolute sense and others in a qualified sense. Those principles are indemonstrable absolutely speaking which admit of no intrinsic middle term, and those are indemonstrable in a qualified sense which are demonstrated not by the inferior science but by a superior one. Let it be recalled, however, that there is no reason why propositions which are, absolutely speaking, indemonstrable, should not be proved by an extrinsic middle term. Thus, it sometimes happens that the very subject of a science is demonstrated a posteriori or by extrinsic causes or by a subalternating science. A science must presuppose that its subject is such and such; accordingly, it knows of no intrinsic middle term pertaining to the quiddity of its subject; but an extrinsic middle term, not pertaining to the quiddity, is not excluded.

Question. How will the mind behave if its attention is caught simultaneously by an a posteriori middle term demonstrating a self-evident proposition and by knowledge of the same proposition from the sole understanding of the terms?

Answer. These two cognitions are obtained by diverse means; therefore, there is no reason why they should not exist simultaneously in the intellect; the case is similar to that of an object known by diverse sciences. However, these two cognitions cannot be exercised by the same act, for an act has only one species, and consequently one proper means and one specifying principle. When a thing is manifested, on the one hand, by the sole explanation of the terms and, on the other hand, a posteriori by an effect, there is more than one specifying principle. Even between cognition 'why' and cognition 'that' there is a specific difference, as we shall see in article 4. A species cannot contain in itself inferior specific differences unless it belongs to a higher order, which does not seem to be the case here.

With regard to the *second problem* let us only remark that the first property which emanates from a subject can be related either *(a)* to this subject considered in reality and in itself or *(b)* to the definition of this subject, by the mediation of which [definition] the subject is explained to us. If it is related to the subject considered in itself, it admits of no real middle term, for between first property[13] and subject there is no intermediary reality; but a logically distinct middle term, i.e., a definition, is not excluded.[14]

The first property is proved of the subject by the mediation of the definition, which is logically distinct from the subject. For instance, it is said that man is teachable because he is a rational animal. If, on the other hand, the first property is related to the definition itself, with which it is immediately connected, the proposition is made indemonstrable, i.e., devoid of a middle term.[15] True, the property emanates from the essence and can be manifested by the essence itself. Manifestation by the essence is immediate; it is brought about without the addition of any intermediary reality, so that the property admits of no middle term, although it has a subject from which it emanates. But the means which is a definition is not really distinct from the defined: accordingly, there is no such thing as a middle term distinct from the subject.

ARTICLE 3

WHETHER EVERY CIRCULAR DEMONSTRATION IMPLIES A VICIOUS CIRCLE

In order to rule out two errors of the Ancients, one of which holds that there cannot be science of anything, and the other that there is science of all things, Aristotle says that there exist self-evident propositions which are neither demonstrable nor scientifically known, but constitute the principle of science and illuminate demonstrable conclusions. Obviously, such propositions must be reached by a direct process of analysis. One proposition demonstrates another, but there cannot be regression to infinity; therefore, it is necessary to arrive at a principle which *(a)* does not admit of being demonstrated by any anterior proposition and *(b)* constitutes the reason and principle by which all propositions having with it a necessary connection are demonstrated. We say that such a principle is self-evident, i.e., knowable by mere explanation of its terms. To speak properly, a self-evident principle is not known scientifically; it is the principle of scientific knowledge. Thus Aristotle refutes the first error by showing that the existence of self-evident principles, known not scientifically, but self-evidently (*which is better than to be known scientifically*), renders possible the science of some things. He also refutes the contrary error, viz., that there is science of all things, by showing

that it is necessary to reach a self-evident principle which is not itself an object of science but gives birth to science.

The Ancients answered that the first princples, though indemonstrable in a straight line and by an anterior cause, can be demonstrated in a circular procedure, that is, by the conclusion that they infer. Thus, Aristotle was led to criticize as vicious the circular demonstration.

Circularity in demonstration consists in a progress from principles to conclusions followed by regression from conclusions to principles. The latter phase admits of two forms, according as *(a)* there is regression from the same conclusion to the same principles—I mean the same in a material sense, not in a formal sense, for, on the way back, the conclusion is supposed to be known by some means different from the principles themselves; *(b)* regression starts from a conclusion identical not only materially but also formally, that is, formally known by the principles to which there is regression. The first circle is called diversiform because one middle term is used in the way from principles to conclusion and another middle term in the way from conclusion to principles; the second circle is called uniform because the movement from principles to conclusion and the movement from conclusion to principles are governed by one and the same middle term.

Thesis. Aristotle rejects only the formal and uniform circle. He does not reject the diversiform and material circle which, absolutely speaking, is not a circle and is not vicious.

Proof of the first part. If the formal and uniform circle is admitted, the same will be demonstrated by the same, and the same will be described as clearer and less clear than itself in relation to the same. I prove that man is capable of laughter by pointing to to his being rational, but if some one denies that man is rational, I prove his being rational by pointing to his being capable of laughter. In the first proof, 'rational' is clearer than 'capable of laughter,' and in the second proof 'capable of laughter' is clearer than 'rational.' Again, that by which we prove something must be clearer than that which is proved. Thus, the same will be clearer and less clear formally, according to the same middle term and in relation to the same, viz., 'rational' in relation to 'capable of laughter' and 'capable of laughter' in relation to 'rational.'

Proof of the second part. There is circularity in a merely material sense when the conclusion from which the mind comes back to the antecedent is known by a middle term different from the one used in the way down from antecedent to conclusion. In this case, the principles are not proved by the middle term al-already used in the establishment of the conclusion, but by another middle term; in the new system and with the different middle term, the conclusion can be clearer than the first antecedent from which it was inferred. Materially, the conclusion is one and the same proposition, but since it is known by two distinct middle terms, it consequently depends upon two antecedents. Thus, when we come back from the conclusion to an antecedent by which, indeed, this conclusion was proved, but not by the same method of proof, regression does not start, formally speaking, from this conclusion, but rather from the other antecedent, by which the conclusion was manifested. Formally and absolutely speaking there is here no circle.

We are now in a position to solve a few difficulties often opposed to the thesis which we are supporting. (1) There is a perfect circle among causes, since causes are cause of each other, as Aristotle says in *Ph.* 2. 3. $195^{a}9$ and *Met.* 5. 2. $1013^{b}9$; then there should also be circularity in demonstrations, since they are informed by causes.

(2) Further: Aristotle often uses logical circles. In the *Post. An.* 2. 12. $96^{a}3$-5, he says that rain can be demonstrated by abundance of vapor and that, conversely, abundance of vapor can be demonstrated by rain. In *On the Heavens,* 2. 5. $288^{a}2$, he shows that the heaven has anterior and posterior parts because its movement begins with one part and not with the other. But when there is a question of showing that the movement begins with one part and not with the other, Aristotle argues that the heaven has anterior and posterior parts. Likewise, the stars are said to be motionless by essence because they are spherical figures, and they are said to be spherical figures because they are motionless. In the most general way, philosophers first knew the causes by the effects, then came to know the same effects by the causes.

(3) Lastly, a circular method is acceptable in dialectical proofs, for dialectic does not require that proof be administered

by propositions clearer than, and cause of, the proved conclusion. One may begin with the conclusion and then reach the premises, and one may just as well begin with the premises and then reach the conclusion. This is what Aristotle seems to acknowledge (*Post. An.* 2. 7. 92^a34) when he grants that one definition is demonstrated by another and the latter by the former; Aristotle says that this is possible because such proofs are dialectical, not demonstrative.

Answer to the first objection. Causes do not admit of circularity in a formal sense. They admit of circularity in a material sense and in diverse genera of causality. There is no circle when the dependence of *a* upon *b* is of one type and the dependence of *b* upon *a* of another type. Such diverse ways of depending are manifested by diverse notions; the material cause is manifested by the formal cause in a certain way, the formal cause is manifested in a different way by the material and efficient causes. Since there are more than two kinds of cause, the material cause can be manifested by the efficient, and after having been so manifested, it can serve to manifest the formal cause. Moreover, the formal cause as manifested by the material can manifest the efficient and the final, and vice versa. More on this in *Philosophy of Nature* (1. 10. 4).

Answer to the second objection. These demonstrations are not circular in a formal sense. Rain as known by experience manifests the vapors which are the cause of rain, and vapors, as efficient cause, demonstrate rain. Notice, however, that the text of Aristotle does not speak of the same vapors and of the same rain, but refers to diverse vapors and rains; true, rain is the cause of vapors and vapors are the cause not of the same, but of another, rain.

With regard to the argument derived from the treatise *On the Heavens,* St. Thomas says, in his *Com.* on the same text (*On the Heavens.* 2. les. 7. Leonine 6 and les. 16. Leonine 3-4), that Aristotle is not using a formal but only a material circle, and that he proceeds from the same thing known in different ways and in diverse genera of causality. For instance, if we use the movement of the pulse to prove that the heart moves, we are referring to a question of mere existence [i.e., to the question *whether* a certain thing *is*], but the question what is the cause of the motion of

the pulse concerns the essence of the thing, and the proof of the answer must refer to the heart considered as cause. But these things take place in diverse genera of causality and one cognition presupposes another, e.g., experience or some similar cognition is presupposed in the proofs of fact. Thus, when Aristotle proves that the stars are of spherical shape because they do not move by themselves, and then that they do not move by themselves because they are of spherical shape, he assumes that the first proposition is proved by another middle term; such is the interpretation proposed by St. Thomas; it holds also for the other propositions. Likewise, the philosophers began to know causes from their effects experimentally and factually, then from the causes they attained an explanatory knowledge of the effects.

Answer to the last objection. Even in merely probable matters a formal circle is not tolerable; although dialectical reasoning does not use an intrinsic cause, it still proceeds from what is clearer in terms of probability to what is more obscure, also in terms of probability. Consequently, if what is more obscure were used, in the same genus of proof, to manifest the antecedent, it would be treated as clearer than the antecedent and thus it would be clearer than the same and less clear than the same in the same genus: a thing as absurd in probable argumentation as elsewhere. But if the probable conclusion and the antecedent are viewed from diverse standpoints, there will not be circularity formally and uniformly. (See the foregoing). The text from *Post. An.* 2. 7 does not mean that there is formal circularity in dialectical proofs. Between the proof of one definition by another and the dialectical way of proving, there is, according to this text, one feature of resemblance: the dialectician uses a multiplicity of middle terms, precisely because he proceeds according to probability; he cannot be satisfied with one middle term, like the demonstrator. A similar method is used by the one who, in order to teach a definition knowable by simple understanding of its terms, proves it by another definition, and vice versa.

ARTICLE 4

ON THE DEMONSTRATION OF FACT AND THE EXPLANATORY DEMONSTRATION, AND ON THE ADEQUACY OF THIS DIVISION

In the preceding question, article 1, we said that the question 'whether a thing exists' concerns only the existence or the

possibility of a thing, in other words, its being given, but does not concern the cause or the root by virtue of which a thing is given. The same method must be followed in determining the difference between the explanatory demonstration and the demonstration of fact. The demonstration of fact intends only to show with evidence that something is true, in other words, that it is truly given; it does not consider how it is true or the cause by the operation of which it is given. Such investigation of the cause is the business of the explanatory demonstration. This is the main difference between the two kinds of demonstration.

Aristotle distinguishes these demonstrations (*Post. An.* 1. 13. $78^{a}22$) both in relation to diverse sciences and in relation to one and the same science. It happens that the demonstration of fact is found in one science and the explanatory demonstration in another science, but it happens also that both are found in one and the same science. The two demonstrations may belong to correspondingly distinct sciences because many sciences do not know the cause and origin of things; what they know with evidence is only *that* such and such a thing exists. The science of the fact and the explanatory science may either be unrelated or subalternated one to the other. In the latter case, knowing the explanation is the business of the subalternating science, and knowing the fact is the business of the subalternated science. This subject will be more easy to explain in the following question, when we discuss the way in which the subalternating and the subalternated science differ from each other. Within one and the same science, Aristotle distinguishes these demonstrations by their diverse ways of proceeding. As St. Thomas recalls (*Com. on Post. An.* 1. les. 23. Leonine 2), demonstration must proceed from true and immediate causes; it follows that a demonstration falls short of the explanatory type either because it proceeds not from the causes but from the effects, or because the causes from which it proceeds are neither immediate nor proximate, but remote, and consequently are not the determinate origin of such a definite truth. If, for instance, someone proves that a stone does not breathe by saying that it is not an animal, he is referring to a remote cause, for some animals do not breathe. Accordingly, this method is used principally in negative demonstration.

At this point it is easy to see that those are guilty of

inadvertence who confuse the explanatory demonstration with the a priori demonstration and the demonstration of fact with the a posteriori demonstration. Every explanatory demonstration is a priori but the converse is not true; every demonstration a posteriori is a demonstration of fact but, again, the converse is not true.[16] The demonstration of fact is defined only by its manifesting a truth without manifesting the proper and immediate origin of this truth. The fact that a certain truth is given can sometimes be manifested by something posterior, viz., by an effect, sometimes by something anterior, viz., by a remote cause, and sometimes by something concomitant. Thus, not every demonstration of fact is a posteriori, that is, by the effect: sometimes it is administered by something anterior, viz., a remote cause. On the other hand, every explanatory demonstration is a priori, for it is always administered by the cause and, more precisely, by the proximate and immediate cause.

In the present connection, two questions remain to be examined: (1) whether this division is adequate and (2) what kind of division it is, viz., whether that of a genus into species or that of an analogue into analogates.

With regard to the *first question*, let it be said that the division is adequate. This is the commonly received theory, although it is said that Averroës (at the beginning of his *Com. on the Physics)* mentioned a third type of demonstration called demonstration 'absolutely speaking,' which demonstrates both why the thing is such (explanation), and that it exists (fact). There are also some who say that demonstration by a sign is neither explanatory nor of fact.

Proof of our statement. The members of this division are immediately opposed to each other, so that each of them implies the contradictory negation of the other. The demonstration of fact is an argumentation which delivers a truth without showing its proper and particular origin. Such demonstration may use a remote cause, or an effect, or any thing with which the truth under consideration has an essential connection without originating in it. The explanatory demonstration is an argumentation which manifests a truth in relation to its proper cause and origin and, further, involves knowledge of the cause and origin considered as such. Clearly, the immediate and proximate cause, on the one hand, and the nonim-

mediate cause, on the other hand, are contradictorily opposed to each other. Thus, these demonstrations differ by immediate opposition, and the division is exhaustive. The same could not be said of the opposition between a priori and a posteriori demonstrations, for a demonstration can proceed from something which is neither prior nor posterior but concomitant with something else and existing at the same time as it. For example, correlatives are simultaneous and one is demonstrated by the other (if there is a father, then there is a son); they are not related as prior and posterior. The ideas of cause and effect play no part in many mathematical demonstrations founded upon some proportion or correspondence between lines or other figures.[17] Demonstrations derived from acts of cognition or vision embody the same type. I may say: "A stone is seen by me; therefore, there is a stone," and yet the fact that a stone is seen is neither the cause nor the effect of the existence of the stone. Whether the explanatory demonstration and the demonstration of fact admit of subdivisions, as Averroës seems to believe in the text just referred to, is a question that we shall consider in the answer to the last objection.

But it is necessary to specify what we mean by 'remote' and 'proximate' cause. Referring to Soto *(Com. on the Dialectic of Aristotle,* Post. An. 1. q. 5) and Cajetan *(Com. on Post. An.* 1. chap. 12), let us say that the remote cause is not convertible with its effect; the remote cause exercises only a remote influence upon its effect and consequently exceeds it. When a cause is convertible with its effect, in a formal and essential sense, it is called proximate.

The reasons why a cause is not, formally and proximately, convertible with its effect, can be reduced to three. (1) Even though a cause be convertible with its effect, convertibility may not be immediate, but effected by the mediation of a term standing between cause and effect. This happens in the relation of the essence to the properties of the third and fourth order, for the essence causes these properties through those of the first or second order.[18] (2) At the other extreme, a cause is said to be remote when it is not convertible with its effect, does not infer it, and is not inferred by it, although it sometimes does bring about such an effect. One would say, for instance, that someone has a fever because he has a rapid pulse;[19] yet, there is sometimes rapid pulsa-

tion without fever, as in one who is running; on the other hand, there is sometimes fever without rapid pulsation, as in the dying. (3) Lastly, a cause is said to be remote when it is not adequately convertible with a certain effect, so that it suffices to infer the negation of this effect, but not its positive assertion. For instance, "It is not an animal, therefore, it does not breathe," is a valid inference, but this inference: "It is an animal, therefore it breathes," does not hold; animal is said to be the remote cause of breathing. A celebrated example of Aristotle falls under this description (*Post. An.* 1. 13. 78^{b}30-31): someone asks whether there are flute players in Scythia, the answer is given that there are not even grapevines, which is a very remote cause.[20]

To determine the kind of this division, viz., whether it is univocal or analogous, the whole problem is to know whether science, understood unqualifiedly, is brought about by either demonstration or by explanatory demonstration alone. True, it appears that explanatory demonstration alone satisfies the conditions set by the definition proposed in the foregoing: "to know scientifically is to know the cause by virtue of which a thing exists, and that this is the cause of this thing. . ." It seems to follow that a demonstration which does not know "the cause on account of which a thing exists" does not bring about scientific knowledge in an unqualified sense, and that the notion of demonstration is but analogously common to the demonstration of fact and the explanatory demonstration. From another standpoint, it seems that both are demonstrations in a univocal sense, for the demonstration of fact grasps its object with certainty and evidence, and thereby contrasts with opinion—which is uncertain and inevident—in the same way as explanatory science. The demonstration of fact contains the substance and essence of science, since it contains the substance and essence of evidence and certainty, by which it contrasts with opinion and excludes it: Consequently, it is scientific.

Thesis. The demonstration or science of fact possesses intrinsically and substantially the character of demonstration, for it enjoys certainty and evidence. It is demonstration in an absolutely univocal sense inasmuch as it proceeds according to a formal *method* of certainty and evidence; however, it participates imperfectly in the notion of science, inasmuch as the *object* with which it is concerned is not perfectly scientific. The only objects

that possess fully the scientific character are the quiddity and the properties following upon the quiddity. Now, the demonstration of fact is concerned with the question 'whether a thing is' and does not attain the root and the cause of the truth by virtue of which the thing is.

A text of St. Thomas (i. 2. 2) shows that the demonstration of fact is truly and properly a demonstration so far as certainty and evidence are concerned. In this text, St. Thomas proves that there is demonstration of the existence of God, even though we proceed through effects, which are better known to us. The reason for this is clear. The demonstration of fact is based upon a necessary connection between effect and cause, or between remote cause and effect; for instance, it is proved by necessary connection that everything which is in process of becoming is caused by something else and that there is no regression to infinity. Likewise, in negative demonstrations, the negation of the effect is validly inferred from the negation of the remote cause, although the assertion of the effect could not be inferred from the sole positing of the cause. "It is not an animal, therefore, it does not breathe" holds, but the positive inference, "It is an animal, therefore, it breathes," does not. Therefore, the demonstration of fact is certain and evident.

However, with regard to the object which it attains, the demonstration of fact is not perfect science. Simply consider that such a demonstration does not reach the quiddity and decides only a question of existence. But science presupposes that the question of existence has already been decided; this is why no science can supply principles capable of proving the existence of its subject; such principles must be obtained antecedently from another source. Therefore, in the demonstration of fact, the mind necessarily proceeds from what is extraneous to the object, though not from things unconnected with the demonstrated conclusion. A discipline which is a science in a proper and perfect sense does not proceed from the consideration of things extraneous, as Aristotle shows in *Post. An.* 1. 7. $75^{a}38$. Therefore, the demonstration of fact concerns only the preambles to science. It is not conversant with the proper object of science, which is *what* things are.

It is now easy to see that the knowledge of the fact can pertain and be reduced to the same science as the knowledge of

explanation. In so far as the knowledge of the fact proceeds from extraneous principles, it seems to belong to another scientific species than the knowledge of explanation; but the specific diversity is incomplete and the knowledge of the fact is like an embryonic science at the service of a principal science. Again, the demonstration of fact is concerned with preambles and presuppositions of science, viz., with the problem of existence. This will be made clearer in the answer to the last objection. We shall see in the next question in what sense knowing the fact is the business of the subalternated science, and in what sense it pertains to the subalternating science to know the explanation. At all events, we have solved the difficulty relative to the scientific character of the demonstration of fact.

Objections and Answers

Against the *first* conclusion it is argued that the two types of demonstration described as demonstration of fact and explanatory demonstration are too few from one standpoint and, from another standpoint, too many. There seem to be more kinds of demonstration. *First of all,* there is the demonstration that Averroës *(Com. on Physics* 1) calls unqualified demonstration: an argumentation which demonstrates both that the thing is and why it is; such a demonstration is both a demonstration of fact and an explanatory demonstration. *Again,* the demonstration by a sign demonstrates neither by the cause nor by an effect adequate to the thing; therefore, it is a third kind of demonstration. *Again,* the demonstration by reduction to impossibility and, likewise, the negative demonstration, in which a negation serves as means, use neither the cause nor the effect; negation and the impossible are neither cause nor effect of the thing demonstrated. *Finally,* the demonstration in which a superior predicate is used to show that something belongs to an inferior subject, is neither one of fact nor an explanatory one. For instance, consider this syllogism: "Every animal is a substance, every man is an animal; therefore every man is a substance": animal is neither cause nor effect of substance.

Cajetan answers as follows the question raised by the first example *(Com. on Post. An.* 1. chap. 13): the demonstration

described by Averroës is not intermediary between the demonstration of fact and the explanatory demonstration. Rather it is a subdivision of the explanatory demonstration. One kind of explanatory demonstration concerns explanation alone and the other both explanation and existence. But it seems to be more true to say that an explanatory demonstration always includes, virtually and eminently, a demonstration of fact. Whoever demonstrates the cause of a truth demonstrates with greater force that there exists such a truth. But the converse is not true; he who demonstrates that there exists a certain truth does not by that very fact demonstrate the cause why such a truth exists.

With regard to the second example, let it be said that a demonstration by a sign, as such, proves only that the thing is, and does not evince the cause and the origin of that thing. It does not matter whether the sign is an effect or a remote cause or some concomitant. Thus, demonstration by a sign is a particular case of demonstration of fact.

With regard to the third example, it can be said, in the first place, that Aristotle's division into demonstration of fact and explanatory demonstration concerns only the ostensive demonstration. Yet the demonstration by impossibility reduces either to an explanatory demonstration or to a demonstration of fact. If the reduction to impossibility is administered through the causes of such impossibility, there is explanatory demonstration; if it is administered through effects, it is a demonstration of fact. Suppose I say: "If a horse discourses, it follows that it is rational"; the reduction to impossibility proceeds through effects. Suppose I say: "If a stone is living, it follows that it is endowed with self-motion": this is a demonstration of explanation. With regard to negative demonstration, we maintain that a negative proposition may be, in its own way, the cause of a negation. This reasoning, for instance, is valid: "It is not an animal, therefore it is not a rational being." Thus, when the proper and immediate cause of the negation is adduced, the negative demonstration is a demonstration of explanation.

With regard to the fourth example, let it be said that this demonstration is one of fact. The demonstration so exemplified proves only that there exists such and such a truth; it cannot bring forth its proximate and adequate cause, but only the thing

which it its cause remotely and by way of [material] identity. Animal is not the proper and single cause of a thing's being a substance. Moreover, when there is process from the universal to the singular—e.g., "Every man is capable of laughter, therefore Peter is capable of laughter"—either there is not demonstration properly so-called but merely exposition of the parts contained in the universal, or, if there is demonstration, it is an explanatory demonstration, for it brings forth the cause of Peter's being capable of laughter.

Second objection. The demonstration of fact, no matter how certain and evident it may be, does not set the intellect at rest but leaves it in suspense until the cause and origin of truth are known. Now, science has the property of quieting the intellect; this is why St. Thomas says (*Com. on Post. An.* 1. les. 18. Leonine 1) that knowledge through proper principles is the only true science. He also says (les. 23. Leonine 3) that explanatory demonstration is demonstration in an unqualified sense. Therefore the demonstration of fact is not a demonstration in an unqualified and univocal sense.

Confirmation. The demonstration of fact is not made of premises unqualifiedly necessary; therefore, it is not a demonstration in an unqualified sense.

Proof of the antecedent. The premises are either the remote cause or the effect. The remote cause does not have a necessary connection with the effect; e.g., being an animal has no necessary connection with being endowed with breathing. As to the effects, they are supposed to be known by their cause or by experience. If by their cause, there is explanatory demonstration; if by experience, the argumentation is grounded on fallible knowledge, and consequently it is not a necessary demonstration.

Let it be answered that the science of fact, on the part of the object, is an imperfect science; it is not a science in an unqualified sense because it does not grasp what the object is, but only that it is. With regard to what it actually attains, viz., the answer to the question "whether the thing is," it completely quiets the intellect. It is true, however, that it leaves the intellect uncertain and restless with regard to the question, "What is the thing?" for it is not of itself concerned with this question. Inasmuch, then, as it fails to procure understanding of the quiddity, this

demonstration is imperfect. This is all that St. Thomas means in the texts where he attributes the character of demonstration, absolutely speaking, to the explanatory demonstration alone. St. Thomas considers things from the standpoint of the perfectly scientific object, which is the quiddity; absolutely speaking, the demonstration of fact does not attain it. If, on the other hand, we consider the *mode* proper to the scientific grasp of things, i.e., the mode of certainty and evidence, then the demonstration of fact is, absolutely speaking, a demonstration.

Answer to the confirmation. The remote cause is used principally in the negative demonstration, when the cause is not convertible with the effect. The argumentation, "It is not an animal, therefore it does not breathe," is valid, but not the affirmative argumentation, 'It is an animal, therefore it breathes."[21] But if the remote cause is convertible with the effect, as it is when a mediate property is inferred from an essence, even a positive argumentation by a mediate or remote cause is valid.[22] Do not say that in a negative demonstration the negation of the cause issues in an explanatory demonstration. If it is said, for instance, that a stone does not breathe because it is not an animal, I say that this is not an explanatory demonstration. True, the negation of 'being an animal' sufficiently establishes the negation of breathing, but what it negates is not the proper and immediate cause of breathing; therefore, this demonstration is not effected by the proper and immediate cause of the negation. The proper meaning of a negation is revealed by the immediately opposite form.

To the further remark about effects, let it be answered that they are evident when they are known by certain and undoubted experience, or at least by an experience manifested inductively. Every science originates in induction; when, for instance, we use effects to show that there is a first cause, the existence of some effects is entirely beyond doubt.

Last objection. The demonstration of fact and the explanatory demonstration proceed from diverse principles and are actuated by diverse lights; one proceeds from effects, the other from causes. Therefore, they must generate specifically diverse habitus, for diverse scientific habitus follow upon a diversity of principles and of lights. The demonstration of fact is not reducible to an explanatory science because it is not reducible to the principles of such a science.

Answer. If the demonstration of fact and the explanatory demonstration find place in diverse sciences—whether these sciences be subalternated to each other or foreign to each other—it is clear that they belong to diverse habitus. But if the two demonstrations take place within one and the same science—inasmuch as, with regard to one and the same object, the demonstration of fact solves the question 'whether the thing exists?' and the explanatory demonstration the question 'what is the thing?' (e.g., in theology a demonstration of fact proves that God exists)—then it is the opinion of some that the demonstration of fact and the explanatory demonstration, even though they proceed from diverse principles and are specifically distinct from each other, generate assents that are specifically one and consequently generate a single habitus. Just so, the heat produced by fire and the heat produced by the sun are of the same species. This view is held by Soto (*Com. on the Dialectic of Aristotle*, Post. An. 1. les. 5). *Others* (e.g., Cabero) say that these assents are specifically distinct.

I would rather follow, because of its greater clarity, the opinion of Cajetan who says (*Com. on Summa theologica* i. 2. 3.) that theology proves the existence of God by principles which, though not its own absolutely, are its own instrumentally. In other words, the existence of God is proved in theology by principles of natural reason used as instruments by theology. The reason for this state of affairs is that no science proves the existence of its own subject by its own principles. In order to prove the existence of its own subject, all that a science can do is to use extraneous principles that it makes its own; at least, this can be done when the extraneous principles are clearer for us. Thus, we grant that the demonstration of fact, when it takes place within the same science as the explanatory demonstration, proceeds from principles that are extrinsic and, consequently, distinct from those of the explanatory demonstration. However, these extraneous principles are appropriate to the object of the science which uses them; they are preparatory to this science inasmuch as they settle the question of existence and prepare the intellect to understand the quiddity and to demonstrate its properties. This is why the demonstration of fact is said to be reduced to the explanatory demonstration. Again, the principles are different, but those of the demonstration of fact are adjusted to the object of explanatory

demonstration: by demonstrating the existence of the thing under consideration, they dispose and prepare the mind to understand this object. The assents are specifically diverse if these demonstrations are considered in themselves, apart from each other and, as it were, entitatively. However, if the two kinds of demonstration are considered as co-ordinated with each other and inasmuch as one assent prepares the mind to elicit the other, the demonstration of fact belongs to the same scientific species as the explanatory demonstration. True, it does not belong to this scientific species absolutely, but by appropriation, by reduction, and in the capacity of disposition. Likewise, [in corporeal nature,] dispositions are of the same species as the substantial form, although entitatively they belong to a distinct genus.

QUESTION 26

ON SCIENCE CONSIDERED BOTH IN ITSELF AND IN RELATION TO OPINION AND BELIEF

Science follows upon demonstration as an effect upon its cause. After having considered the nature of demonstration and of its principles, the right order of exposition demands that we treat of science itself.

ARTICLE 1

WHAT IS SCIENCE AND HOW IS IT DISTINGUISHED FROM THE OTHER EVIDENT HABITUS?

'Science' may designate either actual or habitual science. In the first sense, it has been defined in question 25, article 1, when we quoted the statement of Aristotle: "We suppose ourselves to possess unqualified scientific knowledge of a thing... when we think that we know the cause on which the fact depends..."[23] (*Post. Anal.* 1. 20. $71^{b}9$). Habitual science is commonly defined as 'a habitus acquired by demonstration,' just as demonstration is defined, conversely, as 'a syllogism causing science.' Defining demonstration by science and science by demonstration does not

imply any vicious circle. For one thing, demonstration is not said to be a syllogism producing immediately the habitus of science; it is said to be a syllogism productive of *actual* science, that is, of scientific assent; the habitus of science is generated by this assent and constitutes in the mind a tendency toward similar assent. Notice, further, that this is not the only definition of demonstration; circularity can be avoided by treating 'demonstration' as a term explained in a definition wherein the term 'science' is not included. 'Science' in the second sense, viz., as habitus, can be defined: 'a habitus conversant with a conclusion known through universal, necessary and immediate propositions.'

In order to understand better the concept of science, one must be clear about the distinction or difference between science and the other intellectual habitus. In the present article, we shall treat of the evident habitus, later of the inevident ones. St. Thomas gives a brief account of all these in *Com. on Post. Anal.* 1. les. 44. Leonine 11: "Aristotle describes, in the sixth book of the *Ethics* (3. $1139^{b}15$), five qualities that always lead to truth, viz., art, science, wisdom, prudence, and understanding; he also briefly mentions two dispositions that are conversant both with truth and error, viz., suspicion and opinion. (Human faith can be reduced to the latter.) The first five are conversant with the true alone, for they imply the rightness of the reason. Three of these five, viz., wisdom, science and understanding, imply rectitude of cognition with regard to necessary objects, viz., conclusions in the case of science, principles in the case of understanding, and highest causes in the case of wisdom. The other two imply the rightness of the reason with regard to contingent objects." St. Thomas treats this subject more extensively in i-ii. 57 and in *Com. on Eth.* 6.

These five habitus have this in common, that they are intellectual virtues inasmuch as they constitute right dispositions by which the intellect is inclined toward truth. An intellectual disposition is right when it gives the intellect firmness and certainty in its process. If the intellect is not confirmed in truth, but can still fall into error, it is not yet perfect in its relation to truth; it is still imperfect and deficient. Since virtue is a perfect disposition, a disposition cannot be an intellectual virtue unless it is a habitus attaining truth with certainty. Some of these habitus per-

fect the intellect in relation to practical truth, others in relation to theoretical truth: such is the first division of the intellectual habitus. Those relative to practical truth are prudence and mechanical art; both regulate contingent things, i.e., things to be made in the case of art, things to be done in the case of prudence. We do not have to consider, in this place, the practical habitus.

Among the three habitus relative to the speculation of necessary truth, the first place belongs to *understanding;* it is the principle of the other theoretical habitus; accordingly it is called the habitus of the principles. Some hold that this "understanding" is nothing else than the intellectual power itself, which they describe as determined by nature, without any superadded habitus, to assent to principles; likewise the will, which is a power, is inclined, without any superadded habitus, toward love of one's own self and of the all-embracing good. (On this, see the *Course of the Carmelites,* disp. 20. q. 1.) Following St. Thomas (i-ii. 57. 3 and *Com. on Eth.* 6. les. 5. Pirotta 1179), we hold, however, that the opposite view is certain. Here are St. Thomas' words (*Com. on Ethics, loc. cit.*): "The word 'intellect' (understanding)[24] does not designate, here, the intellectual power itself, but a certain habitus by which man, in virtue of the light of the active intellect, knows naturally the indemonstrable principles. The name is appropriate, for we know such principles as soon as we grasp the terms of which they are made. For instance, as soon as one knows what is a whole and what is a part, one knows that every whole is greater than any of its parts. This habitus is called 'intellect,' because by perceiving the essence of the thing, *it reads inside.*[25] Thus it is appropriate that the knowledge of the principles, which obtain assent as soon as the quiddity is known, should be called intellect."

From these words, it is easy to infer the reason why the habitus of the first principles is distinguished from the intellectual power. This power is not, of itself, a determinate light; rather, it is indifferent to every truth and, originally, it resembles a blank tablet. Its determination depends on the light of the active intellect by which the intellectual power is perfected, in relation to determinate truth, by determinate ideas. Since the habitus of the principles cannot reveal its own object, i.e., the principles, to the intellect, except in dependence upon these determinate

ideas, a light of such nature as to manifest the principles must be superadded to the intellectual power. Again, the intellectual power is not, of itself, a light capable of manifesting a determinate object, since it does not have any idea out of which light would spring; it is only capable or receptive of a light that the active intellect, by the mediation of ideas, brings to a state of determination. Thus, the habitus of the principles, which is relative to determinate objects, comes into existence as soon as ideas have manifested their own content.

From this, it can be seen that the example derived from the will does not work. The inclination toward the all-embracing good and toward one's own good is not produced in the will by superadded ideas; it is by virtue of its own being that the will is inclined toward the good of the person; more exactly, the will *is* an inclination toward such a good. True, every inclination follows upon a form, but the concept of inclination does not demand that an inclination be perfected by a representative form. The case of the intellect is different, since the intellect is perfected by a superadded form, which is an idea of the object. If the form upon which an inclination follows is the proper good in natural agreement with a subject, this inclination and its relation to such a good are determined by nature without there being need for any habitus. If, on the other hand, the good under consideration is indifferent and does not fit the subject adequately, a habitus is needed as appropriate determination of its indifference. The habitus of the principles, with which the intellect is endowed as soon as the terms are explained, constitutes an altogether different case.

It results that the habitus of the principles is not created together with the power, as some say, and that it is not present in the intellect innately or by nature. It is an acquired quality, brought about as an effect of *(a)* illumination by the active intellect and *(b)* impression by ideas abstracted from sense experience. This is definitely what St. Thomas teaches in i-ii. 53. 1 and *C.G.* ii. 78. But we need not elaborate any further on this subject, which is not the business of the logician.

One might ask whether there is only one habitus for all principles. Let the answer be that principles, i.e., propositions that admit of no middle term, can be found both in necessary and in

probable matters. Following Aristotle (*Post. Anal.* 1. 33. $89^{a}3$) and St. Thomas (*Com. on Post. Anal.* 1. les. 44), we shall show later that even in probable matters there are first principles and immediate propositions. Let it further be remarked that theoretical and practical principles constitute two different types of principles. Of the theoretical ones, some are most common and are called axioms, and some are particular and are called theses. Moreover, any quidditative definition in a scientific subject constitutes a theoretical principle.

Thesis. The habitus of the probable principles are distinct from the habitus of the evident principles, and likewise, the habitus of the practical principles is distinct from that of the theoretical ones.

St. Thomas describes them as diverse habitus (i-ii. 53). The habitus of the practical principles is called synderesis [moral sense], that of the theoretical ones is called understanding. But all the theoretical principles, whether axioms or theses, belong to the same habitus.

The first part of the thesis is based upon the consideration that probable and evident lights always differ essentially. There is opposition between the evident and the nonevident, the necessary and the contingent: therefore, they cannot be attained by the same light. Likewise, practical principles cannot pertain to the same habitus as the theoretical ones, because practical certainty is moral in character and determined by moral and prudential requirements; this certainty involves a tendency toward contingent actions, such as the acts of the will and the works of art, and properly applies to these actions. Practical principles ultimately resolve into necessary truth of universal significance, but as practical they include contingency and imply particularity. For instance, the principles 'The good is to be done,' 'God is to be worshipped,' considered in their universality and, as it were, theoretically, resolve into 'The concept of good essentially demands that the good be done,' or 'By reason of the very concept of the good, it is fitting that the good be done,' and 'Worship is due to God.' But when these principles are considered in the context of a particular case, they exercise direction by command or counsel and they assume the following form: 'It is fitting for you to do this good, to worship God, etc.' In the latter context, where

there is a question of moving and of judging about requirements, such principles are primary, because without any addition, immediately, and by virtue of the terms themselves, they disclose prudential requirements. Absolute necessity pertains to the statement that there is a requirement and that it is prudential in character. But, that such a statement should exercise motion practically and give birth to an act is contingent and cannot be more than morally certain.

The second part of the thesis is based upon the consideration that in all first principles, whether they be most common or less common, the formal reason for assenting is the same, inasmuch as assent results from the sheer explanation of the terms, without any proving middle term. Indeed, terms are, for us, more or less clear and common; consequently they constitute either most common principles or less common ones; as a result of this difference, the explanation of the terms is more or less easy and requires unequally common notions; but, once the terms are explained, the way of assenting is always the same.

Concerning the difference between the habitus of wisdom and that of science, let us merely quote the sentences of St. Thomas (*Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 2, art. 2 ad 1): "The distinction between wisdom and science does not have the character of an opposition; rather, the concept of wisdom results from an addition to the concept of science. As Aristotle says (*Eth.* 6. 7), wisdom is the head of all the sciences and controls all of them inasmuch as it is concerned with the highest principles." Thus the function of wisdom is to judge and resolve by ultimate cause and first principles. On this see also i-ii. 57. 2 and i. 1. 6. Owing to the universality of the principles from which it proceeds, wisdom has also the property of reflecting upon principles; it reflects both upon its own principles and upon those of the other sciences, not in such a way as to prove them, but in such a way as to explain and defend them. Wisdom is said to include understanding as well as science because it extends even to the principles whose habitus is called understanding. But wisdom is truly an inferential habitus using inferential proof and proceeding from principles: thus, it belongs to the system of the sciences.

ARTICLE 2

ON SUBALTERNATING AND SUBALTERNATED SCIENCES

In order to explain the subalternation of the sciences three main questions must be examined: (1) What constitutes subalternation? (2) In what sense is it said that the subalternating science knows the explanation, the subalternated science the fact? (3) How can a subalternated discipline have the character of science in an intellect which does not possess the subalternating science but merely accepts its principles on belief? The third question will be treated in the following article.

First question. Three modes of subalternation are commonly distinguished. (See the philosophers of Coimbra, *Com. on the Whole Dialectic of Aristotle,* Post. An. 1. chap. 10. q. 2 and Fonseca, *Com. on Met.* 4. chap. 3. q. 2.) Some sciences are subalternated on account of their end, some on account of their principles, and some on account of their subject. There is subalternation on account of the *end* when one science considers a higher end, and another science a lower end subjected to the higher one. This is how the architectonic sciences control the ancillary ones; e.g., the science of the bridle-maker is subalternated to the science of horsemanship, the latter to military science, and military science to politics. There is subalternation on account of *principles* when one science receives its principles from another one. In some cases, the principles received are common to the science under consideration and to other sciences; thus, sciences receive principles from metaphysics and from logic. In other cases, the principles received are proper to the science which receives them; this happens when a science does not admit of direct analysis into self-evident principles, but is analyzed into principles proved by a superior science and supplied by it. Thus, acoustics receives principles from arithmetic, and optics from geometry. Lastly, there is subalternation on account of the *subject* when the subject of one science is contained in the subject of another, which may happen in two ways, as St. Thomas points out (*Com. on Post. An.* 1. les. 25. Leonine 2): *(a)* inasmuch as the subject of one science is contained essentially in the subject of the other, as the science

of man deals with a subject contained in animal and the science of the heaven deals with a subject contained in mutable being, and *(b)* accidentally, as in the case of acoustics, which deals with the sonorous number, and optics, with visual line; here, visual and sonorous add accidental differences to number and line.

Of these three modes of subalternation, the first is improper, for it is not always relative to the manifestation of truth; sometimes it is merely a relation between an instrument and a power. The same kind of subalternation exists also between virtues, which reside in the will, e.g., temperance is governed by charity and religion. Subjection to government is one thing, subjection by way of subalternation is a different thing, for subalternation implies dependence in the manifestation of truth.

The *second* mode of subalternation is proper, but the only case in which it obtains unqualifiedly is that of a science which would be altogether devoid of principles if it were not for those manifested to it by the subalternating science. Here, the subalternated science does not admit of direct resolution into self-evident principles. In this sense, our theology is subalternated to blessed science,[26] as we shall soon see. If a science capable of analysis into self-evident principles happens to receive principles from another science—whether it be for the purpose of direct proof or for that of defense—there will be subordination in a qualified sense.

Within the *third* mode, the most proper case of subalternation is realized when what is added by the subject of the inferior science to the subject of the superior one is neither an essential difference nor a property, but a difference of accidental character. Indeed, subalternation properly so-called requires that the subject of the subalternated science be extraneous to, or distinct from, the subject of the subalternating one (just as the sciences themselves are distinct from each other), with dependence, however, of the first subject upon the second. Now, essential species do not render a subject extraneous to the generic subject, for the science which treats of a certain genus treats also of the species contained in this genus, and every science explains its subject by division as well as by definition. Thus, the philosophy of nature, which deals with motion, deals also with the species of motion, and metaphysics, which deals with being, deals with sub-

stance and determinate beings. Nor does the addition of a property bring about a distinct science, as if one science dealt with a subject and another science with its properties; rather, every science demonstrates that a property belongs to a subject. Consequently, if one and the same science deals with a common object and with its species, it will also deal both with the common properties and the specific ones. Thus, proper subalternation on account of the subject implies that one subject adds an accidental difference to the other subject, as 'sonorous' does to 'number' and 'visual' to 'line.'

From this, we can infer the conditions that must be satisfied in order that there be genuine subalternation of sciences. They are reducible to three. (1) The subject of the subalternated science must contract the subject of the subalternating science and superadd something to it. (2) What is superadded must be an accidental difference of such nature as to render the matter of the subordinated science extrinsic to the matter of the subalternating science. (3) The accidental difference which is superadded must be such as to have, in relation to this definite matter, the character of a principle of properties and of scientifically knowable truths; thus, the visual line comprises properties not comprised in the hot or cold line; accordingly, the former [i.e., the visual line] constitutes the object of a distinct subalternated science, and the latter [the hot or cold line] does not.

A few objections will contribute to the clarity of this explanation.

First objection. Theology is subalternated to blessed science, as St. Thomas says (i. 1. 2.), and yet both treat of the same subject, viz., God. Thus, the subalternation of the sciences does not require that the subjects be distinguished by the addition of an accidental difference.

Second objection. If a subalternated science has for its subject a thing contracted by an accidental difference, it follows that it has for its object a being by accident. Thus, the visual line and the sonorous number are beings by accident. But, if a discipline is a science in an essential sense, it cannot be concerned with a being by accident.

Third objection. In what order of being is the accidental difference supposed to be accidental? If it is accidental to the ob-

ject considered as a thing *(a)*, it has nothing to do with subalternation. In fact, many sciences deal with subjects determined by accidental differences and yet are not subalternated to a superior science. Thus, the philosophy of nature, which deals with mutable being, is not subalternated to the science of being, and medicine, which deals with the healable body, is not subalternated to the philosophy of nature, which deals with the body. Likewise, there would not be any reason why the visual line or the sonorous number should constitute a subject of subalternation, whereas line or number affected by another accident—e.g., the colored line or the hot line, the visual number or anything of the kind—should not. If, on the other hand, the difference is accidental to the object in scientific existence *(b)*, it follows that the subalternated and the subalternating sciences differ but accidentally. An accidental difference in scientific being cannot determine more than an accidental difference between two sciences. Yet, acoustics and arithmetic differ essentially.

Last objection. Metaphysics proves and defends the principles of all sciences. True, other sciences fail to achieve perfect analysis unless the analysis of their conclusions is carried as far as the principles of metaphysics. Metaphysics is related to the other sciences as subalternating science. However, other sciences do not add any accidental difference to the subject of metaphysics, for no accidental difference can be added to being, which is transcendental.

Answer to the first objection. Our theology is not subalternated to blessed science by its subject in the way in which an extraneous and distinct subject is subalternated to the subject of a superior science. Rather, such subalternation concerns principles and evidence, for theology receives from blessed or divine science the evidence of principles which, here below, it accepts on faith. This suffices to constitute subalternation in a true and proper sense, since the evidence of the principles of one science depends upon another science. However, our theology does not satisfy all the conditions required for subalternation by reason of the subject; in fact, it does not have a subject distinct from that of the blessed science, and so far as the subject is concerned there is not subalternation but identity. Our theology does not add, to the subject of the subalternating science, any accidental differ-

ence, but considers the same subject under a different formal aspect; it considers this subject as virtually revealed whereas the blessed science considers it as clearly seen. See Cajetan, *Com. on Summa theologica* i. 1. 2.

Answer to the second objection. With regard to the subject of the subalternated science, authors are divided. *Some* consider that there may be science of being by accident, provided that it is not the kind of accidental being describable as casual or fortuitous. See the Philosophers of Coimbra, *Com. on the Whole Dialectic of Aristotle, Post. An.* 1. chap. 10. q. 2. a. 1. *Others* say that the object of the subalternated science is one by accident in real existence but enjoys essential unity in scientific being. This opinion is reducible to the preceding one, for it obviously implies that there can be science of accidental being. But the very notion of accidental being makes it impossible to speak of a science whose object would be an accidental being. Such a being is not constituted by one genus and one difference; consequently, it does not admit of one definition; now, since definition is the principle of science, the unity of science depends upon the unity of definition. More on this in the following question. (Also, see questions 5 and 7.)

Let it be answered, therefore, that the subject of the subalternated science is not an aggregate—such as accidental being—made of an accidental difference and of the subject of a superior science.[27] The subalternated science essentially considers one of these two, though not in absolute fashion but as modified and connoted by the other. For instance, optics deals with the visual in so far as it is modified by the line and connotes the line. There is no reason why a subject should not be, in essential fashion, scientifically knowable and capable of necessary truth even though, in order to ground such truth, it may need an accidental entity as connoted and obliquely implied.[27a] There are many properties or relations which do not belong to things absolutely but necessarily belong to them if a certain state or a certain condition is realized. Such a state concerns the thing accidentally, but it concerns essentially the emanation of such and such a property. For instance, the property of being at rest does not follow upon the stone considered absolutely but upon the stone as placed in the center. Likewise, some properties and relations follow upon

the visual or the sonorous considered not absolutely, but inasmuch as the former exists in a line and the latter in a number. These properties do not belong to a whole constituted and aggregated by accident, but to an object enjoying essential unity and yet connoting another object.

Answer to the third objection. In the existence that things enjoy in the capacity of things, the difference superadded by the subject of the subalternated science is accidental. Yet it must be a condition determining the emergence of an essential truth admitting, in a genuine sense, of being known scientifically in dependence upon the subject of the superior science. There is no subalternation unless the following conditions are satisfied: *(a)* the accidental difference gives rise to a set of related and connected truths; *(b)* these necessary truths and connections are such that their manifestation depends upon the principles relative to the subject of the superior science. Thus, the relations proper to the visual line depend essentially[28] upon the principles of the line and the relations proper to the sonorous number upon the principles of number. On the contrary, truths concerning mutable being do not depend upon the principles of being as such, and the science of mutable being admits of direct analysis into self-evident principles of its own kind. Its principles are not proved by analysis into the principles of another science, as would be required if there were subalternation. Now, if one adds to line or number a difference which does not constitute a special truth directly demonstrable—as in the case of a hot or cold line, etc.—or if the truths constituted as a result of the superadded difference do not depend, in their manifestation, upon the subject of the superior science, the addition of a difference cannot constitute a case of subalternation.

Answer to the fourth objection. Metaphysics is the supreme science inasmuch as its object is supreme and more universal than other objects, and inasmuch as its proper principles are the first principles. However, other sciences do not receive from metaphysics the revelation and proof of their own principles, for they have self-evident principles of their own and are analyzed directly and essentially into these. A science capable of direct analysis into self-evident principles is not subalternated. In order that a science be subalternated it must have principles mani-

fested and established by another science. Indeed, metaphysics explains and defends the principles of the other sciences by reduction to impossibility, but it does not prove them or evidence them a priori. Sometimes the principles of metaphysics are used by other sciences in their demonstrations (sometimes also other sciences use the principles of logic, as said in q. 1. a. 5), yet these sciences are not, absolutely speaking, subalternated to metaphysics; it cannot be said that the evidence of their principles depends totally upon another science, as if these sciences did not analyze their conclusions into self-evident principles of their own. The fact that they are helped in some proof by the principles of another science, as by an extraneous and borrowed proof, constitutes subalternation in a relative sense.

The *second* question concerns the meaning of Aristotle's statement: "Explanatory knowledge [literally: knowledge of the *why*] pertains to the subalternating science, knowledge of the fact [literally: knowledge of the *that*] to the subalternated one." We shall omit a variety of interpretations which can be found in Soto, *Com. on the Dialectic of Aristotle, Post. An.* 1. q. 5. ad 6 and in the Philosophers of Coimbra, *Com. on the Whole Dialectic of Aristotle, Post. An.* 1. chap. 10. q. 2. a. 3. Let us remark, first of all, that Aristotle does not say, in unqualified terms, that the subalternate science knows the fact as if he meant that every subalternate science knows the fact. A worse misinterpretation holds that the subalternating science goes so far as to draw conclusions within the proper and definite field of the subalternated one, which would reach the same conclusions by the study of effects and in a context of facts. What Aristotle says is that the knowledge of the fact properly belongs to the sensible sciences, i.e., to those sciences which come down to sensible matter, whereas explanatory knowledge pertains to mathematics. He means, in other words, that in the sciences subalternated to mathematics and which come down to the sensible objects, knowledge is of the fact, for these sciences touch sensible things by induction and descend to the level of experience. Now, if these sciences, which have knowledge by experience, were to acquire explanatory power, they would necessarily have to use principles delivered by mathematics, viz., by the subalternating science. Thus the surgeon says that round wounds heal more slowly; this proposition is

established, first, by constant experience, then by the properties of the circular shape; if the surgeon intends to adduce the cause and origin of this fact, he must turn to geometry, in the light of which he will see that the joining of the parts is especially difficult in a circular figure, which has no angles. Aristotle's statement does not necessarily hold for every subalternated science; the only case in which it necessarily holds is that of the science which descends to the level of sensible objects. Nothing prevents such a science from attaining sensible objects in individuals, nor from making an inductive survey of individuals, which procedures are proper to science of the fact. To be explanatory, such a science must borrow principles from a higher science and apply them to the sensible matter with which it deals. One should not understand that the subalternated science knows as mere facts the principles of the subalternating science, which principles it uses; let it be said, rather, that the subalternated science attains, by experience and knowledge of the fact, conclusions which it can also know by application of the same principles to its own matter. Notice, further, that it is not precisely as subalternated science, but inasmuch as it is a sensible science and comes down to the level of sensible effects, that it knows by experience and by science of the fact.

From this, two conclusions can be drawn. (1) When it is said that the subalternating science knows the explanation, it should not be understood that the subalternating science knows the conclusions of the subalternated one and comes down to their demonstration. This could not be unless the subalternating science changed its kind of abstraction and came down to the matter of another science: but a science would thereby lose its identity, since the species of sciences are determined by abstraction and diversity in immateriality. Thus, as Cajetan rightly points out (*Com. on Post. An.* 1. chap. 12), the subalternating science is said to know the explanation in a state of solitude and in general, not in the state of application to a determinate matter; in other words, it supplies only general principles which subsequently are applied to a determinate matter by the subalternated science. Geometry does not demonstrate that circular wounds heal more slowly; the geometrician has nothing to say about wounds, he only teaches in general terms that the parts of the circular figure are

more difficult to bring together because the circular figure has no angles; thus his demonstrations remain abstract. Starting from such abstract demonstration, the surgeon applies the geometrician's conclusion to his own subject matter and shows that the edges of a circular wound are brought together more slowly.

(2) When the subalternated science is said to know the fact, this should not be understood privatively as if such a science demonstrated only the fact and in no way the explanation. With the help of the principles that it receives from the subalternating science, it truly demonstrates the explanation; it should even be said that subalternation consists principally in the condition of a science which, once it has received principles from a higher science, truly demonstrates its own conclusions. But these principles are not its own and it does not admit of direct analysis into self-evident principles; it receives principles from a different and higher science; this is why the knowledge of the explanation is attributed to the higher science. What is meant is that principles are received from the higher science and applied to the matter of an inferior science in such a way that the explanatory conclusions of the inferior science are demonstrated. The inferior science knows these conclusions, also, by experience, and thus it is described as science of the fact on account of its proper merits, i.e., the use of experience and the consideration of effects.

ARTICLE 3

WHETHER A SUBALTERNATED SCIENCE IS TRULY AND PROPERLY A SCIENCE EVEN IF IT IS NOT IN CONTINUITY WITH THE SUBALTERNATING SCIENCE

A science which does not admit of analysis into self-evident principles and which, moreover, cannot reach such principles by the mediation of another science is related to self-evident principles as to objects of mere belief. Therefore, it does not actually participate in evidence and certitude, and it is not actually a science. This is the difficulty to be examined in the present article.

The consequence is plain, since evidence is obtained by demonstration, i.e., analysis into self-evident principles. If an inferior science goes no farther than a certain proposition which *(a)*

needs proof, since it is not directly reducible to self-evident principles, and *(b)* cannot be proved by this science for lack of continuity with a higher one, this inferior science is deprived of evidence. Not having evidence of principles, it cannot impart evidence to conclusions.

Confirmation. If a person forgets the middle term by which a conclusion is proved, science does not survive in his mind, for he is left without evidence and without proof. This holds for every scientific domain. If the habitus of the principles were lost—which is impossible—every science would be lost, for no principles would be left. Likewise, if you do not possess the subalternating science, which delivers principles to the subalternated one, you cannot possess the subalternated science genuinely, for you have neither evidence of principles nor evidence of the middle term. These views are supported by the authority of St. Thomas, who says *(On Truth* 14. 9): "All things known scientifically, if the term 'science' is taken in a proper sense, are known in relation to the first principles which are immediately accessible to the intellect." Thus, when knowledge is not related to the first principles, as happens in the case of a subalternated science not in continuity with the subalternating one, there is not, properly speaking, scientific knowledge. Likewise, in the *Com. on the Sent.* (iii. dist. 33. q. 1. a. 2. qcl. 4), St. Thomas says: "If there were a science not reducible to the first principles naturally known, it would not belong to the same species as the other sciences". A subalternated science deprived of continuity with the subalternating science cannot be reduced to self-evident principles. Therefore, whenever a subalternated discipline lacks such continuity, it also lacks the character of science.

Thesis. A subalternated science, deprived of continuity with the subalternating one, retains its specific identity as a habitus; however, the scientific state enjoyed by the subalternated science in the knowing intellect is imperfect so long as it is factually impossible to achieve analysis into self-evident principles, through the subalternating science.

This thesis is commonly received among Thomists. See Cajetan, *Com. on Summa theol.* i. 1. 2.; Soto, *Com. on the Dialectic of Aristotle*, Post. An. 1. q. 5; Sanchez, *The Logic of Aristotle*, bk. 7. q. 2; Araujo, *Com. on the Whole Metaphysics of Aristotle*, 1.

q. 4. a. 1; *Course of the Carmelites, On the Dialectic and Natural Philosophy of Aristotle*, Post. An. disp. 19. q. 3. It is derived from the words of St. Thomas (i. 1. 2), who describes as science, without any qualifications, a subalternated science. But in *On Truth* 14. 9 ad 3, he grants that "the concept of science is not perfectly realized in a subalternated science, unless there is some sort of continuity between subalternated and subalternating science. Nevertheless, the inferior knower is not said to have the science of the things which he postulates; rather, he is said to have the science of the conclusions which necessarily follow from the postulated principles." More on this in *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 2. a. 2 ad 5, ad 6, and ad 7. In the *Com. to Annibald* (Prol. q. 1. a. 1 ad 2), St. Thomas says: "The proximate principle of the first sciences is the understanding, but the proximate principle of the sciences which postulate principles taught by other sciences is belief in the principles proposed by other sciences. For these sciences [viz., the subalternated ones], the understanding is only a primary [as opposed to a proximate] principle. However, the certitude of these sciences [viz., the subalternated ones] is complete when, by analysis, they reach the understanding of the first principles."

Our thesis is established by the consideration that the habitus of the subalternated science, even when it is not in actual continuity with the subalternating one, essentially demands such continuity and tends toward it. Thus, inasmuch as it implies an inclination toward the possession of full evidence through continuity with the higher science, it has intrinsically the character of a scientific habitus.

The consequence is plain. We have to do with a habitus which demands continuity with the subalternating habitus; when such continuity is factually established, this habitus [i.e., the subalternated science,] is not destroyed, but perfected; no new habitus is generated, it is the same habitus which is placed in continuity with the higher one. The demand for continuity would be meaningless if it were not possible for the same habitus to be put in continuity with the higher one. If, prior to the establishment of continuity, the subalternated habitus were not scientific, a new habitus of distinct species, a truly scientific habitus, would be generated when continuity is established. Then it would

never be possible for the subalternated habitus to demand continuity with the subalternating one. If, on the contrary, one and the same habitus at one time is, and at another time is not, in continuity with the higher science, it follows that when there is, factually, no continuity, this habitus is a science by inclination and in a radical sense.

Proof of the antecedent. Whoever acquires the habitus of the subalternated science without the subalternating one, proceeds from principles manifested in the subalternating science, and their evidence is thus postulated. Therefore, this habitus intrinsically constitutes an inclination toward continuity with the clarity achieved in the subalternating science. If it did not require such continuity it would not tend toward the principles manifested by the higher science and it would not essentially proceed from these principles. The factual manifestation of the principles of the higher science is what agrees best with the nature of the subalternated science. The subalternated science contains an inclination toward evidence, even though this evidence be not actualized in the knowing subject on account of a lack of continuity with the higher science. Again, a habitus could not tend toward such evident principles if it were not a science, for an intrinsically inevident habitus cannot tend toward evidence and demand evidence.

Accordingly, as Cajetan points out *(loc. cit.)*, the subalternated science can be said not to be a science, for it does not possess completely the character of a science inasmuch as it lacks the scientific state. So far as *state* is concerned, it is not an intellectual virtue, but it is one so far as *inclination* and *substance* are concerned. [A comparison may be drawn here between science and moral virtue.] A moral virtue is substantially preserved in the sinner; yet it intrinsically demands continuity with the true last end, and this continuity is destroyed by sin. Likewise, when a science or habitus has an inclination toward evidence and can be perfected by evidence, it has substantially the character of a science; by inclination and in radical fashion, it demands the evidence of the principles, although there is in the subject an obstacle to its enjoying it. This state of affairs is manifested by the following sign: whereas the principles of the higher science are only *believed* [*by the inferior science*], the conclusions of the inferior science are not marked by the weakness that charac-

terizes inferences based upon willingness to believe and upon fallible authority: the conclusions of the inferior science are founded upon the postulated evidence of the principles contained in the higher. The privilege of theology is that it is grounded on infallible faith and finds in faith itself principles that are actually certain, though not evident; theology postulates evident principles in a superior science. Without the infallibility of divine faith, the certainty of the principles would not have a character of actuality; it would concern only presuppositions and origins.

Objection. How is it possible for a subalternated science to be substantially certain and evident without giving to its subject the same denominations?

Answer. The subalternated discipline is called science so far as its substance and its origin are concerned, but not so far as its state is concerned. The fact that a subject is deprived of continuity with the superior science constitutes an obstacle to the scientific state. Conversely, belief and opinion, in spite of their intrinsic fallibility, can get rid of the fear which is extrinsic, actual, and denominative; such fear is the hesitation of the intellect, as we shall see in the following article.

Considering the foundation of the *opposite theory*, let it be said that analysis into first principles may either be actual and concern the state of a science or be the [unattained] object of a tendency and a demand. If a discipline does not admit of analysis into first principles in either of these senses, it does not have truly the character of a science; it is based upon belief and authority. But if a discipline seeks analysis into first principles and, by [essential] tendency, adheres to it, this discipline is a science, even though a break of continuity with the subalternating science makes it impossible actually to achieve analysis. Such a discipline does not depend upon belief essentially. Belief merely substitutes for a higher science. The inferior science, in spite of its imperfect state, seeks to be analyzed into the higher science, to become continuous with its evidence, and to be perfected therein.

Answer to the proof. Each state of a science has evidence through proofs and analysis in its own way: *(a)* sometimes the evidence is possessed only radically and by reason of an inclination to be in continuity with the superior science; but *(b)* sometimes there is actual evidence fully achieved through proofs

actually analyzed and brought into continuity with the superior science. Thus a defect in proof, if it is simply a defect on the part of the knowing subject and not a defect in the very science and its inclination, does not essentially and intrinsically remove the character of science but impairs only the scientific state of a discipline.

Answer to the confirmation. If the means of demonstration are so completely forgotten that they can be found neither in my own intellect nor in another system of knowledge with which I would demand and strive to establish essential continuity, science is entirely lost. Premises and proofs are gone. But if I retain the premises or the means of proof, even though I postulate the proof itself as evident to another and higher mind, and if, further, my own mind contains an essential inclination toward the evidence of such a proof, then what is lacking is the scientific state, nothing else, for the intrinsic essence of the scientific habitus and its tendency toward evidence are realized. Likewise, if someone lost the habitus of the first principles and retained the propositions knowable by this habitus without knowing how to explain the terms, these propositions would not be self-evident for him,[29] and yet he would really possess a science, for he would proceed from propositions which are self-evident absolutely and in themselves, although, by accident, the failure to explain the terms would entail failure to derive, from these terms, evident cognition. But this is an accident which cannot happen easily, for the propositions expressive of the first principles are known at once and by themselves.

The texts of St. Thomas merely deny that the subalternated science is a perfect science. These texts do not deny that it is a science by reason of its intrinsic inclination. In fact, he calls it a science with no qualification, in the texts previously quoted, and distinguishes it from the inevident habitus that contain no inclination toward the evidence of the principles. This is how one should interpret the text from the *Com. on the Sent.* iii, where St. Thomas says that a discipline which cannot be analyzed into first principles is not a science: here, 'cannot' expresses impossibility not only with regard to actual evidence but also with regard to inclination and radical tendency. If there is absolutely no possibility of evidence, we have to do with an inevident habitus, such

as belief and opinion, and the word 'science,' if used at all, is not taken univocally. Without vision[30] the subalternated science does not enjoy a perfectly scientific state: accordingly, it is said to attain perfection in vision [alone]. But the fact that the subalternated science *can* be perfected by the vision of the thing is a sign that it is a science intrinsically and substantially: an inevident habitus cannot attain perfection in the vision of a thing.[31]

From these considerations, it results that the Thomists are right when they maintain that the theology acquired in this life endures in Heaven and is rendered evident there. By intrinsic inclination, theology is radically striving toward evidence and continuity with the subalternating science, i.e., the blessed science. It is by accident that in this life theology uses faith as supplying and supposing principles known with evidence in a higher science.[32]

ARTICLE 4

WHAT ARE THE INEVIDENT HABITUS, AND HOW DO THEY DIFFER FROM EACH OTHER?

Inevident habitus are reducible to three, viz., opinion, belief, and suspicion.

Opinion is defined: an assent whose reason and motive are merely probable and which is accompanied by the fear of the other side. Created belief[33] (the only kind of belief that we have to consider here) is inquisitive thought with assent; it is, in a context of inquisitive thinking, an assent determined by the authority of one who speaks. Suspicion is an assent which, on account of a weak sign, merely inclines one way rather than the other. Finally, doubt is cognition without firm assent, i.e., without any determinate inclination either way.[34] Such is the doctrine of St. Thomas in ii-ii. 2. 1 and *On Truth* 14. 1.

On the basis of these definitions, it is easy to determine the nature of the habitus relative to inevident cognitions; we simply have to replace the notion of assent by that of a habitus inclining to assent. Doubt, however, does not seem to generate any habitus. Since the mind in doubt elicits no assent, but withholds judgment, doubt does not bring about any habitus—which would imply a

determinate inclination—but rather a lasting absence of inclination. A suspension is a negation and does not seem to require any habitus unless some positive reality combines with it, which is the case when withholding judgment is determined by such a purpose as avoiding effort, preserving the good of virtue, etc. But here we are touching upon ethical dispositions which concern the will rather than the intellect.

With regard to inevident habitus three questions arise: (1) What constitutes incertitude and inevidence? These notions must be explained in terms of their opposites, viz., evidence and certitude. (2) Do incertitude and inevidence belong to these habitus in such intrinsic fashion as to be absolutely inseparable from them? (3) Do these habitus differ essentially from each other?

First question. As can be gathered from St. Thomas (*Com. on the Sent.* iii. dist. 23. q. 2. a. 2. sec. 3), certitude is nothing else than the determinate adherence of the intellect to one side of an alternative. From this, it follows that certitude increases in proportion to the strength of what causes determination. Let it be noticed, further, that certitude is of two kinds: one is *caused* or formal and resides in the act, the other is *causing* and resides in the object or in the subject. Sometimes the object known suffices to determine the intellect, and certitude is altogether caused by the object. But sometimes it is caused by the will, which is a power of the subject; such intervention of the will is called for when the object falls short of achieving the full determination of the intellect. At this point, St. Thomas makes the following remarks: *(a)* in the understanding of the principles, certitude results from the object's having within itself all that is needed for its own disclosure; *(b)* in science, certitude results from the analysis of a truth into self-evident principles; and *(c)* in belief, it results from a command given by the will to the intellect. Ultimately there are three kinds of certitude, viz., *formal* in the act, *objective* in the convincing object, and *subjective* in the will which adheres [to a certain proposition] and causes the intellect to adhere [to it].[35] This subjective certitude is devoid of evidence;[36] the will supplies what the object lacks in evidence. Objective certitude is necessarily accompanied by evidence, for it is born of an object that suffices, all by itself, to move the intellect: this cannot be done without evidence.

We call *evident* those things which all by themselves move a knowing power, for those are said to be seen[37] which all by themselves move the intellect or the sense. (See St. Thomas ii-ii. 1. 4.) St. Thomas describes three kinds of vision or evidence *(Com. on the Sent.* iii. dist. 24. q. 1. a. 2. sec. 1). The notion of vision is realized, first of all, in simple cognition, for vision is found primarily in the sense "inasmuch as the visible idea is actually formed in the sense of sight; we transfer the name of vision to the intellect and say with propriety that there is vision by the intellect when, *(a)* as an effect of intellectual light, the intellectual form comes to exist actually in our intellect. (The intellectual light to which we are referring may be natural, as when we understand the quiddity of man, or supernatural.) Then, *(b)* complexes are said to be seen by the intellect when they are known by virtue of the vision just described; thus, by natural light, we see the first principles, for they are known as soon as the terms are explained. Again, (c) the things which we are able to analyze into first principles are said to be seen by the reason; such is the case with the truths that are known as proved demonstratively." These are the degrees and modes of vision described by St. Thomas. Notice that he attributes the character of things seen not only to objects seen in themselves immediately and intuitively, but also to objects that science and demonstration analyze into self-evident objects. By the very fact that they have a necessary connection with things seen in themselves, objects of demonstration lie within the field illuminated by the principles and behave as if they were seen. There is an effect and sign of evidence whenever something proposed to the intellect wins total conviction, so that the intellect is appeased and does not need to receive from an extrinsic factor—the will—a determination not supplied by the object. If the motion of the intellect is entirely effected by the object, the intellect attains the object in itself; if, on the other hand, the actuation of the knowing power is not entirely and unqualifiedly accomplished by the object, the latter is attained imperfectly and one cannot then say with entire accuracy that the intellect is moved by the object. There remains in the object some amount of unconquered resistance, and conviction is not achieved.

Inevidence and incertitude are explained by privation of evi-

dence and certitude. An object proposed with such privation does not suffice to convince the mind and to move it completely. Since it does not determine the mind fully, such an object calls for the operation of the will, which inclines the intellect, as in belief. The will does not act by giving additional light to the intellect in such a way as to increase the power of an obscure object; if this were so, the object would be either rendered evident by this supplement of light, or left obscure in spite of it. If the object were made evident, there would no longer be belief by act of the will; if the object remained obscure, it would be such as it was before, and one could not say that an obscure light was supplemented by an addition of light. The inclination of the intellect by the will must be understood in terms of the following phases: *(a)* the will tends toward an object and adheres to it; *(b)* this tendency and this adherence are represented to the intellect as a tendency toward and adherence to a fitting object; *(c)* the intellect, not because of a greater manifestation of truth, but because of agreement between the object and the will, does not refuse to adhere to an object so long as the latter is not plainly false. If this disposition and affection of the will is removed, the intellect remains in mere probability or in doubt. Thus, belief requires the command of the will not only with regard to the execution of the act—i.e., in the order of exercise—but also with regard to the specification of the act, i.e., with regard to a determination pertaining to the object, inasmuch as a disclosure of fittingness supplies the additional determination that the object cannot supply through evidence of truth.

Second question. The theory that opinion is necessarily accompanied by incertitude and fear raises difficulty because of some propositions which we believe without any doubt, e.g., 'the city of Rome, which I have never seen, exists.' Likewise, the genus of opinion comprises propositions—e.g., 'every mother loves her son'—that are immediate and have the character of principles, since they are not proved by other probable propositions. See Aristotle *Post. An.* 1. 33. 89^a3 and St. Thomas, *Com. on Post. An.* 1. les. 44. The reason for this state of affairs is obvious, for there cannot be regression to infinity in probability and opinion, any more than in certitude. A final term must be found in a proposition admitting of no proving middle term. Such a proposition cannot be necessary, but only probable, for the contingent does

not follow from the necessary when the consequence is good. Therefore, these primary propositions are immediate and not necessary, but probable. With regard to such propositions and similar ones, we wonder how they can be free from incertitude and fear.

Some distinguish two kinds of incertitude and fear, one of which would concern the means of knowledge, or the formal aspect under which knowledge takes place, and the other the effect brought about in the subject, viz., actual adherence to a thing. They say that the first kind of incertitude and fear is inseparable from opinion, but not the second—as experience shows—since we believe without the slightest hesitation many things that we do not see.

It remains difficult to answer the following argument: How is it possible to form a judgment that is intrinsically inevident and uncertain without participation of the subject in incertitude, since it is only by this uncertain act that the subject tends toward the object? The authors of the theory under consideration answer that the intellect shares the intrinsic fear, viz., the one that concerns the object, but is free only from the fear that originates in the will, since the will adheres to a proposition in such a way as to exclude fear and doubt concerning the opposite proposition. In these obscure assents, motion by the will always has a part to play. If the will is entirely firm, doubt is entirely removed.

However, it sometimes happens that in spite of the will's being entirely firm in its relation to an object—as in the case of divine faith—the intellect undergoes theoretical doubt and wavering, as in those who are tempted against faith without falling into obstinacy. The intellect does not undergo such doubt with regard to some propositions of human faith, e.g., 'Rome exists.' This is why one must go further [than the theory just referred to] and say that in faith and opinion there can be moral evidence and certainty, not with regard to the truth attained, which always remains obscure and uncertain—this incertitude is called intrinsic or metaphysical, for it concerns truth itself—but with regard to credibility or probability. When there is such an accumulation of motives that credibility becomes evident and no room remains for disbelief, all extrinsic fear is removed. (The reasons which move and lead to belief are said to be extrinsic to the very assent of belief.) More-

over, with regard to the truth which is the object of belief or opinion, the intellect always remains, for intrinsic reasons, in a state of inevidence and need, so long as this truth is not seen in itself. Even when there is no longer any moral fear or movement of doubt, the fear relative to the manifestation and evidence of truth cannot be suppressed. Thus the fear of obscurity can never be removed from belief and opinion; consequently, the fear of objective incertitude cannot be absent from the things attained by human belief and opinion. In divine belief, the infallibility of the testimony rules out objective incertitude, but the intrinsic imperfection of obscurity is not removed. Everything that pertains to wavering and doubting in belief and opinion is suppressed or diminished in proportion to the growth of motives and of the reasons leading to credibility or probability; these reasons may reach evidence, and then they entirely rule out this kind of fear. A sign of this is the fact that even in divine faith the temptation to disbelieve is generally weakened by the accumulation of the motives leading to belief. Those who are fully convinced by the signs leading to faith believe without any movement of theoretical doubt.

It might be objected that just as science never can lose certitude, so opinion and belief never can get rid of fear. Indeed, opinion seems to be related to fear in the same way as science to certitude: yet this consequence should be denied. In science, there is only one certitude, which concerns the attainment of the thing in itself, but in opinion, there is a double fear—an intrinsic one which is relative to truth, and an extrinsic one which is relative to the motives leading to probability or credibility—one of these two can be suppressed while the other one remains.

The *third question* concerns the formal distinction of the inevident habitus. Let it be said, briefly, that human belief and opinion differ essentially from each other, for the means of knowledge are totally diverse and the formal aspects themselves are widely different. Opinion uses arguments which bring about probability; the connections involved in these arguments have probability and verisimilitude, though not necessity. On account of these connections, the intellect can be inclined, though not totally moved and convinced. On the other hand, belief relies only on the authority of the one who speaks. It does not use proof or discourse. All that the assent of belief requires is *(a)* knowledge

that the authority is worthy of reliance and *(b)* absence of any appearance of impossibility or falsehood in the proposition itself. Thus, opinion and belief differ essentially in their ways of tending toward their objects and in the formal principles of their tendency toward their objects.

On this thesis, you may consult St. Thomas, ii-ii. 2. 1 and, for a more extensive treatment, *Com. on the Sent.* iii. dist. 23 q. 2. a. 2. sec. 1. In these texts, he explains the different attitudes of the mind in understanding, science, belief, and opinion as follows: Inquisitive thought accompanied by assent distinguishes belief from all other attitudes of the mind. Here, the word 'cogitatio' [rendered by 'inquisitive thinking'] does not designate the act of the imaginative power[38] (called 'cogitativa'), but the act or movement of discoursing reason, whereas 'assent' designates a determinate judgement. The one who exercises pure understanding enjoys, by the understanding of principles, an assent without inquisitive thinking, that is, without the movement of discourse. The explanation of the terms suffices to bring about assent. The one who knows scientifically has inquisitive thinking[39] *and* assent, for, through cogitating or discoursing, he achieves assent by the power of the vision of the principles; in which vision, the movement of the intellect has its term. (The movement of the intellect includes a vision inasmuch as it is determined by self-evident principles.) The believer has assent *together with* inquisitive thinking, for he is not led to assent by inquiry and discourse, nor is he led to self-evident principles. His assent is determined by an extrinsic principle, viz., by the choice of the will, for assenting seems good to him, and in this he has firmness and assent; yet his condition admits of motion or inquisitive thinking even with regard to the opposite of his belief. The one who has an opinion has inquisitive thinking without perfect assent, but he still has some sort of assent inasmuch as he adheres to one proposition rather than to the opposite one by virtue of a proof which is not evident but plausible. Since he receives a proposition with fear of the opposite side, his assent is not fully determinate. The one in doubt does not elicit any assent, but merely an inquiry of such nature as to cause the suspension of judgement. The one who does not know has neither assent nor inquisitive thinking. Such is the teaching of St. Thomas. It clearly results from this teaching that opinion is specifically distinct from belief

both on account of the means by which the mind is determined[40] (in belief, this means is the authority of the one who speaks, and in opinion, it is the probability of arguments) and on account of the way in which they are moved: in belief, there is assent by choice of the will; in opinion, there is fear, owing to the power of unresolved arguments.

If you ask whether suspicion differs essentially from opinion and belief, let the answer be that it pertains to opinion as an imperfect realization in the genus of opinion. This is why St. Thomas did not make special mention of it in *Com. on the Sent.*, but he explained it in ii-ii. 2. 1, by saying that between suspicion and opinion there is this difference: in the former, the mind *inclines* one way rather than the other on account of some slight sign, whereas in opinion the mind *adheres* to a proposition, though with fear of the opposite. Suspicion and opinion differ only by degrees of adherence. It might also be said that suspicion pertains both to belief and to opinion as an imperfect form in both genera. If the slight token[41] by which somebody is moved, is a statement without much authority, suspicion is reduced to a cheap kind of belief, implying extreme readiness to believe. If the slight token is an argument that has little weight, a suspicion will amount to an imperfect opinion.

Objection. It seems that belief and opinion are essentially the same thing. Both require probable arguments. One is not moved to prudent belief unless a proposition is presented to him with probability and verisimilitude. On the other hand, both opinion and belief require an honest inclination; the mind is not determined to an assent of opinion by the power of a convincing object; consequently, it needs to be determined by something extrinsic, i.e., by the will, which supplies the determination that the object does not effect. Therefore, opinion and belief have the same formal motive and differ only by the matter—a kind of difference which may hold between two opinions.

Second objection. Opinion is not less uncertain and inevident than belief. Thus their motives are essentially the same so far as the formal notion of moving is concerned. This is why Aristotle (*Top.* 1. 8. $103^{b}3$) says that belief is an opinion brought about by an induction or a probable syllogism.

Answer to the first objection. It is not formally, but anteced-

ently and by way of presupposition, that belief requires probable arguments; on the contrary, opinion requires such arguments essentially and formally, whereas it is by accident that opinion is accompanied by a movement of the will. In belief, the probable arguments are necessary for two purposes: (1) in order that the thing should not seem impossible and (2) in order that belief itself, or the authority of the one who speaks, should appear fitting; arguments bring about an affection in the will, and the intellect, confronted by the good and the fitting, is moved to believe by this affection. Such is the ground of St. Thomas' statement that the generous inclination which predeces divine faith is born of the act by which the intellect shows the fittingness of the promised good *(On Truth* 14. 2 ad 10). Consequently, since this disclosure of the fittingness of the good, effected by the intellect, is designed only to solicit the will, it does not require evidence in the truth proposed, but in the fittingness of the good.[42] In other words, there is evidence in a practical sense but not in a theoretical sense. If the good proposed is supernatural, an evident supernatural light is not required, but only a prudential judgment born of a special supernatural assistance. In opinion, on the other hand, probable arguments are needed, not in order to propose a good, but in order to manifest a truth—though not fully and not perfectly. Thus, the adherence of opinion, which is neither complete nor firm, does not depend upon the will in direct and essential fashion. In the absence of any act of the will, such adherence may still be produced by the sheer weight and moment of the arguments. If a motion of the will combines with the weight of the arguments, it fulfils not a primary and essential requirement, but an accidental one. Sometimes the will treats opinion as if it were belief, as when a judgment is uttered out of passion rather than because of the sole probability and weight of the arguments.

Answer to the second objection. Belief and opinion have in common a generic feature of uncertainty and inevidence, but they are specifically different because of diversity in the means of knowing and in the ways in which the mind is determined. Aristotle, in the place referred to, takes the word 'belief' in the broad sense in which anything that is not perceived with evidence is said to be a matter of belief or opinion.

ARTICLE 5

WHETHER OPINION AND BELIEF ARE INTRINSICALLY INCOMPATIBLE WITH SCIENCE

The terms 'opinion' and 'science' can be referred to each other in three ways: (1) In a comparison between act and act, i.e., between the certain and evident assent of science, and the uncertain and inevident assent of opinion or belief. (2) In a comparison between habitus and habitus. Inasmuch as the habitus of science is an inclination toward an evident assent, it is contrary to any inclination whose term is an assent devoid of evidence. (3) In a comparison between habitus and act, as in the case of a person who has a habitus of opinion and elicits an act of science, or vice versa.

First Comparison: Act with Act

Some authors consider that there is no reason whatsoever why the act of science and the act of opinion should not exist in the same intellect with regard to the same object. They hold that the evident and the obscure are not opposed privatively, but are altogether disparate, inasmuch as they proceed from diverse motives. Such is the position of Cabero, *Digest of Logic*, tr. 7. disp. 4. prob. 6. *Others* distinguish between kinds of opinion. If opinion is accompanied by hesitation and actual fear, they say that it is incompatible with the act of science; but there would not be incompatibility between actual science and an opinion that has shaken off fear in the conditions just described (see preceding article). Such is the position of the Philosophers of Coimbra (*Com. on the Whole Dialectic of Aristotle, Post. Anal.* 1. chap. 26. q. 2. art. 2); they also hold that divine belief,[43] which involves certitude, does not conflict with science (a. 3 and a. 4); thus, whenever incertitude is removed, they see no opposition between evidence and inevidence. *Lastly*, some more recent authors, in their commentaries on ii-ii. 1. 4 and 5, distinguish between abstractive and intuitive evidence: the latter is called evidence of vision. They say that vision is absolutely incompatible with belief or opinion because it attains the thing immediately and in

itself, but abstractive evidence, which does not attain the thing immediately and in itself, would not be directly incompatible with the obscurity of belief.

First thesis. An obscure act and an evident act, considered in the same intellect, are opposed as possession and privation in one and the same subject. It does not matter whether obscurity is that of opinion or that of belief. Nor does it matter whether evidence is intuitive or abstractive. Further, what holds for the contrast between the evident and the obscure holds also for the contrast between the act certain and the act uncertain.

This thesis is held by a number of authors whose names can be found in *The Course of the Carmelites (Logic,* disp. 20, q. 4). It is expressly supported by St. Thomas. In *On Truth* 14. 9 ad 6, he says: "It does not seem to be possible that a person should have both science and opinion of the same subject, for opinion inclines to one side with fear of the other, and science excludes such a fear." In *Com. on Post. Anal.* 1. 44. [Leonine 10] he says: "Obviously, one cannot, at exactly the same time, know a thing by science and by opinion, for in that case one would simultaneously hold that a thing can and cannot be other than it is." Same doctrine in ii-ii, 1.5 ad 4: "In one and the same man, with regard to the same object considered in the same respect, science is incompatible with either opinion or belief; but for different reasons. Between science and opinion, with regard to the same object, incompatibility is absolute, for science demands that its object be deemed impossible to be otherwise, whereas it is essential to opinion that its object be deemed possible to be otherwise." He declares, further, that "belief and science conflict only by the seen and the nonseen."

Objection. St. Thomas (i-ii. 67. 3) plainly declares that there is no reason why two cognitions, one of which proceeds from a perfect means and the other from an imperfect one, should not be had by the same knowing subject with regard to one and the same object. A man may know the same conclusion by merely probable means and by demonstrative means. Thus St. Thomas plainly declares that there can be simultaneously an act of opinion and an act of science in one and the same subject because these acts are effected by diverse means; of course, the means described as probable and the means of opinion are one and the same. Same doctrine

in *Com. on the Sent.* iii. dist. 31. q. 2. art. 1 qcl. 1. ad 4 and iii. 9. 3 ad 2.

Answer. No valid objection to our theory can be derived from these texts, although they contain an appearance of difficulty and seem to suggest that opinion and science can be had simultaneously. (According to Suarez, St. Thomas would hold that such simultaneous possession is possible.) In fact, the answer can be inferred from the same text (iii. 9. 3 ad 2): "The opinion caused by a dialectical syllogism is a way to science. Science itself is acquired by demonstration. When science is possessed, the cognition acquired by dialectical syllogism can remain, inasmuch as it is, so to say, consequent upon demonstrative science, which proceeds through the cause."

Cajetan keenly remarks that the expressions of St. Thomas should not be treated as equivalent when they are purposefully different. In the first place, the dialectical syllogism falls under the name of *opinion;* in the second place, under the name of *cognition.* St. Thomas intends to show that opinion and probable cognition cannot be identified in all respects. Opinion and probable cognition are identical inasmuch as the exercise of probable cognition involves a reason and motive for assenting, with fear that the opposite be true. If, on the other hand, what we consider in probable cognition is precisely its probable means and its power of probability with regard to such and such a truth, then probable cognition is not opinion. A reflective cognition, proceeding from demonstrative science, can use means of this kind and exert a power of this kind. St. Thomas seems to exercise the same caution and keen attention in the text from i-ii (67.3). There he says that the cognition relative to a conclusion established by probable means and the cognition relative to a conclusion established by demonstrative means differ as perfect and imperfect, *so far as the means is concerned.* But opinion, belief, and science differ as the perfect and the imperfect *so far as the subject is concerned,* for it is of the essence of opinion to take one side with fear of the other. He does not name opinion in the first text, but in the second.

From this, it clearly follows that for St. Thomas, opinion, precisely considered in its proper capacity and exercise, cannot exist together with science. By their relations to the subject,

science and opinion are exclusive of each other. The probable and the demonstrative means of proof are incompatible in so far as the former defines a knowledge of mere opinion and produces this knowledge in the intellect, but they are compatible in so far as the demonstrative means does not suppress a quasi-reflective cognition of the probable means. A mind in possession of science knows better the power of proof that probable signs have with regard to a certain conclusion, though the exercise of its assent is not caused by these signs. This is what St. Thomas means in the text just quoted from iii. "Dialectical knowledge remains after demonstrative science has been achieved, for he who knows the cause can thereby know better the probable signs from which the dialectical syllogism proceeds." Thus, St. Thomas holds that, inasmuch as scientific knowledge procures a better understanding of probable signs, the probable means is not excluded by the demonstrative one. The probability of the signs is better penetrated when science is actually possessed, and this better penetration is effected by a quasi-reflective knowledge of the probable means. No assent of opinion is made with regard to the truth which is the object of the scientific assent, but the probability of the signs is demonstrated in signified act.

Objection. The same argument might be used to show that belief and science can exist simultaneously in the same subject—which St. Thomas denies. The consequence seems obvious, since through signs one can know better, in signified act, the authority of the one who says that there is reason to believe. Therefore, this treatment of the question is unsatisfactory. *Answer.* I deny the antecedent. From the fact that science achieves demonstration by means of proof, it does not follow that by virtue of the same factor it should know better the authority of the witness, for authority is not manifested by any means of proof. The authority of the witness admits of no proof and does not call for any discourse. The motive of authority is attained by simple intuition and may grow by act of the will. On the contrary, opinion uses proofs, and the probable means is a means of proof; consequently, the probability of an opinion becomes better known when it is strengthened by a proving light of a higher order, viz., that of science.

Our thesis is derived from the incompatibility between evi-

dence and inevidence, certitude and incertitude, with regard to one and the same truth. In order to circumscribe and understand this opposition, it is important to see precisely where the difficulty lies. Considered in themselves, evidence and inevidence imply an opposition of privation; thus, it is not difficult to see that evidence and inevidence bring about incompatible effects in the intellect if they are held to define, without further specification, the condition of the intellect.

But what remains of such a conflict when the means of knowledge are diverse? This is the problem. It is not absurd to suppose that the intellect can see through one means and not see through another one. Provided diverse means are used, to see and not to see are not contradictory, just as there is nothing contradictory about knowing more and less perfectly by more and less perfect sciences.

The issue is clouded by a serious equivocation, for a diversity of means, in the same subject and with regard to the same truth, is possible only in two cases, viz., *(a)* when the means are not opposed to each other and do not bring about opposite effects and *(b)* when the means play such a role in the determination of the objects themselves that diversity of means entails diversity in objects and truths. But consider diverse means opposed to each other in such a way as to produce opposite effects, viz., assents one of which is evident and the other inevident; assume, further, that these opposite assents concern one and the same truth: such assents, in spite of their proceeding from diverse means, are incompatible. Likewise darkness and light, though caused by diverse causes, are opposed privatively if they are referred to one and the same subject.

Suppose, then, that we have to do with two means of knowledge, one of which is evident and the other inevident, one of which is certain and the other uncertain; suppose, in short, that one of them lacks the perfection implied by the other. In order to see whether these means of knowledge exercise opposition in the subject as they do in the object, we must turn to the effects that they bring about in the subject. Indeed, such means cannot be related to the subject in more than two ways: *(a)* their impression upon the mind is direct; then the mind is caused to be, *in exercise*, simultaneously seeing a certain truth and not seeing it (or failing

to see it), appeased and convinced with regard to a certain truth, and neither appeased nor fully convinced with regard to the same truth. The fact that these diverse movements and affections are produced by diverse principles and motives is of no essential relevance; *(b)* their impression upon the mind is not direct, nor does it concern the state of the mind in exercise. The mind is affected by *reflection* and *connotation* inasmuch as it judges that what is inevident and uncertain under inevident and uncertain premises is certain and evident under other premises. In the latter case, the fact that a particular truth is placed under such and such premises does not concern only the motive which leads the intellect, in the order of exercise and efficiency, to see or not to see; this fact assumes the character of an object, of which it is judged that it implies or does not imply vision.

In the first sense *(a)*, there cannot not be conflict and opposition between assents and between the means themselves. St. Thomas, following Aristotle, says (*Com. on Post. An.* 1. les. 44 Leonine 10) that science and opinion conflict with each other in the same way as true and false opinions, which are absolutely incompatible if the object is the same. The reason is that science and opinion induce absolutely opposite effects and contrary movements in the same intellect. By one movement, the intellect reaches a clear vision of a truth; by the other movement, the intellect does not go beyond a state of inevidence and falls short of the vision of the same truth. One movement procures the complete appeasement of the intellect and its assent reaches a terminal condition; the other movement fails to convince the intellect, does not give it rest, and does not overcome its indifference. To say that the intellect undergoes simultaneously the impressions just described is to posit in it effects conflicting [not only by their forms but also] in their relation to the power itself, viz., such effects as to be moved and to be at rest—which is not to be moved—to see and not to see the same thing in act. It is as if the same eye were caused to see clearly a thing and not to see clearly the same thing. No matter how diverse the causes and means, effects which so conflict with each other cannot exist in the same subject. It is a general fact that conflicting effects are born of diverse causes and factors; nevertheless, they cannot unite in the same subject. The diversity of the

efficient causes does not suppress the formal incompatibility of the effects. In the present connection, if diverse factors and means play the roles of causes inducing conflicting effects, such as to see a thing and to remain in the obscurity of inevidence, incompatibility is not eliminated by the fact that incompatible states are brought about by diverse means or causes.

(b) If the evident and the inevident means are related to the subject in the second manner, opinion and science do not conflict with each other. True, there is no longer opinion but certitude, and the two are not relative to the same truth but to two diverse truths. To say that a certain conclusion, as inferred by probable premises, is inevident and uncertain is a very certain judgment which does not concern the inferred truth itself but the inference of this truth and its dependence upon the premises. It is certain that this inference and dependence are uncertain. In this way, as we have already said (in line with St. Thomas), the probable means, as following upon science, can be compatible with science, because one can know more perfectly the probable signs themselves by virtue of the demonstrating cause. But we are speaking here in a different sense; we are considering opinion and science inasmuch as they actually affect the intellect with regard to one and the same concluded truth, not in so far as, in signified act, one is deemed uncertain and the other certain.

In order to perceive the conflict between opinion or belief and evidence—whether it be the evidence of vision or that of abstractive science (see St. Thomas, ii-ii. 1. 5)—let us notice that every scientific evidence, even though abstractive, is born of some intuitive vision and is necessarily connected with an intuitive vision. This is shown by St. Thomas' survey of all the modes of evidence, a survey quoted in the preceding article. Since scientific evidence is essentially connected with the vision of principles and is born of such a vision, the obscurity which conflicts immediately with science conflicts with vision mediately and by necessary connection. The opposition by which *a* conflicts with *b* destroys also what is necessarily joined to *b*; e.g., what is opposed to 'capable of laughter' is also opposed to 'rational.'

Second Comparison: Habitus with Habitus

Many think that the habitus of opinion and of science are not opposed to each other and can exist simultaneously in one and the

same subject. They do not speak of actual obscurity and of actual evidence, but only of inclination to acts formally obscure or formally evident.

Second thesis. These habitus, as opposite inclinations to opposite acts, imply an opposition of contrariety to each other. Likewise, in the physical world, heaviness and lightness, which cause inclinations to opposite movements, are in opposition of contrariety. The same opposition obtains in the moral world between virtues and vices.

When St. Thomas, in the text, from the *Post. An.* (1. les..44. Leonine 10) quoted in the foregoing, says, following Aristotle, that opinion and science are opposed in the same way as true and false opinion, he speaks at once of opinion as a habitus and of the habitus which always adhere to truth; science is one of them, and he compares it with the other ones. (See the paragraph beginning with the words, "He compares science with some habitus . . . .") Thus when he says that there is contrariety between opinion and these habitus, he does not speak of opinion considered only as an act. He speaks in the same terms of the habitus of opinion and of that of science in *Com. on Post. An.* 2. les. 20. Leonine 15, at the end.

The foundation of our thesis has already been expressed: It is impossible that two acts be in opposition with each other without corresponding opposition between the habitus leading to such acts. Indeed, inclinations are said to be opposite in so far as they tend to bring about opposite movements. Where the movements or acts are opposite, inclinations themselves are necessarily opposite. Now, the opposition obtaining between inclinations is that of contrariety: this can be easily understood by considering the examples adduced; therefore they are opposite inclinations just as incompatible in the same subject as any contrary forms.

It should be remarked, however, that contrary forms expel each other from a subject when they are perfect, but not when they are in an imperfect and weak state. One contrary form, if it is in a state of perfection, completely overcomes the indifference of the subject and imposes upon it its own unity of kind. Any indifference which would give entry to the opposite contrary is excluded. An evident habitus, in order to expel an obscure one, must achieve a complete information of the subject. This is why the light of glory, unless it is given in a state of perfection, does

not expel the habitus of faith, because it is not given in a habitual way but in passing fashion; St. Thomas says (ii-ii. 175. 3 ad 3) that the light of glory which was given to Paul, when in rapture he saw the Divine Essence, did not exclude the habitus of faith because this light was not given with the characteristics of a habitus. Likewise, a demonstration so imperfectly administered that it fails to generate any habitus does not remove the habitus of opinion; if a habitus is generated but fails to achieve the steadiness of a permanent disposition, again, opinion is not eliminated. On the other hand, a demonstration so genuine and perfect as to establish clearly and obviously the connection of its conclusion with self-evident propositions generates by a single act a perfect habitus, i.e., a habitus which convinces the intellect completely and gives it firmness with regard to the inferred truth. See St. Thomas, i-ii. 51. 3. The scientific habitus, considered in its proper nature, always expels the habitus of opinion, because it is always [if you consider its nature alone] a perfect habitus; consequently, it behaves like an intense contrary form, which always expels the opposite form.

Third Comparison: Habitus with Act

Last thesis. They are not formally opposed by nature and can exist together in one and the same subject. However, there is a case in which they are exclusive of each other, viz., when one act generates a perfect habitus which, by the very fact that it is perfect, excludes from the subject the opposite habitus.

The first part of the thesis is proved as follows: the opposition obtaining between a habitus and an act does not belong to the order of formal causality; it rather pertains to efficient and dispositive causality inasmuch as an act disposes to the opposite habitus and inasmuch as a habitus produces an act formally opposite to another act. But considered in relation to each other, act and habitus are not opposed; habitus implies only an inclination toward something, act implies actual tending. Now, inclination toward the one and actual tending toward the opposite may well co-exist; for example, the stone can, in spite of gravitation which drives it toward the center, move upward by violent impulse; a person having the habitus of virtue may sin actually and a person

having the habitus of faith may see God actually in transient fashion, as St. Thomas says expressly in ii-ii. 175. 3 ad 3. Likewise, a person having the habitus of science will be able to elicit an act of opinion without thereby losing science.

On the contrary, a person having a habitus of opinion, if he elicits a demonstrative act, by this single act generates a perfect habitus of science, since one act of true demonstration suffices to achieve perfect conviction and to overcome all resistance in the intellect. On account of its perfection, such a habitus is not compatible with the habitus of opinion. Whenever a form is perfect, it excludes the contrary form. Remark, however, that the exclusion of the habitus is effected directly not by the act but by the habitus that a single act sufficed to generate. No act can, by its own nature as an act, exclude the opposite habitus.

True, the infused habitus, such as grace and charity, are excluded by one opposite act of sin. (See St. Thomas ii-ii. 24. 12.) Yet it should not be said that an act destroys formally the opposite habitus; rather, it interferes with the influence of the cause that keeps this habitus in existence, for, by sin, man turns away from God and thereby raises an obstacle to the light of grace. (By grace man turns toward God as toward his end.) The sinner is like a person who, by closing the shutters, raises such an obstacle as to prevent the light of the sun from illuminating the air. Thus, these habitus are not destroyed by the formal opposition of an act but by the opposition of an impediment. This kind of opposition is not represented here, since the habitus of science and opinion do not depend, in their generation and maintenance, upon an extrinsic cause whose influence could be impeded by the opposite act.

Objections and Answers

First objection. Any conceivable opposition between act of science and act of opinion results either from the plurality of the acts or from their contrariety. *(a)* It does not result only from their plurality, for, if it did, the acts would not conflict any more than two acts of science or two acts of opinion or any two disparate acts. *(b)* Nor does it result from contrariety, for any contrariety that can be found between an act of science and an act of opinion

is reducible to the opposition between clarity and obscurity, certitude and incertitude. But, in so far as these are obtained by diverse means, they are not contrary to each other. There is no reason why one and the same thing should not have diverse causes, some necessary and others contingent. In reference to the necessary causes, we judge that the thing cannot be other than it is, and in reference to contingent causes we judge that it can be other than it is. Consider the proposition, "The dead rise again." Without any contradiction, we assert it in reference to supernatural causes and deny it in reference to natural causes. Likewise, according as we consider one system of causes and factors or another, we shall judge that one and the same conclusion is certain and uncertain, evident and inevident. This is how St. Thomas (i-ii. 67. 3), considering the opposition between opinion and science or between probable means and demonstrative means, speaks of opposition in reference to the same act or means, but does not posit any opposition if one and the same subject is determined by diverse means of knowledge.

Confirmation. Contrary acts relative to the same object can exist simultaneously in the will; therefore acts of opinion and of science can also exist simultaneously in the intellect.

The *consequence* is plain. These acts are not opposed to each other by privation or contradiction, since each of them is a positive act; nor are they contradictory on account of their object, since both are affirmative of the same truth.

Proof of the antecedent. The will of Christ was simultaneously affected by joy and by sorrow with regard to the same object, viz., his Passion, about which he was sad because of the evil of nature, and joyful because it was the redemption of man.

Answer. The opposition between the act of opinion and that of science is one of contrariety, but the sense in which these acts are contrary to each other must be carefully specified. There is contrariety between act of science and act of opinion inasmuch as they entail effects that are opposed privatively, viz., to see clearly and not to see clearly one and the same object, to be certain of it by judging that it cannot be otherwise, and not to be certain by making the opposite judgment. St. Thomas (i-ii. 67. 3) likens this opposition to that of the true and the false.

With regard to what is said of the diverse means, let us

answer that assents brought about by diverse causes and means, some of which are necessary and some of which are contingent, are opposed to each other inasmuch as they are, absolutely speaking, the forms of opposite judgments. But if we consider these causes and means as objects in quasi-reflective fashion and in signified act, we judge that they possess either the probability of opinion or a character of necessity; if causes and means are so considered, the assent marked by contingency and that marked by necessity do not have the same object. Likewise the propositions, "The dead arise again," "The dead do not rise again," if taken absolutely, contradict each other and conflict with each other in the intellect. But if they are not taken absolutely, if one expresses a thing that the other does not express—viz., if I say that "by the power of God the dead rise again, but by natural causes they do not"—the two propositions are not about the same object and consequently do not contradict each other. Likewise, opinion and science are so related that, if they are exercised absolutely, they bring about opposite effects. But if they are considered in signified act and if the judgment concerns not only the things themselves but also their certainty or uncertainty, in dependence upon such and such causes and means, then the two propositions no longer contradict each other and the judgment is no longer an opinion: it is endowed with certitude. In short, opinion and science are opposed in the same way as true opinion and false opinion. See Aristotle, *Post. An.* 1. 33. $89^{a}38$ and St. Thomas, *Com. on Post. An.* 1. les. 44. Leonine 8. Accordingly, the judgment of opinion and the judgment of science must be spoken of in the same way as judgments opposed by truth and falsehood. St. Thomas (i-ii. 67. 3) does not restrict the opposition between science and opinion to the means or the acts: he perceives an opposition in the subject itself. The meaning of the text just referred to is unmistakable. See the preceding article of the present question.

Answer to the confirmation. The contrary movements of joy and sadness in the will do not regard the same object as good and evil from the same standpoint. Christ Our Lord rejoiced about his Passion inasmuch as it was for the salvation of mankind, and he was sad about it inasmuch as it was an evil of nature: these are objects formally diverse, in spite of their material identity.

An additional difficulty might be phrased as follows: Why should not opinion and science deal with the same material object, since this object would be treated by them from different points of view? The answer is that if the formalities of opinion and science brought about diverse truths by constituting diverse objects, what holds for the movements of the will would also hold for them.

But in the intellect, the mere fact that the deduction of a truth refers to an evident or to an inevident means does not change its nature as an objective truth. The truth remaining the same, if its illumination is effected by diverse means, one of which procures a full illumination and the other an obscure one, opposite effects are thereby produced in the intellect concerning one and the same truth inasmuch as this truth is a matter illuminated by these two opposite lights. Even though these lights are those of opposite habitus, they always bring about opposite effects.

On the other hand, the object of the will, which is the good, is changed, from the very point of view of goodness, by a mere diversity of respects and relations. One and the same thing is good and fitting as related to one thing and unfitting as related to another. Good and evil are understood relatively, so that diverse relations bring about a diversity of objects from the point of view of the good and the fitting. By the very fact that there is a change of object, movements that are diverse fail to enter into opposition with each other. However, the sense appetite [as distinct from the will or rational appetite] cannot elicit at the same time such diverse movements of joy and sadness even with regard to diverse objects. The movements of the sense appetite involve somatic motions of expansion and contraction in the cardiac region, and these motions simply cannot take place at the same time, since they imply diversity in position.

Second objection. Divine belief is obscure and does not conflict with natural science, which is evidential. Therefore, not every kind of obscurity conflicts with evidence.

The antecedent can be proved in several ways: *(a)* Belief and vision do not conflict with each other except inasmuch as vision has the character of rest, and belief that of motion. Now, divine faith is a motion tending toward the vision of glory, not toward natural science; therefore, it does not conflict with natural science but with the vision of glory. *(b)* In the minds of Christian

philosophers, the proposition 'God exists' remains an object of belief. Otherwise the philosophers would be restricted, with regard to this proposition, to a certitude inferior to that enjoyed by the faithful peasant for whom this proposition is a matter of belief, and the condition of the philosophers would be worse than that of the peasant. *(c)* St. Paul in his rapture had simultaneously belief and vision of glory. (See St. Thomas ii-ii. 175. 3 ad 3.) Therefore, belief is not incompatible with the act of vision or science. *(d)* According to an opinion held by some authors, a body can exist in two places. Thus if a man is placed both in Rome and in Complutum, he will, in Rome, see the Pope, and, in Complutum, accept on belief the things said about the Pope. Thus, it is not impossible that there be clear vision and obscure knowledge in the same subject and with regard to the same object.

Answer. Referring to an explicit statement of St. Thomas (ii-ii. 1. 5) we deny the antecedent. Let it be said, further, that the same opposition holds *(a)* between obscurity and the evidence of vision, and *(b)* between obscurity and the evidence of science, for science is essentially connected with the vision of the principles and proceeds from this vision according to necessity.

Answer to the first proof. The proposition that divine belief is related to vision as motion to rest holds in two senses. *(a)* In relation to reward and perfect fruition, the vision of glory alone has the character of a term and that of a rest; *(b)* but if one considers the way of operating, apart from the plenitude of fruition, the evidence of intellectual operation, even in natural science, has the character of a term in relation to the methods proper to belief. In belief, the intellect, by reason of obscurity, is held captive and, so to say, subjected to alien terms, but in science, it receives evident conviction from its proper object.

Answer to the second proof. Theologians have been discussing for a long time this question: 'In what way does belief remain in the Christian philosopher?' We cannot, here, settle this controversy. Let us, however, make some brief remarks.

(1) Belief regarding the proposition 'God exists' can remain in the Christian philosopher so far as the readiness of the soul is concerned. Thus the Christian philosopher is not worse off with regard to merit and habitual certitude, even if it should be said that he is worse off with regard to actual certitude.

(2) The proposition 'God exists' remains an object of belief in so far as I believe that God is the author of the supernatural order. Without such belief, there would be no justification, since the article 'God exists and is the remunerator' contains implicitly all the other supernatural articles, as St. Thomas says in ii-ii. 2. 8 ad 1. Supernatural truth cannot be contained in the truth 'God exists' precisely considered as natural truth. St. Thomas writes (*On Truth* 14. 9 ad 8) "We do not say that the proposition, God is one, in so far as it is proved by demonstration, is an article of faith, but something presupposed before the articles. For the knowledge of faith presupposes natural knowledge, just as grace presupposes nature. But the unity of the divine essence such as is conceived by the faithful, that is to say, together with omnipotence, providence over all things, and the other attributes of this sort, which cannot be proved, makes up the article of faith,"[43a] The same doctrine is in ii-ii. 1. 8 ad 1. Yet the proposition, 'God exists as Author of nature and as evidently knowable from natural effects,' remains a matter of science and not of belief. But so specified it is formally a truth and a proposition distinct from the proposition which attains the existence of God in relation to truths supernaturally revealed.

(3) It can also be said that the proposition 'God exists,' even if God is considered as Author of nature, is held with more actual certitude by the Christian philosopher than by the faithful peasant; this greater certitude results from a participation in the privileges of [supernatural] belief and from the association of reason with belief, inasmuch as belief utters a general judgment that things known by [supernatural] belief are more certain than any natural cognition. In this judgment, the intellect apprehends the certitude of [supernatural] belief without its obscurity. As a result of this judgment, the intellect of the demonstrator enjoys a new firmness, for he is assured that his demonstration of the truth, 'God exists,' is not subject to error and is not an illusory demonstration. In other natural demonstrations, such accidents can be feared because of the weakness of our reason; in fact, our natural demonstrations admit of a large admixture of errors that faith helps to correct, as St. Thomas says in C.G. i. 4 and in ii-ii. 2. 4. The demonstration itself is strengthened and participates in a certitude coming from faith by uttering the judgment 'God exists'

without including in it the obscurity proper to faith. Exemplifying this point, St. Thomas says (ii-ii. 4. 8 ad 2) that a man who has worked out a demonstration and sees it approved by a man of great science would certainly be confirmed in his demonstration and judge that it is free from deception. Likewise, when the philosopher sees that the truth of his demonstration is established by divine belief he is thoroughly confirmed in this truth. This effect of belief is not produced by an influence of the act of belief itself upon the process of demonstration; it is produced by a judgment whose object is the certitude of [divine] belief, not its obscurity. In other words, apprehending the certitude of belief corroborates the certitude of demonstration. In apprehension, we may receive a judgment about certitude and not apprehend what pertains to obscurity; with this specification, belief, through this judgment, injects certitude, but not obscurity, into demonstration.

Answer to the third proof. The act of vision, in St. Paul, did not exclude the habitus of belief because this act of vision did not proceed from any habitus; it had no character of permanence and was elicited by an aid, i.e., a transient quality playing the role of a habitus; thus the habitus of belief was not excluded.

Answer to the confirmation. We reject the theory that a body can exist in two places (See *Phil. of Nat.* i. 16. 5). If this theory were accepted, it should be said *either* that this vision and this nonvision do not conflict with each other because they are relative to diverse places, so that one man is playing the part of two persons and subjects, *or* that all the things that he sees in one place would be seen also in the other place on account of the identity of the eye. The situation would be similar to that of a man who, while being in one place, enjoys such keen vision as to attain things existing in another remote place. By being in both places he attains both places.

Last objection. A person who possesses the habitus of science can use a probable means to establish an already demonstrated conclusion; in fact, it often happens that one accumulates means and arguments in order to establish one and the same proposition; of these means and arguments, some are probable, others demonstrative. These probable arguments generate a habitus (repeated acts generate a habitus) and obviously not a scientific one, therefore, a habitus of opinion. Thus these habitus, viz.,

science and opinion, are compatible with each other.

Answer. If the person who possesses the habitus of science elicits an act of opinion with the fear and the kind of assent that are characteristic of opinion—I do not speak of the case in which one merely knows more perfectly the power of probable signs (such knowledge, according to St. Thomas, can be had when a probable means is used after a demonstration)—then the assent of opinion will not generate a habitus because of an impediment in the subject. This impediment is the habitus of science, which actuates the subject firmly and perfectly and is not compatible with the opposite habitus. In this respect, science differs from the habitus of virtue. Just as a virtue is not generated by a single act but rather by an habitual way of acting—because of contingency and freedom in the choice of the good, and of several circumstances necessary to the good action (i-ii. 51. 3), the indifference of the reason toward the good is not totally overcome by one act—so a single act does not destroy virtue. Thus, in the ethical order, there is room for the gradual generation of the opposite habitus. Such is not the case with the habitus of science in relation to opinion, for, as an effect of a single act, the habitus of science is completely generated and causes the intellect to adhere with certainty by the power of evidence, not by the power of custom.

QUESTION 27

ON UNITY AND DISTINCTION IN THE SCIENCES

In the preceding questions we have explained the concept of science, shown how science is effected by demonstration, and described its contrast with the habitus devoid of evidence. We still have to discover the source of unity and distinction in science. But notice that such unity and distinction can be understood in two ways: *(a)* with regard to the formal character of science and *(b)* with regard to science as a quality of the soul (then the problem is to determine whether science is a single quality or a multiplicity of qualities). The first kind of unity and distinction will be studied in the first article; the second in the following one.

ARTICLE 1

WHAT CAUSES THE SPECIFIC UNITY AND DIVERSITY OF THE SCIENCES?

This question has always been considered a very difficult one. The opinions and explanations of various authors have made it more involved. The following remarks are designed to separate the certain from the uncertain.

1. Here we are not considering practical sciences, but only the theoretical ones. Practical sciences take their types from the diverse ends to which they are related, as St. Thomas points out in *Op.* 70 [*Exposition of Boethius' Treatise on the Trinity*], q. 5. a. 1; but the end of theoretical sciences is truth precisely considered as knowable. There are diverse kinds of knowability: our task is to define each of them. Now, everything is knowable in so far as it is immaterial, and various types of knowability result from various modes of immateriality. Further, in order for an object to admit of scientific knowledge, it must be necessary and unchangeable, and proceed from necessary principles capable of throwing light on conclusions. Our present duty is to achieve, through the proper use of all these notions, a satisfactory understanding of the various scientific species.

2. It is certain that the sciences, like all habitus, derive their specification from their object. See Aristotle, *On the Soul* 2. 4. 415^{a}20 and St. Thomas, i. 77. 3. Thus, the unity and the distinction of powers or habitus must always be proportional to, and patterned after, the unity and distinction of the object precisely considered as object.

3. Finally, it is certain that the specification of the sciences is not derived from the unity or distinction enjoyed by the object in its existence as a thing, but [from the unity and distinction enjoyed by the object] in its existence as an object.[44] In other words, specification does not proceed from the object considered materially, entitatively, and in itself; it proceeds from the object as related and proportioned to such and such a habitus or power.[45] In very felicitous terms, Cajetan points out (*Com. on Summa theologica* i. 1. 3) that the intelligible features of the object considered in the aspect or formality of object differ from the intel-

ligible features of the same object considered in the existence that it enjoys as a thing, and that the species of the things in their existence as things [say, in their *real* existence,] are different from the species of the things in their existence as objects [say, in their *objective* existence]. The meaning of this remark can easily be evidenced by examples. Color, in the being that it enjoys as a quality, is a genus divided into various species, and yet, considered as visible, it has only one species, viz., that of object of sight. As objects of natural philosophy, all bodies are of the same species, as objects of metaphysics, all beings are of the same species; yet, if one considers their entity as bodies and beings, they are divided into an immense variety of species. Conversely, the same color is attained in diverse ways by sight and by the intellect, the same thing is attained as good by the will and as true by the intellect, the same earth is attained as round by the astronomer and as mutable by the physicist, etc. Thus, it is clear that the specific features of a thing and the specific features of an object considered in its objective existence and formality are not identical.

Consequently, almost the whole of our task, in the present connection, consists in determining the formal aspect which specifically constitutes an object as object of a science and causes it to differ specifically from another scientific object. As mentioned (q. 1. a. 3), a distinction is commonly made, within the formal character of the object, between the 'aspect which' and the 'aspect under which.' One should not reject this distinction, as does Vasquez (*Com. on Summa theol.* i. disp. 7. chap. 3). Within the object attained by various habitus or powers, it is necessary to designate an aspect especially attained by one [habitus or power] and another aspect especially attained by another [habitus or power]. The aspect especially contacted [by a certain habitus or power] is called *(a)* the 'formal aspect *which*,' i.e., which is attained. The difference between the *material* object *(b)* and the formal aspect *which* can be explained as follows: it is on account of the determination constituted by the formal aspect *which* that the material object can be attained by a habitus or power. Finally *(c)*, what is called 'aspect *under which*' is a [distinguished] formal aspect which actuates other formal aspects, contains them within itself, and delivers them to the grasp of a power.[46] Since

what is formal in relation to one term happens to be material in relation to another term, the ultimate formality, within which all other formalities are contained, is called 'formal aspect *under which*' in an unqualified sense.

Just as we have to consider, on the side of the knowable object, the formality which is attained *(a)* and the ultimate formal aspect *(c)* within which the other aspects are attainable,[47] so, on the part of the power, there is correspondingly a formal aspect *under which* the power attains its object.[48] This formal aspect is nothing else than the light or actuality in virtue of which the power is related to such and such an object and actuated in relation to it. Sight supplies a clear example. The body, e.g., the wall or the stone, is the material thing *(b)* which is seen. Color is the formal aspect by which the wall or the stone is determined in relation to sight rather than in relation to hearing; it is, in other words, the formal aspect *which (a)* is seen. But color is actuated and informed by light, and the latter is *(c)* the ultimate formality *by which* the object is made visible and under which other aspects [of the thing] are related to sight. On the part of the eye there is also a light [corresponding to *(c)*], under which the actuated power proceeds to the act of seeing.

Let these notions be applied, in parallel fashion, to the scientifically knowable object and to science. The knowable object is a complex whose components are a subject and the property or affection attributed to it by demonstration. The object constituted by the truth of the inferred conclusion must be illuminated by a middle term contained in the premises. The middle term is the principle from which the concluded truth is inferred and by which it is illuminated in the very act of being inferred. Thus, the definitions which play the part of principles or middle terms in the demonstration of properties must be of such character as to determine the knowability of the inferred object by illuminating it. If quiddities were known adequately and according to what they are in themselves, each of them would determine, with regard to its properties, a science distinct from all other science. St. Thomas holds it probable that in Christ distinct infused sciences correspond to the diversity of the ideas representing quiddities (iii. 11. 6). However, in our present condition, the intellect proceeds by uniting and disengaging, fails to understand adequately any

nature as it is in itself, co-ordinates natures with each other, links one nature to another, and, conversely, understands one and the same thing in diverse ways. The result is that diverse natures fall under the same science, whereas one and the same nature is studied by diverse sciences. We have to explain how one principle can unite several natures in one science and how the study of natures can be divided into several sciences by a multiplicity of principles.

On this subject, many opinions are received among experts; yet they can be reduced to three main ones.

1. The unity found in each conclusion is a distinct partial unity.[49] (More on this in the following article.) [A multitude of conclusions is a multitude of parts, but] all these parts are united into one science by the unity of a principal subject to which other subjects are related or on which they depend because of its central importance. For instance, in logic the whole science receives unity from the syllogism or from the method of scientific knowledge. Such seems to be the theory of Suárez, *Metaphysical Disputations, 44.* sec. 11. A criticism of this theory is found in the Philosophers of Coimbra, *Com. on the Whole Dialectic of Aristotle* Post. An. 1. 23. a. 1. Scotus and his school hold the same theory, which is followed and explained by Merinero, *Com. on the Whole Dialectic of Aristotle,* Intro. to Logic, disp. 1. q. 5. According to them, the unity of a particular science proceeds from the unity of the subject in which all the truths of this science are contained. If all the properties pertaining to a science are demonstrated by such a subject and its definition, this science enjoys the unity of an ultimate species. But suppose that the subject has the character of a genus; the species contained in it cannot be understood without the mediation of new definitions. In such a case, it is not possible to attain all truths by virtue of the subject and its definition: the science enjoys only generic unity and contains within itself several specifically distinct sciences. Thus, according to these authors, the unqualified specific unity of a science is derived from unity in the definition and quiddity of the thing subjected to inquiry.

2. The second theory, considering that there are diverse ways in which the middle term renders conclusions knowable, derives unity and diversity in sciences from the unity or diversity of the

middle term. But how shall we describe this diversity in knowability? Some think that it is an extrinsic denomination brought forth in the object by science itself; others think that it is a diversity of light, which amounts to the same thing, if what is understood by light is the habitus of science.[50]

3. The third theory—very commonly received, especially in the school of St. Thomas—derives the unity and diversity of the sciences from the diverse ways of abstracting from matter. Here, abstraction does not designate the act of the intellect which disengages something from something else, but the abstractibility of the object or its immateriality.

Now, the matter left out by abstraction is threefold, as St. Thomas says (i. 85. 1 ad 2), viz., *singular*, which renders a thing individual and singular; *sensible*, which causes it to be the subject—or at least the common subject—of accidents perceptible to the senses; *intelligible*, which is substance considered in the capacity of bearer of quantity—a capacity still exercised after the other accidents have been removed. Abstraction from these diverse matters—in other words, their being left out—gives birth to three genera of sciences: physics, which abstracts merely from singular matter and considers the sensible world; mathematics, which, further, abstracts from sensible matter and considers quantity; metaphysics, which abstracts even from intelligible matter and considers substance or being. But at this point a difficulty arises: diverse species of science are contained in these genera, and it is not easy, within the present theory, to show how abstraction accounts for the specific diversity of the sciences.

First thesis. Consider, within a science, the relation between the main subject and the diverse truths. From one standpoint, the main subject contains or causes all these truths; from another standpoint, all these truths are related to the main subject. Regardless of which standpoint obtains, let it be maintained, against the first opinion,[51] that the unity or distinction of a science is not derived exclusively from the unity of its main subject.

The reason for this thesis is that diverse sciences can be conversant with one and the same subject. Thus, God is known in blessed science, in mystical knowledge, in theology, and in metaphysics; the heavens are studied in astronomy and in natural

philosophy, etc. We have to determine the principle by which sciences are distinguished from each other even in the treatment of the same subject.

Some say that this principle is diversity in the definition of the main subject. Indeed, the definition is the middle term in demonstration; the distinct reason why the subject pertains either to one science or to another would be determined by the distinct way in which one science or the other defines it.

But this is insufficient. The physicist defines quantity in one way; the mathematician in a different way: what constitutes the diversity of the ways of defining used in one science and in another remains to be explained. But diversity in the structure of definitions and in the way of defining can only be accounted for by diversity in the modes of immateriality and abstraction which determine diverse ways of apprehending and defining. We shall elaborate on this later, following the texts of St. Thomas.

Further. One science contains diverse definitions, just as it deals with diverse things or quiddities. This is obvious in physics and mathematics, and especially in metaphysics. Each of these sciences inquires into extremely diverse things and has a distinct definition for every one of them. It is hard to see how all these definitions, and the propositions demonstrated through them, are reduced to one science.

When it is said that the main subject effects unity by co-ordination and dependence, the origin of this co-ordination remains to be disclosed. If we had to do with the various properties of one nature, their co-ordination would be assured by the unity of their bearer; but we have to do with various natures and definitions set in order in the same science. The definition of the principal subject cannot suffice to cause such unity, since the same subject happens to be defined in various ways in various sciences, as has been said. Ultimately, diversity in the sciences would be traced to diversity in the way of defining, and diversity in the way of defining is not traceable to anything else than diverse immateriality, as we are going to show. Diversity in the way of defining one and the same quiddity cannot be accounted for in any other fashion.

According to some, the science which so defines a principal subject as to contain within itself all the demonstrations needed

for demonstrating the various truths contained in such a subject enjoys but generic unity and comprises within itself specifically distinct sciences. *Against* this view, let it be said that either these definitions and demonstrated truths are co-ordinated by and connected with the main subject, or they are not. If there is no such connection or co-ordination, they are not related to a principal subject; consequently, we are confronted by several mutually disparate sciences and there is no use inquiring into their unity; we should rather speak of their diversity. If, on the other hand, these truths are co-ordinated among themselves, subordinated to a principal subject, and provided with specific or generic unity or distinction as a result of such co-ordination and subordination, we have to explain the nature of this subordination. Some truths (*a, b,* c,) are subordinated to a truth *(d)* defined in a certain way, but if truth *d* is defined in a different way, truths *a, b,* c, are no longer subordinated to it: such a state of affairs cannot be accounted for except by diversity in the way of defining and by diverse immateriality.

Therefore, it should be absolutely denied that any principal subject of science can contain all the truths of this science immediately and in a way sufficient for their demonstration.

Particular definitions of the various essences inquired into by a science have an indispensable part to play. The unity consisting in the subordination of scientific truths to the principal subject cannot be traced exclusively to the unity that the subject possesses in its existence as a thing;[52] it must be traced to the aspects and modes which render the subject knowable in diverse ways. As we have already said, this diversity of aspects and modes is ultimately reduced to diverse modes of immateriality.

Second thesis. Assuming, of course, that sciences are being considered in their scientific objectivity, let it be said, in general terms, that their unity and their distinction are derived from diversity in immateriality and abstraction. Such diversity resides primarily in the principles and middle terms of demonstration; from there, it extends to the conclusions, whose intelligibility is manifested in diverse ways.

This thesis is commonly held by the Thomists. See Cajetan, *Com. on Summa theologica* i. 1. 3; Sylvester of Ferrara, *Com. on C.G.* ii. 4; *Course of the Carmelites,* disp. 19. q. 4; the Philoso-

phers of Coimbra, *Com. on the Whole Dialectic of Aristotle*, On Post. An. 1. chap. 23. a. 1.

Notice that 'abstraction' does not designate, in the present connection, the act by which the intellect performs an abstraction; neither does it designate the extrinsic denomination resulting from this act. If 'abstraction' were understood in either of these ways, there would be a vicious circle, for the diversity of the abstracting science would be derived from the diversity of the object abstracted and denominated by the science, whereas diversity in the knowable object would be derived from diversity in the abstracting science. 'Abstraction,' here, signifies objective abstractibility. There is foundation in the [material] object for bringing it to diverse stages of immateriality and presentation [formal objects]: this foundation in the object is what 'abstraction' designates in the present context. *Further:* we are not speaking of extensive abstraction [or abstraction of universal wholes], which disengages an object from the inferiors of which it is predicable; this kind of abstraction is, for the sciences, a general condition, since sciences are concerned not with individuals but with universals. We are speaking of formal abstraction [or abstraction of intelligible types], which disengages formal aspects from what is material or potential, and thus constitutes or grounds intelligibility. According as an object is more or less removed from matter and material conditions, it is rendered intelligible in diverse ways. On these kinds of abstraction, see St. Thomas, i. 40. 3, and Cajetan in the beginning of his commentary on *On Being and Essence*.

With the help of these specifications, it is easy to show that our thesis is gathered from St. Thomas. There is no real disagreement between several texts in which he seems to be at variance with himself on the unity and diversity of the sciences. These texts do not express several theories, but they explain a thing which could not be explained in a single way. *Sometimes* St. Thomas draws the distinction of the sciences, without any further elaboration, from diversity in abstraction from matter, as in the preface to the commentary on *On the Sense* (les. 1. Pirotta 1 ff.) and, most of all, in *Op.* 70 [Exposition of *Boethius' Treatise on the Trinity*], q. 5. a. 1. *Sometimes* he draws it from diversity in the middle term, which supplies the formal element in

demonstration. See ii-ii. 1. 1. and i-ii, 54. 2 ad 2. *Sometimes* he draws it from diversity in definition and from diverse ways of defining, inasmuch as definition is the principle from which the intellect moves down to the conclusions to be demonstrated. See *Com. on Met.* 6. les. 1. Cathala 1156 and *Com. on Post. An.* 1. les. 41. Leonine 10-16, where the diversity of the sciences is derived from the diversity of the principles.

All these considerations show with perfect clarity from what sources the unity and the diversity of the sciences should be derived. The fundamental principle of St. Thomas is that a thing is intelligible in so far as it is separable from matter, for the intelligible is identical with the spiritual and the immaterial; but the beginning of spirituality is the stripping off of matter. Since matter is what clouds and impedes intelligibility, it is by being disengaged from matter that an object is illuminated and disclosed; but this disengagement admits of diverse modes. This fundamental principle must be supplemented by pointing out what 'to be knowable scientifically' implies, over and above 'to be intelligible.' The object of science does not admit of incomplex knowledge; it is knowable by inference and through a movement from causes or premises to conclusions. To know scientifically is "to know the cause... etc." (*Post. An.* 1. 2. $71^{b}10$).

But if immateriality is the root of intelligibility, and if, consequently, diverse immateriality is the root of diverse intelligibility, it plainly follows that the root and principle of diverse scientific knowability is diverse immateriality or abstraction, considered not absolutely and apart from all complexity, but in its movement from premises to conclusions. In sciences, the premises and the instruments of proof are the first principles and the definitions, for it is by the first principles and the definitions that the properties are demonstrated of the subject. These definitions and principles are diverse in so far as they use diverse ways of defining or explaining quiddities; this is the same as to involve diverse kinds of immateriality. Indeed, if what renders a thing intelligible is immateriality, and if diverse ways of understanding are caused by diversity in immateriality, diverse immateriality causes also diversity in understanding the quiddity, in other words, diversity in defining. Thus, diversity in the way of defining or understanding the quiddity is the same as diverse im-

materiality. But where there is diversity in the way of defining, there is also, consequently, diversity in the way of demonstrating, since the principles by which demonstration is effected in the sciences are definitions. On the other hand, all principles that operate within the same way of understanding or the same kind of abstraction are considered to be of the same species; thus, the various definitions found in one science are said to be of the same species with regard to the way of understanding and defining, so long as the same way of defining obtains; yet the quiddities defined belong to distinct species in real existence. The physicist defines in the same way—viz., within the same system of abstraction characterized by retention of matter, i.e., of the principle which renders things perceptible to the senses and subject to motion—all the things with which natural philosophy is conversant; consequently all his definitions are similar and belong to the same species with regard to the way of defining, although they are diverse with regard to the things defined. Such is the theory of St. Thomas when he says (*Com. on Met.* 6. les. 1. Cathala 1156): "Since definition is the middle term (or means) of demonstration, and, consequently the principle of scientific knowledge, diversity in the way of defining necessarily entails diversity of theoretical sciences"; he develops the same idea extensively as he shows that diversity in the way of defining follows upon diverse ways of including matter in the objects that are defined.

All this evidences the truth of the proposition that the unity and distinction of the sciences is derived from the diversity of the means (i.e., middle terms) or principles by which the scientific illumination is effected. On the other hand, the diversity of the means or principles necessarily proceeds from diversity in the way of defining or understanding. But diversity in understanding, whether it is considered in definitions and causes or in effects, necessarily reduces to diversity in the immateriality according to which the thing is understood. This immateriality must reside primarily in the principles, from which it descends to the conclusions, for it is productive of science. And because these principles, so understood, are said to illuminate conclusions, it can be said also that the diversity of the sciences proceeds from a diversity of light. We do not speak of the light which belongs

to the knowing power, viz., the habitus or specific science; we are referring to the fact that the principles are an objective light which determines the scientific truth of the conclusions.[53]

Last thesis: In the sciences, the ultimate species is not determined by the material diversity of the objects considered in their existence as things, but by the diverse degrees of immateriality that abstraction brings forth in objects. In the sciences of the supernatural order, the ultimate species is determined by diversity in access to or participation in the divine science itself.

The first or negative part of this thesis is taken from the express statement of St. Thomas, *Com. on Post. An.* 1. les. 41. Leonine 12, who derives not only the genera of sciences but also their species from the diverse modes of knowability, and by no means from the material diversity of the things known, as some believe he does. St. Thomas says: "The genera of the scientifically knowable objects correspond to diverse ways of knowing; for instance, objects that are defined with matter are not known in the same way as objects that are known without matter. Consequently the physical body and the mathematical body constitute distinct genera of scientifically knowable objects. Each of these genera is divided into various species of scientifically knowable objects according as the ways of knowing are diverse and, in each case, on account of the particular knowability of the object." These are the words of St. Thomas; they suffice to establish the first part of the thesis with great clarity.

If things are considered materially and in their real existence, a science enjoying the unity of an ultimate species treats of things that belong to various species. This happens obviously in metaphysics, in logic, in physics, and in any other science no matter how specific its unity. Just as there is no distinct power of vision for each species of color, so there is not a distinct science for each species of things. The specific distinction of the sciences cannot proceed from the distinction of the quiddities or things in their existence as things. The reason for this state of affairs is that our sciences, which are imperfect, do not coincide absolutely with the things themselves and do not comprehend them adequately. Each thing, if perfectly comprehended, could constitute the foundation of a science proper to it and specifically distinct from any other. Science would not require a co-ordination of ideas, and

each thing, perfectly represented by its own adequate idea, would need no more than its idea to demonstrate its properties.[54] From this consideration, St. Thomas deduces, in a firm argumentation (iii. 11. 6), that there was in Christ our Lord an infused science diversified into a multiplicity of habitus, for Christ understood the natures of things by ideas as diverse as the things themselves. His infused science did not consist in a multitude of ideas co-ordinated by one way of knowing and one kind of immateriality. Each idea, because it represented each thing perfectly and adequately, was the foundation of a science distinct from any other science. But a science is not strictly adequate to the thing known when it does not comprehend that thing perfectly, does not comprehend it alone, attains several things under some common aspect, and thus co-ordinates several ideas under the same principle of science and understanding. Such a science is not divided according to the entitative division of things; it comprehends several quiddities under the same specific aspect. Thus, the formal and specific object of a science embraces several physical species; it is not established by congruence with particular real species.

The second part of this thesis is explained by Báñez (*Com. on On Generation,* Intro.) in words which seem to convey the genuine doctrine of St. Thomas. His exposition is as follows: with respect to material things, which are rendered intelligible and immaterial by segregation from matter and from material conditions, abstraction is, so to say, a movement between a term *from which* and a term *to which.* The distinction of these terms holds formally in the act of abstraction itself, fundamentally and objectively in the object which admits of being abstracted. In reference to the term *from which,* matter is left out; and this process is threefold, as we said earlier. Thus are the three genera of abstraction constituted. But in reference to the term *to which,* the thing so abstracted can acquire various degrees of immateriality and various modes of spirituality. This is what St. Thomas means when he says (*Com. on Post. An.* 1. les. 41. Leonine 12) that within each genus of scientific knowability various species are distinguished according to various modes of cognizability. Thus the formal and specific object of the sciences is determined not only by recession from matter, but also by accession to the determinate degree of immateriality in which an object is determinately considered and

rendered intelligible. Similarly, among angels, specific diversity is not determined only by recession from corporeality, but also by accession to a determinate way of having spirituality and immateriality and [by the degree of nearness] to the pure act, as St. Thomas points out (*On Being and Essence*, chap. 5). Mathematical sciences have this in common, that they abstract from sensible matter: yet, because various modes of immateriality are attained in the consideration of continuous quantity and in that of discrete quantity (discrete quantity is more remote from materiality because it depends less on place and time than continuous quantity, whose parts are united in place), there are two sciences in mathematics, geometry and arithmetic. Likewise, the philosophy of nature and medicine are distinct sciences; true, both abstract from singular matter, but the body considered as a thing to be healed is more related to matter than the body considered as mutable. In logic, metaphysics, and theology, there is abstraction from both sensible and intelligible matter on the part of the term *from which,* but the modes of immateriality attained by these sciences are diverse. Theology considers God himself as known through the divine light of virtual revelation; metaphysics [considers everything it considers] under the first and supreme aspect of being, as abstracting both from createdness and uncreatedness. Logic considers [second] intentions as founded upon the objects known to our intellect; of themselves, these intentions have but a negative immateriality, since they are nothing real.

Briefly: since the ultimate specifying principle of a science is nothing else than the ultimate aspect of scientific knowability, which does not admit of further division, it is necessary—if the formal principle of scientific knowability is derived from immateriality—that the last and specific principle of scientific knowability be determined by the term *to which* of abstraction—the term in which abstraction ultimately rests and is completed. Thus the species of scientific knowability is not determined only by segregation from matter, matter being considered the term *from which;* it is also determined by ultimate immateriality.

In the sciences of the supernatural order, which are brought into existence not by abstraction from things but by participation in and derivation from the light of divine knowledge, species are determined by diverse modes of this participation. The obscure

revelation of faith participates in a certain way in the essence of testimony; prophecy does so in another way. Indeed, prophecy can be obscure, but it can also be clear by reason of a revelation which not only witnesses to the truth revealed, but also represents it and manifests it. There is another mode of participation in the case of infused science, which knows quidditatively supernatural quiddities, and still another one in the case of beatific science, which attains God in himself and under conditions of perfect evidence. *Moreover:* within each of these cases, God knows in how many ways the light of divine knowledge can be partaken of.

Objections and Answers

First objection. It is not by virtue of abstraction that the primary object brings about the unity of a science or its diversity from other sciences. Therefore.

The *antecedent* is established by many examples showing either that several sciences are comprised within the same system of immateriality or, contrariwise, that one and the same science attains its objects in diverse systems of immateriality. (1) Ethics and logic do not derive their specification from abstraction, and it is not possible to assign to them a specifying abstraction. (2) Philosophy of nature knows of but one kind of abstraction, viz., from individual matter, and yet sciences specifically different from each other are found in it, as the science of *the Heavens,* the science of *the Soul,* etc. The same is true of mathematics, which abstracts from sensible matter, and yet comprises diverse scientific species, as geometry, arithmetic, etc. (3) Acoustics and the other subalternate sciences are of one species and yet they involve more than one kind of abstraction, for acoustics considers number as embodied in sound, and in so far as number is concerned, its abstraction is mathematical, but in so far as sound is concerned, its abstraction is physical. (4) If diversity in immateriality causes distinction among sciences, it must also divide from each other several habitus of first principles and several habitus of opinion. There is no particular reason [why it should cause distinction] in the first case rather than in the latter two. Yet it is clear that one and the same habitus of first principles attains all principles, no matter how diverse their

levels of abstraction may be: it attains principles of metaphysics, of physics, and of mathematics. Conversely, the principles of the philosophy of nature and the philosophy of nature itself pertain to the same degree of immateriality and yet they do not constitute a single habitus, since the principles belong to the habitus of principles, and philosophy of nature to the habitus of science. Thus it is not true that the same system of immateriality defines one habitus, or that diverse systems of immateriality define diverse habitus.

Answer. I deny the antecedent. The immateriality of an object constitutes the intelligibility of the same object considered in itself. But it is not always in the system of intelligibility founded upon its own nature that an object confronts the intellect. Sometimes the form of an object as object is determined by another system of immateriality. Then, the system of immateriality which belongs to the object by reason of its own nature and is founded upon this nature plays only an incidental part. Yet this system of immateriality would define a distinct science if it had a chance to impress its own features upon the intellect.

Concerning the *first example,* let it be said that the science of the reason, viz., logic, owes its unity to its abstraction, which is in a way similar to that of metaphysics, but differs from metaphysical abstraction inasmuch as logical abstraction is merely negative. Logic is conversant with the intentions of the reason inasmuch as they are instruments of theoretical knowledge; such abstraction brings forth being of reason considered not precisely in its opposition to real being in general (so considered, being of reason belongs, in secondary fashion, to metaphysics), but rather as founded upon the things understood; it is from the existence enjoyed by things as objects of knowledge that logic receives its abstraction.[55] As to rhetoric and grammar, either they are not sciences because they do not proceed demonstratively, or [if they are sciences at all] they are not logical but linguistic sciences. As to ethics, if it is understood in a practical sense, it is identical with prudence, and then it does not belong to the theoretical habitus, but to the practical ones, of which we are not treating here. If it is understood theoretically in the sense of ethical science that deals with the nature of virtues, it pertains to the philosophy of nature and is a part of it. Since the philosophy of

nature treats of the rational soul, it must treat of its moral acts.

With regard to the *second example,* let it be said that there are two opinions concerning the division of the philosophy of nature into parts. (This question will be discussed at the beginning of the Physics [*Phil. of Nat.* i. 1. 2]). *Some* consider that the parts of the philosophy of nature constitute so many distinct ultimate species; accordingly they hold that there are [in philosophy of nature] diverse specific abstractions; although all its parts abstract from individual matter as from a term *from which,* they nevertheless assume diverse abstractions determined, so to say, on the part of the term *to which,* in so far as the principles governing these various parts of the philosophy of nature are more or less concerned with matter. *Others* say that all parts of the philosophy of nature are comprised in a system of abstraction enjoying specific unity. If such is the case, the treatises *On the Heavens* and *On the Soul,* and even the ethical treatises which deal with virtues, would be on the same level of abstraction [as the rest of physics] ; they would all belong to the system of abstraction characterized by mutability, inasmuch as all subjects considered in these treatises involve, or depend upon, the motion of some corporeal things. The distinction of treatises in physics would be a division contained within one scientific species, just as in theology there is a treatise on God, another on the angels, another on man. Which one of these opinions is closer to the truth will be seen at the beginning of the Physics.[56]

As to mathematics, it is well established that there are specifically diverse sciences within one and the same system of abstraction from sensible matter. This abstraction is merely generic. According as the principles are those of continuous quantity or those of discrete quantity, mathematical abstraction varies in range and in degree, as has already been said.

To the argument derived from acoustics and the other subalternate sciences (*third example*), let us answer that these sciences do not involve two abstractions but only one. The principles of the superior science, as a result of their application to such and such a matter, are rendered less abstract; consequently, they are restricted to the limits of distinct species in the genus of the scientifically knowable. The abstraction that they assume, as applied to such and such a matter, enjoys a unity of its own.

These sciences are neither purely mathematical nor purely physical, but they partake of both, though in their own system of abstraction, just as an intermediary point, in spite of its unity, is said to participate in the extremes.

To the final remark (in reference to the habitus of principles), let us answer that the habitus of principles connaturally acquired in us cannot be diversified by the diverse immateriality that the things have in themselves; it is diversified by the ways in which the immateriality of the things confronts the intellect. But just as in the sciences immateriality does not bring about unity or diversity except in so far as it concerns the middle term or the illuminating principle, so, in the first principles, the diverse immateriality of things considered in themselves does not bring about specific diversity except in so far as truth is manifested by the terms. Now, this way of illuminating things, viz., through the terms themselves without any proof, is the same in all necessary first principles, for it is founded upon the same cause, viz., the immediate connection of the predicate with the subject, and has, so to say, the character of an intuitive and immediate vision of a truth in itself. All principles are attained by one single habitus, for they are all known in the same way; it is in all cases a vision of a truth in itself. On the other hand, scientific illumination is effected by manifesting a hidden thing through a demonstrative middle term, and consequently when the manifestation takes place on a higher and more intelligible level, a distinct way of scientific knowledge is constituted; higher intelligibility results from greater immateriality. If, from the very standpoint of the idea of vision, the principles are attained in diverse ways and in diverse systems of immateriality, they require diverse habitus and lights. There is such diversity of habitus and lights according as principles are seen by angel or by man, and according as they are seen in a supernatural or a natural light. As to the habitus of opinion, they are distinguished from each other by the diversity of their means of proof; there is no reason why they should not be distinguished, correspondingly, by diversity in the modes of an immateriality that is not necessary but contingent.

Second objection. So far as the object is concerned, abstraction either (1) is an extrinsic denomination resulting from the act of scientific knowledge or (2) it is understood in a fundamental

sense, i.e., as abstractibility of the object. If the first interpretation is received, abstraction is not that from which the specification of the science is derived, since such a denomination rather presupposes an actually specified science and is derived from the act of scientific knowledge. If the second interpretation is received, abstraction cannot be the *formal aspect under which* that specifies sciences, since the immateriality of God is always the same and yet specifically diverse sciences, as theology and metaphysics, are concerned with him. Similarly, one science, provided with specific unity, metaphysics, is conversant with diversely immaterial things, as angels and bodies.

Confirmation. A priori and a posteriori sciences are specifically distinct from each other, and yet they can proceed under the same immateriality; e.g., demonstrating that man is endowed with the power of laughter through his being rational, and demonstrating the same property through an effect, viz., actual laughing, are operations that take place on the same level of immateriality, and yet they are elicited by diverse sciences.

Answer. If things were known adequately as they are in themselves, the immateriality of the thing considered in itself and the immateriality of the thing considered as informed by the means of knowledge [middle term] would be one and the same. But because a thing retaining the same immateriality happens to be known through diverse means, or in relation to diverse connotations and effects, so that the object is not illuminated and made visible in one and the same way, it follows that diverse sciences are concerned with the same immaterial thing:[57] but that thing is not known by them in the same way and through the same immaterial means. These diverse sciences are subjected to formal diversity in immateriality, i.e., to diverse principles or means which illuminate and infer conclusions in diverse systems of immateriality. Thus the species of the sciences are derived from a diversity of immateriality understood in an objective or fundamental sense. Again, immateriality is not considered as a property inhering physically in the thing itself, but as a property of the means or principle by which [the subject] is disclosed and demonstrated to the intellect. *Similarly,* things which in themselves belong to diverse scales of abstraction,[58] like angels and bodies, can be united in an aspect or means of knowledge superior

to both, e.g., the aspect of being, which the metaphysician considers through a single act of abstraction from both sensible and intelligible matter.

To the confirmation let it be answered that even in these sciences there are specifically diverse abstractions, for demonstration through the cause and demonstration through the effect are operations which do not possess the same immateriality in intelligible existence; even if it is granted that in physical existence the cause and the effect possess the same spirituality, it is only in so far as effects fall under experience and induction, in which these sciences originate, that the latter proceed a posteriori and are concerned [merely] with the question 'whether it is.' But experimental knowledge does not imply the intelligible abstraction by which the thing is known through its quiddity; the main reason why it does not imply such abstraction is that in us experience always depends on sensible things. Thus abstraction is not the same here as in a science proceeding a priori so far as demonstrative procedure is concerned.

A *third objection* is designed to prove that the unity or diversity of the sciences is not taken from the means or principles. Were that the case [they say], it would follow that whatever is derived from the common principles of a thing would be contained in the same science. For example, since the principles of man and those of horse are contained under the common principles of animal, man and horse would pertain to the same science. Similarly, things spiritual and corporeal would be contained in the same science for they derive from the same principle of substance; discrete and continuous quantity, since they proceed from the common principles of quantity, would be contained under the same mathematical abstraction. Thus, all these knowledges, as a result of unity of abstraction, would merge into the same science.

Confirmation. Since in one and the same science there are various definitions and means of demonstration, they must be reduced to some unity in order that it be possible to speak of the science as one. But they obviously are not reduced to a common definition; therefore, they are reduced to something common which, since it is not a definition, is not a middle term either. Therefore, the formal principle of the unity or diversity of the sciences is not taken from middle terms or principles. It must be found elsewhere.

Answer. The consequence does not hold.

Proof. In order that objects pertain to one science, the principles from which they are derived must enjoy not just any kind of community, but community in objective existence. They must be contained within one and the same system of formal abstraction. Community in physical existence, or by extensive abstraction, i.e., universality from the point of view of predication, would not suffice. The character of scientifically knowable objects, as such, proceeds from formal abstraction, not from extensive abstraction. Thus, man and horse have in common the principles constitutive of animal not only inasmuch as they are contained in the extensive abstraction of the same genus, but also inasmuch as both pertain to the system of formal abstraction used in physics and characterized by mutable being, whose consideration includes sensible matter and excludes only individual matter. Angel and corporeal thing have in common the character of substance; yet they are not contained in the system of formal abstraction of mutable being. Still, they are contained in the unity of metaphysical abstraction, and because of that abstraction, they are united in one science. Likewise, discrete and continuous quantity have in common the essential nature of quantity, but they differ in mathematical formal abstraction. In this sort of abstraction, what makes the difference is the greater or lesser abstraction from sensible matter in its way of measuring, for measurement by number is not so complete as measurement by continuous quantity, as has been said (question 16). Likewise, theology and metaphysics treat of God according to diverse systems of abstraction: theology considers God by virtue of a participation in the divine science and supernatural light; metaphysics considers God as known through natural effects; however, both sciences belong to the same genus of abstraction with regard to the term *from which.*

Answer to the confirmation. Several definitions occurring in one science do not jointly have a further definition in common, any more than they have the same thing as their object. Their common character of belonging to one science consists in their having the same way of defining (see *Com. on Met.* 6. les. 1. Cathala 1156). This is to say that they all function as middle term in the same way, formally speaking, inasmuch as a thing defined in such and such a way, and in such and such a system

of abstraction, illuminates the inferred truth in a fashion which is correspondingly such and such. One science may well consider diverse things or quiddities which, in themselves, may belong to diverse levels of perfection and abstraction; e.g., metaphysics treats of God and of the categories, physics of the element and of the soul, yet the way of defining is always the same. Just as the element is defined as mutable, so the soul is defined as the act of a mutable thing. Just as the categories are considered on the ground of their participation in being, so God is considered as first cause of being. Thus, all things are studied within the unity of one order; likewise, the parts of a body, though diverse and unequal in perfection, have in common their being informed by the same soul.

Last objection. The middle term or definition does not express the aspect *under which* [what is known is known] but the aspect *which* is known. It is, indeed, a certain thing known. Therefore, it is not the ultimate principle of distinction in the sciences; neither is it something intrinsic to the demonstrated truth, since the definition does not appear in the conclusion; consequently, it is not the formal principle of the demonstrated truth.

Answer. The definition considered as determined by a certain mode of abstraction is *formal aspect under which* in relation to the conclusion illuminated by it; on the other hand, the definition considered in itself is *formal aspect which* and is attained in that capacity by the habitus of the principles, and even by science so far as premises are concerned. Likewise, in relation to colors, light has the character of aspect *under which,* for it is under it that colors are illuminated; however, light can be seen in itself and have the character of an *aspect which.* As middle term, the definition pertains intrinsically to the conclusion and to the inferred truth; it does not play the part of a constitutive predicate but that of a bond establishing necessary connection and necessary inference, just as an essence implies properties distinct from itself.

ARTICLE 2

ON THE UNITY AND SIMPLICITY OF SCIENCE AS QUALITY AND HABITUS

In order to see clearly where the difficulty lies, let us recall that, for some of the Ancients, science was not a habitus distinct

from the co-ordinated ideas which represent scientific objects. Science was, for them, not a simple quality, but an orderly multiplicity of qualities. In contrast with this theory, it is a commonly received proposition that the habitus of science is a quality distinct from the scientific ideas. Whereas the function of the ideas is altogether relative to the object, the habitus of science exercises its function, which is that of a principle and of a virtue, on the part of the knowing power. Ideas admit of a multiplicity proportional to that of the objects represented by them. Now, knowledge requires not only an object and its representation but also a power and, in this power, a virtue. Thus, the problem does not concern the ideas, but the habitus, which is a virtue of the intellectual power. Is this habitus a simple quality?

There is no reason why one simple quality, whether a habitus or a power, should not cover several objects, provided it attains all of them under the influence of a single factor and within a single way of tending toward objects. For instance, one and the same power of vision extends to all visible things; the habitus of faith extends to all objects of supernatural belief, charity extends to all objects of love, and prudence to all objects of action. But a special difficulty arises in the sciences, for they do not attain all their objects by the operation of a single factor or middle term. The principle or definition which proves conclusion *a* does not prove conclusion *b;* the demonstration of *b* requires a distinct method and a distinct proof. This is, accordingly, the special difficulty that we intend to examine: does one single habitus, or quality, suffice to establish the proper relation between the intellect and all these conclusions or factors? Or should it be said that any change in the factor or proof requires, on the part of the power, a new partial virtue? In the latter case, the whole of a science would be constituted by partial qualities in conjunction, and the unity of science would be a unity of order, not of entity.

In this controversy, two conflicting theories claim authorities of equal weight both among the Ancients and among the Moderns. The *first* theory says that every total science is a simple quality; it is held by St. Thomas, i-ii. 54. 4., Cajetan, *Com. on Post. An.* 2. chap. 13, Conrad, *Com. on the Dialectic of Aristotle, Post. An.* 2. near the end, Soto, *Com. on the Dialectic of Aristotle,*

Intro. q. 3, Sylvester of Ferrara, *Com. on C.G.* i. 56, and many more, who are cited by Merinero, *Com. on the Whole Dialectic of Aristotle,* Intro. Disp., q. 5. The *other* theory holds that science, considered in its coverage of diverse objects and conclusions, is not a simple quality. This theory is attributed to Scotus, *Com. on the Sent.* Intro. q. 3 and 2d annexed question, and iii. dist. 25. q. 2. and his school (consult Merinero for the names), to Suárez, *Met. Disp.* 44. sec. 11, Fonseca, *Com. on Met.* 5. q. 5. sec. 2., and several others.

Thesis. A whole science, considered in relation to all the objects that it embraces, is one simple habitus.

This thesis is clearly derived from St. Thomas (i-ii. 54. 4). In the body of the article he says: "If we consider a habitus from the standpoint of the things to which it extends, we shall find a certain multiplicity in it. But this multiplicity is related to one term that constitutes the main object of the habitus; thus a habitus is a simple quality, not composed of several habitus, even though it extends to many things. For a habitus does not extend to many things except in relation to something one, from which it derives its unity." In the answer to the third objection, he says further, in particular reference to the habitus of science, that "In any science, he who acquires by demonstration a scientific knowledge of one conclusion has the habitus indeed, though imperfectly. And when he obtains by demonstration the scientific knowledge of another conclusion, no additional habitus is engendered in him, but the habitus which was in him previously is made more perfect, in so far as it extends to more things. For the conclusions and demonstrations of one science are mutually ordered, and one flows from another."

At this point, *some contend* that St. Thomas does not deny that a new and real perfection is superadded to the pre-existing habitus when a second demonstration is gained. *Against* this interpretation, let it be said that this new perfection either is or is not a new superadded quality (or habitus). If it is not a quality, science remains, after the new demonstration, the simple quality that it was before. If it is a quality superadded with a character of novelty, a new habitus or quality is aggenerated to a pre-existent one. (There is aggeneration when what is generated is a part added to a previously existing part.) St. Thomas denies that any

new habitus is aggenerated to the antecedent one and he says that the quality remains simple. Hence this interpretation is not in line with the text of St. Thomas.

On the same ground, we reject also the following interpretation of i-ii. 54. 4 ad 3: when a new demonstration is elicited, [no new habitus is produced,] the habitus relative to the antecedent demonstration becomes more perfect, grows in extension, and deals with the new demonstration. But St. Thomas—so they say—does not deny that this habitus is perfected by a superadded entity, which cannot be anything else than a quality. In fact, St. Thomas both affirms that the antecedent habitus is made more perfect by the second demonstration and denies that a new habitus is generated. He declares that the scientific habitus is a simple quality; thereby he excludes not only a new whole habitus, but also this production of a partial quality which is conveyed by the word *aggeneration*. Such exclusion is implied when he says that the new demonstration is relative to another conclusion within the same science. Thus he excludes all new production of habitus or quality.

The main arguments in favor of our theory are two. The first proceeds from a similar case, the second proceeds a priori.

First argument. As we have already remarked, a power—e.g., sight, intellect—is a simple quality even if its acts belong to diverse species. Likewise, an infused habitus is a simple quality —e.g., faith, charity—even though such habitus have to overcome distinct kinds of difficulty in diverse matters and with regard to diverse acts; for instance, to believe a certain article of faith involves a difficulty distinct from the difficulty involved in believing another article of faith (see ii-ii. 1. 6), and charity, when there is a question of loving an enemy, is confronted by a difficulty distinct from any difficulty involved in loving a friend. One and the same factor cannot overcome such various difficulties unless it is applied in diverse ways to diverse matters; yet faith is one habitus and one simple quality, and the same holds for charity. The case of moral virtues is still more manifest. Each of them is a simple quality and habitus—e.g., prudence, religion, justice—and yet they deal with diverse matters, in which diverse difficulties must be overcome and in which facility must be acquired through diverse practices. One practice leads to prudence in the field of

one virtue; another practice leads to prudence in the field of another virtue. In religion, the way in which a person is inclined to perform an act of prayer is not the same as the way in which he is inclined to keep a vow; accordingly the proximate imperative and the proximate motive differ from one case (e.g., prayer) to another (e.g., vow). Yet, on account of formal unity in moral being, no more than one quality is needed to provide for all these acts. Likewise, in the sciences, no more than one quality is needed, for there is formal unity in knowable being even though diverse premises and middle terms be needed as proximate principles of inference.

Those who hold divergent views make several answers. With regard to the first example, they point out that powers and infused virtues are not, like sciences, acquired through acts; consequently, there can be no question of acquiring part of a power as there is a question of acquiring part of a science. If the argument proved anything, it would also prove that all the acts of the sciences require but a single habitus, just as they require but a single power.

In regard to the second example, *some* go so far as to concede with no restriction that a moral virtue is not one simple quality, but is diversified in proportion to the diversity of the difficulties to be overcome; one of these is Merinero, *loc. cit. Others,* like Suárez, *loc. cit.*, stress the difference between virtues and sciences; they hold that moral virtues are simple qualities, because their tendency toward their object is contained within the unity of a single formal aspect and factor. But diverse factors or middle terms divide the tendency of the sciences toward diverse truths and conclusions to be demonstrated: therefore sciences are not simple qualities.

The *first criticism* strengthens our argument. The example of the powers does not imply that a habitus has the same universality and extension as a power. Let the meaning of this example be specified as follows: A power is a cause more universal than any habitus; a habitus does not deal with as many things as a power; however, a power does not need to be more than a simple quality; likewise, a habitus does not need to be more than a simple quality embracing all the acts that fall under its specifying object. No decisive significance attaches to the consideration

that a power is not acquired by our actions while a habitus is. This difference concerns the way in which a power or habitus is produced (order of efficient causality); it does not concern the formal and intrinsic constitution from which power and habitus derive their specific unity and their specific distinction. Granted that a habitus is acquired by several acts, it remains to be seen whether several acts are involved in producing the *entity* of the habitus, or whether the entity of the scientific habitus is acquired by a single act. (Of course, the single act under consideration is one that involves entire conviction.) Other acts would not generate any new entity, but merely modify and perfect a previously existing one. Thus, a power, e.g., sight, can be generated entitatively by one act, though in a state of weakness and imperfection. A multiplicity of acts renders it keener and more perfect, but they do not produce a multitude of qualities which, taken together, would make up the power. It is accidental for a habitus to be generated with all its perfection and extension by one act or by several. Under the power of God, a single act would suffice to produce a perfect habitus.

Likewise, in the case of the habitus which, on account of their very essence, admit of no other method of production than infusion, the proposed principle of discrimination is not sufficient. True, an infused habitus has a modal resemblance with a power inasmuch as it procures all the capacity relative to the supernaturality of the work; yet it is really a habitus, and within the field of its operation, it meets distinct difficulties, in distinct matters or acts. For instance, the infused virtue of religion has distinct difficulties to meet in the act of adoration, in the act of prayer, in the act of taking a vow, etc.; faith has distinct difficulties to meet in believing one article and another article, charity in loving one person—e.g., a friend—and another person—e.g., an enemy. Although these difficulties are conquered by diverse factors or, at least, by diverse application of the same factor, the power of a single quality suffices in all cases because of unity of formal aspect in the moral factor. Likewise, a single quality will suffice in the sciences on account of a unity of formal aspect in scientific existence.

We are at last in a position to give an answer concerning moral virtues. Those who consider that a moral virtue is a single

quality in real existence cannot acknowledge any difference between moral virtue and science. Moral virtue also is acquired by several acts, and it has several difficulties to overcome in relation to diverse particular matters. Thus, in the case of religion, the difficulties relative to oaths are not the same as the difficulties relative to worship; in matters of justice, the difficulty relative to not hurting one's neighbor's reputation is not the same as the difficulty of not getting money through improper means; these virtues need distinct motives or factors in order to conquer these difficulties. If multiple difficulties are overcome by one simple quality, why should not science enjoy the same status of unity? But if moral virtues are said not to be simple qualities, it is hard to account for the difference between infused and acquired moral virtues. Why should the infused moral virtues be simple qualities, and not the acquired ones, although they face similar difficulties in diverse matters? If, for any essential reason, diversity in difficulty requires diversity in quality, the fact that some virtues are obtained by infusion and the others are not does not make any essential difference. If, wherever there are diverse difficulties, diverse qualities are required by essential necessity, we should conclude, with regard to infused virtues, that it is necessary to obtain by infusion partial qualities designed to defeat diverse difficulties. If we suppose that diverse difficulties to be overcome in diverse matters by diverse partial factors or by factors diversely applied require several partial qualities, by reason of what principles shall we say that one infused virtue is not made of several infused qualities? And if we say that the rule does not hold for infused virtues, on what ground shall we say that it holds for acquired ones?

An a priori argument is contained in the above quoted text of the *Summa theologica*, i-ii. 54. 4: "One habitus does not cover several things except in relation to something one from which it derives unity." Take the case of a science having a character of totality, e.g., physics or metaphysics, where diverse conclusions and truths are manifested by diverse means and principles. Two interpretations can be conceived. *(a)* Conclusions and truths are, purely and simply, diverse qualities; there is no single quality to co-ordinate them and to connect them with each other in the unity of some aspect having formal significance in relation to the

general requirements of science. *(b)* Conclusions and truths are connected with one [central] quality by which they are co-ordinated with each other. In the first theory, each quality or habitus will be, by itself, a science distinct from any other science; consequently, the number of metaphysics or physics will equal that of the conclusions known in these domains. Further, each science will be a simple quality, because each habitus is concerned with its own conclusion without dependence upon, or co-ordination with, any other conclusion. In the second interpretation—e.g., if we hold that all demonstrations are unified by one aspect having formal significance from the point of view of scientific knowledge as such—it follows that this formal aspect of the things known as objects of science or knowledge constitutes a principle of specific unity in the genus of science and knowledge; indeed, this formal aspect has the unity of a scientific form in so far as it can be known in one way and consequently can terminate and specify one way of knowing and operating in relation to it.

But, where there is unity in the way of operating, there is also unity in the way of being and in formal determination, for the way in which a thing operates is determined by the way in which the same thing exists. Thus, unity of intelligible light and of scientific character, on the part of the object, necessarily entails, on the part of cognition and science, a correspondingly unified way of knowing and acting with regard to the knowable object. There is no reason why unity in scientific existence [i.e., in the kind of intentional existence that belongs to the scientific object as such] should not specify a real form inclining the mind toward all cognitions contained in the unity of a definite scientific procedure. It is not in physical existence, but in scientific existence, that the knowable specifies the real form by which we have knowledge and science. Therefore, when the way of knowing possesses unity in a formal sense and from the standpoint of scientific knowledge as such, it [i.e., the way of knowing] necessarily specifies in unified fashion the form which tends toward such an object in such a way. This form is the habitus of science. Therefore, by the very fact that the object, in its existence as a scientific object, has the character of one principle of specification, the habitus of science enjoys, in its own entity, the unity of a single species.

Confirmation. It is impossible to doubt that the constitutive

feature of an object, formally considered in its objective existence and as an object of science, has the power of specifying a real entity. As explained in the preceding article, powers and habitus are not specified by objects considered in the existence that belongs to them as things, but in the existence that belongs to them as objects. What is specified by an object is a habitus or quality whose intrinsic specification depends upon such an object in its objective existence. Therefore, it is contradictory to say that science is one in the genus of the knowable without being one in the genus of quality and habitus. Quality and reality itself are specified in their intrinsic entity by the object considered in its objective existence.

Objection. If you posit that one simple quality specified by an object suffices for a whole scientific domain, it follows that one individual act of cognition suffices for all the objects of a single science; the principle which applies to a habitus must also apply to an act.

Answer. This is a puerile objection. From the unity of the object in objective being, all that follows is *specific* unity, in habitus as well as in act. Whether or not the quality enjoys individual unity depends upon other principles. The individual unity of the habitus follows upon the unity of the subject, but the unity of the act or operation, besides the unity of the subject, requires the unity and determination of the operating principle and of the matter with which operation is concerned. No single act can use all the ideas and means that a science uses in the treatment of its whole object. But a habitus has the character of an inclination and a virtue; consequently, its enjoying individual unity is no obstacle to its giving birth to diverse acts, each of which belongs formally to the same species as the habitus in spite of diversity on the part of the matter treated.

Objections and Answers

First objection. Any science having a character of totality comprises demonstrations which must be specifically distinct from each other, for they establish specifically diverse properties by definitions and principles that are also specifically diverse. Since, on the other hand, any demonstration tends to generate

science, specifically distinct demonstrations will generate specifically distinct habitus. If it is contended that the habitus born of these demonstrations are specifically distinct, so to say, in a material way and in physical existence, but not formally and from the standpoint of science, the reply would be that this is precisely what the present objection holds. If these demonstrations are specifically distinct in a material sense and in physical existence, but not formally, they generate scientific habitus that are distinct materially and in physical existence, in other words, as *qualities*, though not from the point of view of science: this is precisely the thesis opposite to ours. ['Ours,' i.e., John of St. Thomas'.]

Confirmation. The understanding of the second or third demonstration may involve a new difficulty and require a new factor. Thus, a new habitus, at least partial, is required, for the function of habitus is to overcome difficulties. Where there is a distinct difficulty, there is also ground for a distinct habitus; otherwise the acquired habitus of science would not be distinguished, so far as the notion of simple quality is concerned, from those qualities that are absolutely indivisible in their operation, such as powers, faith, and infused habitus. Therefore, a scientific habitus cannot be such an indivisible quality as a power and an infused habitus.

Answer. The demonstrations concerned with diverse conclusions and truths are said to be specifically diverse in a material sense, not in a formal sense. They do not require a distinct quality or habitus in physical existence, for the matters with which they deal, though diverse in the capacity of things, can be attained under the same formal aspect. Likewise, light informs and illuminates colors that are specifically diverse in physical existence, though not diverse as illuminable and visible. Again, in one and the same man, the eye and the hand differ by species, not on account of the form by which they are informed, but on account of the material disposition of the organ. There is no reason why demonstrations relative to diverse matters should not proceed from one and the same form or quality specified by an object that is one as object and term of science. These diverse matters take on the same form of knowability even though, by reason of diversity in physical existence, demonstrations are said to be, in a

material sense, specifically diverse. Let it be noticed that such a specific diversity is a relative one; it is the kind of diversity which obtains between the eye and the hand and more generally between the heterogeneous parts of one and the same animal. Again, sight is concerned with colors that are diverse in their entitative species, but one in the aspect by reason of which they are visible. The scientific habitus is a quality whose function is to set in order the diverse ideas which make up the total object of a science; it must be one form in order that all these ideas be subjected to its ordering action. The acts—i.e., the demonstrations—which proceed in orderly fashion from such a habitus, even though they attain things specifically diverse in their entity, are of the same species by reason of the formal aspect and of the scientific order which determine their arrangement. There is no correspondence between the diversity of scientific habitus and the diversity that the ideas set in order may involve in their intrinsic existence. Scientific habitus are multiplied in one-to-one correspondence with the formal aspects which determine the ordering of ideas.

Answer to the Confirmation. Let us put aside the other proposed solutions and say that the difficulties to be overcome, both in the case of scientific habitus and in that of virtues, are of two kinds: some accidental, others essential. An essential difficulty results from the lack of a specific form and of an inclination toward the formal object of a virtue or science. An accidental difficulty results either *(a)* from a lack of application to a certain matter or *(b)* from a lack of practice or *(c)* from any accidental circumstance which may affect the agent in such a way as to render difficult its operation with regard to such and such a matter. The last kind of difficulty *(c)* may also be found in infused habitus, which even our opponents hold to be simple qualities. For instance, in the case of charity, loving an enemy may involve, in the agent, a difficulty which is not experienced in the case of loving a friend; assenting to one article of faith may involve a difficulty that assenting to another article does not involve. However, no new quality or habitus is needed to overcome these difficulties, for they are only accidental and concern the agent: they have nothing to do with formal aspects. Likewise, although science and the other acquired habitus are designed to overcome dif-

ficulties, it should not be said that every difficulty experienced by the individual man of science requires a distinct habitus; a habitus specified by one formal aspect can overcome a multiplicity of accidental difficulties.

No argument can be derived from the consideration that science, unlike such virtues as faith and charity, uses a diversity of principles inasmuch as diverse middle terms are needed for the establishment of diverse conclusions. For one thing, when infused virtues have to meet a new difficulty, there is need of a distinct application to the matter where difficulty lies; but no distinct means is needed, and by reason of the unity of the formal motive, no new quality is needed. Further, it must be borne in mind that the formal unity of the scientific object is at work in the influence of diverse middle terms upon distinct conclusions, for such formal unity modifies all middle terms and insures their co-ordination. On account of this co-ordination and of the unity of the formal motive, the middle terms constitute a single habitus or form. This form enjoys unity within the unity of the formal aspect and inclines the mind toward all the conclusions and the co-ordinated middle terms.

Second objection. When a second demonstration takes place in a science, the pre-existent habitus is really increased as a result of extension to a new object; such increase implies the addition of something real. Now this reality cannot constitute, by union with the pre-existent habitus, a third reality describable as an indivisible entity or a quality essentially one, though made of two. Therefore, several demonstrations determine several qualities.

The first antecedent is obvious since, by reason of the second demonstration, the pre-existent habitus extends formally and actually to what it did not attain previously; thus, the habitus has grown in extension. This is why St. Thomas, i-ii. 52. 2 and ii-ii. 24. 5, grants that, in the sciences, an increase of extension can be brought about by addition without any increase of intensity.

The first consequence, viz., that increase is brought about by addition of a real entity, is proved as follows: in the texts just referred to, St. Thomas points out that increase in extension is effected by an addition of reality, whereas increase in intensity does not imply that any new reality is superadded. St. Thomas

says expressly that the increase of intensity is not effected by way of addition and that the increase of extension is effected by way of addition. Thus something is conceded to the increase of extension which is denied to the increase of intensity. But, in the school of St. Thomas, the only thing denied to the increase of intensity is that it be produced by addition of new entity. Therefore, it is conceded that the increase of extension is produced by such addition.

Confirmation. This increase is produced by a real cause; it has a genuine character of novelty and it brings about, in the intellect, a new and real effect, inasmuch as the intellect acquires, with regard to a certain object or conclusion, in proximate and formal fashion, an inclination and facility that it did not possess previously. The extensive increase, by perfecting the pre-existent science, brings about a real change in it. Therefore, this increase is made of new reality. It cannot be said that what is acquired is a new relation rather than a new quality, for *(a)* no action is directly productive of a relation and *(b)*, anyway, a new relation would need a new foundation, which would have to be a new reality.

Answer. The extensive increase of a habitus is not effected by addition of reality; it consists in the novel application of the same form to a distinct matter. Likewise, one and the same light may illuminate various colors, in a purely extensive manner, without any addition of new light, by mere application to new illuminable color. *Again:* the same soul extends its informing to a new part of matter without any new entity being added to the soul itself; all that is added is a distinct entity to be informed. Thus, this increase takes place by way of extrinsic, not intrinsic addition. I would not hesitate to grant that such application to a new matter determines a new mode in the form newly applied to this matter and newly extended to it. But it must be understood that this new mode does not have the character of a new informing principle: it is merely a further application of a pre-existent principle of informing. More on this in the Treatise on Generation, where we shall study the intensification of forms.

Answer to the argument derived from St. Thomas. Extensive increase is said to be effected by addition inasmuch as, by reason of such increase, a habitus can elicit diverse acts or attain

diverse objects which previously lay beyond its range. Intensive increase, on the other hand, does not consist in added relations to new acts and objects, but in the fact that the habitus becomes more deeply rooted in the same subject. This does not imply any addition. There is neither new subject nor new object nor new act, but only a greater degree of actuation in the same subject. Extensive increase is effected not by intrinsic addition of a form to a form, but by extrinsic addition, i.e., through new application of the habitus to the matter subjected to it. When St. Thomas says that extensive addition belongs to the form considered in itself and that intensive addition belongs to the form inasmuch as it [i.e., the form] is more completely participated in by the subject, the expression 'considered in itself' means the same as 'in relation to the extensive and material object.' Relation to the object is said to belong to the form considered in itself because relation to the object concerns specification and consequently the thing considered in itself, whereas relation to the subject concerns individuation.

Answer to the confirmation. As a result of extensive addition, the habitus or form is more perfect and the intellect enjoys more facility and actuality in relation to new objects without any new form or quality being produced. There is only new application of a pre-existent form to a new matter, for the pre-existent habitus and form is, by essence, an inclination toward all things contained within its formal object. If no inclination is brought about, proximately and in act, toward this and that matter, it is not by reason of any fault in the inclining form, but by reason of some fault in the matter or subject, inasmuch as ideas are imperfectly co-ordinated and inasmuch as more drill is still needed. This concerns the application of the subject, without which application the form itself is not sufficiently applied, and without which the ideas are not sufficiently ordered. For lack of appropriate order in the ideas, the habitus cannot determine the mind to elicit its operations, regarding all these ideas, with equal facility. All this can be illustrated by the example of faith elciting inclination, with a character of novelty, toward new objects of belief proposed by the Church; previously, it did not elicit such inclination. Examples are also supplied by charity or infused religion which, even in the opposite theory, are considered simple

qualities. The same holds for acquired virtues in the opinion of some, and yet the inclination that they determine does not produce, on the part of the subject, equal facility toward all acts or matters.

Thus, when a habitus is first generated by a demonstration, there is generation of an essential and formal facility with regard to all acts and objects contained in such and such a formal aspect; the second or third demonstration does not generate a new essential facility, but the existent one is extended or communicated, and accidental difficulties are suppressed in the subject as well as in the process of application to various things. Thus, a form describable as an inclination is absolutely required, and it matters little whether you consider its initial generation or its subsequent application. It is well established that over and above ideas set in order there must be a quality called habitus.

When it is said that the second or the third demonstration is a new act and implies a new effect, let the answer be that these new acts do have new effects, consisting not in the entitative production of new habitus, but in the greater perfection of the pre-existent one. This is what St. Thomas says in i-ii. 54. 4 ad 3. St. Thomas remarks, further, that a habitus becomes more perfect by extending to more objects and acts. A new effect is really brought about in the real world when one and the same form attains an object by new application, as when faith extends to new objects of belief or when the soul extends its act of informing to new material parts. A new action is not necessarily productive of a new form; it may, as in the examples adduced, involve merely new application or new union. In the Treatise on Generation, we shall say the same of the intensification by which a quality modifies its subject in a more profound way. Several theologians express themselves in the same terms with regard to the action which substantially attains the Body of Christ in the Holy Eucharist; the Body of Christ is not the term of a new production since it already exists.

Last objection. An indivisible quality cannot be partly lost or generated and partly unchanged. Now, it is clear that the habitus of science can be lost with regard to the second or third conclusion without the first demonstration being lost; further, it is not inconceivable that the habitus be generated prior to the

demonstration of the first conclusion. Therefore, it cannot be the same habitus which inclines toward the first and toward the second demonstration.

It would be of no use to reply that error concerning the second or third conclusion does not destroy any habitus but only a certain mode of a habitus. For one thing, what is destroyed is the principle of assent to such and such a conclusion, which principle cannot be a mode. Further, there is generation of an erroneous habitus which contrasts with the scientific habitus entitatively, i.e., by a real opposition implying real extremes. Therefore, there is destruction of a reality, not only of a mode, and this destruction concerns the second conclusion, not the first. This implies that there is a distinct habitus concerning the second conclusion.

Answer. An indivisible and simple quality, when it is virtually multiple in extension or intensity, can be lost with regard to new perfection, or application to things comprised in its range, without its entity being affected by any loss; thus, the soul ceases to inform some material parts without the entity of the form undergoing any loss. If someone develops an erroneous habitus with regard to the second or third conclusion of a science, the habitus of science is not destroyed absolutely and entitatively but in a certain respect, i.e., in so far as it constituted, proximately and actually, an inclination toward these conclusions. Such a proximate inclination does not involve only a quality and habitus; it involves a quality properly applied and accompanied by a co-ordination of ideas that the opposite error destroys. When this application or extension is destroyed or impeded, proximate power to effect the opposite demonstrations is said to be destroyed, for this power consists in a form applied determinately, and the erroneous habitus so generated is really opposed to the scientific habitus. Yet this opposition is not absolute and all-embracing, and the scientific habitus is not absolutely suppressed; it is impeded in so far as it was determined and applied to the matter that this error concerns; the habitus is brought back to the state that it enjoyed prior to the second demonstration. Likewise, when an arm is cut off, the form is not destroyed absolutely; it is destroyed as informing this matter and applied to it.

When it is said, further, that science can be generated with

regard to the third or to the last demonstration, without being generated with regard to the first, let our answer be that this is doubtful, for the subsequent demonstration is connected with the preceding one and depends upon it as upon its principle. But even if such a possibility were granted, subsequent demonstrations would still belong to the same habitus as the first, for they would admit of co-ordination with the first within one and the same scientific formal aspect. In this hypothesis, we might possess the last demonstration without reaching the first, just as we can possess the first without the last.

Finally, let us recall that the sciences, such as they exist factually in our minds, comprise not only demonstrations but also many opinions. These opinions are not elicited by the scientific habitus; inasmuch as they involve no scientific assent, they do not pertain to science. Because they are conversant with the same subject matters as sciences, they are expressed in the same disciplines, but the habitus that they generate are not the same.

NOTES

NOTES TO CHAPTER I

1. J. Doctrine derived from St. Thomas, *Com. on Post. An.* 1. les. 1. Leonine 6.

2. The interest of modern logicians in "types" and "spheres" of objects is closely related to the logical purpose expressed by this interpretation of the categories. See Rudolf Carnap, *Die logische Aufbau der Welt*, Berlin-Schlachtensee, Weltkreis-Verlag, 1928, p. 38, and Ferdinand Gonseth, *Qu'est-ce que la logique?* Paris, Hermann, 1937, p. 33.

3. This does not seem to explain completely the relative brevity of the questions on demonstration and science (qq. 24-27). The treatment of these questions, though not hasty by any means, evidences the disposition of a writer who is running short of time. The way John of St. Thomas deals with the text of the *Posterior Analytics* leaves no doubt that some sort of deadline had to be met. In all other parts of the *Course of Philosophy* his dissertations are preceded by remarkably complete digests of Aristotle's text. On the contrary the second book of the *Posterior Analytics* is summarized in thirty-nine words followed by the remark that those who care for a more complete description will find it in the "very lucid" commentary of St. Thomas and in the more extensive commentary of Cajetan.

4. A science or art enjoys a certain kind of existence by the very fact that it is necessary. Correspondingly, if what is described as a science or art is shown not to be necessary in any way, it is thereby denied existence.

5. This kind of abbreviation is of common use in Aristotelian literature; *Posterior Analytics*, here, does not designate the treatises of Aristotle which bear this title, but the section of the present book where the writer studies the questions studied by Aristotle in his *Posterior Analytics*.

6. The word 'habitus' is the only Latin expression not thoroughly anglicized that we considered necessary to retain in this translation. See footnote 5 page 611.

7. Tr. by the English Dominican Fathers (London: Burns, Oates and Washbourne, 1928).

8. Tr. by Armand Maurer, *St. Thomas Aquinas, The Division and Methods of the Sciences* (Toronto: The Pontifical Institute of Mediaeval Studies, 1953).

9. *Eth.* 6. 3. $1140^{a}10$.

10. Care must be taken not to confuse the object of logic as a science, viz., the second intentions, which are also the rules of logic as an art, with the 'matter to be set in order' by those rules. Such matter is twofold: proximately it is the whole realm of objects taken as such, in particular the complex sets that form the objects of rational

'movement' or reasoning; remotely it is the cognitions of those objects, both the actual and the habitual cognitions, i.e., the acts of understanding as well as the mental products engendered by them—all pointing toward or intending the proximate matter, the objects. The remote matter, formal intentions or "intendings," is automatically regulated when the proximate matter—the objects as objects, the objects as intended—is regulated or set in order. This is why it is called remote.

11. Qq. 24-27.

12. Tr. by Armand Maurer, *St. Thomas Aquinas, The Division and Methods of the Sciences* (Toronto: The Pontifical Institute of Mediæval Studies, 1953).

13. *Met.* 2. 3. $995^{a}13$.

14. One must distinguish between the rules of dialectical disputation which are formal and can be scientifically established, and the disputation itself, the effect brought about in the matter as regulated by the rules. The rules do admit of scientific analysis or establishment in the light of the first principles, but the disputation, on account of the material element in its composition, does not.

15. J. The issue of the being of reason will be [formally] treated in the next question.

16. These examples are current in scholastic literature; they are not unobjectionable. A golden mountain is a thing which, so far as we know, does not exist, but there is not any reason why it should be held incapable of real existence. A chimera is usually represented as a she-monster made of incongruous parts (Webster). It is a being of reason if and only if the incongruity of the parts is such as to destroy the possibility of their existing together. The unicorn appears frequently in the works of modern logicians: it cannot be proved to be a being of reason, since we have no way to prove that an animal related to the horse but having one horn cannot exist except in the mind. A safe example of being of reason without foundation in the real would be the undine such as it is defined in the celebrated romance of De la Mothe Fouque: it is a creature that looks like a woman, talks like a woman, feels like a woman, but has no soul. Another clear example is the yahoo of Swift: a brute in human form.

17. ". . .ratio *quae* attingitur seu ratio attingendi."

18. ". . .ratio *sub qua*."

19. A *formal* concept is the psychological reality designated by the word "concept"; it is an accident, a quality or disposition by reason of which the intellect is able to know a certain object. An *objective* concept is the *object* of a concept; it is an aspect of the thing known: it is that aspect of the thing known which is delivered to the intellect by a certain (formal) concept. See Jacques Maritain *Formal Logic* tr. by Imelda Choquette (New York: Sheed and Ward, 1946), p. 19n. "We lay hold of a thing 'by' our *mental concepts* ['*mental* concept' is synonymous with 'formal concept'] just as we lay hold of an animal by our hands or see a monument by our eyes. We seize it *by* such and such an *objective concept* as we seize an animal by the paws or the ears, or as we see a monument by the façade or the apse." This distinction of a formal (or

mental, or psychological) meaning and an objective meaning holds for all terms designating intentional realities: image, memory, representation, idea, notion, concept, etc. The common use of these terms evidences the spontaneous distinction of these two meanings; when we say: "I believe your story because it is told by you, but, so far as I am concerned, I have lost the memory of this event," we mean that our power of remembering—a psychological reality—lacks a certain quality or disposition—again, a psychological reality—without which the past event cannot be present to me as remembered event. When, on the other hand, we say: "This event is the happiest memory of my whole life," 'memory' is identified with 'past event'; the word 'memory,' in the latter case, is taken in the objective sense; in this sense, a memory *is* the remembered event, or, more precisely, it is *that aspect* of the past event which is rendered present by a 'formal,' or 'mental' memory.

The theory of the two-sided character of intentional realities was clearly outlined by Aristotle, *On Memory*, 1. $450^{a}25$; it plays a central part in St. Thomas' philosophy of knowledge; John of St. Thomas gave it a new power through extreme accuracy of expression. In our time it has often been pointed out that idealism makes itself plausible by taking advantage of an easy confusion between the formal and the objective meaning of such terms as concept, idea, etc. Recall the criticism of Berkeley by Bertrand Russell, *The Problems of Philosophy* (New York: Henry Holt, 1912), p. 65 ff. "Berkeley's view, that obviously the color *must* be in the mind, seems to depend for its plausibility upon confusing the thing apprehended with the act of apprehension. Either of these might be called an 'idea'; probably either would have been called an idea by Berkeley. The act is undoubtedly in the mind; hence, when we are thinking of the act, we readily assent to the view that ideas must be in the mind. Then, forgetting that this was only true when ideas were taken as acts of apprehension, we transfer the proposition that 'ideas are in the mind' to ideas in the other sense, i.e., to the things apprehended by our acts of apprehension. Thus, by an unconscious equivocation, we arrive at the conclusion that whatever we can apprehend must be in our minds. This seems to be the true analysis of Berkeley's argument and the ultimate fallacy upon which it rests."

20. Rationalis philosophia. *Rationalis* is literally equivalent to the Greek λογική.

21. The expressions 'proper object,' 'proper subject' are used in closely related senses. Briefly: considering the things attained by a habitus or power, the proper or formal object is *the aspect by reason of which* these things concern such and such a habitus or power rather than any other habitus or power. From the notion of object to the notion of subject the transition is effected as follows: demonstration, which is the principal act of scientific thought, consists in establishing, with explanatory certainty, the properties of a definite object. Aristotelian examples would be: the proper object of physics is mutable being, and physical demonstrations establish the properties of mutable being; the proper object of mathematics is abstract quantity, and mathematical demonstrations establish the properties of abstract quantity, etc. Now,

in the conclusion of a demonstration the property is predicate and that of which it is the property is subject. If mutable being is the *object* whose properties we want to know, it is also the *subject* of our conclusions. Let such terms as efficient cause, final cause, necessity, contingency, and time be the particular subjects of demonstrated conclusions. Suppose that, in conformity with the steady practice of Aristotle, we take the trouble of showing, at the beginning of an exposition, that this issue—efficient cause, final cause, etc.—ought to be treated in this science—say, physics—in other words, pertains to the object of this science. We shall point out, for instance, that efficient cause, which in a way pertains to metaphysics, pertains also to physics inasmuch as it is engaged in an essential relation to mutable being. In other words, we shall show that a particular subject—say, efficient cause—deserves to hold the function of subject in physics inasmuch and in so far as it is determined by mutable being, the proper subject of physical demonstrations, *that on account of which* a particular subject—e.g., efficient cause—belongs in a physical demonstration. The aspect *on account of which* (object) a thing pertains to a science—say, physics—is also *that on account of which* a particular term, holding the function of subject in a demonstrated conclusion, belongs in a demonstration of a certain type—say, physical—rather than in a demonstration of another type—say, metaphysical.

Because of the modern and idealistic use of the terms 'subject' and 'object,' the close relation of these terms in Thomistic language appears confusing. Confusion is removed as soon as we understand that 'object' implies reference to *science* and 'subject' to *property*. Clearly, to know scientifically the predicated properties of a certain *object* is to demonstrate conclusions in which these properties are predicates and this object, *subject*. In some contexts, the expressions 'proper object' and 'proper subject' can be used interchangeably.

22. "Nature" means the real world, the world of existence, the world of naturally existing things, whether they be thought about as objects or not, i.e., independently of their *objective* existence.

23. Our term "discovers" translates only partially the Latin "adinvenit." The verb *adinvenire* or simply *invenire* (but especially *adinvenire*) is frequently employed by St. Thomas and his school when speaking of the genesis of the being of reason, and especially of the second intention, as here. It simultaneously means (1) to discover or come upon and (2) to invent in the sense of constituting, constructing, or contriving. This is a happy ambiguity of the Latin language which is exploited in such contexts by the Thomists to express the fact that our logical reflection upon first objects or first intentions is a discovery of heretofore only obliquely 'felt' conditions of objectivization attaching to those objects as such, and that this very discovery of those conditions is itself an act of constituting them as objects of the intellect, and thus of contriving them after the fashion of real being, the connatural object of the intellect.

24. In Aristotelianism psychology is considered a part of the Philosophy of Nature, and the *Treatise on the Soul* is traditionally classified

as the last and uppermost of the physical treatises. However, some interpreters hold that for Aristotle the study of the rational soul belongs to metaphysics rather than physics. Such is the view of Zeller, *Aristotle and the Earlier Peripatetics*, tr. by B. F. C. Costellae and J. H. Muirhead (New York: Longmans, Green and Company, 1897), II, 4. For John of St. Thomas, as well as St. Thomas and Cajetan, rational life, in the state of union of soul and body, is so related to the world of sense-experience that all parts of its study imply reference to mobility, matter, and experience, and consequently fall under the science of mutable being. See Aristotle *On the Soul* 1. 1. $403^{a}25$; *On the Parts of Animals* 1. 1. $641^{a}33$; St. Thomas *Com.* on *Phys.* 2. les. 4. Cajetan *Com.* on *Aristotle's On the Soul* 1. text. 15; John of St. Thomas *Course of Philosophy. Phil. of Nature* i. q. 9. a. 2, Reiser ed. II. $181^{a}13$.

25. This doctrine of denial is in line with the Thomistic theory that the third order of abstraction, in which metaphysics and logic are established, is attained by a separation or negation of an initially judicative character.

26. By 'syllogism' and 'demonstration' are meant the objective rational disposition of objects, not the mental intending of such disposition, not the act or the mental utterance of syllogizing or demonstrating. Syllogism and demonstration are second intentions in the objective sense.

27. Here 'demonstration' is not taken in the sense of objective intention but in that of formal intention. It designates an act or an utterance, or a combination of acts or utterances.

28. The word translated by action is *praxis*, a Latin transcription of a word that Aristotle sometimes uses in contradistinction both to cognition and to production. But when the context admits of less specificity, *praxis* covers both action and production and is set in contradistinction to cognition alone. John of St. Thomas intends *praxis* in its broader sense.

29. John of St. Thomas contends that what holds for metaphysics in this argument holds also for logic, for both seek knowledge for the sake of knowledge.

30. 'Artificial logic' means logic cultivated into an art, in opposition to the natural and spontaneous oblique logic that the intellect can use independently of the art of logic. Throughout these *Treatises*, the word 'artificial' expresses only what is produced by art, as contrasted to what is produced by nature, and never conveys any such derogatory connotation as unnatural, unrealistic, sophisticated, etc.

31. The mental concepts have an entitative existence and thus might possibly serve as matter of action, if there were need for such artistic action. Now, as has been explained, objects are already presented (in direct knowledge) as first intentions and set in order (by logical reflection) through second intentions accruing to them in the object-realm, and mental concepts are nothing other than natural references to the objects so ordered. In consequence, the mental concepts are already set in order. Thus there is no need of a practical art having those concepts as its matter of action. All this is in line with John of St. Thomas' stand against psychologism.

32. This sentence explains how logic can be *useful* without being

practical. In so far as the knowledge of logical objects is subordinated to an ulterior end, logic is useful. But this end is not practical in character: it is speculation, contemplation, theoretical science.

33. Cf. *Infra*, 26. 2 *On Subalternating and Subalternated Sciences.*

34. The theory of practical science outlined here involves serious difficulties. As John of St. Thomas speaks of ethical science "with" and "without" prudence, says that the *Ethics* and the First Part of the Second Part are examples of ethical science *without* prudence, and thereby suggests that the Second Part of the Second Part exemplifies ethical science *with* prudence, the question arises whether prudence is a thing which can be taught and put into a book. Prudence, indeed, has the function of saying the last word about problems of human action. The prudential judgment alone declares what I have to do—I, with my strictly unique personality and history—under entirely concrete circumstances which may be in some significant respect novel, unprecedented, and unrenewable. Considered in its strict adaptation to the uniqueness of the individual case, prudence cannot enter into a doctrine and its statements can be printed only for the sake of historical record.

But from the fact that prudence alone answers the problems relative to entirely concrete circumstances, it should not be inferred that it does not do anything else. It answers also general questions, and many prudential statements are so general that they hold for a large part of mankind over long periods of time. Such statements normally assume a doctrinal character within the limits of their generality, though trouble often results from failure to distinguish them from statements pertaining to the demonstrative part of ethical doctrine. In principle the line between ethical science and prudence can always be drawn by the operation of the following criteria: A given proposition is a scientific conclusion if and only if it is deductively connected with the self-evident principles of morality. But a proposition which admits of no deductive connection with ethical axioms derives whatever certainty it enjoys from its agreement with the inclinations of the virtuous will. Its certainty is merely prudential, no matter how large its area of application. Propositions of this type are more frequent in the Second Part of the Second Part than in the First Part of the Second Part and, roughly, John of St. Thomas is justified in describing the First Part of the Second Part as ethical science without prudence and the Second Part of the Second Part as ethical science with prudence.

But John of St. Thomas also asserts that ethical science, when it is not associated with prudence, is—unqualifiedly—a theoretical science, a part of the philosophy of nature and, to be entirely specific, a part of psychology. (See *infra*, q. 27. a. 1.) This view is thoroughly un-Aristotelian and constitutes a paradox never satisfactorily explained. True, the theory of the practical sciences in Aristotle is far from clear. Referring to the basic treatment of the intellectual habitus in *Ethics*, 6, let it be said that the Aristotelian notion of science applies primarily to sciences that are unqualifiedly and exclusively theoretical, whereas the Aristotelian notion of practical knowledge applies primarily to a knowledge that is unqualifiedly practical, in other words, to prudential knowledge. A practical science is necessarily an ambiguous entity, less scientific than a theoretical science, less practical than a prudential habitus, and bearing the mark of a sort of compromise. It is a mixed

case, which can be expected to involve more obscurity than simple cases. The thing which cannot be doubted is that the science of morality, such as it is treated in the *Ethics* of Aristotle, is sharply set apart from psychology and definitely located in the area of the practical. John of St. Thomas recognizes in Aristotle's *Ethics* and in the First Part of the Second Part the analytical method which befits theory, and he expresses himself as if the synthetic method of practical thought made its first appearance on the level of prudence, so that a science of ethics not accompanied by prudence would be purely analytical in method. The truth seems to be that the synthetic character of practical thought admits of degrees and that, correspondingly, those combinations of theory and practical vision that we call practical sciences use methods in which analysis and synthesis combine in diverse proportions.

An inquiry into these degrees should start with the form of thought which is the most practical and the most synthetic, viz., prudence. Here the synthetic method is characterized by a *totality of consideration* equal to the individual complexity of the case. At the next level, there is no longer adjustment to individuality but the synthetic method is still at work in the processes of conceptualization and explanation. The choice of the facts, their grouping, intellectual apprehensions and the arrangements of intelligible aspects are not what they would be if all the problem were to understand things and events. Conceptualization is practical and synthetic because the final purpose is not unqualified explanation—i.e., explanation in terms of essential necessity—but *practical explanation*, i.e., explanation in terms of human action and by way of answers to the questions 'what ought we to do?' 'what should we have done?' 'what shall we do?' A synthetic pattern which, without achieving adjustment to the individual, affects both conceptualization and explanation, such is the distinguishing feature of what Professor Maritain calls the practically practical science. (See *Les Degrés du Savoir*, Paris, Desclée De Brouwer, 1932, chap. 8, and *Science and Wisdom*, New York, Charles Scribner's Sons, 1940, Second Part.) Finally, in moral philosophy, which is a theoretically practical science, conceptualization and explanation are governed by a law of exact analysis. What John of St. Thomas fails to see is that a synthesis of an essentially practical character is, nevertheless, effected—a synthesis totally foreign to the mores of theoretical thought—inasmuch as the least practical of the practical sciences considers not only natures, as theoretical sciences do, but also the human *use* of things placed within the control of man. Theoretical science abstracts from problems of human use. Science becomes genuinely practical—no matter how analytic it may remain in other respects—as soon as it considers natures *in connection with the movement of human freedom toward salvation*. The study of memory as a nature pertains to theoretical science. But any inquiry into the good use of memory is practical in a proper sense, even though it admits of degrees of practicality according as the *practical synthesis* implies only the consideration of *use* (theoretically practical science) or controls the methods of conceptualization and explanation (practically practical science) or is capable of achieving strict adjustment to individual concreteness (prudence).

35. See the preceding article, second thesis. The present discussion bears on what may be the most difficult problem in the whole noetic

of logic, a problem traceable in large part to the difficulties inherent in the extreme analogicity of the ways in which logic can at all be said to be useful if not practical. The ideal noetic treatment would correlate these four frequently made distinctions and divisions within logic: science and art, doctrinal and in use, formal and material, and dialectical and judicative or demonstrative.

36. Subject and matter are not to be confused. The matter spoken of here is the *materia dirigibilis* of logic as an art, which was treated of in the foregoing in Article 3, p. 19, and is treated by St. Thomas in his *Com. on Met.* 4. les. 4. Cathala 573. The second intention, subject of whatever in logic is scientific, admits of being known with certitude.

37. The three senses of the use of logic here given by John of St. Thomas should be compared with the three types of *"processus rationabilis"* in St. Thomas' *Exposition of Boethius' Treatise on the Trinity*, 6. 1. The only reliable edition of this work is the partial one of P. Wyser, *Thomas von Aquin in Librum Boethii de Trinitate, Quaestiones Quinta et Sexta*, Fribourg, Société Philosophique, and Louvain, Editions E. Nauwelaerts, 1948. The text to which we have reference appears on pp. 55-57 of that edition. John of St. Thomas' second use of logic corresponds to St. Thomas' first rational process—the supplying of doctrinal principles to other sciences; his third use of logic corresponds to St. Thomas' second type of rational process—the use of unterminated or tentative probable inquiry; his first use finds no parallel in this text of St. Thomas, for the latter's third type of rational process is characteristic of natural science or the philosophy of nature as proceeding in conformity with the natural structure of the human or rational intellect. Also to be compared with both of these lists are the two senses of dialectical use given by Averroës (texts quoted by Wyser, *op. cit.*, p. 56, n. 1) and the three senses of λογικῶς outlined by Simplicius, *Com. on Phys.* Diels, 440, 21.

38. The word order would suggest that we are to connect Number 1 not only with formal but with ultimately demonstrative logic, Number 2 with doctrinal logic, and Number 3 with logic in use in the strictly special, dialectical way. Demonstrative logic, including formal logic, which directly tends toward it, supplies by its very nature the certain and errorless directive or methodic use of logic; logical doctrine in general, though not so intended by its nature, does lend itself to being exploited for a use that is rather a supplying of material principles than a purely regulative or methodic one: in both of these cases the use made of logic admits of terminal and analytic achievement, the first case demanding it, the second not preventing it. The third is essentially tentative and opposed to ultimate material resolution or posterioristic analysis as becoming is, by definition, opposed to being.

39. It would be incorrect to suppose that John of St. Thomas holds that such directive assistance is aimed only at the disposition of the form, as one might be tempted to do at this point. For, in the first thesis, which follows immediately, he makes quite clear his position: the use or direction afforded by logic in this first sense is also aimed at the disposition of the matter. Certainly logic cannot supply real necessary matter, but *if* there be such matter supplied by the scientist of the real, logic will afford him not only rules of form, but also rules for the disposition of the necessary matter as such. Note the hypothetical, and

in that sense "formal," character even of material logic.

A reason why mention of the latter type of direction appears to be suppressed in the present place may be that, *as in use*, the directive assistance of posterioristic logic is made intrinsic to and one with the demonstrating science from the subjective–formal standpoint, i.e., as habitus (cf. St. Thomas, *Com. on Met.* 4. les. 4. Cathala 577), whereas the directive assistance of syllogistic, *as in use*, is probably still extrinsic to the scientific habitus of the real. The fact that formal syllogistic and dialectic both appear to retain, in use, their proper identity and distinctness from the sciences of the real that they are directing may have been the felt reason why they have often been closely linked and called by the one name of dialectic. On the other hand, the fact that posterioristic, or material logic in the narrowest and most perfect sense, is distinct from the sciences of the real only as a doctrine and gets reduced into those sciences upon being used by them, tends to show that the second intentions of posterioristic logic, many of which even have the same names as their foundations–e.g., true, prime, necessary etc.–have a much more tenuous character as second intentions than those of formal logic. They are much closer to their foundations and, indeed, are separated from them only by a sort of condition *(if)* of generality–e.g., *if* the premises are true, necessary, causal, etc. And as soon as that condition is removed by the factual certitude of the scientific habitus, in first intention, that the premises are true etc., then the demonstrative logic becomes, through the actuation of use, simply one with or, rather, simply disappears before "philosophy and the other particular sciences that concern themselves with real things." (Quotation from St. Thomas, *loc. cit.)*

40. Tr. by Armand Maurer, St. Thomas Aquinas, *The Division and Methods of the Sciences* (Toronto: The Pontifical Institute of Mediæval Studies, 1953).

41. This idea is at work in the assumptions made concerning the nature of logic by writers of three otherwise rather distinct groups: (a) certain educator-logicians who saw the teaching of logic (and good literature) as of a piece with the instilling of good morals into their pupils–this line begins with Fonseca in the Counter-Reformation, appears in the *Logic of Port Royal,* and is evidenced in many books since then bearing titles such as *The Art of Thinking;* (b) moralizing historians of logic, pre-eminently Prantl; (c) many logicians who place logic with ethics as a "normative" science.

42. This would be a doctrine of illationism and would, of course, be destructive of the natural intentionality of the mind. Its historical connections with the first group mentioned in the preceding note are obvious.

43. This example strikingly illustrates the difference between *habit* and *habitus*. The musician who plays the harp already has the art of music, which is a habitus, but not having the habit of playing the violin, he must begin to exercise his fingers on it. See page 611.

44. As appears in the *answer*, this is John of St. Thomas' solution. Cf. above, n. 39, on this text of St. Thomas. We grant that the formal part of logic admits of a use that is properly of the logical habitus; but we again propose, as an alternative interpretation for the consideration of

the reader, that St. Thomas intends to teach that the demonstrative logic as such is, in use, no longer logic but one with the sciences of the real. This is even suggested by John of St. Thomas when he names the syllogistic *form*, both here and just before the first thesis (cf. n. 39), as an example of what logic in use provides to the other sciences while retaining its identity as logical habitus.

45. John of St. Thomas evidently inclines toward the latter position. See the Foreword on the way in which logic in its dialectical capacity not only *directs* probable arguments through scientific and certain rules formed of second intentions but even, in secondary and indirect fashion, surveys and organizes first-intentional materials so as to *elicit* acts of opinion concerning them.

46. Yet any repetition of acts may generate a habit.

47. The idea that a scientific habitus is such a co-ordination of *species*, though at first held by St. Thomas, is abandoned in his *Summa theologica (i-ii.* 52. 2)—for considerations such as those given here—in favor of the theory that a habitus is a simple quality in the order of exercise. Because most other mediæval philosophers stress the passivity of the human intellect over its immanent activity they do not feel the need to conceive habitus as an adaptation of intellectual energy to command forms rather than an aggregate of those forms. Thus the co-ordination theory of habitus continues to be held by Scotus and Ockham.

48. In article 4 of this question, not included in the present translation.

49. Reference is made to the next article, first thesis. 'That which' is understood in opposition to 'that by which,' both taken in an objective sense, thus: *that which* is known, and *that* aspect in the thing *by which* that thing is known. There is also a nonobjective sense of 'that by which,' i.e., the formal concept is that by which both the aspect and, thereby, the whole object are known. See Maritain's *Formal Logic*, tr. by Imelda Choquette (New York: Sheed and Ward, 1946), pp. 18-19, n. 3.

50. The author does not imply that the metaphysical—or scientific—universal is a being of reason. The metaphysical universal itself, e.g., 'man,' conceived in the state of scientific abstraction, is not a being of reason; the being, or element, or condition, of reason involved in the state of unity of that metaphysical universal, is its universality. This having been made clear, one must add that such state of unity is rather a negation of reason than a relation of reason and is therefore not formally a second intention [though fundamentally it is a second intention, i.e., the foundation of a second intention—see the first part of the first thesis of Article 2] but a first intention, or, more exactly, an oblique first intention of reason conditioning the direct first intention, the real being itself, man or human nature, in its objective presence to the mind as concerned with the real world.

51. The antecedent part of this sentence is not intended to give the proper explanation of why we can know second intentions reflectively. For the reflection of the intellect upon its acts is not the reflection of the intellect upon second intentions, since, as John of St. Thomas has explained in the foregoing, "the act of the intellect is not an objective second intention." What, then, does this antecedent say? It gives a

sort of parallel and, perhaps, a fortiori case: if the intellect can reflect on its acts, then it can also reflect on the second intentions to which these acts have given rise.

52. J. This question is included in the *Treatise on the Universals*.

53. In the Latin of the Reiser edition the words *minor* and *major* are accidentally interchanged. This is evident from a formal analysis of the paragraph beginning with "This description..." which gives a syllogism in Cesare. The sentence beginning with "The formal nonidentification..." is the minor premise; the sentence beginning with negation..." is the major.

NOTES TO CHAPTER II

1. John of St. Thomas uses synonymously the terms *individuum*, individual, and *singulare*, singular, as well as the corresponding abstract terms *individualitas* and *singularitas*.

2. Reiser ed., "*relationis universalis*," from the context, an obvious mistake for *universalitatis*.

3. In the expression 'metaphysical universal' *metaphysical* means 'pertaining to the science of the real' and is understood in opposition to *logical*. Metaphysics is taken here as the archetype of the sciences of the real world. 'Scientific universal' would be a useful synonym for 'metaphysical universal,' provided that science is understood in its primary reference, i.e., in its reference to the intelligibility of real things.

4. Reiser ed., "Negatio autem indivisionis," from the context, an obvious mistake for "negatio...divisionis."

5. Reiser ed., "Negatio indivisionis," again, from the context, an obvious mistake for "negatio divisionis."

6. That is to say, 'considered in itself' or 'from its intrinsic principles' are expressions that rule out singularity, and singularity is something positive, i.e., positive real unity. Thus these expressions refer to a way of not being, i.e., not being singular.

7. The indefinite predicate is the negative predicate or "infinite noun" of Aristotle, *On Int.* 2. $16^{a}32$.

8. J. Suárez rejects this thesis.

9. The whole spoken of is not the logical or universal whole, whose parts are its inferiors. For the inferior as a 'part' of such whole does not signify that certain whole. The whole which both inferior and universal signify is the whole composed of 'parts of form,' the definable whole. The theory of wholes and parts receives considerable attention in the Thomistic school. In St. Thomas the basic texts are found in the *Exposition of Boethius' Treatise on the Trinity*, q. 5 and 6 and in the Op. *On Being and Essence*.

10. On this term see note 7.

11. See the note on the objective sense of *by which*, n. 49, p. 596. Since the intentions treated of in logic are all objective, and since the universality treated of is not the universality in signifying—the universality of the formal sign—but the universality in being and predicating, i.e., the objective universality, the principle *by which* spoken of here is

an objective *by which*. Accordingly, the *that which* spoken of in the following lines is also objective.

12. Ungenuine.

13. Under (a) the relation of soul to body is considered in the actuality of the human composite; under (b) the same relation is considered genetically. Let it be recalled that according to an opinion commonly received among the Scholastics the soul understood as specifically human, viz., as substantial principle of rational life, comes into existence only after the initial phases of embryonic development. It is the same *physical* composition which is described under (a) in act, and under (b) in genesis.

NOTES TO CHAPTER III

1. The author refers to his summary of the *Categories*, Reiser ed., p. 473 ff.

2. In this sentence, the word 'Antepredicaments' plainly designates a section of the book under consideration rather than the notions contained in it. In all the rest of the present discussion 'antepredicaments' designates the notions contained in this section, i.e., the four distinctions whose explanation follows. The word prædicamentum, coined, apparently, by Boethius, is an exact equivalent of the Greek κατηγορία in the sense of Aristotle. So far as we can judge, a well-established custom makes it indicated to use the word of Greek derivation for the categories themselves and the words of Latin derivation, antepredicaments, postpredicaments, for the subjects treated by Aristotle (or by an Aristotelian compiler) before and after the exposition of the categories.

3. The word 'things' does not appear in the Latin, which has simply *quaedam*. There is no linguistically satisfactory way of translating this Latin pronoun in its vacuous character into English and avoiding the appearance that the predicates to which it refers are 'things.' But the danger of any reification of these predicates is ruled out by the preceding lines.

4. Thus the term 'subject' has in this antepredicament two senses: (a) a real one, as when an accident is said to be in a subject (substance), and (b) an intentional one, as when a universal is said to be predicated of a subject (inferior). Notice that we are already employing equivocity—from the first antepredicament—to understand the use of a term in the third antepredicament.

5. Cf. Reiser, $460^{a}1$-$^{b}43$, especially $^{a}21$.

6. Aristotle *Categories* 1. $1^{a}1$-2.

7. Infra, a. 5.

8. Reiser ed., by obvious mistake, *tres*.

9. The text of the Reiser edition ($481^{a}9$) reads, "*quia non multiplicantur supposita,*" but the context shows plainly that *non* was inserted by mistake.

10. The property called *alienation* is described in the *Short Treatises*, bk. 2. chap. 14. $39^{b}13$-17. "...there is alienation when a term is shifted from proper to improper signification, as when it is said that 'a man is pictured' or that 'Peter is a lion.'..."

11. In the vocabulary of John of St. Thomas and more generally of the Scholastic writers, *proportio* means simple ratio (a/b) and *proportionalitas* means the system made of two equal or similar ratios ($a/b :: c/d$). Although the word 'proportion' often designates, in colloquial or literary language, a simple ratio (e.g., "What is the proportion of Indians in the population of Arizona?"), the idea of 'simple ratio' is more safely expressed by these very words than by the word 'proportion.' On the other hand, the abstract word 'proportionality' designates the quality of that which is proportional rather than the system made of two equal or similar ratios. But the language considered best in an exposition is not necessarily the best in a translation. If we had to write a paper on analogy, we would not hesitate to use 'analogy of simple ratio or attribution' and 'analogy of proportion' as the proper equivalents of the Latin expressions *analogia proportionis seu attributionis, analogia proportionalitatis;* but in translations the only way to avoid confusing divergencies, when there is plainly room for divergency among translators, is to remain as close as possible to the original. Thus, throughout the present book, the first division of analogy will be conveyed by the expressions 'analogy of proportion or attribution,' 'analogy of proportionality.' Let it never be forgotten that 'proportion' is taken in the sense of simple ratio, i.e., as meaning a/b, not $a/b :: c/d$.

12. The text of the Reiser edition reads: *"datur aliquid in istis analogatis, quae respiciant";* if this reading were accepted the meaning would be: "There is something in these analogates which are related to the principal analogate." The context makes it obvious that 'quae' was mistakenly substituted for 'quo.' The 'something' found in the secondary analogates is *that by which* they are related to the principal analogate (*aliquid. . .quo respiciant*).

13. In order to understand the theory of analogy and to handle analogous terms properly, it is indispensable to be constantly aware that language expresses but clumsily the fundamental property of analogous terms, viz., their having a plurality of not unrelated meanings. Language inevitably disposes the mind to force upon the analogous concept more unity than it actually has, and the kind of unity that it does not admit of. Words ought to be chosen in such a way as to bring down to a minimum the risk of falsifying the analogous concept through the imposition of improper unity. But, after all possible precautions have been taken, the inclination to corrupt analogous terms into univocals is still very much alive and must be corrected with indefatigable vigilance. Clearly, the expression 'common features' conveys the unity of univocity more successfully than that of analogy; if any features are unqualifiedly common to several things, these things can be represented by a univocal concept and a univocal term. Any word expressing the unity of the analogue has to be strongly qualified in order not to be misleading. The qualification cannot always be expressed, and there is nothing wrong about its being merely understood, provided that one never loses sight of the world of difference existing between the unity of analogy and the unity implied in univocity, no matter how loose. The Latin that we translate by 'having common features' is 'convenientia,' a word which may as well as any other word expressing unity mislead the reader into substituting the unity of univocity for that of analogy. If 'convenientia' is unqualified, there is univocity.

14. Note that we have here a limit case of divergence between signification and supposition: the attributed or metaphorical analogue stands for an object which it does not signify "even in secondary fashion," i.e., the noun stands for the *quod* or suppositum without signifying any *quo*, form, or nature intrinsic to that suppositum. *Lion* improperly stands for Christ, but it does not signify him. In making this observation, we are speaking of supposition as a property of oral or written terms, not as a property of concepts.

15. Literally, 'fishbone.' We substitute 'shell' in order to have, as in the Latin, clearly diverse words.

16. When it is said that a term stands for a thing, 'to stand for' may refer to the property of signification or to that of supposition. We have made it a rule, in this translation, never to use 'to stand for' in reference to signification, so that the property of supposition should always be clearly expressed.

17. This is Soto's notion, referred to above, of a poly-concept analogue.

18. It will be noted that the author, as a logical purist, is speaking of supposition as a property of concepts, not of supposition as a property of oral terms. He insists that in attribution or metaphor the primary concept has need of "another *concept* to stand for" the secondary analogate that connotes it. He does not say that the attributed or metaphorical term has need of another oral term to stand for the secondary analogates. That would be false. For the same oral term, which properly stands for the first analogate, also stands improperly for the secondary analogates. Improper supposition can be a property only of terms; concepts always have proper supposition—though they can bear linking connotations. That is why, on the level of *language*, we have only one analogous term standing properly for its univocal object and improperly for the other objects (e.g., *healthy* stands properly for healthiness in the organism and improperly for the 'healthiness' of signs, such as blood and urine samples); whereas on the level of the *mind*, masked as it were behind this one linguistic term, there are several metaphorically or causally (attributively) linked concepts at play, each properly standing for its object. Needless to say, connotation as spoken of in this connection has nothing directly to do with the famous distinction between absolute and connotative concepts.

The author's final sentence is fully true only of conceptual supposition, though part of what is said can be reformulated to apply to terminal supposition as well: supposition as a property of terms never refers to what the term signifies as *quo*, but always to what the term stands for as *quod*. If a term (healthy), instead of signifying, connotes a *quo* or form (healthiness) that is not found in the suppositum (healthy urine) for which the term is standing (healthiness is not genuinely found in urine), then the term is standing improperly for that suppositum and is said to have improper supposition. If the term really does signify, i.e., means what it says, then the *quo* which it signifies is found in the *quod* that it stands for, and the term is said to have proper supposition.

19. The clumsiness of language in the expression of analogy makes it inevitable that such words as 'general,' 'generality,' should be used apropos of things whose unity is by no means that of a genus. John of

St. Thomas, who repeats so many times that being is not a genus, does not hesitate to speak of "the genus of being" (*Course of Theology*, i. disp. 4. a. 4. Solesmes ed. I, 472a) when this inadequate expression is the only way to say what he has to say.

20. It is hardly necessary to point out that, in this theological remark, the word 'modified' does not have the usual meaning of 'changed.'

21. When it is said that the analogue of proper proportionality is "confused," this term is taken in its root sense of 'being fused together.' Nothing more is meant. It does not mean that the subjects of the analogue are lumped together in a random agglomeration, a thing John of St. Thomas explicitly rules out. Disorder is not meant. On the contrary, a degree of order among the subjects confusively known in the analogue is definitely implied. For the very proportional similarity among the subjects is itself a sort of order. The subjects are present confusedly, but actually and in an ordered way.

NOTES TO CHAPTER IV: (THE DIVISION OF BEING)

1. Whether this is John of St. Thomas' own definition of the category or whether he is quoting from an earlier writer is not clear. Certainly the idea of a category as a "series" is prior to his work, but it is no less certain that he makes it his own. It is probably the most formal justification for the inclusion of the notion of category in a work of logic. That there is call for justification we can bring out by formulating an objection: it seems that there is no place for categories in logic, for logic is the science of second intentions whereas the category is clearly a first intention. In order to answer this objection, two sets of distinctions are necessary. (1) There are two sorts of plurality involved in the doctrine of the categories: (*a*) the plurality of categories, (*b*) the plurality within a category. (2) Just as the universal must be distinguished into the material and the metaphysical universal, on the one hand, which are first intentions, and, on the other hand, the logical universal, which is a second intention, it would seem that there is need of a parallel distinction of the notion of category. Now, the material or metaphysical category, e.g., what it is to be substance, what it is to be quantity, etc., are all clearly first intentions. Neither the content of such notions nor the fact of their plurality can be established anywise by the consideration of second intentions. They can be established only by looking into the quarter in which they are found, viz., the real world.

However, there is another sort of plurality involved in the doctrine of the categories. If we are permitted to call the plurality of categories a horizontal one, then the plurality within a category will be a vertical one. This vertical plurality is certainly nothing real or even first-intentional, for its principle is the greater or less extension or comprehension, the logical superiority or inferiority of the concepts in the category, nor is the synthesis and co-ordination of such plurality anything real. Thus, when the category is here defined as just such synthesis and co-ordination, "*series seu ordinatio*," this is the *formal* definition of the category by the logician, and what is defined is a second intention. Such a co-ordination or system is a sort of Porphyrian tree. Notice that John of St. Thomas concludes his treatment of each one of the categories by

such a co-ordination of the chief notions in the category according to the intensification and weakening (remission) of comprehension and extension. For him, this co-ordination or series is the category formally speaking, and even though the bulk of the question has been taken up with a material discussion of what substance is, or what quality is, or whatever it may be, all that discussion has occurred with an end in view, and he must conclude with what it is his office as a logician to provide, this vertical schema that logically constitutes the category—cf. his *Logic* I, Disputed Questions on the *Short Treatises* q. 1. a. 1. ad 1. (Reiser ed., vol i, p. 87, and the same in the Lyons version as reprinted by Reiser, p. 206-207).

2. We have not been able to identify the work of Leonardo Bruni, surnamed Aretino, to which John of St. Thomas is referring here.

3. J. This argument is also received by some philosophers outside the school of Scotus.

4. Reiser ed. ($507^{a}18$-19): *"tam de ente completo quam incompleto seu predicamentali."* Since predicamental being is constantly described as complete, there can be no doubt that the words "completo," "incompleto" are interverted.

5. As opposed to second intention.

6. John of St. Thomas' expressions here border on contradiction: this is how far we must go if we care to realize the diversity of the analogous without losing sight of its relative unity.

7. J. See also what was said in the preceding question, article 5.

8. Chapter 14 of *Post. An.* 2 is described by W. D. Ross as concerned with "the use of division for the orderly discussion of problems." Here is the text to which John of St. Thomas refers: "Yet a further method of selection is by analogy: for we cannot find a single identical name to give to a squid's pounce, a fish spine, and an animal's bone, although these too possess common properties as if there were a single osseous nature" (Tr. by G.R.G. Mure, *The Basic Works of Aristotle*, New York, Random House, 1941). St. Thomas (*Com. on Post. An.* 2. les. 17. Leonine 4) merely points out that the analogous subject [in spite of the diversity that it implies actually] has common properties on account of its proportional unity. Later commentators see in this text an answer to the crucial question whether a term whose unity is but one of proportionality can afford to be a syllogistic term and, in particular, whether it can be the middle term of a demonstrative syllogism. The best treatment of this question is found in Cajetan's opusculum *On the Analogy of Names*, chap. 10.

9. 'That which' *(quod)*, in opposition to 'that by which' *(quo)*. E.g., a man is 'that which' exists and thinks; his soul is 'that by which' he exists and his intellect 'that by which' he thinks.

10. J. In our study of the last six categories [not included in the present volume] we shall show that this is an error. There is no doubt, in particular, that passion is an intrinsic mutation.

NOTES TO CHAPTER IV: (SUBSTANCE)

1. I.e., that which stands under or supports accidents.

2. For a thing to be lucent is for it to be aglow in itself, but to illuminate is relative inasmuch as it involves a shining upon other things.

3. Care must be taken to dissociate this formula from the Spinozian definition of substance as involving its own existence. Actual existence is not included in the definition of substance. What is meant is that *if* a substance is to exist it is its due that it exist by itself, for this is the mode of existence proper to it. What is included in the definition is the mode of possible existence, not the act of existence. It is also noteworthy that neither of the two characteristics of substance in the Thomistic description, viz,, being subsistent or by itself, and being the bearer of other things in existence, matches the famous Kantian notion of substance as the permanent unchangeable underlying changes. For even the second characteristic is relative to accidents and not formally relative to change. The chief difference is that the Thomistic notion is strictly metaphysical and concerns itself with *being* of the thing by itself and other things' having their being in it, whereas the Kantian notion is physical, concerns itself with change, and rather resembles the ideas of matter or secondary matter than that of substance as such. Nothing being said at this level of metaphysical description about the duration of substance, it is out of place to suppose that there is no substantial change or even to conjecture that such change is any less frequent than accidental change. Hence, permanency is not characteristic of substance.

4. A being by accident is one that does not have the unity of a single form. Examples would be: an aggregate of various entities, a chance event, a white man, a musical physician.

5. Let it not be fancied that the merely possible and not yet existing thing exercises any kind of appetition. What is meant is that if existence is given—in radically contingent fashion—the nature of substance makes it necessary that existence be had in a certain way and the nature of accident that it be had in another way.

6. This formula, in this inauthentic work, is reminiscent of Giles of Rome rather than of St. Thomas. It had a major role to play in putting Suarez on the wrong track regarding the real distinction. St. Thomas does maintain a real distinction between essence and existence but does not say that it is a distinction between two diverse things. They are two really distinct principles and acts of one existing thing. Cf. E. Gilson, *Being and Some Philosophers* (Toronto, 1949), pp. 99-100.

7. J. This should be understood in a physical sense, lest it be objected that the difference is—in a metaphysical sense—extrinsic to the concept of the genus and yet is not really distinct from it.

8. The aim of this parenthetic remark is to show that Aristotle would not be consistent with himself if he held 'to stand under' as the formal constitutive of the nature of substance, since he holds (*Cat.* 5. $3^{b}33$) that substance does not admit of more and less. Now, he could not hold both, for a substance, upon losing an accident, would then stand under less accidents than it did before, and, were the formal constitutive this standing under, substance would then admit of more and less, i.e., of variation of degree in being substance.

9. J. It 'exists in' not by way of inherence but by way of composition.

10. The notion of 'predicable whole' is quite important in the Thomistic theory of predication. It is a complex notion involving not only (1) the logical intentions of extension and comprehension but also (2) that of concreteness as opposed to abstractness, and (3) the fundamentally real intention of integrity. It is treated by St. Thomas in the *On Being and Essence* and in the *Exposition of Boethius' Treatise on the Trinity*, q. 5 and 6. Cf. i. 3. 3 and i. 13. 1 ad 2. For an object of thought to be predicable of another, it must not only be a whole extensively with respect to the other as to its subjective part, but it must also be concrete. Thus 'substantiality,' being abstract, is a [rationally] constitutive part of, e.g., this man, and is, thus, not a predicable whole. Likewise, the eye, though concrete, is but an [integrally] constitutive part of this man and is not a predicable whole.

11. *To inform* and *information* are used in a noncognitive way to mean that substance, as secondary matter, is informed by the accident in that it receives the form or determination of the latter. See the last *answer* of this article. To inhere is to inform. However, to inform is not always to inhere. Substantial form is also said to inform prime matter, but, being substantial, it does not inhere in it.

12. E.g., 'to be predicated of a subject' and 'to be this man' are not contrarily opposed through one's possession of a difference that the other lacks, for both are not within the same genus. Rather there is something resembling contradictory opposition between them, inasmuch as one, 'to be this man,' implicitly contains the idea of not being predicated of a subject, which is the simple negation of the first idea.

13. *Cat.* 5. $2^{a}13$.

14. E.g., genus is a species of predicable.

15. John of St. Thomas' full treatment of this question of the unity and distinction of the divine attributes is Dissertation iii. a. 6 of his *Theological Course*, section On God (Solesmes edition, Desclée et Cie., Paris 1931) Vol. I, pp. 479-493. Cf. R. Garrigou-Lagrange, *God, His Existence and His Nature*, Herder, St. Louis and London, 1939-41, Vol. II, chap. 3, Reconciliation of the Divine Attributes, pp. 187-267, and Epilogue, pp. 548-58: "Foundation for the Distinction Between Potency and Act", and "Definition of Potency and the Necessity of a Real Distinction Between it and Act." The whole question of genus and specific difference in God is decidable on the ground of whether there is any act and potency in God. If there is real composition of the latter in God, then and then only is there rational composition of the former in him. This is so because the idea of genus is derived from the matter or, more broadly, from potency; and the idea of specific difference is derived from the informing form or, more broadly, from act as correlative with potency. God is pure act, i.e., act noncorrelative with potency.

16. These are the four senses of the term 'proper' according to Porphyry *(Introduction to the Categories*, chap. 4): (1) that is said to be proper to a species, which belongs to this species alone, but not to every individual member of it; (2) that is said to be proper to a species which belongs to every individual member of it but not to this species alone; (3) that is said to be proper to a species which belongs to this species alone and every one of its individuals, but not always; (4) that is said in the strictest sense to be proper to a species which belongs to

it alone, and to every individual member of it and always.

17. The properties of substances, according to *Cat.*, ch. 5, are: (1) not to be present in a subject, (2) to be predicated univocally, (3) to appear to signify the individual, (4) to have no contrary, (5) not to admit of variation of degree, and (6) to be capable of admitting contraries.

18. 'Communication': i.e., association, as by inherence.

19. Anton C. Pegis (trans.), *Basic Writings of Saint Thomas Aquinas* (New York: Random House, 1945).

NOTES TO CHAPTER IV: (QUANTITY)

1. W. D. Ross (trans.), *The Basic Works of Aristotle* (New York: Randon House, 1941).

2. The theory of the various types of wholes and parts has received intense though somewhat scattered attention in Thomism. Loci for the question are, besides quantity, the theory of order and the theory of abstraction. An important treatise on wholes and parts in a context of abstraction is the *Exposition of Boethius' Treatise on the Trinity*, q. 5 and 6.

3. Ockham holds this, *Summa Logicae I*, sec. 3, Categories.

4. In other words: St. Thomas does not speak of measure itself or of divisibility itself, but of the principle from which measure and divisibility derive.

5. Armand Maurer (trans.), St. Thomas Aquinas, *The Division and Methods of the Sciences*, Questions v and vi of his *Commentary on the De Trinitate* of Boethius (Toronto: The Pontifical Institute of Mediaeval Studies, 1953).

6. Such a doctrine of indivisibles invites comparison with the theory of the calculus. In making such comparisons with mathematical theories, it must be kept in mind that what is presented here is a theory of physical quantity, not quantity in the state of mathematical abstraction.

7. Of course, the accidentality spoken of is categorical, not predicable. From the standpoint of the predicables, such union is not an accident, but a property, of corporeal substance.

8. World and universe are to be distinguished. Such a substance would be in the universe but not in the world. World means the sum and system of actually extended substances. On the other hand, such a substance is not spiritual, for it remains capable of quantity and radically calls for it.

9. The idea seems to be that the confusion is much more radical, being internal and not merely a confusion respecting the place in which this substance is. It is not only not actually in a place, but its parts are not actually distinct from each other.

10. I.e., The substance, being impeded for want of being extended by quantity, cannot exercise its inner distinction into substantial parts—the language is again formed by analogy with that of efficient causality.

11. Of these two conditions of individuality, the latter is the more formal for John of St. Thomas, though the former, the "collection of properties," a Boethian notion, is not abandoned by him.

12. This situation is, of course, unimaginable, which is not to say that it is unintelligible. Any attempt to imagine it results in errors such as these—imaginations as Cajetan calls them, in *Com. on Summa theologica* 1. 52. 1. The reason is that the imagination is adequate only to the form of quantity in act and to things actually conditioned by that form.

13. In scholastic writings, linguistic discussions sometimes appear in treatises on quantity because Aristotle mentions speech as a type of quantity in his *Categories* 6. $4^{b}31$-36. Cf. question 16, article 3.

14. For number, there must be more than one unit. One is not a number but the principle or starting point of number according to Aristotle and his followers.

15. This invites comparison with theories of the rationalization of the continuum. Again, however, the same caution must be given, viz., that what John of St. Thomas writes here is a physical theory of discrete quantity, not a mathematical theory.

16. Increase or augmentation is to be distinguished from accretion by the fact that the latter involves the addition of particles (e.g., the so-called "growth" of a sand bar by the piling up of grains), whereas genuine increase, though formally relative to greater quantity, takes place only as a consequence of nutrition or aggeneration and is what is strictly called growth. Cf. John of St. Thomas, *Phil. of Nature* iv. q. 3. a. 1-2.

17. Besides this rather incidental treatment of the object of arithmetic, the chief places in John of St. Thomas for the noetic of the mathematical sciences are (1) in this work, question 27, "On the Unity and Distinction of the Sciences," (2) in his *Course of Theology* i. disp. 6, a. 2 Solesmes 532 ff.—a dissertation of unique significance on the existential status of mathematical objects, entitled "Whether Mathematical Objects Are Good."

18. Cf. *Phil. of Nature* 1. q. 16. a. 1.

19. Division understood actively is the act of dividing; passive division is the state or condition of being divided.

20. That is, 'the white' taken as signifying what it formally names, viz., whiteness.

21. 'The white' so taken is 'the white thing.' The whiteness and the thing are united as form and matter, and thus one might object that they do unite into a third unit. But the stress here is on the idea of unity, taken essentially and not incidentally. There is a unit, but it is accidental because the subject, the substance, already having a substantial form, does not receive whiteness as its substantial and essential form. Thus the unit 'white thing' has two forms and not one overall determing form. This is the reason why any accidental form is said to be accidental; it does not essentially dominate and determine its subject so as to constitute with it an essential unit.

22. See question 2, article 3. St. Thomas is not denying the virtual identity of six with two times three or three times two. He is insisting on the formal idea of six.

23. —and not one of predicamental relation.

24. Marks of dialectical procedure are noticeable in this treatise on the Categories: (1) the frequency with which the author uses terms such

as *discussion, disputation, probable* and (2) the way in which he often points out, as here, that he is borrowing principles or conclusions from a science of the real world, physics or metaphysics. On the other hand, the reader cannot have failed to notice the occasional claims for strict formality and rigor. Having undertaken a discussion, John of St. Thomas is occasionally drawn to terminate it or at least to indicate very clearly what he considers to be its proper termination. On this matter see our Foreword. The dialectical character of such surveys in scholasticism serves a function in some respects paralleling phenomenology as a method: it is supposed to be tentative, descriptive, to proceed from intentions, and to abstain from any existential thesis. It differs from phenomenology chiefly by reason of its social and discursive character. It is considered to be not philosophy but philosophy in becoming, (a) in so far as man as a social animal is a social thinker and has much to learn from the discourse of schools, the history of problems, and the history of opinions and (b) in so far as it is ever tending toward, but essentially does not reach, judicative and ontological positions. Although the Logic of John of St. Thomas comprises no treatise of dialectic, his discussion of the Categories employs dialectic at least in part.

25. The translation of these three definitions is by R. P. Hardie and R. K. Gaye, in *The Basic Works of Aristotle* (New York: Random House, 1941).

26. With regard to the problem of the absoluteness of time we remark that the term 'absolute' has been proposed in at least three senses in this connection; in two of them time is not absolute according to Aristotelianism. *Absolute* can mean (1) having the character of subject. Then, to speak of time as absolute is to imply that time is the bearer underlying and supporting events. This is rejected because the true situation is considered to be just the reverse. The motion of events is held to be the bearer of time as 'that which endures' bears its measure. (2) Absolute has been taken to mean infinite and eternal. Because time is essentially relative to motion and the latter is contingent and therefore not infinite of itself, time is held not to demand to be infinite. On the question of the eternity of the world, Thomists hold that there is nothing, naturally speaking, against it, but neither is there anything positively for it. However, though there be no necessity for an eternal time, there is an eternal duration—that of the divine existence. (3) Time may be said to be absolute only if one is very careful not to mean by it anything more than *irreversible*. But even so, time is irreversible because what it numbers is irreversible, i.e., motion. And the latter is irreversible because the events of the stream of actual motion, even though they are contingent, have, as actual, an existential self-identity. It would be a contradiction for an event, which has been, not to have been and not to have been when and as it has been. Finally, time can be said to be absolute inasmuch as, ontologically speaking, location in time is independent of the standpoint from which it is observed. The philosopher is unable to ascertain the simultaneity of two events, but he does not hesitate to assert that either they did or they did not happen at the same time. When there is a question of *ascertaining* the simultaneity of two events, we are justly led to a relativistic notion of simultaneity;

but then the treatment of simultaneity and time is empiriometrical, not ontological.

27. The objection suggests that motion and time be considered a fourth dimension, i.e., that as the solid is related to the plane, so time is related to the solid.

28. Indivisibles and instants are admitted in time, motion and space only on the understanding that they do not exclude the genuine flow of the motion as a continuum—otherwise, Zeno's paradoxes. See the reference.

NOTES TO CHAPTER IV: (RELATION)

1. According to Alexander and Porphyry the expression 'to something,' which designates relation in Aristotle, was coined by Plato.

2. *Cat.* 7. 6^a36, E. M. Edghill (trans.) *The Basic Works of Aristotle* (New York: Random House, 1941). "Those things are called relative, which, being either said to be of something else or related to something else, are explained by reference to that other thing." 6^b6, "Those terms, then are called relative, the nature of which is explained by reference to something else, the preposition 'of' or some other preposition being used to indicate the relation."

3. 8^a28, E. M. Edghill (trans.). "Indeed, if our definition of that which is relative was complete, it is very difficult, if not impossible, to prove that no substance is relative." There is a particularly regrettable inaccuracy in this translation, viz., the use of the possessive 'our' where Aristotle uses, in noncommittal fashion, the definite article: ὁ τῶν πρός τι ὁρισμὸς (8^a29) means "the definition of the 'to something'".

4. 8^a31, E.M. Edghill (trans.). "If, however, our definition was not complete, if those things only are properly called relative in the case of which relation to an external object is a necessary condition of existence, perhaps some explanation of the dilemma may be found." This translation is inaccurate and renders unintelligible the theory of pure relation; it speaks of relation as mere "condition of existence" when Aristotle is endeavoring to convey the concept of a relation which *constitutes the whole entity* of the relative. We believe that the following is an exact translation: "But if [the definition of the relatives] was expressed unsatisfactorily, and if the relatives are *those things for which the 'to be' is the same as the 'to be related to something in some way,'* then something should perhaps be said against these." The underlined definition is repeated a few lines farther, 8^a39.

5. Literally: Those are *to something* . . . .

6. Here is a typical example of the guidance that faith and theology may exercise upon philosophical research. The theologian knows by faith and theological inference that there are in God real relations according to existence. This makes it easier for him to acknowledge the reality of pure relations in this world of ours. Owing to the certainty of the theological fact, he enjoys a facility contrary to the handicap suffered by the mystical metaphysicians whom Bertrand Russell described as constitutionally biased against the reality of pure relations.

(*Our Knowledge of the External World*, Chicago and London: Open Court Publishing Company 1929, pp. 48-50.)

7. By "mere figments" John of St. Thomas means beings of reason without a foundation in the real. As known, such beings of reason (chimeræ, undines, zombis, etc.), though made of elements found in nature, have no law, no consistency, and cannot be the object of any scientific treatment. Logical entities are relations of reason; they are famous for the inflexible necessity of their laws. The argument of John of St. Thomas is that the only thing which can supply a real foundation for relations of reason is real relation according to existence. In other words, if there were no real relations according to existence, no relations of reason would have the character of necessary and scientific objects: the very existence of logic destroys such a supposition.

8. It is hardly necessary to point out that in the present connection 'movement' is taken metaphorically and 'end' has no teleological signification.

9. These are suggested translations for expressions generally left untranslated, *relatio secundum dici*, *relatio secundum esse*.

10. Thus the clear teaching of John of St. Thomas, based on these texts of St. Thomas, is that the relation according to expression, or transcendental relation, is not simply a relation but rather a 'related' i.e., relation *plus* foundation. What is primarily signified is that foundation upon which the relation follows; such foundation is absolute and is placeable in an absolute category. For example, 'potency is expressed in relation to act,' i.e., it is a relation according to expression and as such is not a pure relation placeable in the category of relation but a transcendental relation, a 'related' to be placed at least reductively in absolute categories—and first of all in that of substance. Moreover, its being a relation does not consist in its exercising a relation but in its connoting its term, which has in this case the formality of cause. Potency is related to act as to the cause of its fulfilment.

11. J. Whether the transcendental relation implies some imperfection and dependence and consequently cannot be attributed to God is a question which concerns metaphysicians and theologians.

12. The use of the word 'relative' in the definition of relation recalls that supreme genera are not definable. What we call the definition of a category is only a pedagogical substitute for a definition. In Latin the preposition *ad* makes it possible to conceal the inescapable presence of the term to be defined in the definition. A literal translation would read: "a real form whose whole to be is *to* something else."

13. It is striking that what is, at this level of abstraction, not determinately a real form should still have a positive character. In contrasting this positiveness with the negation of reason, elucidation may be gained from the consideration that, as determinately not a real form but a being of reason, the relation of reason is positive and divides the genus with the negative being of reason or negation of reason. See q. 1. a. 1.

14. Four kinds of opposition are described by Aristotle, or an Aristotelian compiler (*Cat.* 10-11): relation, contrariety, privation, and contradiction.

15. The objection hypostasizes relation taken in general and then asks that it face a concrete term. John of St. Thomas' answer is that

since relation in general is 'any relation whatsoever' its term is 'any term whatsoever' and not a determinate one. By pointing out that a parallel difficulty can be raised concerning substance in general, he indicates that the difficulty is not proper to the issue of relation but arises from a common failure to appreciate the state of abstraction and generality as an objective state—i.e., of presence to the mind.

16. The community spoken of is, of course, merely analogical.

17. J. The problem of actual infinity will be discussed in the explanation of the third book of Aristotle's *Physics*, i.e., *Phil. of Nature*, 1. q. 15. a. 1-2.

18. Proper emphasis on the word 'naturally' makes it clear that this text does not declare impossible the production by the First Cause of an actually infinite multitude of things. This question is left open by St. Thomas, *On the Eternity of the World*, conclusion, in *Opuscula omnia necnon Opera minora*, J. Perrier (ed.) (Paris: Lethielleux, 1949); i. 52. Cf. James A. Anderson, *The Cause of Being* (St. Louis and London: Herder, 1952), chap. 4.

19. Let *a* be the known object; it is extrinsically denominated 'known' on account of the knowledge really existing in the knower (*b*), which is really related to the object (*a*).

20. J. This does not apply to God. After having produced an effect, God can reproduce it.

21. By "formal effect" John of St. Thomas means that which follows upon the exercise of formal causality, in contradistinction to the unqualified effect, which proceeds from the agent or efficient cause.

22. The best sign of real distinction, separability, is not its indispensable mark according to the Thomistic theory. For Scotus, on the contrary, there is no real distinction without separability.

23. The text of the Reiser edition ($592^{a}13$) reads "illa formalitas, quae destruitur aut ponitur, quando destruitur relatio"; the meaning obviously requires the repetition of the words *"aut ponitur"* between the latter *"destruitur"* and *"relatio."*

24. Identified with it in all ways except in the way in which a real mode is distinct from the thing modified.

25. 'Reality,' taken, as it is here, in opposition to mode, designates a degree of reality higher than that of the mere mode. It is by no means implied that the mode is not something real.

26. Let it be recalled that the *Summa of the Whole Logic of Aristotle* is definitely not the work of St. Thomas.

27. More probable, i.e., than the opposite opinion, which is hereby granted some amount of probability.

28. Yet St. Thomas concludes that "Christ is *really* said to be the son of the Virgin Mother by reason of her real relation of motherhood to Christ."

29. Consider two white things, *a* and *b*. The relation of resemblance is mutual, in other words, *b* is related to *a* as really as *a* is related to *b*. The objection speaks of the relation of *b* to *a* and declares that it is a concomitant of the relation of *a* to *b*, but not its term.

30. Reiser ed. ($604^{b}31$) "sicut in uno subjecto sunt infinitae proportiones partium..." From the context, an obvious mistake for "non sunt."

31. J. On this see Soto, *Com. On the Dialectic of Aristotle*, chapter on the Relatives and chapter on the Modes of Simultaneity.

NOTES TO CHAPTER IV: (QUALITY)

1. *Cat.* 8. $8^{b}25$.

2. *Cat.* 8. $10^{a}27$. "These, then, are qualities, and the things that take their name from them as derivatives, or are in some other way dependent on them are said to be such and such." Translated by E. M. Edghill, *The Basic Works of Aristotle* [New York: Random House, 1941.] Aristotle's explanation of quality centers about the relation between the concrete adjective ποῖος (such and such) and the abstract noun ποιότης (quality). This relation, in Greek and in Latin as well (*quale, qualitas*), is evidenced by an etymological unity for which there is no equivalent in English. If it were permissible to coin the word "such-and-suchness" and to say "such-and-suchness is that on account of which we are said to be such and such," the structure of the Aristotelian definition would be more easily understood.

3. This definition of mode is from St. Augustine, *Commentary on the Genesis*, iv. 3.

4. J. More on this when we study in detail the particular species of quality.

5. Of all the scholastic words reputedly untranslatable into any modern language, *habitus* is the only one which we have decided to use as if it were fully anglicized. We simply had no choice. Translating *habitus* by *habit*, as some still do, is worse than inaccurate: it is anti-pedagogical. Between the characteristics of *habit* and those of *habitus*, the contrast is such that any meaning conveyed by the word *habit* is a heavy obstacle to the understanding of *habitus*. Again, there can be no question of changing the meaning of the word *habit* by frequently using it in the sense of *habitus*. According to derivation, *habit* might have meant the same as *habitus*, but at the time when modern philosophic languages were formed, the concept of *habitus* was absent from philosophic thought. The usage of Hume, constantly followed by British and American philosophers and psychologists, has forever obliterated the possibility of *habit* taking on the meaning of *habitus*. A habitus is a quality characterized by *essential* steadiness. In the case of an operative habitus, steadiness is guaranteed by necessity in the object. The steadiness of a habit, on the other hand, is a mere effect of repetition. Steadiness resulting merely from multiplied acts—the steadiness of a habit—deceptively imitates the steadiness of objective necessity. Hume attempted to show that the causal interpretations of science have only the steadiness of a habit. In Aristotelianism, science, art, and moral virtues are habitus: their steadiness is guaranteed by objective necessity. A stubborn opinion has but the steadiness of a habit: there is no necessity in its object. The virtuosity which resides in the fingers of the virtuoso is but a habit whose privilege is to act as the instrument of the habitus of art. There is a good reason for refusing to translate *habitus* by habit: what is at stake is the very notion of objective necessity.

The difficulties of the situation are increased by some irregularity

in the use of the word *habitus*. Following the example of Aristotle, St. Thomas and his commentators are very particular about the precise meaning of technical terms whenever extreme precision is needed, but, as soon as the context does not require so much precision, they relax and use technical terms in a broader sense. If the notion to be expressed is that of a disposition whose steadiness results from an essential necessity, a disposition whose steadiness is merely factual will be said not to be, by any means, a habitus. Science and opinion, for instance, will be set in sharp contrast as habitus and mere disposition. But there are many contexts in which it is not necessary to determine whether the steadiness of a disposition is essential or purely factual. This happens when the purpose is to distinguish a lasting disposition—e.g., science, opinion—both from mere ability—e.g., the intellectual power—and operation—e.g., the exercise of scientific thought or that of opinion. In terms of act and potency, what matters is not so much the ground of steadiness—a repetition of acts in habit, an objective necessity in habitus—as the property of *outlasting the actuality of operation*. Just as a mathematician remains actuated by his science when he thinks of no scientific object, so the man of stubborn opinion retains his opinion even in distraction or in sleep. Both opinion and science have the character of lasting 'first acts,' lasting 'intermediary potencies.' Very often the word 'habitus' is used without any reference to the ground of the disposition's steadiness and designates, with no further specification, a quality which lastingly determines a power in relation to operation. In this sense, the expression 'habitus of opinion' is used side by side with the expression 'habitus of science.' See, for instance, question 26, articles 4 and 5 of the present work.

6. The word 'passion' has two meanings in this sentence. In the *second* place it designates the opposite of transitive action, i.e., the act by which a subject undergoes the transforming influence of an agent. Passion so understood is a distinct category. In the *first* place 'passion' designates a quality brought about by such influence. If the quality so brought about is enduring, it is preferably called passive quality. An example of passion as quality would be the physiological disturbance which constitutes the material side of such an emotion as fear. The corresponding example of passion as mere opposite of action, and distinct category. would be the very undergoing of the fearful threat.

7. I.e., i-ii. 49. 2.

8. J. Impressed ideas seem to be numbered among habitus by St. Thomas in i-ii. 50. 6.

9. J. It is mostly with regard to the natural order that this is a debatable issue. [Tr. The obvious implication is that with regard to the supernatural order there certainly is such a thing as a purely passive capacity, commonly called *obediential potency* by theologians.]

10. J. Assuming that the capacity under consideration is natural. [This specification is obviously designed to set apart the case of supernatural powers.]

NOTES TO CHAPTER V

1. The division of sign into 'instrumental' and 'formal, or intentional,' can be explained as follows: An instrumental sign cannot

signify, i.e., lead to the knowledge of something distinct from itself, without first being, in its own right, an object of knowledge. A formal, or intentional, sign is one that leads to the signified without first playing the role of known object. Smoke is instrumental sign of fire, written words are instrumental signs of spoken words, etc. In Descartes' theory of knowledge, ideas are instrumental signs of things; e.g., the mind first knows its own idea of extension and then attains the extended thing by causal inference inasmuch as an extended thing alone can account for the presence in the mind of the clear and distinct idea of extension. But in the Thomistic theory of knowledge, those ideas (*species*) which are signs (for not all are) lead to the thing signified without first terminating any act of knowledge. They are not 'that which' is known except in reflection. A formal sign is an absolutely pure one. This can be easily understood by considering the opposition of the *sign* and the *screen*, and the risk of the sign's being perverted into a screen. Any instrumental sign, inasmuch as it terminates cognition, is in danger of not leading to the cognition of the signified. It happens, for instance, that well-sounding words and harmonious sentences attract so much attention that none is left for the things that words and sentences are supposed to signify. John the Baptist was the sign of Christ and expressed the law of the sign as he said: "He must increase, but I must decrease" (John. 3. 30). The perfect sign decreases absolutely, achieves absolute transparence, and retains nothing of the nature of the screen.

According to John of St. Thomas, who is responsible for magnificent progress in the theory of signification, expressed ideas (*species expressae*) alone are formal signs. Such ideas are found in the intellect (concepts) and in the internal senses (e.g., memories). Initial ideas (*species impressae*) resemble formal signs inasmuch as they, also, serve to the knowledge of the object before becoming themselves—by reflection —known objects; but on account of their intial place in the cognitive process, they do not have the character of signs.

On the division of sign into instrumental and formal, and on the decisive role played by the notion of formal sign in the explanation of knowledge, see question 22 of the present work and the studies of Professor Maritain in *Les degrés du savoir* (Paris: Desclée De Brouwer, 1932), chap. 3 and Annexe 1, and *Ransoming the Time* (New York: Charles Scribner's Sons, 1941), chap. 9. See also J. Wild, "An Introduction to the Phenomenology of Signs," *Philosophy and Phenomenological Research*, Buffalo, Vol. 8, pp. 217-33 and the ensuing articles of the discussion in the same review.

2. From now on, we shall use 'pure relation,' for 'relation according to existence' and 'mixed relation' for 'relation according to expression' whenever the context admits of such simpler wording.

3. "The term . . ." i.e., the term of the transcendental relation of cause to effect, or of effect to cause, etc. If cognition begins with the effect, the "term" is the cause.

4. The word translated by 'idea' is *species*, in psychology and epistemology one of the most embarassing expressions of the scholastic language. Against the use of 'idea' for *species* it can be objected that we have no other word than 'idea' to translate the Latin *idea*, whose meaning will be hard to convey if the word to which it is intrusted conveys also another notion of very frequent occurrence. In our opinion,

this difficulty is inevitable and ought to be taken care of as best we can in each particular case. We have no choice, for 'idea' alone can express with the needed vividness the meaning of the Aristotelian εἶδος and of the scholastic *species*.

The scholastic usage of *species* in psychological and epistemological contexts is fixed by Aristotelian sentences the most famous of which is: οὐ γὰρ ὁ λίθος ἐν τῇ ψυχῇ, ἀλλὰ τὸ εἶδος. *On the Soul* 3. 8. 431^{b}29. J. A. Smith *(The Basic Works of Aristotle* [New York: Random House, 1941]) translates: "... it is not the stone which is present in the soul but its form." This is a perfectly accurate translation, but the word 'form' is of no help in our endeavor to figure out precisely what is present in the soul when the stone is perceived. The theory of cognitive "forms," which, in Aristotle, involves much obscurity, has been greatly clarified by St. Thomas and his commentators. With particular reference to its treatment by Cajetan and John of St. Thomas, it can be outlined as follows: Knowing is a certain way of being, primarily distinguished by the paradoxical ability of the knower to be not only what it is but also what other things are. *(On the Soul* 3. 8. 431^{b}20, "Let us now summarize our results about the soul and repeat that the soul is in a way all existing things." Translated by J. A. Smith.) The mode of existence according to which the soul is all things is described as immaterial, spiritual, objective, *intentional*, transsubjective, in opposition to the mode of existence according to which things are just what they are, and which is called material, *physical*, natural, entitative, subjective. Here, as elsewhere, existence is intelligibly prior to what bears it, and the contrast between, say, the stone and its "form" must be understood in relation to an intelligibly antecedent contrast, viz., that between the physical and the intentional ways of existing. "Notice, Cajetan writes *(Com. on Summa theologica*, i. 55. 3), that there are two genera of beings. Some are primarily designed to exist, although, secondarily, they may happen to represent other beings, and these we call *things*. But some beings are primarily designed by nature to represent other beings: and these we call intentions of things, and sensible or intelligible *species*. The reason why it is necessary to posit these two genera is that the cognitive must be not only itself but also others, and the intellective, all things, as established [by St. Thomas' exposition] in i. 14 and by the consensus of the philosophers, who agree that like is known by like. Now the natures of things cannot be present in the cognitive with their own entity. It is not the stone which is present in the soul. Again, the knower cannot, by its finite substance alone, be so excellent as to have in itself the means of assimilating the natures of the knowable things, distinctly and according to their proper features. Thus it was necessary for nature to establish the intentional being, by means of which the knower is the knowable."

The intentional form of Aristotelianism (εἴδεος) has sometimes been confused with the simulacrum of the Epicureans (εἴδωλον). In the terms of Cajetan's exposition, it is clear that the Epicurean simulacrum remains a *thing*, i.e., an entity of the first genus, which is defined by the existential function of existing. The simulacrum is a small thing, which inconspicuously accomplishes feats that big things could not conceivably accomplish, viz., getting through the pores of the skin, reaching the subtle center of the body, etc. But just as the intentional 'to be' of the

Aristotelians is by no means a physical existence, so their "intentions" and "sensible and intelligible *species*" are no things. They are defined by their being related to 'to be intentionally' as things are related to 'to be physically.' To designate such entities, there is only one word, the word 'idea.' The two systems described by Cajetan are the system of the things and the system of the ideas. We commonly use 'ideas' not in its Augustinian and scholastic sense of creative pattern, but in the sense of intelligible "*species*." Much can be learned about Aristotelian psychology and theory of knowledge by extending the use of 'idea' to the *species* of all cognitive powers. There are ideas in the intellect and in the imagination and in the memory and in the external senses. Aristotelian views on sensation, so wretchedly expounded most of the time, become intelligible when we understand that Aristotelianism is the philosophy which posits ideas not only in the intellect and in the imagination and in the memory but also in sight and hearing and touch. Other philosophies know of ideas born in the soul, e.g., intellectual representations consequent upon images, images consequent upon sense impressions. But Aristotelianism knows of ideas that are initial in an absolute sense and are not born in the soul but in nature. The sensorial idea is the Aristotelian answer to the problem of the initial connection between physical nature and the soul. Those things are impossible to explain if we translate *species sensibilis* by sensible 'species' or 'form' or anything short of the thought-provoking power of the word 'idea.'

5. What John of St. Thomas says on the accidental character of the division of cognition into intuition and abstraction does not by any means signify that cognition is possible without a power of intuition. In fact, no one ever emphasized more convincingly than John of St. Thomas the necessity for every abstractive cognition to be grounded in intuition and ultimately in cognitions intuitive by essence, i.e., so related to the physical presence of their object that the exercise of such cognitions without a physically present object would involve contradiction. On this, see article 2 of the present question and *Phil. of Nat.* iv. q. 6. a. 1. In the latter place, the statement of the problem is as follows: Is it within the power of God to allow a sensation to be elicited without its object being physically present? This question is answered in the affirmative by Suárez who holds that a sensation without a physically present object is an abstractive cognition but remains a genuine sensation. The argumentation of John of St. Thomas consists in showing that the physical presence of the object pertains to the very specification of sensation, so that a sensation conversant with an absent object is a contradictory fiction. The reason why the senses are said to be, by specification, powers of intuitive cognition is that they hold the ultimate place in the system of our knowing powers. Whether we consider the origin of our cognitions or the term of their analysis, there is nothing beyond sensation. In order that human knowledge be grounded in physical existence by sensation, the intuitive character must belong to sensation in essential manner. But if human knowledge were not grounded in physical existence by sensation, it would not be grounded in physical existence at all and would, consequently, be devoid of certainty. The metaphysical principle underlying this argumentation is that *no cognition is certainly related to being unless the most basic cognition is essentially relative to existence.*

6. The title of *On Truth* 3. 3 is "Do Ideas Belong to Speculative or Only to Practical Knowledge?" Objection 8 reads: "God's speculative knowledge seems to be the same as His simple knowledge. God's simple knowledge, however, is nothing other than bare knowledge. Now, since an idea adds a relation to things, it seems that an idea does not belong to His speculative knowledge but only to His practical knowledge." Here is the answer referred to by John of St. Thomas: "We speak of God's simple knowledge, not to exclude the relation which His knowledge has to what He knows, for such a relation is inseparably joined to all knowledge, but to exclude from it things that are outside the genus of knowledge. Such things are the existence of things (which is added by His knowledge of vision) and the relation of His will to the things that He knows and will produce (which is added by His knowledge of approval)." Translated by Robert W. Mulligan, *Truth* [Chicago: Henry Regnery, 1952].

7. "The equivocal man": i.e., the word 'man' as predicated of man and of a picture of man.

FOOTNOTES ON CHAPTER 6

1. Reiser ed., $754^{b}40$: "quia est," an obvious mistake for "quid est."

2. This is the translation of the text quoted by John of St. Thomas. There are differences between this text and the text of the Parma and Leonine editions, but they are only literal and do not affect the theory.

3. The Latin verb *addiscere*, to learn, and the noun *disciplina* have obviously the same root. The paraphase "that disciples intend to learn" is designed to convey this etymological relation.

4. Reiser ed. "Item illud an est, quod praesupponitur de subjecto et de passione..." It is impossible to doubt that 'non' must be inserted between "et" and "de passione." For one thing, the objection is supposed to sum up what is held by the Aristotelians, who never held that the question 'whether the thing is' must be answered antecedently with regard to the property; moreover, if the objector attributed such a position to the Aristotelians he, as an objector, should hold that *no* antecedent knowledge of the property's existence is required; in fact, the objector goes on to say that such antecedent knowledge *is* required. See beginning of the following paragraph.

4a. Anton C. Pegis (trans.), *Basic Writings of Saint Thomas Aquinas* (New York: Random House, 1945).

5. These words seem to be a digest of *Post. An.* 1. 1. $71^{a}16$-26.

6. 'Assumed,' here, does not mean postulated: it is used in opposition to *subsumed*, and simply means taken, received, assented to through its own power and not under the power of another premise.

7. The inclusion spoken of here is not simply a matter of extension. True, in the second case Peter is so included in man, but in the first case intellectuality is not simply extensionally included in immateriality, since it is "convertible with it."

8. John of St. Thomas prefaces each of his treatises with a literal

summary of Aristotle's corresponding work.

9. John of St. Thomas, after St. Thomas himself (*Com. on Post. An.* 1. les. 1), follows the interpretation according to which the enthymeme is a syllogism short of one premise. Thus, the division into regular syllogism and enthymeme would concern formal logic. It seems that this interpretation of the enthymeme is due to the insertion of the word ἀτελῆς (imperfect) in *Pr. An.* 2. 27. $70^{a}10$. If this word is left out, the definition of the enthymeme reads: "A syllogism starting from probabilities and signs." The notion of enthymeme would, accordingly, concern the material character of the premises and pertain to material logic. Against the interpretation of the enthymeme in terms of formal logic, the following consideration seems to be decisive: the logical form of a reasoning is not determined by what is expressed in spoken words but by what actually takes place in the mind. If there are two premises in the mind, it makes no difference, from the point of view of formal logic, that one of them should remain unvoiced; this is granted by John of St. Thomas inasmuch as he says that there is complete syllogistic form if the unexpressed premise is understood. But, if the unexpressed premise is not understood, at least in some implicit and possibly subconscious way, it seems that no inferential power is left. On the enthymeme, besides *Pr. An.* 2. 27, see *Rh.* 1, chaps 1 and 2. A very interesting discussion is found in H. L. Mansel, *Artis Logicae Rudimenta*, from the text of Aldrich, Appendix, note E, *On the Enthymeme*, Oxford, William Graham, Whitaker and Co., London, 1849, pp. 40-49. See also Cajetanus Sanseverino *Logica*, Part I, chap. 2, a. 5, in *Philosophia Christiana*, Naples, apud Officinam bibliothecae catholicae scriptorum, 1878, Vol. 2, pp. 362 ff.

10. Aristotle's definition is part of an infinitive proposition dependent upon the expression "it is necessary that ..."; the verb connecting the definition with the defined is the infinitive εἶναι, *to be*, followed by the preposition ἐξ, *out of*.

11. *Post. An.* 1. 2. $72^{a}29$. See also *Met.* 2. 1. $993^{b}23$: "... a thing has a quality in a higher degree than other things if in virtue of it the similar quality belongs to the other things as well." (W. D. Ross's trans., *The Basic Works of Aristotle*, ed. Richard Mc Keon [New York: Random House, 1941]).

12. "Virtues are dispositions of what is perfect to what is best." This definition is found in the translation of the *Physics* upon which the commentary of St. Thomas is based. (Ph. 7. les. 5 of St. Thomas.) The text established by modern editors does not contain this sentence which, however, can be considered a sharp summary of Aristotle's remarks on virtue in this passage of the *Physics* (7. 3. $246^{a}13$-16); see also *On the Heavens* 1. 11. $281^{a}14$-18.

13. The term 'first property' is reciprocal with that of first subject. Hence, a first property of a subject is one that belongs to that subject as to the first one to which it actually and properly attaches. Thus, in the proposition 'man is teachable,' the predicate attaches to the subject as to its first and proper bearer. True, 'the Eskimo is teachable,' and 'some animal is teachable,' but teachability here is a second actual property of the Eskimo only inasmuch as he is a man, and a second potential property of animal inasmuch as the first subject of teachability, man, lies within the potency of the genus animal.

14. We see John of St. Thomas making in exercise a distinction that he does not treat of explicitly in his ex professo theory of distinctions. There is question as to what sort of distinction holds good between a subject conceived in a simple manner (*simplex "voce"*) and the same subject as unfolded in its definition (*complex "voce"*). Concretely, in the definitional proposition "man is a rational animal" what sort of distinction obtains between subject and predicate? Not being real, it is a distinction of reason—the Latin here is ". . . definitione quae ratione distinguitur a subjecto . . ." (Reiser, ed., 783[a]4-6). But what sort of distinction of reason? It does not seem to be the ordinary sort of distinction of reason effected by the reasoner (distinctio rationis ratiocinantis), between whose terms there is only a difference of names, e.g., Lemberg and Lwow. Nor does it seem to be a distinction between aspects reasoned about (distinctio rationis ratiocinatae) of either the major (e.g., between rationality and animality in man) or the minor type (e.g., between 4 and $\sqrt{16}$)—the nontautological and nonreal distinctions that are often called "logical." For, the subject and the predicate in a definitional proposition are not distinct as aspects. These are all the sorts of distinction of reason outlined in John's explicit theory, and what we have here fits into none of them.

It may help to view the situation psychologically and to say that there is a difference in the mode of presentation: man is the reality presented in an incomplex way and rational animal is the same reality presented in a complex way. But what can such a solution mean? One cannot pretend to answer a question of objectology by a psychological solution. It cannot just mean that there are two distinct formal concepts. Granted, there are. But formal concepts are intentional, they are about objects. So the question is thrown back to the objective presence. True, the difference between grasping a whole by one hand (simple concept) and by two (complex concept) is a difference as to hands (formal concepts). But there is also between the two cases a difference in contact of *the whole* with the hands. In other words, the difference as to complexity and incomplexity is formal, but this complexity is felt objectively. There is a difference *objectively* between man and rational animal. The complexity is objectivized, seen, considered.

In consequence, it may be necessary explicitly to expand the theory of the distinction of reason effected by the reasoner and to differentiate here also between a minor distinction (Lember-Lwow) and a major distinction. The major would be the distinction between the definitum and its definition. The significance of such an explication would be a better recognition of the nature of the great work effected by the reason in defining. It would then be appreciated that although such a distinction between the terms of a definitional proposition is not an objective or "logical" distinction between aspects reasoned about, there being no difference in the intelligible content of the two terms, neither is it just tautological, but rather objectivized in the sense that one views the difference between the holistic aspect (man) and the synthesis of partial aspects (rational animal) of the same thing.

15. Thus, if we change the proposition so that it reads 'the rational animal is teachable,' then, there being no middle term between subject and predicate, the proposition is rendered indemonstrable.

16. Together these two formulas encompass the same case, i.e.,

that there is such a thing as an a priori demonstration of fact. Although hardly anyone would suppose that there be such a thing as an a posteriori explanatory demonstration, there is a strong temptation on the part of many simply to identify the a priori with the explanatory, and the a posteriori with the factual, thus supposing that there is no a priori demonstration of fact. This twofold formula is aimed at such facile linkage. There are, then, three valid combinations: *(a)* the a priori and explanatory, *(b)* the a priori and of fact, and *(c)* the a posteriori and of fact. The a posteriori and explanatory is null.

17. This being true of many mathematical demonstrations, it would remain to investigate what bearing such an observation has upon the frequent occurrence of interdefinability in mathematics. Just as the middle term in such a mathematical demonstration appears not to be related to the predicate of the conclusion by the priority of essence to property, but both are simultaneous or on an equal footing, so it would seem that these two terms are mutually definitive of each other. Aristotle says that a definition is indeed a demonstration and differs from the latter merely by position. Accordingly, choice between which of the two terms is to be viewed as definitum or conclusion and which is to be viewed as definition or premise would be relative to the order of the whole system rather than to the particular figure or number at issue, and thus a question of economy in its original sense of the keeping of a whole household. What makes economy decisive in mathematics is the fact that in this realm there are no subjects. Thus, to exceed the triangle itself, by extending its lines beyond it and even adding new lines outside it from which we explain some property of it, is not a violation of a subject-essence but merely the explication to ourselves of the fact that the triangle is just a momentary part of the larger whole which is the object of our adequate interest, the undifferentiated continuum of intelligible matter. Hence, an exploitable kinship between mathematics and holoscopic philosophies of an idealistic or Platonic stamp. In the philosophy of nature, things are very different. One does encounter subjects, strident in their plurality and each a very real unit unto itself. There are subjects, supposita, and some are even persons. The axiom, "the whole is before the part," has a very different value in mathematics and in the study of nature. It applies with much greater facility in the former.

18. E.g., man is able to learn geometry. This proposition is simply convertible, by reason of its matter; yet there is a mediating idea between the two, *viz.*, intellect and imagination: man is able to learn geometry because he has an intellect and an imagination, and what is able to learn geometry is a man because it has an intellect and an imagination. As properties of a prior order, the latter mediate between the essence and the properties of inferior order, such as the ability to learn geometry.

19. Of course, such an argument would be only probable, though very important in all science, as here in symptomatics. Furthermore, by the addition of other signs or symptoms, the physician can bring such probability to greater and greater verisimilitude.

20. To summarize, *remote* as said of a cause has three meanings: (1) convertible and strictly proper, but mediate (what is strictly proper is what is exclusively and universally proper, and hence both infers and is

inferred by its cause or subject)—e.g., man with respect to the ability to learn geometry; (2) inconvertible and mediate, and not proper exclusively and to all instances—e.g., fever with respect to fast pulse, fever is not the exclusive cause of fast pulse; (3) inconvertible and mediate, but not proper to all instances, though proper exclusively—e.g., animal with respect to breathing, breathing in the sense defined is exclusively proper to animal but not to every animal.

Or, (1) let *a* be 'man'; *c* be 'ability to learn geometry'; *b* be 'having an intellect and an imagination. Then, $(x) . (ax \supset cx) . (cx \supset ax)$, but this is true because $(x) . (ax \supset bx) . (bx \supset ax) . (bx \supset cx) . (cx \supset bx)$. In other words, *a* and c are sufficient and necessary conditions of each other, but not immediate conditions of each other, whereas *a* and *b* and *b* and c are not only sufficient and necessary, but also immediate conditions of each other. At this point, the lack of a symbolism for mediacy and immediacy becomes apparent. Owing to the neglect of posterioristics at the time when symbolic logic began to develop, and to the tendency of the objects of its parent, mathematics, to have a simultaneous character (so that *a*, *b*, and c would be only arbitrarily so ordered for reasons of economy, cf. note 17 in this article), no symbolism has thus far been developed for the most basic posterioristic intentions. (2) Let *d* and e represent 'fever' and 'fast pulse.' Then, $(x) . \sim (dx \supset ex) . \sim (ex \supset dx)$. Thus d and e are neither sufficient nor necessary, conditions of each other. (3) Let *f* and *g* represent 'animal'and 'breathing.' Then $(x) . (gx \supset fx). \sim (\sim gx \supset \sim fx)$, but, by contraposition, $(x) . (\sim fx \supset \sim gx). \sim (fx \supset gx)$. In other words 'breathing' in the sense defined (pumping air) is a sufficient condition of 'animality,' but not a necessary one; whereas 'animality' is a necessary condition of 'breathing,' but not a sufficient one. Another way of stating the latter is to say that 'animality' is generic with respect to 'breathing' and admits also of nonbreathing species.

21. From the example repeated, it is apparent here that such a cause is remote in the third sense listed in the foregoing. Not even the negative argument is posterioristically valid in the case of the second sort of remoteness, but has merely the same sort of probability as its corresponding affirmative argument.

22. Here the remoteness of the cause is of the first type. A mediate property is what has been called above a property of a posterior order, e.g., the ability to learn geometry as contrasted with intellect and imagination, properties of a prior order.

23. G. R. G. Mure (trans.), *The Basic Works of Aristotle* (New York: Random House, 1941).

24. The word used by St. Thomas to designate both the intellectual power and the habitus of first principles is *intellectus*, intellect. The translator has a choice between 'intellect' and 'understanding.' We prefer understanding as more idiomatic in the case of the habitus. But the etymological considerations contained in this text of St. Thomas make it necessary, to prefer, by exception, 'intellect' to 'understanding.'

25. St. Thomas traces *intelligere*—to know intellectually, to understand, to think—to *intus legere:* to read inside. Rather, *intelligere* seems to be derived from *inter legere*, 'to read between,' as in the expression 'to read between the lines.'

26. *Blessed science* is a contracted expression for the science of the blessed, the science which makes men blessed or happy, and thus is beatific or happiness-causing. The blessed are the saints in heaven. Such beatific science is the immediate vision of God; accordingly, the term *science* as here used does not convey the strict sense involving a notion of rational process and mediacy, but simply means knowledge.

27. It is to be noted that the subject of the superior science is simply the modification connoted in the subject of the subalternate science, whereas what is "essentially" considered by the subalternate or inferior science as its subject is the "accidental" difference. The paradoxical language is due to a diversity of standpoints. The accidental difference, e.g., visual, is said to be accidental to the subject of the subalternating or superior science, e.g., the line as a subject in geometry. But it is what is essentially the subject of consideration in the inferior science.

One should bear in mind the technical difference assumed by the terms *subject* and *object* in contexts such as this where questions pertaining to the objectology of science are under discussion. (*Infra* q. 27, a. 1, second thesis; St. Thomas, *Com. on Post. An.* 1. les. 41; Cajetan, *Com. on Summa Theol.* i. q. 1; J. Maritain, *De la philosophie chrétienne* (Paris: Desclée De Brouwer, 1933), chap. 1.

Subject does not mean the middle term of the explanation but the subject of the conclusion. Thus, in optics, the middle terms are geometrical, but the subject is essentially optical. It is the geometrically intelligible linear character of the visual which serves as the middle term, or explanatory principle, of the visual. But optics as a habitus of conclusions, i.e., a science, comes to rest and *terminate* in the visual as the *subject* of those conclusions. However, we may add that since the geometrical character of the middle term is precisely the borrowed light and principle of explanatory power in the achievement of those conclusions, it is indeed "modification" from the standpoint of *principle* and *object quo* of the optical science.

27a. The term *accidental* here designates something else than the "accidental difference" discussed in the foregoing. The "accidental difference" was the visible, the essential subject of optics, whereas the "accidental entity" spoken of here is the linear, geometrical character "connoted and obliquely implied" by the visible. Such a geometrical factor is needed "in order to ground such truth," i.e., in order to serve as explanatory basis or principle of the properties which optics concludes therefrom about its subject.

28. Here the essentiality spoken of is that of the explanatory principle, and no longer that of the subalternate subject, as in the foregoing.

29. This observation, incidental to this article, is rather important in its own right, for it shows how John of St. Thomas would answer the attacks of the dialecticians who deny self-evidence altogether on the empirical grounds that many do not see as self-evident propositions that others claim to be such. The fact that a particular proposition is self-evident in itself is no guarantee that a certain scientist will recognize it as such, for he may lack the explanation of the meaning of the terms. In fact, his mind may be systematically bent away from those meanings by his particular scientific habitus. The incumbent search for such explanation may assume the form of discourse (this may be conceded to Pierce),

though such should be true rather of the negative elucidation (Aristotle's reduction to impossibility is a discourse that negatively elucidates the principle of noncontradiction) than of the positive. Even the latter, however, may accommodate itself to the rational or discursive mode of the intellect. But essentially such research is purely intellectual, being phenomenological or rather, ontological, and simply makes use of discourse for purposes of order and communication.

30. By vision is meant the intellectual act of knowing with evidence. The connection is apparent in Latin owing to the fact that *vision* and *evidence* are from the same root. Such evidence can be presented mediately or immediately. Vision does not exclude mediacy, for we can be said to see the conclusion in the evidencing light of the premises, but the term naturally tends rather to mean immediate vision, owing to the analogy with physical sight.

31. Faith and opinion are not *intrinsically* perfected or fulfilled by vision. They are supplanted. This is true of all faith, both natural and supernatural. Faith being essentially imperfect because it is an inevident habitus, and essentially substitutive, there is no longer any need for it when the reality is made evident. Thus the saints in Heaven are held to be faithless, except in so far as they retain a willingness to believe, should what they see, *per impossibile*, be removed from them.

32. Thus the Thomists, insisting that faith is a radically imperfect and inevident habitus, and that theology, in itself an evident habitus, is imperfect only in this life by reason of its accidental status of dependency upon faith, conclude that though faith does not endure in Heaven, theology does, and is there fulfilled with evidence, achieving its connatural status.

33. In opposition to supernatural, or divine faith.

34. 'Firm' is used here in the sense of determinate: by saying that there is no firm assent in doubt, John of St. Thomas means that doubt implies the total indetermination of assent. Elsewhere, 'firm assent' is used in opposition to 'weak assent'; in the latter sense, not only doubt but also suspicion and even opinion are said to be devoid of firm assent.

35. J. When God moves a soul to an act of faith, the following order obtains: first the will is acted upon, then, through the will, the intellect. It is by choice of the will that the intellect is determined. See St. Thomas, *Com. on St. Paul's Epistle to the Hebrews*, chap. 11. les. 1.

36. Attention to the context shows that the word 'subjective' conveys no connotation of arbitrariness or nonrationality. To call 'subjective' the attitude of belief is the same as to declare that the inevident object is radically unable to complete the determination of the mind.

37. The translation fails to convey the etymological relation between *evidentia*, evidence, and *videri*, to be seen.

38. Let us recall that for St. Thomas the internal senses are four: central sense, imagination, estimative, and memory. Estimative comprises both what we call instinct and what we call animal intelligence. It perceives, whether by innate ability (instinct) or as an effect of individual experience (animal intelligence), significations which do not appear to the external senses, such as the useful and the harmful. In man, the estimative is called cogitative; this different name is not meant

to express a different nature but rather a difference in state and relations. The cogitative remains a nonrational power, but, on account of its association with thought, it possesses facilities inconceivable in nonrational animals.

39. Reiser ed., *cognitionem*. From the context, an obvious mistake for *cogitationes*.

40. Whether firmly or uncertainly.

41. Reiser ed., *iudicium*. From the context, an obvious mistake for *indicium*, sign, token.

42. J. However, a supernatural proposition is necessary if the good which is proposed is supernatural.

43. Throughout this article, the word *fides* is translated by 'belief,' although it is customary to use 'faith' when *fides* refers to supernatural belief. Without the consistent use of the word 'belief,' it would not have been possible to convey clearly the ideas of the writer on similarities and dissimilarities between human belief and divine belief, or faith.

43. a. Trans. by James V. McGlynn, *Truth* [Chicago: Henry Regnery, 1953].

44. Literally: 'to be of thing,' to be of object.' These expressions, of decisive significance in the theory of science, would be both accurately and conveniently translated by 'real existence,' 'objective existence,' if it were not for the threat of misunderstanding contained in the idealistic frame of reference. In so far as our language habits were shaped by the problems of modern idealism, 'objective' is used in opposition to 'subjective' and means 'pertaining, not to some state of consciousness or mode of the psyche, but to the real world, independently of the knowledge that we have of it'; so understood, 'objective' is synonymous with real and, in fact, is often used as an emphatic way of expressing *reality* as opposed to *subjectivity*. For St. Thomas and his disciples, states of consciousness and modes of the psyche are not 'that which' is known—except in a secondary process of reflective knowledge—but 'that by which' what is known is known. In direct and primary forms of knowledge, the thing is that which is known. Inasmuch as it is known or at least knowable, a thing is an object. If the whole of a thing were known, with no residual amount of not yet explored reality, the coincidence of thing and object would be complete and knowledge would be exhaustive. In relation to inexhaustive knowledge, an object is never more than *an aspect of* a thing. From any given standpoint, it is impossible to see simultaneously the six faces of a cube. The faces unseen are not less *real* than the faces seen. So far as the 'to be of thing' is concerned, the faces seen enjoy no advantage over the faces unseen; but the faces seen alone are, in relation to sight, object in act. The 'to be of object' is actual in the case of the faces seen, not in the case of the faces unseen. Real existence is actual both in the case of the seen and in that of the unseen; objective existence is actual in the first case alone. Between object and thing, there is a distinction of reason resulting from the fact that the object implies a system of *relations of reason*—to a power, a habitus or an act—which the thing does not imply. Objective existence, thomistically understood as 'to be of object,' implies the relations of reason which bring about a distinction of reason between object and thing. Real existence, understood as 'to be of thing,' is in no way affected by these relations.

45. Cf. i-ii. 18. 5.

46. Reiser's Latin has "ut attingatur a potentia" (819a43-44). Read *attingantur*.

47. J. Notice that this ultimate aspect *under which* regularly coincides with the ultimate aspect *which*.

48. I.e., in correspondence with *(c)*. This is the subjective light in the order of exercise corresponding to the objective light in the order of specification.

49. This is an expression of Scotus, *Subtle Questions on the Metaphysics*, vi. q. 1.

50. Note the subjective character of such a theory of the specification of the sciences.

51. I.e., the distinct partial unity theory of the Scotists and Suárezians. Note the extreme realist character of this first theory. It is often characterized by Scotus in the formula, "Scientiae dividantur sicut res ipsæ," originally from Aristotle (cf. *Post. An.* 1. 28. 87a37-38 and *Met.* 6. 1. 1025b19-20), but taken out of the context of his whole doctrine and especially apart from his teaching of *Post. An.* 1. 29 (St. Thomas, 1. lęs 41). The Aristotelian position, developed by St. Thomas and outlined here by John of St. Thomas, as the third opinion, mediates between this first or extreme objective position and the second or subjectivizing position.

52. The Scotist-Suárezian theory is under fire here on two accounts, which might at first seem irreconcilable. It appears to John of St. Thomas as both a rationalism and a realism, but in diverse though complementary respects: *(a)* it seems rationalistic in believing that there is one central subject in each science the definition (or explicated ratio) of which contains virtually all the truths about all of the essences dealt with by that science, so that the science needs simply to unfold, after the manner of a deductive system, these truths in logical sequence from that one source. John of St. Thomas finds this contrary to the Aristotelian spirit of constant inquiry (ἐπαγωγή) into the rich and many-sided real world to catch fresh insights into the various essences, whose definitions "have an indispensable part to play." As he will explain, what marks off a set of these definitions as of one science rather than of another is the *type* of insight, the mode of definition, that characterizes all of these essences by the same degree of immateriality and hence by the same type of objective presence to one scientific habitus rather than to another. *(b)* The realist aspect of this first theory, remarked in previous notes, appears to John of St. Thomas to be exaggerated owing to a failure to distinguish between real existence and objective presence, existence as a thing and existence as an object. This supposes that the intellect has no work to perform in knowing, but passively receives the thing according to a one-to-one correspondence in which every mode of objective presence has its exact and actual counterpart in the ontological structure of things. This is at once a realism and a confident sort of rationalism which in effect models the ontological upon the logical (the intensional logical), i.e., upon the rational and dialectical mode of the human intellect. Such anthropomorphism is also the basis of the Scotistic formalism (*Supra*. ii. 3. 3). There are notable parallels of this spirit, in Plotinus, Avicenna, Leibnitz, Hegel, and Whitehead.

53. In St. Thomas (at least the later St. Thomas of the *Summa*), the theory is somewhat more complex and subtle, though ultimately not in disagreement with this. Though there is certainly no trace of an 'a priori' in the order of specification in St. Thomas' theory of intellect, one might try to explain to the post-Kantian philosophers the great Thomistic theory of intellectual energy by expressing it as a sort of "a priori" in the order of exercise. The source of this energy, or subjective light, is the agent intellect, in which the possible intellect and its habitus successively participate. (The agent intellect is in turn the special participation of the divine creative light in and for us.) Thus a habitus is instrumental to intellection in the order of exercise. But, of course, there is not exercise without specification. The habitus from the moment of its inception is a specialization of that subjective or energetic light and is so specialized (or specified) by the virtual (in the thing) degree of immateriality which it, out of the immaterializing activation of the agent intellect, is rendering an actual objective or formal light and to which it is conforming its subjective light or rendering itself connatural. This is the mind of the later St. Thomas of the *Summa theologica* on habitus. The existential character of this theory of habitus as a simple quality at root in the order of exercise is a striking advance over his position in the *Contra Gentiles* where he held that a habitus is an aggregate of *species*. John of St. Thomas does not go into all this but confines himself to what is ultimately crucial: that the specifying principle of the scientific habitus, taken precisely as specifying, is an *objective* light, for which the mind and its habitus are beholden to the virtuality, abstractability, or richness of the thing. That every such objective light is matched and "brought forth" or actuated by a corresponding subjective light of the habitus, John of St. Thomas has already indicated. Cf. below, *Last Thesis*.

54. Note the Cartesian ring of this theory. It partakes of the same doctrine of one-to-one correspondence underlying the theory of Scotus and Suárez. That it is not appropriate to natural human knowledge but rather angelic, or Christological, is indicated by John of St. Thomas in what immediately follows.

55. Because such existence is already immaterial, logical abstraction is called negative in that it does not have to dematerialize its objects positively.

56. There (*Phil. of Nat.* i. 1.2) John of St. Thomas favors the theory that physics is a single scientific species.

57. I.e., with a thing that is of one constant scale of real supereminence over matter.

58. I.e., of real supereminence over matter.

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