

John Buridan
Gyula Klima

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Many people would be surprised to be told that there were any great medieval thinkers. If a great thinker is one from whom we can learn today, and if “medieval” serves as an adjective for describing anything which existed from (roughly) the years 600 to 1500 a.d., then, so it is often supposed, medieval thinkers cannot be called “great.”

Why not? One answer often given appeals to ways in which medieval authors with a taste for argument and speculation tend to invoke “authorities,” especially religious ones. Such invocation of authority is not the stuff of which great thought is made—so it is often said today. It is also frequently said that greatness is not to be found in the thinking of those who lived before the rise of modern science, not to mention that of modern philosophy and theology. Students of science are nowadays hardly ever referred to literature earlier than the seventeenth century. Students of philosophy in the twentieth century have often been taught nothing about the history of ideas between Aristotle (384–322 b.c.) and Descartes (1596–1650). Modern students of theology have often been frequently encouraged to believe that significant theological thinking is a product of the nineteenth century.

Yet the origins of modern science lie in the conviction that the world is open to rational investigation and is orderly rather than chaotic—a conviction that came fully to birth, and was systematically explored and developed, during the Middle Ages. And it is in medieval thinking that we (p. vi) find some of the most sophisticated and rigorous discussions in the areas of philosophy and theology ever offered for human consumption—not surprisingly, perhaps, if we note that medieval philosophers and theologians, like their contemporary counterparts, were mostly university teachers who participated in an ongoing worldwide debate and were not (like many seventeenth-, eighteenth-, and even nineteenth-century philosophers and theologians), people working in relative isolation from a large community of teachers and students with whom they were regularly involved. As for the question of appeal to authority: it is certainly true that many medieval thinkers believed in authority (especially religious authority) as a serious court of appeal; and it is true that most people today would say that they cannot do this. But as many contemporary philosophers are increasingly reminding us, authority is as much an ingredient in our thinking as it was for medieval thinkers (albeit that, because of differences between thinkers, one might reasonably say that there is no such thing as “medieval thought”). For most of what we take ourselves to know derives from the trust we have reposed in our various teachers, colleagues, friends, and general contacts. When it comes to reliance on authority, the main difference between us and medieval thinkers lies in the fact that their reliance on authority (insofar as they had it) was often more focused and explicitly acknowledged than is ours. It does not lie in the fact that it was uncritical and naive in a way that our reliance on authority is not.

In recent years, such truths have come to be increasingly recognized at what we might call the “academic” level. No longer disposed to think of the Middle Ages as “dark” (meaning “lacking in intellectual richness”), many university departments (and many publishers of books and journals) now devote a lot of their energy to the study of medieval thinking. And they do so not simply on the assumption that it is historically significant but also in the light of the increasingly developing insight that it is full of things with which to dialogue and from which to learn. Following a long period in which medieval thinking was thought to be of only antiquarian interest, we are now witnessing its revival as a contemporary voice—one to converse with, one from which we might learn.

The Great Medieval Thinkers series reflects and is part of this exciting revival. Written by a distinguished team of experts, it aims to provide substantial introductions to a range of medieval authors. And it does so on the assumption that they are as worth reading today as they were when they wrote. Students of medieval “literature” (e.g., the writings of Chaucer) are (p. vii) currently well supplied (if not oversupplied) with secondary works to aid them when reading the objects of their concern. But those with an interest in medieval philosophy and theology are by no means so fortunate when it comes to reliable and accessible volumes to help them. The Great Medieval Thinkers series therefore aspires to remedy that deficiency by concentrating on medieval philosophers and theologians, and by offering solid overviews of their lives and thought coupled with contemporary reflection on what they had to say. Taken individually, volumes in the series will provide valuable treatments of single thinkers many of whom are not currently covered by any comparable volumes. Taken together, they will constitute a rich and distinguished history and discussion of medieval philosophy and theology considered as a whole. With an eye on college and university students, and with an eye on the general reader, authors of volumes in the series strive to write in a clear and accessible manner so that each of the thinkers they write on can be learned about by those who have no previous knowledge about them. But each contributor to the series also intends to inform, engage, and generally entertain, even those with specialist knowledge in the area of medieval thinking. So, as well as surveying and introducing, volumes in the series seek to advance the state of medieval studies both at the historical and the speculative level.

John Buridan, the subject of the present volume, is someone whose work is currently far less well known than that of a number of other medieval

thinkers—figures such as Thomas Aquinas, Duns Scotus, or William of Ockham. During his lifetime and immediately after it, however, he enjoyed a distinguished reputation. A long-standing Master of Arts at the University of Paris, and twice rector of that university, he wrote voluminously (mostly in the form of commentaries on Aristotle), and his fame and influence spread throughout Europe. Some of his works came to be used as standard university reference texts, and their impact was notable well into the fifteenth century. Contemporary ignorance of Buridan is largely due to a lack of modern editions and translations of his writings, although the situation on this front is now slowly improving. (not least because of a translation by the author of the present book of Buridan’s magnum opus, the *Summulae de dialectica*).

Unlike Aquinas, Scotus, and Ockham (and other comparable authors), Buridan never taught theology. He had things to say on what we can recognize as theological topics, but the focus of his writings is on what we would most naturally call secular philosophy, especially logic, philosophy (p. viii) of language, and epistemology. In what follows, therefore, Gyula Klima concentrates on Buridan’s contribution to the study of these matters. In doing so, Professor Klima, among other things, provides a comprehensive, systematic treatment of Buridan’s theory of concepts, his conception of ontological commitment, his theory of meaning (signification), reference (supposition), and co-reference (appellation), his approach to semantics, and his views on skepticism. Throughout his account of Buridan, Professor Klima seeks to indicate what philosophers today can learn from Buridan and to what extent Buridan himself stands in need of correction, so his study is as much a work of contemporary philosophy as it is a contribution to the history of the subject. Considered as such, it fills a considerable gap in the literature on medieval ideas and should prove to be of serious help to both professional philosophers and students of medieval thinking.

Brian Davies



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PREFACE

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The idea for this book emerged after the publication of what the noted Buridan-scholar, Jack Zupko, quite aptly designated as my “mammoth translation of the entire *Summulae*.”¹ That volume is indeed rather large, maybe intimidatingly so to students, or even to professional philosophers who just want to get an introduction to medieval nominalist thought in general, or to Buridan’s philosophical logic and metaphysics in particular.

It was therefore a plausible idea to provide something by way of a companion to that large volume, which would help the modern reader to approach (borrowing the catchy phrase of E. A. Moody) Buridan’s “architectonic work in logic.” The result is the following discussion of Buridan’s logical and closely intertwined metaphysical and epistemological ideas.

This book, therefore, does not even pretend to provide a complete survey of Buridan’s philosophy. In fact, given the enormous output of medieval philosophers and theologians, any book on almost any medieval figure can *only pretend* to provide a complete survey of their thought. But this book does not have even this pretense. Indeed, attempting to provide a complete survey of Buridan’s ideas ranging from logic to metaphysics, physics (including cosmology as well as biology and psychology), ethics, and politics would be not only futile but also ineffective and superfluous.

After the appearance of Jack Zupko’s excellent monograph,² there is no need for another primarily historical survey of Buridan’s life and works (p. x) (which is of course not to say that Zupko’s work is “only” historical). What we need now is a careful doctrinal, philosophical analysis of those of his

ideas that were truly groundbreaking in his time and that still make Buridan an exciting thinker *to us*, someone worth engaging for what we can learn from him about issues that intrigue us today. The ideas in question are in particular those that constitute Buridan's distinctive brand of *nominalism*,³ his conception of how our rich linguistic and conceptual structures can be mapped onto a rather parsimoniously construed reality. Accordingly, with this conception in its focus, the present volume certainly contains less, but in many respects more, than the larger one it is supposed to accompany.⁴

On the one hand, focusing on what is intriguing to us, this book *will not consider* a number of elements of Buridan's logic that were important parts of the discipline as it was taught in Buridan's time, but that would not particularly further our understanding of Buridan's nominalist conception of the relationships among language, thought, and reality. Thus, for instance, a systematic survey of Buridan's discussions of *topics* (rules of probable reasoning), *fallacies*, or even *sylogistic rules* would be beside the point from this perspective. Those discussions are considered only to the extent they are relevant to our primary focus.

On the other hand, given its focus on Buridan's conception of the relationships among language, thought, and reality, this book *does cover* not only Buridan's strictly logical ideas but also his closely related ideas concerning the philosophy of mind and language and epistemology, as well as some illustrations of the application of his nominalist conceptual apparatus in metaphysics and other fields, to convey an idea of how Buridan's nominalism is supposed to "work."

Throughout this book, wherever possible, I have let Buridan speak for himself. Nevertheless, I discuss in detail those aspects of his thought that are most directly relevant to our modern theoretical concerns in philosophical logic, philosophy of mind and language, metaphysics, and epistemology. In these discussions, I have tried to present his ideas as providing an at least reasonable (if not *more* reasonable) alternative to our modern ways of approaching these issues. I hope that in these discussions Buridan's ideas will prove to be provocative enough to motivate the modern reader to engage him directly in the contemporary discourse in these fields.

Notes:

(1.) Zupko, J. "John Buridan," in *The Stanford Encyclopedia of Philosophy* (fall 2002 edition), ed. E. N. Zalta, <http://plato.stanford.edu/archives/fall2002/entries/buridan/>.

(2.) See Zupko, J. *John Buridan: Portrait of a 14th-Century Arts Master*, Notre Dame, IN: Notre Dame University Press, 2002.

(3.) *Nominalism* is usually taken to be the doctrine that denies the existence of universal entities in reality, as opposed Platonist *realism*, which affirms their existence. However, we should keep in mind that medieval *moderate realists*, that is, practically *everybody* after Abelard or maybe even after Boethius, also denied the existence of Platonic Forms (supposed to exist separately from any mind conceiving of particular entities in a universal manner). Medieval nominalists after Ockham would therefore distinguish themselves from moderate realists by denying the existence of inherent common natures distinct from their particulars posited by moderate realists (such as Aquinas or especially Scotus), as well as by reducing the number of distinct ontological categories to two, namely, substance and quality (Ockham and his followers) or three, namely, substance, quantity, and quality (Buridan and his followers). However, quite interestingly, the same sort of ontology was also accessible in the older *semantic* framework, and was in fact proposed by later moderate realists, such as the fifteenth-century Dominican, Domingo Soto. So the fundamental difference between medieval nominalists and moderate realists lies not so much in their respective ontologies but, rather, in their different *semantics*, in the different ways in which they explain the relationships among language, thought, and reality. For further details of this sort of comparison, see Klima, G. "Nominalism," in: *Elsevier's Encyclopedia of Language and Linguistics*, 2nd ed., ed. Keith Brown, Oxford: Elsevier, 2006, vol. 8, pp. 648–652. For a general survey of the issues involved, see Klima, G. "The Medieval Problem of Universals," *The Stanford Encyclopedia of Philosophy* (winter 2004 edition), ed. Edward N. Zalta, <http://plato.stanford.edu/archives/win2004/entries/universals-medieval/>.

(4.) In the previous note, I deliberately ignored Buridan's *modes*, which are not taken by him to be distinct from the entities in the other categories admitted by him, and successive things, *res successivae*, which are. (See, however, notes 3 of c. 8 and 6 of c. 9 below.) In general, because my main concern in this volume is Buridan's *semantics* broadly construed (as his

theory of the relations between language, thought, and reality), and not his metaphysics *per se*, I will not deal with these finer details of his ontology.



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I started working on this monograph in the academic year 2002–2003, during which a Fordham Faculty Fellowship combined with an ACLS Fellowship allowed me to do research at the Department of Philosophy at UCLA. I am thankful for both the financial assistance of Fordham University and ACLS and for the hospitality of UCLA. I am especially grateful for the stimulating discussions at UCLA with David Kaplan, Joseph Almog, Terry Parsons, and, above all, Calvin Normore. But I owe similar debts of gratitude to my friends and colleagues at Fordham, especially John Greco, Giorgio Pini, and Brian Davies, who, in addition to being the “prime mover” behind this volume, was also instrumental in making it more readable. And I should not forget to mention the numerous friends and colleagues elsewhere (also mentioned in the footnotes) who generously shared their ideas over the years of this project: Jenny Ashworth, Julie Brumberg-Chaumont, Catarina Dutilh-Novaes, Elizabeth Karger, Ria van der Lecq, Peter King, Henrik Lagerlund, Alex Orenstein, Claude Panaccio, Paul Spade, and “the Buridan scholar of all Buridan scholars,” Jack Zupko. I also wish to thank the respective publishers and copyright holders for their kind permission to reuse material from the following publications: Klima, G. “The Anti-Skepticism of John Buridan and Thomas Aquinas: Putting Skeptics in Their Place vs. Stopping Them in Their Tracks,” (p. xii) in *Rethinking the History of Skepticism*, ed. H. Lagerlund, Leiden: Brill Publishers, 2008. Klima, G. “Logic without Truth: John Buridan on the Liar,” in *Unity, Truth and the Liar: The Modern Relevance of Medieval Solutions to the Liar Paradox*, Logic, Epistemology and the Unity of Science, ed. S. Rahman, New York: Springer, 2008. ———. “The Universality of Logic and the Primacy of Mental Language in the Nominalist Philosophy of Logic of John Buridan,” *Mediaevalia Philosophica Polonorum* 35(2006),

pp. 167–177. ———. “The Essentialist Nominalism of John Buridan,” *The Review of Metaphysics* 58(2005), pp. 301–315. ———. “Quine, Wyman, and Buridan: Three Approaches to Ontological Commitment,” *Korean Journal of Logic* 8(2005), pp. 1–22. ———. “John Buridan on the Acquisition of Simple Substantial Concepts,” in *John Buridan and Beyond: Topics in the Language Sciences 1300–1700*, ed. R. L. Friedmann and S. Ebbesen, Copenhagen: The Royal Danish Academy of Sciences and Letters, 2004, pp. 17–32. ———. “Consequences of a Closed, Token-Based Semantics: The Case of John Buridan,” *History and Philosophy of Logic* 25(2004), pp. 95–110. ———. “Existence and Reference in Medieval Logic,” in *New Essays in Free Logic*, ed. A. Hieke and E. Morscher, Dordrecht: Kluwer Academic, 2001, pp. 197–226. ———. “Buridan’s Theory of Definitions in his Scientific Practice,” in *The Metaphysics and Natural Philosophy of John Buridan*, ed. J. M. M. H. Thijssen and J. Zupko, Leiden: Brill Publishers, 2001, pp. 29–48. ———. “‘Debeo tibi equum’: A Reconstruction of Buridan’s Treatment of the Sophisma,” in *Sophisms in Medieval Logic and Grammar: Acts of the 9th European Symposium for Medieval Logic and Semantics*, ed. S. L. Read, Dordrecht: Kluwer Academic, 1993, pp. 333–347.



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Buridan's Life, Works, and Influence

Gyula Klima (Contributor Webpage)

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Abstract and Keywords

The first chapter presents a brief summary of the little we know about Buridan's life, and the somewhat more we know about his immediate historical influence. But this brief survey of known facts only sets up the main argument of the chapter intending to show Buridan's "modernity" in more than one sense of the word. Buridan is "modern" in the medieval sense, being "the great architect" of what would become in late-medieval philosophy the nominalist *via moderna* (as opposed to the realist *via antiqua*), but he is also "modern" from our perspective, having many of the same concerns as contemporary analytic philosophers. Indeed, his philosophy can be the best key to understanding the major paradigm shifts between medieval and modern philosophy.

Keywords: modernity, *via moderna*, *via antiqua*, paradigm shift

The little we know about Buridan's life can easily be quickly summarized. Between the tentative dates of his birth and death (c. 1295 and 1361), he spent the greater part of his life first studying and then teaching at the University of Paris. He was a very highly regarded philosopher, who served twice as rector of the university, in 1327/8 and 1340. He was obviously influenced by the logic and philosophy (but not by the theology and politics) of William Ockham (c. 1287–1347). Indeed, he apparently made very conscious efforts, both in his administrative and professional capacities, to shield what he regarded as sound logical and metaphysical doctrine in Ockham from its "ideologically charged" ramifications. If this

was indeed Buridan's "tactic," then it worked: it is largely due to Buridan's and his students' and associates' work that the nominalist *via moderna* could emerge as a viable alternative way of doing philosophy in the later Middle Ages, shaping, in turn, much of the intellectual conversation of the Renaissance and early modern period. ¹

Buridan's works are mostly the by-products of his teaching. As such, they chiefly consist of commentaries on Aristotle, covering the whole extent of Aristotelian philosophy, ranging from logic to metaphysics, to natural science, to ethics and politics. As well as providing running commentaries on Aristotle's texts, Buridan wrote particularly influential question-commentaries, a typical genre of the medieval scholastic output, in which (p. 4) authors systematically discussed the most problematic issues raised by the text on which they were lecturing. The question-format allowed Buridan, using the conceptual tools he developed in his works on logic, to work out in detail his characteristically nominalist take on practically all aspects of Aristotelian philosophy. Among his logical works (which also comprise a number of important question-commentaries on Aristotle's logical writings), two stand out for their originality and significance: the short *Treatise on Consequences*, which provides a systematic account of Buridan's theory of inferences, and the much larger *Summulae de Dialectica*, Buridan's monumental work covering all aspects of his logical theory.

Buridan's influence in the late Middle Ages can hardly be overestimated. His ideas quickly spread not only through copies of his works but also through the work of his students and/or younger colleagues, such as Nicholas Oresme, Marsilius of Inghen, and Albert of Saxony. They, in their turn, became very influential themselves, and turned Buridan's ideas into standard textbook material in the curricula of many late medieval European universities.

Nevertheless, with the waning of scholasticism Buridan's fame quickly faded. His name was preserved only in a (phony) legend about an affair between him and the queen, immortalized in François Villon's ballad with the ironically fitting refrain about the snow of yesteryear, as well as in connection with the parable about an ass allegedly starving to death between two equal stacks of hay (in the unfortunate phrase "Buridan's ass"), ² and in learned histories of science, mentioning his historically important *impetus* theory.

Yet, the fact that Buridan's ideas were doomed to near-oblivion as a result of the changing interests of an emerging new intelligentsia of the early modern period is no more evidence for the philosophical irrelevance of his ideas

than the general decline of logic in the same period can be evidence for the irrelevance of logical analysis to philosophical inquiry. Indeed, now that we have sufficient historical distance from the mostly ideological concerns of the new intelligentsia of that period, and yet also have academic concerns that are sometimes strikingly similar to those of the scholastic philosophers, we should seriously reconsider their often unduly forgotten ideas. This holds especially in the case of someone like Buridan, whose work sometimes quite directly addresses *our own* philosophical questions.

(p. 5) 1.1 A “Medieval Analytic Philosopher”

To be sure, Buridan was very much a philosopher of his own time, the later Middle Ages. Still, he would fit surprisingly well into a contemporary philosophy department. This is no doubt partly because, unlike many other great thinkers of the Middle Ages, he was a professional philosopher, and not a theologian, as were, for example, Aquinas, Scotus, and Ockham.³ However, this alone would not be sufficient for a good fit. Other great professional medieval philosophers—Siger of Brabant and Boethius of Dacia come to mind—would be very difficult to fit into a modern department. For if what makes for a “good fit” is an overlap of interests and general approach, then these philosophers’ interests and approach would be regarded by most modern philosophers as idiosyncratic, or downright nonsensical. By contrast, Buridan’s philosophical interests and his general approach to philosophical problems would probably be considered as providing sometimes curious but certainly intriguing and well-argued alternatives to our contemporary ways of doing philosophy. As Peter King, the first English translator of Buridan’s treatises *On Supposition* and *Consequences* aptly remarked:

Buridan’s medieval voice speaks directly to modern concerns: the attempt to create a genuinely nominalistic semantics; paradoxes of self-reference; the nature of inferential connections; canonical language; meaning and reference; the theory of valid argument. It is to be hoped that Buridan can reclaim his lost reputation among contemporary philosophers for his penetrating and incisive views on these and other matters.⁴

What primarily accounts for this striking “modernity” of Buridan’s philosophy is his characteristically self-reflective style of doing philosophy. While using his conceptual tools in approaching philosophical problems in general, he is also constantly reflecting on the use of these tools themselves, paying

careful attention not only to *what* we are talking about, but also to *how* we are doing so.

In a typical anecdote—which is best characterized by the Italian saying: *se non è vero è ben trovato*—Buridan was once asked by Pope Clement VI, with whom they had had some scuffle in their youth: “Why did you hit the pope?” To which Buridan answered: “It is the pope I hit, but I did not hit the pope; that is to say, I hit someone who was no pope then, but who is the pope now.”⁵ This provides a nice illustration of the way Buridan uses (p. 6) carefully regulated language to make important distinctions discussed in his logic (in this case, in his theory of “appellation,” to be discussed later in detail), not only in a mundane context of this sort but also in serious philosophical discussions.

This style of doing philosophy, put in these general terms, is of course also the trademark of modern analytic philosophy. So, in this general sense, Buridan could very easily fit in among the ranks of contemporary analytic philosophers.

1.2 Buridan’s Modernity

However, there is an even deeper sense in which Buridan is strikingly “modern.” For what is distinctively “modern” about Buridan’s use of logic in philosophy in contrast to other medieval philosophers is that he uses it not so much for the *refutation* of opposing answers to old questions but, rather, for the *elimination* of old questions and the posing of new ones in a new conceptual framework. For example, a generation before him the typical questions were: “What are the common natures signified by our common terms?” and “How are they related to singular entities?” By contrast, Buridan’s question is: “Do our common terms signify any common natures at all?” His resounding “No” in response to *this* question, along with his careful elaboration of the implications of this answer, obviously renders the old questions moot but gives rise to new ones. For example, “What distinguishes a singular term from a common term, if they both can only signify singulars?”

Therefore, if the mark of modernity in intellectual history is the capability to bring about a “paradigm-shift” in the sense of reconceptualizing the problems of an entire field, as it arguably is, then Buridan was indeed a very modern thinker. After all, he was the one who realized, through his deliberately calm, pragmatic, and systematic work, the paradigm-shift initiated, but never completed, by William Ockham. Buridan’s work

eventually established a new, alternative way of intellectual inquiry, the nominalist *via moderna* (“the new way”), as opposed to the realist *via antiqua* (“the old way”), as they came to be known at late-medieval universities. ⁶ In the apt words of T. K. Scott:

What Ockham had begun, Buridan continued, but with an even clearer realization of ends in view.... If Ockham initiated a new way of doing (p. 7) philosophy, Buridan is already a man of the new way. If Ockham was the evangel of a new creed, Buridan is inescapably its stolid practitioner.... He is a nominalist (a much more radical one than Ockham), but he is less concerned to defend nominalism than to use it. Elaboration of philosophical overviews is replaced by care for important philosophical detail. ⁷

Of course, Buridan’s “modernity,” precisely in that philosophical detail, is still worlds away from ours in many important respects. For even if his analytic philosophical style and interests are strikingly close to modern analytic approaches to philosophical problems in general, the particular conceptual apparatus he uses is radically different from what a modern analytic philosopher would take for granted. These differences, however, are precisely what should make Buridan’s approach intriguing to us: his different take on the same issues modern philosophers are grappling with should help us reconsider many of the presuppositions that usually go unquestioned in contemporary philosophical discourse. But other than the obviously intriguing *logical* relationships between Buridan’s and our methodological presumptions, because Buridan’s influence set the stage for the shaping of many of our modern presumptions (in ways that are by now mostly forgotten), reflecting on these *genealogical* relations also holds the promise of a number of further, intriguing philosophical lessons.

In any case, these general, introductory remarks will all make much better sense once we see the details of the theoretical foundations of Buridan’s philosophical methodology as it is systematically spelled out in his logical theory.

Notes:

(1.) The best modern discussions of the (rather sparse) sources we have on Buridan’s life are Faral, E. *Jean Buridan: Maître és arts de l’Université de Paris*, Extrait de l’Histoire littéraire de la France, Tome XXXVIII, 2e partie,

Paris: Imprimerie Nationale, 1950, and Michael, B. *Johannes Buridan: Studien zu seinem Leben, seinen Werken und zu Rezeption seiner Theorien im Europa des späten Mittelalters*, vols. 1–2, Doctoral Dissertation, University of Berlin, 1985. A more detailed account of Buridan’s life in English can be found in Zupko, J. *John Buridan: Portrait of a 14th-Century Arts Master*. In general, Zupko’s more historically oriented approach provides a very useful complement to the more “analytic” approach I take in this study.

(2.) Interestingly, this phrase is something almost everybody knows in connection with Buridan, yet apparently nobody knows its precise meaning or origin. For more discussion and a plausible interpretation, as providing a test-case for voluntary agency (concerning Buridan’s actual example of a dog starving to death between equal piles of food in his *Questions* on Aristotle’s *De Coelo*), see Lagerlund, H. “John Buridan’s Theory of Free Choice and Its Influence,” in *Emotions and Choice from Boethius to Descartes*, ed. H. Lagerlund and M. Yrjönsuuri, Dordrecht: Kluwer, 2002, pp. 173–203.

(3.) This is also a result of recent changes in contemporary philosophy, which in its current cycle is much more sympathetic to the scholastic enterprise than were early modern philosophers.

(4.) King, P. *Jean Buridan’s Logic: The Treatise on Supposition and the Treatise on Consequences*, Dordrecht: D. Reidel, 1985, p. 4.

(5.) Faral, E. *Jean Buridan: Maître és arts de l’Université de Paris*, p. 15. In the English translation, I have punctuated Buridan’s answer to match the doctrinal point that he often makes concerning the relevance of word order for making such distinctions.

(6.) For a detailed historical discussion of the late-medieval contrast between *via antiqua* and *via moderna*, see Moore, W. L. “Via Moderna,” in *Dictionary of Middle Ages*, ed. J. R. Strayer, New York: Scribner, 1989, vol. 12, pp. 406–409.

(7.) Buridan, J. *Sophisms on Meaning and Truth*, trans. T. K. Scott, New York: Appleton-Century-Crofts, 1966, p. 13.



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Buridan's Logic and the Medieval Logical Tradition

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Abstract and Keywords

The second chapter spells out Buridan's conception of logic as a practical science, teaching us, as *logica docens*, to heed the valid rules of reasoning embedded in our logical practice, *logica utens*. The chapter also deals with the particular difficulties of Buridan's approach, considering his idea of the radical conventionality of written and spoken languages, consisting of token-symbols that owe their meaningfulness to the natural representational system of the human mind. This is the fundamental idea that naturally leads to the nominalist conception of a mental language. On this conception, mental language itself is a compositional semantic system of naturally representative token-symbols, the singular mental acts of singular human minds.

Keywords: *logica utens*, *logica docens*, token-symbols, conventional representation, natural representation

Just as it does in modern analytic philosophy, *logic* has a central role in Buridan's philosophy. As he remarks:

... we should note that dialectic (that is, logic) is rightly said to be the art of arts, by reason of a certain superiority it has over other arts, [namely], in virtue of its utility and the generality of its application to all other arts and sciences. Due to this generality, which it shares with metaphysics, it has access to disputations that concern not only the conclusions, but also the principles of all sciences. ¹

This conception of logic was not unique to Buridan in the Middle Ages. In fact, his remark is a comment on Peter of Spain's opening words of his *Summulae Dialecticales*,² which in turn ultimately derive from a passing remark made by Aristotle in his *Topics*.³ In general, logic had been established early on in medieval curricula as the prerequisite for rational inquiry in any discipline. As the anonymous author of the twelfth-century tract named *Dialectica Monacensis* wrote:

As we are going to deal with dialectic, which is, as it were, the pathway to all the other arts, at the beginning of this treatise we provide the division of science.

... Science is divided into rational, natural and moral philosophy.... Rational science is divided into three parts: grammar, rhetoric, and (p. 9) logic. Grammar teaches the proper arrangement of letters into syllables, syllables into words and words into expressions. Rhetoric deals with three kinds of causes, namely demonstrative, deliberative, and judicial. Dialectic deals with syllogism absolutely speaking, as in the *Prior Analytics*, and with its subjective parts, as in the *Posterior Analytics*, in the *Topics*, and in the *Sophistical Refutations*, while its integral parts are dealt with in the *Categories* and the *Perihermeneias*.⁴

This description of the role of logic in the system of medieval learning, in addition to providing us with the conception of logic as a universal methodological tool, also presents a nice example of how the Aristotelian logical corpus was integrated into this system, and how the role of its individual books was conceived *within* the system. About two centuries later, Buridan still offers a very similar picture concerning the latter point:

Logic is in its entirety about arguments, their principles, parts, and attributes; therefore, we should consider in logic everything in its relation to argumentation. Thus, the division of logic is taken from argumentation. For logic is divided into Old Logic (*Ars Vetus*) and New Logic (*Ars Nova*). The Old Logic considers argumentation not in itself as a whole, but its integral parts, which are incomplex terms and expressions or enunciations. For incomplex terms are the remote parts of argumentation, whereas enunciations are the proximate parts. The remote parts, namely, incomplex terms, are discussed in Aristotle's *Categories*, whereas the proximate parts, namely,

enunciations, are treated of in <his> *On Interpretation*. But you should know that Porphyry prepared a book, *On the Five Predicables*, by way of an introduction, which is very useful for understanding Aristotle's *Categories*. In addition, since Aristotle in the *Categories* very quickly passed over the last six categories, Gilbert of Poitiers prepared a special book dealing with those six categories to supplement Aristotle's *Categories*, which he called *The Book of Six Principles*. Therefore, these two books, namely, Porphyry's and *The Book of Six Principles* are taken to belong to the Old Logic; not as principal books, but as ones related and connected to the *Categories*. Why is this called the Old Logic, and the other the New Logic? One may reasonably answer that the matter of a thing precedes in time the thing that comes from it, and that which is earlier in time is said to be older. However, the terms and enunciations, which the *Categories* and *On Interpretation* deal with, are the material parts that make up argumentations. Therefore, they can be said to be "old" with respect to the whole argumentation, and this is why the part of logic dealing with them is called Old Logic. The New (p. 10) Logic is subdivided, because argumentation can be considered in itself as a whole in one way, insofar as it infers the conclusion from the premises, and in another, insofar as it proves the conclusion by means of the premises. In the first way it is discussed in the *Prior Analytics*, in the second way in the other books. But differently [in the different books]. Since the proof of a conclusion has to be from better known premises, a proof is sometimes from self-evident [propositions] or ones that are proven to be self evident, and then it is called a demonstration, which produces knowledge of the conclusion; and this [sort of proof] is discussed in the *Posterior Analytics*. Sometimes, however, a proof is from premises that are neither necessary, nor self-evident, but which are merely probable, and then the argumentation is called dialectical, which generates not knowledge, but mere opinion; and this [sort of proof] is discussed in the *Topics*. Sometimes the argumentation is sophistical, which appears to prove but does not; and this [sort of argumentation] is discussed in the *Sophistical Refutations*.⁵

There are a number of noteworthy points in this passage, both in itself, and in comparison to the previous quote.

In the first place, both passages agree that logic focuses on reasoning (“argumentation” in the Buridan-passage, and “syllogism” in the other passage are used in the same, somewhat loose, sense), and that everything else that logic should consider in connection with reasoning is virtually contained in Aristotle’s books on logic. The first two books deal with the “integral parts” of reasoning, that is, the parts that make up any piece of reasoning, namely, propositions and their parts, their terms. The remaining books deal with the “subjective parts,” that is, the various kinds of reasoning, considered either with respect to their validity or with respect to their probative force.

Now this may indeed appear to be a comprehensive account of what logic is all about, but as Buridan’s remarks also indicate, medieval logicians did not think that Aristotle’s books contained *all* there is to logic. For in addition to Aristotle’s books, there were in the first place the two “supplementary” books, mentioned by Buridan here, of which the *Isagoge* in particular was very influential, because it served as the starting point of medieval discussions on universals. ⁶ Buridan does not mention here even other important books he himself heavily relied on in his own systematic work on logic, the *Summulae de Dialectica*. Among these, in addition to commentaries on Aristotle’s books by Boethius, Themistius, and Ammonius, the short (p. 11) logical treatises of Boethius on syllogisms and divisions and Cicero’s *Topics* were particularly influential.

However, these works still do not present the characteristically medieval logical doctrines that in systematic works on logic were contained in separate little treatises (the so-called *parva logicalia* = *small logical [treatises]*). These were sometimes attached to the treatises discussing the issues covered by Aristotle’s books as parts of systematic textbooks on logic, and sometimes published separately. These separate little treatises eventually gave rise to entirely new genres of logic texts, such as the treatises on the properties of terms, on syncategoremata, sophismata, sophistaria, obligations, or consequences. ⁷ In fact, these treatises were usually distinguished as the “logic of the moderns” (*logica modernorum*) from the “ancient logic” (*logica antiqua*), comprising the books of the “old logic” (*logica vetus*) and the “new logic” (*logica nova*) described by Buridan in the earlier-quoted passage (which, despite Buridan’s speculative explanation here, were so-called for simple historical reasons). ⁸

But, given the abundance of this rich, original literature of the “modern logic” proliferating from the twelfth century onward, why do neither Buridan nor the twelfth-century author even mention it in their divisions of logic? The clue is already provided by Buridan’s remark concerning the books added to the Aristotelian corpus, but a more detailed explanation is offered by another anonymous author writing as late as the fifteenth century:

If the treatises listed earlier [namely, the treatises of *parva logicalia*] pertained to logic, then it would follow that Aristotle incompletely and insufficiently handed down logic to us, and it was without merit that he requested us to say thanks to him for providing us with a complete logic. The reasoning is proved with reference to the fact that he did not give us the knowledge of those treatises. We should reply [to this objection] in two ways. First, [by pointing out] that Aristotle did complete logic, as far as the being [*esse*] of logic is concerned. Nevertheless, some other little treatises may be added for its well-being [*bene esse*], explaining the principal treatises, and serving as their complements. We should say in the second place that even if Aristotle did not invent the logic that is provided here in itself and in the proper form of these treatises, he nevertheless did invent these treatises in their principles, for he laid down certain principles from which these treatises are in their turn elicited and derived. Therefore, he is said to have invented even these treatises in a way, namely, virtually, in their roots. Whence it is clear that we should **(p. 12)** rather say thanks to Aristotle than to Peter of Spain, for the invention of the principles is a greater achievement; since in possession of the principles it is easy to add to and augment the rest, as the Philosopher says in bk. 2 of the *Sophistical Refutations*.⁹

However, the typically medieval, deferential attitude toward authority expressed in this passage should not fool us into believing that medieval authors were not aware of their own originality, or they were uncritical toward their authorities. As we shall see in greater detail, Buridan, who deftly uses authoritative references when they squarely support his position, does not hesitate to engage in some “creative interpretation” when they do not, or even to brush aside some lesser authority, such as that of the author of *The Book of Six Principles*, when it directly conflicts with his doctrine.¹⁰

Furthermore, Buridan wrote his *Summulae de Dialectica*, which was to become the primary textbook of *nominalist* logic at European universities for about two centuries, in the form of a running commentary on the enormously influential logic tract of the venerable *realist* master, Peter of Spain.¹¹ However, for the purposes of his commentary, Buridan completely reorganized Peter's treatise, and where Peter's realist doctrine went against his own nominalism, he simply replaced Peter's text with his own. As he remarks in his *Preface*:

I have chosen to deal in particular with that short treatise of logic which the venerable professor master Peter of Spain composed a while ago, by commenting on and supplementing it. Indeed, occasionally I am going to have to say and write things that differ from what he has said and written, whenever it appears to me suitable to do so.¹²

In fact, Buridan uses Peter's text to discuss *only* the traditional material of the *logica antiqua*, and even in those matters, he often revises the main text, or changes the doctrine in his comments. However, when it comes to the presentation of material pertaining to the *logica modernorum*, Buridan simply discards Peter's text or supplements material missing from Peter's discussion, and ends up commenting and expanding on his own summary account of his own doctrine, in place of the authoritative text. Nevertheless, despite all the liberties that Buridan takes in his treatment of his authorities, he never really comes across as arrogant.¹³ On the contrary, his general tone is very cautious and reserved. He was obviously more concerned with nurturing and spreading his own innovative ideas through research and teaching than with picking fights over them.

(p. 13) 2.1 Logic as a Practical Science

Therefore, given the central role of logic in Buridan's enterprise, it is worth considering exactly how he conceives of logic as a science. Commenting on Peter of Spain's earlier-quoted remark on logic as the art of arts, Buridan has the following to say:

Concerning the first section, we should note that a certain [other version of our] text has [the formulation]: 'dialectic is the art of arts, the science of sciences ... etc.,' but it is more correct to say only that it is the art of arts. For the names 'art' and 'science' are sometimes taken broadly, and sometimes strictly or properly. If they are taken broadly, then we use

them interchangeably, as synonyms; hence, taken in this way, in this description it would be sufficient to insert only one of these two names. Indeed, logic should not even be called the science of sciences, for this would indicate a certain excellence of logic with respect to [all] other sciences, which it cannot have with respect to metaphysics; in fact, metaphysics, rather than logic, should more truly be called the science of sciences, having access to the principles of all inquiries. But when the names 'art' and 'science' are taken strictly, then, in [accordance with] bk. 6 of the *Ethics*,¹⁴ there are five intellectual habits, or virtues, distinguished from one another, namely, understanding, wisdom, prudence, science [or knowledge: *scientia*], and art. Therefore, taken in this way, no such habit is at the same time art and science; in fact, logic thus understood is an art, rather than a science.¹⁵

In his questions on Porphyry's *Isagoge*, Buridan elaborates his point in more detail.¹⁶ There he also distinguishes between "science" in the strict sense, in which it applies only to a body of necessary, universal, theoretical knowledge, consisting of the conclusions of scientific demonstrations in the strict Aristotelian sense, from "science" in a broader sense. In the latter sense, the term applies not only to strictly theoretical but also to practical subjects, namely, subjects concerning things that are within our power to make or do (or to refrain from making or doing), and the knowledge of which is useful for achieving our ends in these activities. In this broader sense, the art of logic also deserves to be called a science, namely, a *practical* science, the possession of which guides us in our rational practice of forming and evaluating arguments.

In this connection, Buridan also draws the famous distinction between *logica utens* and *logica docens*, that is, logic-in-use and logical doctrine, only (p. 14) the latter of which can be called an art or practical science, whereas the former embodies those operative principles that are spelled out by the latter. For of course logical rules are operative in all our rational activities, yet those rules in operation, without being spelled out and reflected on, do not constitute logical knowledge. In fact, as Buridan remarks, sometimes, as in the case of sophistic arguments, they lead to something contrary to knowledge, namely, deception.

But logical doctrine, the systematic body of knowledge concerning the universal, necessary laws of various forms of reasoning, is certainly a

science, even if not a theoretical one, such as metaphysics, mathematics, or physics. It is, rather, a practical science, which teaches us how to construct and evaluate our argumentations to achieve our desired ends with them, whatever those ends may be.

2.2 Token-based Logic, and the Conventionality of Natural Language

However, this conception of logic as a science gives rise to the following problem for Buridan. A science has to demonstrate universal conclusions. Therefore, apparently, it cannot concern itself with singular terms or propositions.¹⁷ However, in logic we often deal with contingent, singular propositions, such as the proposition ‘Socrates is a man’ and singular terms, such as ‘Socrates’, because logic concerns itself with terms and propositions of all sorts.¹⁸ Therefore, logic cannot be a science.

Indeed, quite paradoxically, although Buridan is trying to use his logical theory to show that we can have a consistent metaphysics without universal entities, logical theory itself seems to demand them. For in formulating our logical laws we often talk about terms and propositions as if they were abstract, universal entities, somehow remaining the same in all their individual instances. For instance, we talk about *the* term ‘Socrates’ as being a singular term, regardless of whether this term exists printed on this page or as uttered by Plato addressing his master. Apparently, we talk about this singular term as if it were a universal entity! However, can we possibly avoid this way of talking, that is, apparently referring to universal entities, in logical theory itself, if we are to formulate *universal* logical laws that equally concern *the* term ‘Socrates’ in *all* its instances?

(p. 15) Buridan’s reply to his own objection provides a nice sketch of his consistently nominalist, “token-based” logic:

[In reply] to the fourth [objection] we concede that no science is of conclusions or premises consisting of personally suppositing singular terms, but [there] certainly is [some science] of materially suppositing¹⁹ ones, for such conclusions and premises can be universal, indefinite, particular, or singular. I can certainly say “Every term ‘Socrates’ is a singular term”, and “Some term ‘Socrates’ is a singular term”, and “A term ‘Socrates’ is a singular term”, and “This term ‘Socrates’ is a singular term”. The first of these is universal, the second is

particular, the third is indefinite, and the fourth is singular. And the fourth is no more demonstratively knowable than this: 'This man is risible.' For just as *this* man will no longer exist after he perishes, and thus one cannot truly say of him that this man is risible, so *this* term 'Socrates' will no longer exist after it perishes, and it will not be true to say that it is a singular term, although another, similar one certainly is a singular term. ²⁰

So, when Buridan says that logic primarily studies arguments, their kinds, and their integral parts, he does not conceive of this enterprise as a study of some "abstract structures"—there is no place for such things in his nominalist ontology. ²¹ It is always particular arguments, particular propositions, particular terms existing in their singularity that are considered in logic, although, of course, they are considered in a universal manner, insofar as we can state universal laws covering potentially infinite sets of such particulars. Indeed, this concerns not only items in our various spoken or written languages. After all, any item in any human language is meaningful only insofar as it is some expression of human thoughts. Thus, the same point also applies to items in our mental activities, namely, human concepts, which are expressed by these linguistic items. As Buridan remarks:

... every thing in the world is singular; this is what Boethius asserts by saying that everything that exists is numerically one and undivided. Indeed, in this way a genus is one singular term, insofar as it exists just as singularly in my understanding or yours, or in my voice or yours, as this whiteness does in this wall. ²²

Because everything in the world is singular, every item logic considers is singular. It considers singular arguments and their constitutive parts in speech, in writing, and in the mind. Indeed, primarily in the mind. For the (p. 16) items constituting speech, namely, articulate sounds, or utterances, and the items constituting writing, namely, inscriptions, are not constituents of a language on account of their physical properties, because we can produce utterances and inscriptions of this sort at any time, which are nevertheless not constituents of a language, because they mean nothing at all. For instance, if I form the utterance 'biltrix', ²³ or I write down the corresponding inscription following the rules of the Latin alphabet, as I just did, I do not thereby form a constitutive part of a language (at least, certainly not of one I know), for this inscription and the corresponding utterance mean nothing to me. To be sure, given the physical properties of this thing, I conveniently and

easily can make it a part of our language, by giving it some meaning. Indeed, depending on my intention, I can introduce it in a number of different ways, in any grammatical category. I can make it into a noun, a verb, an adjective, a participle, even a simple preposition, or an entire proposition.

Buridan is very much aware of the consequences of this approach to the subject matter of logic. If logic is to be a universal, necessary science of particular utterances and inscriptions insofar as they constitute particular arguments of particular languages, then the obvious conventionality of the use of these particular utterances and inscriptions has to be taken into account in the construction and interpretation of logical theory. For given the conventionality of our written and spoken languages, and given the fact that the fundamental logical properties of particular items of these languages, such as the validity of arguments, truth of sentences, or reference of terms, are obviously dependent on their conventional use, changes in usage can easily alter these properties. Buridan provides a vivid illustration of this phenomenon in the following way:

... an utterance like 'A man is a donkey' can be true, namely, by positing that, by a deluge or by divine power, the whole of the Latin language is lost, because all those who knew Latin are destroyed, and then a new generation following them imposes by convention the utterance 'man' to signify the same as that utterance signifies to us now, and the utterance 'donkey' to signify the same as the utterance 'animal' signifies to us now. This case is possible. Therefore, nothing impossible should follow from positing it. But it does follow that this spoken proposition or [this proposition considered] as an utterance would be true, namely, 'A man is a donkey', for it would designate a mental [proposition] which is now signified to us by 'A man is an animal'; therefore, it would designate a **(p. 17)** true mental [proposition], and it would be subordinated to a true mental one. But a spoken proposition is said to be true because it is subordinated to a true mental one, (or false, because it is subordinated to a false one); therefore, it is not impossible that such [a proposition] be true. The ... conclusion is inferred that numerically the same written proposition which now is an impossible proposition can be necessary, for let the proposition 'A man is a donkey' be written in stone. This written proposition now is an impossible proposition; however, if the language would change in the manner described before,

namely, so that the term 'donkey' would then signify the same as 'animal' signifies to us now, while the stone and the writing on it would be preserved, then that written proposition would be a necessary proposition, for it would designate a mental proposition that is necessary. ²⁴

Given the radical conventionality of our written or spoken languages, the question necessarily arises: what can *fix* the representational function of these conventional marks, so we are able to formulate necessary, universal laws concerning their logical use?

Buridan explicitly raises this issue several times, especially in connection with the question of whether the sentence 'Man is a species' is true. Clearly, if in this sentence the subject term is taken in *personal supposition*, that is, if it is taken to stand for what the term 'man' in English is imposed to signify, namely, individual humans, then the sentence is false, since no individual human being is a species. By contrast, if the same term is taken here in *material supposition*, that is, if it is taken to stand for itself or for any other term of the same type, then the proposition is true, for of course any such term is a specific term, signifying individual humans in abstraction from their individual differences. However, which one of these two possible interpretations should we take to be expressed by this sentence properly speaking (*de proprietate sermonis*)? In general, what are the rules governing the proper interpretation of words, that is, the interpretation in which they are supposed to be taken by virtue of their proper meaning (*de virtute sermonis*)? Buridan explicitly discusses this issue at length both in his *Summulae* and in his question-commentary on Porphyry's *Isagoge*. Because of its significance and lucidity, it will be useful to quote here the latter discussion in its entirety:

However, it appears to me that ... a phrase [*sermo*] does not have in an enunciation any proper force [*virtutem*] on its own, but from us, by convention [*ad placitum*]. Therefore, if we use a phrase in the way philosophers (p. 18) and others normally use it, we do not do anything against the proper force of the phrase. Indeed, an utterance, at least an articulate one, certainly has the force and capacity that it can be imposed by us to signify what we wish and that, once it is imposed to signify, we can use it as we wish, whether significantly or materially; and in doing so we do nothing against the force of the phrase. What is more, an utterance imposed to

signify a certain signification is imposed in such a way that we can legitimately use it with the signification primarily and properly given to it, or according to a similar or metaphorical signification, indeed, even according to a signification contrary to its primary one, as when we want to speak ironically. In fact, such uses pertain to an utterance by virtue of its primary signification, and in relation to it; therefore, such uses are never against the proper force of a phrase. ²⁵

In short, there is nothing illicit about improper uses of our words, for those improper uses are just as possible uses of a phrase as its proper use was in the first place. In addition, there are “normal” improper uses of our phrases (i.e., ones that are squarely within the norms of linguistically competent usage, such as metaphor, analogy, or irony), which even presuppose the primary, proper use. But if we can use our linguistic signs any way we wish, what is it that distinguishes some uses as “proper” and “primary” and others as “improper” and “secondary”? Is there any rationale for this “inegalitarianism” concerning the several, apparently *equally possible* uses of our words? Buridan continues his discussion by answering this tacit question:

We should note, however, that I do not want to deny entirely the customary manner of speaking, namely, that a phrase is sometimes taken in its proper force and sometimes it is not. For I say that this is an improper locution, but it can be saved, for in truth, although a phrase can be taken in several senses, nevertheless, one of those senses is reasonably called “the primary”, “the principal”, or “the proper sense”, whereas the other senses are called “secondary”, or “attributive”, or “improper”. For that sense is called “primary” and “proper” which accords with the signification primarily and principally imposed on the utterance. And that sense is called “secondary” or “improper” which accords with another signification connected [*attributa*] to the primary one by reason of similarity or some other relationship. For example, the word ‘healthy’ primarily and principally was imposed to signify an animal that is appropriately proportioned in its active and passive qualities for exercising well and pleasurably its vital functions. However, later on the name ‘healthy’ (p. 19) was extended and transferred to signify urine, because it is the sign of a healthy animal, and to food, because it makes an

animal healthy and preserves it in its health. Therefore, the primary and proper sense is that according to which we call an animal healthy, and the secondary or improper sense is that according to which urine or that according to which food is called healthy. ²⁶

Indeed, as Buridan observes in the continuation of his discussion, this distinction concerns not only the use of single words but also the construction of complex phrases or sentences:

Furthermore, it happens sometimes that an expression is not used in the proper sense even if the words [in it] are taken properly, for the words can be construed in different ways and in different orders, even if in speech or in writing they are ordered in the same way, as poets often change word order, as in saying “[An] animal is every man”. For the proper sense [of this sentence] would be expressed by construing words in the order in which they are uttered or written, and thus ‘animal’ would be the subject and ‘man’ would be the predicate, and the proposition would be false. But the improper sense would be the construal of ‘man’ as the subject, as if it were placed first, and of ‘animal’, as the predicate, and in this way the proposition would be true, and it would be equivalent to the proposition ‘Every man is an animal’ taken in the proper sense.

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Therefore, in a syntactical construction, word order is crucial in determining the proper sense, although the *proper* sense may not be the *intended* sense, as is the case with a poetic reversal of word order relative to the word order properly expressing the intended sense. Now, a similar distinction needs to be made between the intended and the proper sense of words, while keeping in mind the proviso that of course there is nothing inherently illicit in diverging from proper usage. As Buridan continues:

Again, concerning the material and personal sense, it appears that the sense according to personal supposition is to be deemed proper with respect to the sense according to material supposition, and the sense according to material supposition is to be deemed improper. For the sense according to personal supposition pertains to an utterance according to the signification appropriately imposed on it, but the sense according to material supposition does not, indeed, it is

common to every articulate voice, whether it was imposed to signify by convention or not, that it can be taken materially in an enunciation. For just as I can say “‘lecture’ is a verb or a word of two syllables”, so I can say that ‘buba’ (p. 20) is an utterance of two syllables. Moreover, just as I can say that ‘donkey’ is a conventionally significative utterance, so I can say that ‘buba’ is an utterance not yet imposed to signify by convention. Now, therefore, the principal question is going to be whether we should take expressions absolutely and without qualification in their proper sense, and whether we should accept or deny them in accordance with the proper sense. I reply at once that the force of an expression [*virtus sermonis*] never obliged us to do so, indeed, sometimes we are supposed to take expressions in the proper sense, and sometimes in improper, such as parabolic or ironical, senses, or in other senses, far removed from their proper sense. ²⁸

So, although we can use any utterance and inscription in the way we wish, once it is conventionally instituted to signify somehow, that established signification is to be regarded as its proper, primary sense, and any other only as a secondary, improper sense. Nevertheless, there is no hard and fast rule that says that we should take the expressions of our spoken or written languages always in their primary sense, and that we should evaluate our propositions for their truth or falsity accordingly. On the contrary, sometimes we are obliged to take written or spoken expressions in their secondary, improper sense, if that is what is *intended*:

For example, if we read the books of our masters, such as Aristotle or Porphyry, we should take their expressions according to those senses according to which these masters imposed them, even if they are improper, and thus we should absolutely accept those expressions as true, for taken in those senses they are true. Nevertheless, we should note that they were stated according to those senses, and if they were taken in their proper senses, then they would be false. And if those who lecture on the books of these masters were to interpret their expressions otherwise than they believe they were stated by the masters, then they would be cantankerous and insolent, and not worthy of studying or lecturing on the books of philosophers. ²⁹ Likewise, we should assert all expressions of the Bible and the Gospels to be absolutely true, and take

them according to the senses according to which they were stated and according to which they are true; and anyone doing otherwise would be mistaken and blasphemous, or perhaps heretical. However, we can certainly say of several of those expressions that they would be false, if they were stated and received in their proper sense. ³⁰

Indeed, using narrow-minded literal interpretations may provide an easy way to debunk authority. In Buridan's time, this was the tactic used (p. 21) by religious zealots, like Nicholas of Autrecourt, to "expose Aristotle's errors" in order to discourage the youth from the vain pursuit of the worldly wisdom of philosophy and to turn them toward religious life. In modern times, on the contrary, it has been often used by "enlightened intellectuals" to expose "the inconsistencies of the creation story," either by deliberately ignoring or just not having a clue about the sophisticated allegorical interpretations provided by the theological tradition, which contains sometimes strikingly penetrating insights into such metaphysical issues as the nature of space and time.

Buridan concludes his discussion as follows:

Now, therefore, because of the usual way of speaking I say that we are allowed to use phrases the way we wish [*ad placitum*], as long as we do not take them according to false senses, and this is why we usually understand by 'the force of a phrase' [*virtus sermonis*], not properly, but conventionally [*ad placitum*], its proper sense. Therefore, when we say that a proposition is true according to the force of the phrase [*de virtute sermonis*], by this we should understand that it would be true for someone taking it in its proper sense. And when we say it is false according to the force of the phrase, by this we should understand that it would be false for someone taking it in its proper sense, although absolutely speaking it is true, for we are taking it in another sense, according to which it is true. And if we understood these words of ours differently, then we would understand them in the wrong way. Therefore, we should note that the same spoken proposition could be true to me and false to you, for a spoken proposition is true only because it designates a true mental one. So, the proposition 'Man is a species' stated by Porphyry is true to me, for I take it according to material supposition, and thus it designates for me something true, since I receive it according to material

supposition and thus it designates to me a mental proposition that is not false, but true, in my mind. But perhaps it is false to you, for you want to take it only according to its proper sense, according to which it designates to you a false mental proposition. ³¹

In view of this discussion, we can summarize Buridan's position in the following way. Logic, being a science (albeit a practical one insofar as it seeks to know with regard to some practical end), has to demonstrate necessary, universal propositions concerning its primary subject matter, namely, reasoning, and whatever else it considers in relation to this subject matter. These universal conclusions, nevertheless, can only concern singular pieces (p. 22) of reasoning (as well as their parts, and whatever else is related to them), because everything is singular. However, singular pieces of reasoning and their parts are nothing but singular items of some language, which is the necessary medium of reasoning. ³²

Now any spoken language is but a system of singular utterances, while any written language is but a system of singular inscriptions. Moreover, it is obvious that any such utterance or inscription belongs to a language only insofar as it produces some understanding in the minds of competent users of the language, that is to say, insofar as it is meaningful at all. Therefore, any singular utterance or inscription is a part of a language only insofar as it is imposed to signify what is conceived by an act of understanding, a human concept, or to use the technical phrase of Ockham and Buridan, only insofar as it is *subordinated* to a concept.

However, concepts, the acts of understanding which render utterances and inscriptions meaningful, are just as singular as are the utterances and inscriptions themselves. In addition, the acts of imposition whereby we subordinate utterances and inscriptions to concepts are singular, *voluntary* acts. This renders the relation of subordination conventional and changeable from one occasion of use to the next. So, the correlation of these singular items, inscriptions, utterances, and concepts is to be established in a piecemeal way, by carefully evaluating which utterance or inscription is subordinated to which concept in whose mind, on which occasion of its use, in what context. Apparently, this conception should render the interpretation of linguistic signs a nearly hopeless guessing game and the formulation of universal logical laws impossible.

Of course, this is not the case. Individual linguistic signs, symbol *tokens*, come in *types* based on their recognizable similarities. Indeed, even if

some tokens are not inherently similar, such as the upper- and lowercase letters of the alphabet (A, a, B, b, etc.) or different fonts or typefaces (a, a, a, etc.), we are *trained* early on to recognize them as similar. Obviously, the same applies to utterances at an even earlier stage, in a less formally educational setting, leaving much to our natural abilities to recognize phonemic similarities. Therefore, what primarily allows any sort of uniformity of interpretation is the fact that even if in principle any token of any type can be interpreted *ad placitum* at any time, *tokens are interpreted in types*. Once we specify the relevant variable conditions of interpretation, such as when, where, by whom, to whom, according to what intention, and so on a token is to be interpreted, then *any token of the same type under the same conditions is to be interpreted (p. 23) in the same way*. That is to say, a rule that applies to a token in virtue of its interpretation *as belonging to a given type under such and such conditions of its use* applies to *all* tokens of the same type under the same conditions.

To be sure, Buridan never talks about tokens or types. This is modern terminology, which I bring in to summarize the gist of Buridan's ideas. However, as we can see, Buridan does talk about the fact that any linguistic sign (whether spoken, written, or even mental) is a singular occurrence (which we call a token). He also talks about the fact that some of these are recognizably similar (thereby constituting what we would call a type), and about the fact that once we fix the variable conditions of interpretation, then talking about one token is equivalent to talking about all.

Buridan explicitly takes up this issue in the sixth question of his questions on Porphyry's *Isagoge*, when he asks whether a proposition in which the subject term is taken materially is universal, particular, indefinite, or singular.³³ In this question, Buridan provides some arguments to show that propositions with materially suppositing subject terms cannot be singulars, because of the fact that, in logic, we do have knowledge of such propositions, and this knowledge cannot be merely of singular propositions:

... Of singulars there is no scientific knowledge [*scientia*]; but there is scientific knowledge of the propositions 'man is a species', 'animal is a genus'. This is clear, for we know that a proposition like 'man is a species' has always been true according to material supposition, whenever it was propounded, just as well as we know that a proposition like 'man is capable of laughter' has always been true; therefore, it is not singular.

Again, he who a thousand years ago said 'man is a species' in the material sense said something true, and he who now says 'man is a species' says something true without any new imposition of the word. Therefore, the term 'man' taken materially supposits for several things, and consequently it is a common term. The first consequence is proved: when I say 'man is a species' the term 'man' supposits for a term that exists now, otherwise it would not be true. And when [the proposition] 'man is a species' was uttered a thousand years ago, then the term 'man' supposited for a term that existed then, but the terms that exist now are other than those that existed then; therefore, etc. ³⁴

Accordingly, Buridan concludes that a proposition such as 'man is a species' is indefinite, because its subject term is an undetermined common term that stands indifferently for any term similar in writing, in utterance, or in the mind to which those in speech and writing are subordinated. ³⁵ But (p. 24) then this gives rise to the question of why we keep talking about *the* term 'man', or *this* term, when we explain what the subject term of this proposition stands for. Buridan explains this usage in the following way:

But then the doubt arises why we usually expound such propositions by saying "man is a species, i.e., this term 'man' is a species", and "animal is a genus, i.e., this term 'animal' is a genus", etc. I respond that we usually do so because in many such cases it holds that if a singular is true, then the universal is also true. Likewise, if a singular is false, then the universal is also false, as e.g. if the proposition "this term 'man' is a species" is true, no matter which one you point out, then the proposition "every term 'man' is a species" is also true. Moreover, if this is false: "this term 'substance' is a species", then this is also false: "every term 'substance' is a species"; indeed, since this: "this term 'substance' is not a species" is true, no matter which one is pointed out; therefore, this is also true: "no term 'substance' is a species". For this reason, our masters did not mind taking a singular in place of a universal. We should note, however, that this is not always the case, namely, that if the singular is true, then the universal is also true. For example, although the term 'animal' is the predicate, pointing to this term in the proposition 'man is an animal', nevertheless, not every term 'animal' is a predicate,

indeed, in the proposition 'An animal runs' this term is not the predicate, but the subject. ³⁶

Therefore, no harm comes from talking about *the* term 'man' or *the* proposition 'man is a species'. But we have to keep in mind that we can use these singular phrases in place of universal ones whenever we attribute to the referents of these singular phrases (namely, to the token-expressions they refer to) attributes that pertain to these token expressions insofar as they belong to a given type. For in those cases such singular attributions will be equivalent to universal ones concerning all tokens of the same type. Indeed, in a similar vein, it is entirely harmless, and does not go against Buridan's nominalism, if we talk about tokens of the *same type*. However, we have to keep in mind that this locution is not used to refer to some abstract, universal "superentity" called *type*. This is just a comfortable way of expressing facts about a (potentially infinite) number of individual linguistic signs that are to be treated together because of their recognizable similarity (which we are trained to recognize as such). Indeed, in general, whenever we are talking about any sort of entities as being *of the same type*, we need not construe this locution as referring to such an abstract entity, which is somehow the same in all its distinct instances. Rather, this means that whatever is said of (p. 25) one token that is taken to be of a given type equally applies to another token that is (taken to be) of the same type, insofar as it is (taken to be) of the same type. ³⁷ (It is a further issue, however, just what determines whether two singular entities are [to be regarded as] tokens of the same type; this question is discussed not in logic, but in metaphysics.) ³⁸

Of course, in modern logical theory we are so used to talking about types rather than tokens that someone may even question all this apparently unnecessary fuss about tokens, as far logical theory is concerned. After all, Buridan's nominalist concerns aside, it may seem that we should not really worry about tokens in logic, because logical rules are supposed to concern *types* anyway, if logic is to be a science.

However, this is not the case. Indeed, quite apart from Buridan's nominalist biases, we should be concerned about tokens in *logical theory* as such. This is effectively shown by Buridan's considerations concerning what may be called the "Reciprocal Liar". ³⁹ Consider the following situation:

- Plato says, "Socrates says something false."
- Socrates says, "Plato says something false."
- Robert says, "Plato says something false."

- And they do not say anything else, while both Socrates and Robert think that Plato said something false, namely, that God does not exist. ⁴⁰

On a type-based analysis, we have to claim that Robert and Socrates say the same thing, indeed, not only syntactically but semantically as well. They are making the same claim (namely, that it is false) about the same thing (namely, about Plato's proposition), with the same words, used in the same sense with the same intention. Yet, Socrates' claim is indirectly self-referential (because through referring to Plato's proposition, which in turn refers to Socrates' proposition, Socrates' proposition refers to itself). Therefore, it asserts its own falsity (whence on Buridan's analysis it is false). However, Robert's claim referring to Plato's proposition (which refers to Socrates' proposition, which again refers back to Plato's and not to Robert's), is not self-referential. Therefore, it does not assert its own falsity (and so on Buridan's analysis it is true). As Buridan puts it:

... we should say that without a doubt, Socrates' proposition and Robert's proposition are similar in utterance and intention of the speaker and (p. 26) hearer alike, and yet they are not equivalent, because Plato's proposition, of which both of them were speaking, is referring to [*habet reflexionem super*] Socrates' proposition and not to Robert's proposition. Therefore, Socrates' proposition and Plato's proposition along with the case entail that Socrates' proposition is false, but they do not entail this concerning Robert's proposition; indeed, that one is true. ⁴¹

Therefore, even if universal logical laws, as such, should concern types, it does not follow that, as a matter of principle, logic should only concern itself with types, for at least in some cases the purely logical features of distinct tokens of the same type, because of being distinct tokens, are different. Therefore, again as a matter of principle, and quite apart from Buridan's nominalist convictions, logical theory should be primarily token-based.

Yet, this should not prevent the logician from formulating a number of type-based logical principles, as long as he takes the proper precautions concerning cases when token-differences cause significant logical differences. Indeed, it is not only singular tokens and the single occasions of their use that need to be taken into account, but also several subtypes, constituted by improper but accepted usage, on certain types of occasion,

maybe for a limited time, or in a specific context, as in the case of slang or stipulated usage: ⁴²

Also, it commonly happens in obligational disputations ⁴³ that the master stipulates that for the duration of the disputation the term 'donkey' should signify for the disputants precisely the same as that which the term 'animal' signifies for us when used in accordance with its common signification; and the respondent and the others agree. Then the proposition 'A man is a donkey' is true for them and is to be conceded by them, but a proposition similar in utterance would be totally false and impossible were it propounded outside of the context of such an obligation in the church of Notre-Dame to those there present. ⁴⁴

However, once the appropriate contextual factors are duly specified, one should be able to formulate universal logical laws concerning types of expressions, provided that there is something that fixes the interpretation of all tokens of the same type under the same sorts of contextual conditions.

Notes:

(1.) Buridan, J. *Summulae de Dialectica*, an annotated translation with a philosophical introduction by G. Klima, New Haven, CT: Yale University Press, 2001, 1.1.1, p. 6 (henceforth "SD").

(2.) Who exactly Peter of Spain was is still an open question. See: D'Ors, A. "Petrus Hispanus O.P. Auctor Summularum," *Vivarium*, 35(1997), pp. 21–71; d'Ors, Angel, 2001. Petrus Hispanus O.P, Auctor Summularum(II): Further documents and problems. *Vivarium*, 39: 209–254; d'Ors, Angel, 2003. Petrus Hispanus O.P, Auctor Summularum(III): "Petrus Alfonsi" or "Petrus Ferrandi?" *Vivarium*, 41: 249–303; Spruyt, Joke, "Peter of Spain," *The Stanford Encyclopedia of Philosophy* (winter 2007 edition), ed. Edward N. Zalta, URL = <http://plato.stanford.edu/archives/win2007/entries/peter-spain/>.

(3.) For several medieval versions of the famous dictum, apparently deriving from St. Augustine's *De Ordine*, II.13, see De Rijk, L. M. *Logica Modernorum. A Contribution to the History of Early Terminist Logic*, Assen: Van Gorcum, 1967, II-1, pp. 32–33, 412, 418, 428, 431, 435, 436; II-2, pp. 357, 379, 417; Peter of Spain, *Tractatus, called afterwards Summa logicales*, ed. L. M. de Rijk, Assen: Van Gorcum, 1972, p. 1. According to the critical apparatus of

this edition, the phrases *ars artium* ['art of arts'] and *scientia scientiarum* ['science of sciences'] occur only in some variants of the text, in accordance with Buridan's remarks later. The phrase derives ultimately from Aristotle, *Topics*, I, 2, 101b3-101b4.

(4.) De Rijk, L. M. *Logica Modernorum*, II-2, pp. 459-460.

(5.) Buridan, J. *Quaestiones in Porphyrii Isagogen*, in Tatarzynski, R. "Jan Buridan, Komentarz do Isagogi Porfiriusza," *Przegląd Tomistyczny* 2(1986) (henceforth: QiPI), pp. 122-124.

(6.) See Klima, G. "The Medieval Problem of Universals," in *The Stanford Encyclopedia of Philosophy* (winter 2001 edition), ed. E. N. Zalta, <http://plato.stanford.edu/archives/win2001/entries/universals-medieval/>. For an eminently useful collection of relevant texts in a reliable English translation, see Spade, P. V. *Five Texts on the Mediaeval Problem of Universals*, Indianapolis: Hackett, 1994.

(7.) For a discussion of these genres and further references, see Sweeney, E. "Literary Forms of Medieval Philosophy," in *The Stanford Encyclopedia of Philosophy* (winter 2002 edition), ed. E. N. Zalta, <http://plato.stanford.edu/archives/win2002/entries/medieval-literary/>.

(8.) Cf. De Rijk, L. M. *Logica Modernorum*, I, pp. 13-23. For detailed accounts of the recovery of the entire Aristotelian corpus by, and its influence on, the Latin West, see Dod, B. G. "Aristoteles latinus," and Lohr, C. H. "The medieval interpretation of Aristotle," in *The Cambridge History of Later Medieval Philosophy*, eds. N. Kretzmann, A. Kenny, and J. Pinborg, Cambridge: Cambridge University Press, 1982, pp. 45-98.

(9.) In the Cologne edition of 1493 *Textus et copulata omnium tractatum Petri Hispani*, quoted in De Rijk, L. M. *Logica Modernorum*, I, p. 15.

(10.) "We should note that concerning action and passion and the four other remaining categories I do not intend to follow the doctrine of the author of *The Book of Six Principles*. For I think that he was mistaken, since he believed that no terms that pertain to diverse categories can supposit for the same thing, and so he maintained that action is one form and passion is another, and that passion would hence be an effect of action; this is totally false, and thus his doctrine made many people err." SD 3.6.1, p. 193. *Anonymi Fragmentum vulgo vocatum 'Liber Sex Principiorum'*, in *Aristoteles Latinus*, ed. L. Minio-Paluello, Bruges/Paris, 1966, I 6-7, p. 41, l. 8.

(11.) For brief analyses of Peter of Spain's and Buridan's work, see Klima, G. "John Buridan" and "Peter of Spain: The Author of the *Summulae*," in *Blackwell's Companion to Philosophy in the Middle Ages*, ed. J. Gracia and T. Noone, Oxford: Blackwell, 2003.

(12.) SD, p. 4.

(13.) See, however, Buridan's *Quaestiones in Praedicamenta*, ed. J. Schneider, Munich: Verlag der Bayerische Akademie der Wissenschaft, 1983, pp. 129, 149, 145, in which at one point he exclaims that the teachings of the *Liber Sex Principiorum* are strong enough to kill dogs! To be sure, this uncharacteristically bold remark may reflect the general attitude toward this work by Buridan's time (but it probably still had the effect of making him appear "cool" in the eyes of his students).

(14.) Aristotle, *Ethics* VI, 3. 1139a15–1139a17.

(15.) SD 1.1.1.

(16.) QiPl, qq. 1–2, pp. 124–133.

(17.) QiPl, q. 1, p. 125.

(18.) In medieval logic, the term 'proposition' is used in a sense in which modern logicians would talk about "sentence-tokens". The modern philosophical understanding of "proposition" as referring to some "abstract entity" expressed by a sentence would be closest to some medieval philosophers' understanding of what they would call an *enuntiabile*, and what others, especially after Gregory of Rimini, would call a *complexe significabile*. For the history of these terms and the related conceptions, see Nuchelmans, G. *Late-Scholastic and Humanist Theories of the Proposition*, Amsterdam: North Holland, 1980. I will take up the issue of *complexe significabilia* in discussing Buridan's theory of propositions. Throughout this book, however, I am going to use the term 'proposition' in the way Buridan uses *propositio*, as referring to single sentence-tokens of concrete spoken or written languages (or even of "mental language," that is, single acts of judgment of human thought denoted by the corresponding spoken or written sentences).

(19.) The verb-coinage 'supposit for' is the nowadays widespread rendering of the medieval Latin technical term *supponit pro*, indicating the semantic function of a term in a proposition of standing for what the proposition

is about. The medieval theory of *supposition* was designed precisely to describe the various ways terms can be used in this function in various propositional contexts. Among the many refined distinctions provided by this theory (which will be discussed later in detail), the most fundamental one exploited by Buridan here is that between *personal* and *material* supposition. In Buridan's interpretation, a term is suppositing personally when it stands for what it signifies, whereas it supposits materially when stands for itself or any other token term of the same type.

(20.) QiPI, q. 1, p. 128.

(21.) To be sure, even though there was general agreement on the point that logic primarily concerns itself with argumentation, there was controversy among medieval authors over exactly what sorts of entities would constitute this subject matter. See, for example, Pini, G., *Categories and Logic in Duns Scotus: an Interpretation of Aristotle's "Categories" in the Late Thirteenth Century*, Studien und Texte zur Geistesgeschichte des Mittelalters, Bd. 77. Leiden: Brill, 2002, pp. 32–36.

(22.) QiPI, q. 9, p. 158. Cf. "Again [Op1r3.2], our concepts exist in our intellect as singularly and distinctly from one another and from other things as colors and flavors do in bodies; although such concepts do not in themselves have extension or corporeal location, they certainly all exist singularly." Buridan, J. *Questions on Aristotle's De Anima*, in *John Buridan's Philosophy of Mind: An Edition and Translation of Book III of his 'Questions on Aristotle's De Anima' (Third Redaction), with Commentary and Critical and Interpretative Essays*, ed. J. A. Zupko, 2 vols., Ann Arbor, MI: University Microfilms International, 1990 (Ph.D. diss., Cornell University, 1989) (henceforth QDA3), q. 8. p. 296.

(23.) 'Biltrix' is one of the several standard examples of a meaningless utterance (along with 'bu', 'ba', 'baf', 'buba', etc.), which one can find in medieval commentaries on Aristotle's relevant passage at the beginning of his *On Interpretation* and in the corresponding sections of medieval logical treatises.

(24.) SD, *Sophismata*, c. 6, *First Sophism*.

(25.) QiPI, q. 5, p. 143.

(26.) Ibid.

(27.) Ibid. , pp. 143–144.

(28.) Ibid. , pp. 144–145.

(29.) Cf. SD 4.3.2, p. 256. Buridan’s stance on the issue is particularly important in the context of the uproar over the teaching practices of some of his colleagues formally condemned in the university statutes of December 29, 1340. For detailed discussion and further references, see Zupko, J. *John Buridan: Portrait of a 14th-Century Arts Master*, p. 18ff.

(30.) QiPI, q. 5, p. 145.

(31.) Ibid.

(32.) Cf. “the task of logic is exercised in a disputation, which cannot take place without speech” SD 1.1.2. See also text quoted in n. 42 below. Note, however, that reasoning, that is, discursive thought, and especially disputation (which is reasoning between a respondent and an opponent), does not necessarily encompass all forms of thought, for there can be nondiscursive forms of thought, such as divine thought, which would not necessarily require some language (i.e., a compositional system of distinct meaningful units) as their medium.

(33.) QiPI, q. 6, pp. 146–149.

(34.) Ibid , p. 147.

(35.) Inscriptions are subordinated to concepts via utterances. In fact, Buridan treats the subordination of utterances to concepts analogously to the subordination of inscriptions to utterances. See SD 9.1, pp. 831–833.

(36.) QiPI, pp. 148–149.

(37.) Henceforth, I will refer to this stipulation concerning the way that I talk about types as *the nominalist proviso concerning talking about types*.

(38.) Very briefly, we can say that what determines belonging to the same type or kind, in the case of natural things of natural kinds, is the nature of these singulars (not necessarily distinct from the singulars themselves), whereas, in the case of artificial things, what determines this is our convention. Thus, for instance, two diamonds or two giraffes belong to the same natural kind because of what they are, whereas two token words

printed in different typefaces or two vehicles are of the same artificial type because of what we use them for and how we use them.

(39.) I am grateful to Calvin Normore for alerting me to this point. A very similar motivation for a token-based semantics was presented by a contemporary logician: Gaifman, H. "Pointers to Propositions," in *Circularity, Definition, and Truth*, eds. A. Chapuis and A. Gupta, New Delhi/Atascadero, CA: Indian Council of Philosophical Research/Ridgeview, 2000, pp. 79–121.

(40.) See SD 9.8, *Eighth Sophism*, pp. 971–974.

(41.) SD, *Sophismata*, c. 8, pp. 972–973.

(42.) Cf.: "We should briefly say that although there are propositions, expressions, and terms that are mental, or spoken, or written, Aristotle in this book only considered the spoken ones, because one has to deal with disputations in logic. And also because to deal with the nature and consideration of concepts is the business of the books *On the Soul* and *Metaphysics*, it befalls to the logician to apply the words corresponding to concepts in order to argue well and to speak properly. Therefore, every name that is treated here is an utterance. But you will ask: how do those names and verbs signify at will; at my will or yours? I reply that there are nouns and verb signifying the same things in the same way to a whole large community, as the Latin words do to all Latins, and Gallic words do to all Gauls. And it is not in my power or yours to remove or change this common signification, but it was in the power of the first impositor or impositors of these languages, who gave these significations to these utterances at their will. But even now several people who agree among themselves can make up a language at their will for their own use, as is clear in the case of those who speak slang. Indeed, even I, as we are discussing something or I am teaching you, impose utterances to signify at will, as when I say that let the major extremity be called *a* the minor *b*, and the conclusion *c*. For I could say otherwise if I wanted." Buridan, J. *Questiones longe super librum Perihermeneias*, ed. R. van der Lecq, Nijmegen: Ingenium Publishers, 1983 (henceforth: QDI), lb. 1, q. 3, p. 16, ll. 4–23.

(43.) Obligational disputations were a highly regulated formal exercise in dialectical sparring at the medieval university. For more on this topic, see Yrjönsuuri, M. *Obligationes 14th Century Logic of Disputational Duties*, Acta Philosophica Fennica 55, Helsinki: University of Helsinki, 1994; Yrjönsuuri, M., ed. *Medieval Formal Logic: Consequences, obligations and insolubles*, New Synthese Historical Library 49, Dordrecht: Kluwer, 2001;

Keffer, H. *De obligationibus: Rekonstruktion einer spätmittelalterlichen Disputationstheorie*, Leiden: Brill, 2001.

(44.) SD, *Sophismata*, c. 6, fifth conclusion, p. 932.



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The Primacy of Mental Language

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Abstract and Keywords

The third chapter discusses how Buridan's conception of mental language provides the grounding for the objectivity and universality of logic despite the radical conventionality of written and spoken languages. Buridan's conception, since it is based on the Aristotelian idea of the uniformity of natural human capacities in all individual humans, is nothing like modern psychologism, the kind heavily criticized by Frege. Indeed, Buridan's mental language is not a "private language" criticized by Wittgenstein. On Buridan's conception, the naturally representative units of human mental language, namely, human concepts, are not inter-subjectively inaccessible private mental states; on the contrary, they are common to us all in our thinking. Of course, our concepts, being individual acts of individual minds are singular token-symbols, but they are common in their representational content: in what and how they represent for all humans. This is precisely the ground for their intersubjective accessibility as well as for the objectivity and universality of logic.

Keywords: psychologism, mental language, private language, representational content

So, what is it in the last analysis that fixes the correct interpretation of a token-symbol or expression? Moreover, once we have that correct interpretation, how can we assign the universal logical properties of that token, insofar as it belongs to its appropriate type?

As we can see from the foregoing, Buridan's answer is that what fixes the correct interpretation of a spoken or written phrase is the *mental concept* to

which the phrase in question is subordinated according to that interpretation. To be sure, the correct interpretation need not be the interpretation expressing the *proper* or *primary* sense, because occasionally the correct, *intended* interpretation is provided by some *improper*, *secondary* sense of the phrase in question. In fact, this is precisely why it is the *intention*¹ expressed by the phrase on the given occasion of its use that determines its correct semantic evaluation. The reason for this is that the written or spoken phrase has any sense whatsoever only in virtue of the fact that it is subordinated to the concept or intention it is supposed to express according to the intended interpretation, for it signifies just what is conceived by the corresponding concept. So, the correct interpretation of an utterance or inscription is fixed by the mental concept to which the utterance or inscription is actually subordinated on a particular occasion of its use. Consequently, the reason why tokens of the same type have the same semantic features allowing us (p. 28) to evaluate them in the same way in the same type of context is that under these circumstances they are subordinated to the same concept.

Indeed, in a somewhat unrelated discussion, Buridan remarks that (once the context of their use is fixed) these distinct token expressions are subordinated to *numerically the same concept* in the same mind. Buridan makes this clear in his discussion of Porphyry's definition of genus, according to which a genus is predicable of different species or of things different in species. He first objects to this description in the following way:

... if a genus were predicated of several species, this would take place either in the same proposition or in several propositions; but this cannot happen either way; therefore, etc. The major premise is known because it is an exhaustive division. The minor is proved [as follows]. You cannot say that the genus 'animal' is predicated of several species in one proposition, because you cannot provide such a proposition. If you say 'man donkey is an animal', then the proposition is false, or perhaps ungrammatical. If you say 'A man and a donkey is an animal', the proposition is still false [and still ungrammatical, for the conjunctive subject would require a plural verb, both in Latin and in English—GK]. If you say 'A man or a donkey is an animal', then a species or an individual could just as well be predicated of several species, for a man or an animal is a man, and a man or a donkey is Socrates. It cannot be said either that a genus is predicated of several

species in different propositions. For every term like [*omnis talis terminus*] ‘animal’ is a genus, and it is not the same term ‘animal’ in the proposition ‘A man is an animal’ that I utter, and in the proposition ‘A donkey is an animal’ that you utter, because they are totally distinct from each other, and separate in place and subject. Or even if I utter such [propositions] successively, there is still nothing that is the same in them, indeed, there is still nothing of the second, while I am uttering the first, and the first has totally vanished by the time I am uttering the second; therefore, no term is the same in them, and consequently no same genus either. Therefore, no genus is predicated in both, but one genus in one and another in the other; therefore, no genus is predicated of the species ‘man’ and ‘donkey’, nor can it be predicated, for “what was once said, cannot be resumed again.” ²

As we can see, Buridan makes it very clear that in his view there is no term that is the same in two distinct spoken propositions. There are no type-terms, which are somehow the same in their different “incarnations,” that is, which could be regarded as universals “repeatable” in their different instances. Once you have uttered a word, it is literally *gone with the wind*. So, if you make another utterance, it will have to be a new one, even if (p. 29) it will sound exactly like the one you just uttered. Despite our usual way of putting the matter, *nobody can say or repeat the same thing over and over again*. One *can*, nevertheless, reuse something that is permanent.

In his response, Buridan points to a radical difference between mental and spoken terms with respect to their “repeatability”:

Therefore, we should note that what are called ‘different in species’ are diverse species such that one does not contain the other, or terms contained under species that are diverse in this way. This is what Porphyry meant, namely, that a genus is predicable of several diverse species or [of terms] contained under them. I think that this is absolutely true concerning every mental genus: for the concept from which we take the name ‘animal’ is in my intellect permanently, and not [only] transiently, as is an utterance [in the air]. Therefore, with that concept, I can form in my mind the mental proposition ‘A man is an animal’, and again ‘A horse is an animal’; thus, I use that concept as the subject, and then again, I can use it

as the predicate in another proposition. ³ However, the case is different with a spoken genus, as it was correctly argued earlier. Therefore, it appears to me to have been correctly proved that no spoken genus can be predicated of several species anymore than the term 'man' [could be]. For this reason, if that description is to be understood concerning a spoken term, then the phrase 'of several things different in species' demands exposition, which can be of different sorts. First, [it may be] that a spoken genus can be predicated of several things different in species, that is to say, that it designates a concept that is predicable of several things different in species, just as a urine sample is healthy, that is, it designates a healthy animal. Alternatively, in this way: every genus and others similar to it are predicable of several things different in species, namely, in such a way that one of the one and another of another. ⁴

So, the occurrences of two token-terms of the same type (provided they are interpreted in the same way) are subordinated to *numerically* one and the same concept in the same mind, and so, given that whatever semantic features they have they have from the semantic features of the concept, no wonder they will have exactly the same semantic features. But then, if the semantic features of concepts are not variable, this certainly sufficiently fixes the interpretation of token-terms according to a given subordination, for according to that subordination they will all be subordinated to the same concept, and so they will all have the same semantic features.

Buridan makes it quite clear that in his view a concept cannot vary its semantic features, which means that there is no ambiguity in mental (p. 30) language. The same concept always represents the same things in the same way, so there is not even a variation of supposition in mental language in the way there is in spoken or written languages:

We should know, therefore, that (as it seems to me), material supposition occurs only where significative utterances are concerned. For no mental term in a mental proposition supposits materially, but rather always personally, for we do not use mental terms by convention [*ad placitum*] as we do with utterances and written marks. This is because the same mental expression never has diverse significations, or acceptations; for the affections of the soul [*passiones*

animae] are the same for all, just like the things of which they are the likenesses, as is said in bk. 1 of *On Interpretation*. Therefore, I say that the mental proposition corresponding to the proposition 'Man is a species', insofar as it is true, is not a proposition in which the specific concept of men is the subject. Rather, it is a proposition in which the subject is the concept by which the specific concept of men is conceived; however, it supposits not for itself, but rather for the specific concept of men. Hence, it is clear enough that paralogsms involving such a change of supposition come under the fallacies of words. ⁵

Buridan here interestingly, but I think quite justifiably, departs from Ockham, who would see no problem in attributing this type of ambiguity to mental terms. For Ockham, it would be quite possible to take the concept to which the term 'man' is subordinated in material supposition. That is to say, it could be taken to refer to itself in the mental proposition designated by the spoken proposition 'Man is a species', just as we can take the subject of the spoken proposition to refer to itself. For Buridan, however, this is unacceptable. ⁶

Apparently, this is a minor technical issue concerning a rather obscure theoretical point ("the supposition of mental terms"), but this apparently minor technical difference indicates much deeper differences in Ockham's and Buridan's conception of the identity conditions of concepts, having far-reaching consequences in their respective philosophies of mind and language.

3.1 The Identity Conditions of Concepts

What is Buridan's reason for banning material supposition in mental language? Moreover, why is allowing it problematic (if at all) in Ockham's (p. 31) conception? After all, both authors agree that concepts naturally represent their objects, namely, the things we conceive by means of concepts. Furthermore, both of them agree that we can use our words subordinated to our concepts to supposit either significatively, for the things conceived by the concepts, or else nonsignificatively, to supposit for the concepts to which they are subordinated or for themselves or other words similar to themselves (i.e., other token-words of the same type). So why could not the same phenomenon occur on the mental level, as Ockham seems to think it can?

To be sure, *exactly* the same phenomenon, namely, the case involving the word suppositing for the concept it is subordinated to, cannot occur on the mental level, because mental concepts are not subordinated to further concepts in the way conventionally signifying words (i.e., utterances and inscriptions) are subordinated to naturally signifying concepts.⁷ The reason for this is the fact that concepts represent naturally. Inscriptions need to be subordinated to utterances, and conventionally signifying utterances need to be subordinated to concepts, because it is only by virtue of this subordination that they signify anything (namely, whatever is naturally signified by the concept to which they are subordinated). However, subordination stops there. A concept that represents some object does not signify it by virtue of anything else: to have such a concept active in one's mind is just to conceive of the object in the way the concept represents it.

This understanding of the representative function of a concept, however, immediately renders Ockham's account problematic. For to have a concept active in one's mind on this understanding is to conceive of the object represented by the concept, whereas the same concept may represent different objects. Sometimes it may represent its ordinary objects, as the concept of human beings does in the mental counterpart of 'Man is an animal'. At other times, it may represent itself or a similar concept, as it does in the mental counterpart of 'Man is a species'. Consequently, it would appear that one might not be sure just *what* one conceives of, for one may not be sure whether the same concept is to be taken to stand for itself or for its ordinary objects, just as one may not be sure about the supposition of the subject term of the corresponding spoken proposition. But this seems absurd, namely, that having a concept active in one's mind, one is not sure what one conceives by that concept, given that having the concept active in one's mind is nothing but conceiving of its object in the way the concept represents it. In his detailed analysis of the problem, Paul Spade put the point in the following way. "Since concepts signify just what is conceived by them— that (p. 32) is, just what they are thoughts of—and since in general it is only in personal supposition that terms supposit for what they signify, it follows that if mental terms may have simple or material supposition, we do not always know what we are asserting in a mental sentence."⁸

A defender of Ockham might quickly retort by saying that this charge is a *non sequitur*. This is because just as the spoken term changes its supposition according to the constraints of the context in which it occurs, so it may happen with concepts. The concept of man in the context of the mental proposition 'Man is an animal' represents human beings, whereas in the

context of the mental proposition 'Man is a species', *as a result of being embedded in this particular context*, it represents itself. Therefore, just as we can know what the subject of a spoken proposition supposits for based on its context, so, too, we can know the same about the subject of a mental proposition on the same basis. ⁹

Now whether or not this is a feasible defense of Ockham's position, the important point from our perspective is that Ockham's position clearly requires something that Buridan seems to reject, namely, the natural variability of the representative function of the same concept. For Buridan, by contrast, what a concept represents is naturally invariable: what a concept *is* necessarily involves what it *is a concept of, determined by the necessity of nature*. As we shall see, this apparently simple claim, which we may dub "the thesis of the natural invariance of mental representation," has far-reaching consequences in Buridan's epistemology, which I will discuss later, insofar as they pertain to his logic. ¹⁰

3.2 The Universality of Logic

For the time being, the important thing to note is that for Buridan, specifying the object(s) and the subject of a concept (along with the time of its formation or actual use and the way it represents its object[s]) ¹¹ uniquely determines the *single token-concept* of the single mind about which we are talking. Accordingly, specifying the object(s) of a concept, disregarding *whose* concept we are talking about, determines that we are talking about *the same intersubjective concept-type* (keeping in mind the nominalist proviso concerning talking about types, as being just a comfortable way of talking about a potential infinity of tokens). This is precisely what allows Buridan in the previously quoted passage to base his solution to the problem of the (p. 33) subject of the mental counterpart of 'Man is a species' on the "sameness" (that is, sameness *in type*) of concepts for all, as opposed to the differences in the various spoken languages of various peoples. By specifying that we are talking about the concept by which we conceive of human beings indifferently (i.e., disregarding their individual differences), we uniquely determine the type of concept of which each one of us has a token in mind. That is to say, we are talking about the concept by which I conceive of human beings indifferently, and about the concept by which you conceive of human beings in the same way, and so on. Being members of the same species, we all have the same natural capacities to form this type of concept. This is precisely why we are able to identify this type of concept in communication, even across different languages, as long as we are able

to specify the relevant relations of subordination between the conventional spoken and written symbols of various languages and the corresponding concepts. That is to say, we are able to communicate as long as I am able to figure out what you have in mind when you are using a certain utterance of a certain language and *vice versa*.

Nevertheless, *this* task is certainly not impossible, despite the fact that we have no special “mind-o-scopes” to peek into each other’s minds. Indeed, having such a strange device would be no more useful than looking at the surface of a computer disk in trying to find out about its contents. By looking at the disk itself, I can only find out about its physical properties, say, the distribution of magnetic polarity on its surface, if it is a magnetic disk, or the distribution of tiny pits on its surface, if it is an optical disk. However, this would tell me nothing about the *contents* of its files. To find out about that, I would have to put the disk into the appropriate drive and have the computer decode its information content and encode it into a form that would allow me to realize what it is about, such as text, sounds, or images. In the same way, to learn about your thoughts, instead of a useless direct “peek,” I need you to encode them into a form that makes sense to me, such as linguistic or other signs that allow me to think *the same thoughts* you do.

To be sure, in a sense I cannot possibly think the same thoughts you do anymore than I can perform any of *your* actions. For your actions are *your* actions because you perform them; so if I were to perform them, then they would no longer be yours. I cannot do your dancing; I can only make the same sort of moves you make. I cannot do your talking; I can only utter the same (type of) words, and so on. In the same way, I cannot **(p. 34)** have your act of thought; I can only have the same type of act. However, of course I *can* have the same type of act as long as the sameness in type is guaranteed by the sameness of content, which, in turn, is specified by the sameness of the object and the way in which it is thought of. Now this is *precisely* Buridan’s point, when he says:

The same mental expression never has diverse significations, or acceptations; for the affections of the soul [*passiones animae*] are the same for all, just like the things of which they are the likenesses, as is said in bk. 1 of *On Interpretation*.¹²

All in all, for Buridan, concept-tokens are individuated by their subject (the person who thinks by means of them), the time of their formation (or actual use),¹³ and their object(s), along with the way they represent their object(s). That concept-tokens are individuated by their subjects is clear from the fact

that my concept whereby I conceive of humans indifferently is certainly not numerically the same as your concept whereby you conceive of humans in the same way. Clearly, I can have this concept at a time when you do not, and *vice versa*. For example, if I was born earlier, I may have had this concept at a time when you did not even exist, and thus you did not have any concepts at all.

Indeed, this example also shows how the time of their formation figures into the individuation of concept-tokens: one such token may exist at a time when another does not, certainly in different subjects, but also in the same subject, when a person successively acquires such concept-tokens.

It is a further question, though, whether the same subject could successively acquire different token-concepts of the same type. Given Buridan's insistence on the permanence of concept-tokens (as opposed to utterance-tokens),¹⁴ his answer to this question should probably be 'no', except in a case when the previous token is lost. I cannot have different token-concepts of the same type in my mind at the same time, as being in the same subject at the same time these distinct tokens could only be distinct because of what they represent or how they represent it. However, that would make them different in type, so then they would not be different tokens of the same type. Therefore, once I have acquired a token-concept of a given type, I cannot acquire a new one, except if I lose the first and I acquire another token of the same type. Whether this can happen, and if so how, is a matter of *psychology*. Perhaps I can lose a concept I acquired in my childhood, say, because of some trauma, or simple oblivion,¹⁵ so that in order to be able to think the same *type* (p. 35) of thought again, I need to "reacquire" the concept (that is, acquire another token of the same type) pretty much the same way I originally did.

However, what is important from the point of view of the *logical* function of concepts is that the only thing that distinguishes them in the same subject at the same time is *what* they represent and *how* they represent it, and that this distinction between two token-concepts of the same mind is at the same time a distinction of types. For certainly, the concept whereby I conceive of one sort of object in a certain way is different in kind from the concept whereby I conceive of another (kind of) object or the same (kind of) object in a different way.¹⁶ It is precisely for this reason that if we only specify their objects and the way they represent them (i.e., what and how they represent), then we specify concepts in terms of their *type*. But from this it follows that different people being able to think of the same objects in

the same ways necessarily have concepts of the same type, even if, being different subjects, they can never have the same token-concepts.

However, utterances, being subordinated to concepts, by their actual signification specify precisely the objects of the concepts to which they are subordinated. Therefore, using the same utterances in the same sense (i.e., with the same signification) enables us to activate the same type of concepts in each other's minds, yielding intersubjective understanding. So, even if finding out about the actual subordination of an utterance, that is, about its actual intended sense, may sometimes be a tricky task, it is certainly not in principle impossible, and it is certainly the way in which we achieve intersubjective understanding.

In fact, we need precisely this sort of understanding for the formulation of universal logical principles, that is, universal laws that determine the necessary logical relations for *all* token-concepts of individual thinkers, insofar as these tokens are sorted in the same types, and thus obey the same laws. For this reason, logical principles, insofar as they concern types of human concepts (always keeping in mind the nominalist proviso concerning talking about types), are universal and the same for all. Therefore, for the formulation of these principles, we can safely use conventionally significative utterances, as long as we keep in mind the actual or typical conditions of their subordination. For then we can specify which *types* of concepts they are subordinated to under these typical conditions of their use, which we can do by specifying what and how these concepts represent, that is, what and how the terms subordinated to them signify. Nevertheless, we can only achieve this in a piecemeal manner, specifying these characteristics (p. 36) regarding the different kinds of concepts that typically populate our minds (while still leaving room for a great variety and even all sorts of idiosyncrasies in our actual individual or various collective conceptual apparatuses).¹⁷ Therefore, to give concrete meaning to these so far somewhat vague considerations concerning concepts in general, we now need to turn to a more detailed analysis of the logical functions of the various kinds of concepts distinguished by Buridan.

Notes:

(1.) In the medieval technical jargon, 'intention' [*intentio*] is another word for 'concept' [*conceptus*]. This notion of intention is of course not the same as the notion of what is intended by a voluntary agent, but it is not unrelated to it either. After all a voluntary agent wants, that is, intends by his or her will,

what he or she conceives as the end of his or her action. And in the particular activity of communication, the agent, that is, the speaker *intends* to express what he or she conceives. That is precisely what the speaker intends or means to say, that is, that is his or her *intention* or *meaning*.

(2.) QiPI, q. 7, p. 152.

(3.) In the example, the concept of ‘animal’ occurs as the predicate in both cases, as required by the principal question, namely, whether the same genus can be predicated of several species. But of course it also could occur as a subject in another proposition. In any case, despite Buridan’s somewhat strange formulation here (which in fact may be the result of scribal error), his theoretical point is clear: unlike written or spoken terms, it is numerically the same concept that can occur in several mental propositions of the same mind.

(4.) QiPI, q. 7, p. 152.

(5.) SD 7.3.4, p. 522.

(6.) The first thorough discussion of Buridan’s solution in the modern literature was provided by Ebbesen, S. “The *Summulae*, Tractatus VII, *De Fallaciis*,” in *The Logic of John Buridan*. Acts of the Third European Symposium on Medieval Logic and Semantics, ed. J. Pinborg, Copenhagen: Museum Tusulanum, 1976, pp. 121–160. A very useful comparative analysis of Ockham’s, Buridan’s, and Albert of Saxony’s treatment of the problem is provided by Berger, H. “Simple Supposition in William of Ockham, John Buridan, and Albert of Saxony,” in *Itinéraires d’Albert de Saxe: Paris-Vienne au XIVe siècle*, ed. J. Biard, Paris: Vrin, 1991, pp. 31–43. Cf. also Ashworth, E. J. “*Nulla propositio est distinguenda*: La notion d’*equivocatio* chez Albert de Saxe,” in the same volume, pp. 149–160, and Ebbesen, S. “Can Equivocation Be Eliminated?” *Studia Mediewistyczne* 18(1977), pp. 103–124.

(7.) Cf. Albert of Saxony, *Perutilis Logica*, Hildesheim-New York: Georg Olms Verlag, 1974 (reprint of Venice, 1518), Tr. 2, c. 2, f. 11.

(8.) Spade, P. V. “Synonymy and Equivocation in Ockham’s Mental Language,” *Journal of the History of Philosophy* 18(1980), pp. 9–22, p. 21. Cf. Spade, P. V. “Ockham’s Rule of Supposition: Two Conflicts in His Theory,” *Vivarium* 12(1974), pp. 63–73, and Adams, M. M. *William Ockham*, Notre Dame, IN: University of Notre Dame Press, 1987, vol. 1, p. 351.

(9.) Cf. Berger, H. "Simple Supposition in William of Ockham, John Buridan, and Albert of Saxony," p. 34. More recently, Claude Panaccio and Ernesto Perini-Santos have argued along similar lines for the consistency of Ockham's position in "Guillaume d'Ockham et la *suppositio materialis*," *Vivarium* 42(2004), pp. 202–224. Note that I am not challenging Ockham's consistency; I am merely contrasting his handling of the issue with Buridan's with regard to their different implications concerning their conception of the conditions of concept-identity.

(10.) To anticipate the point very briefly, it makes a tremendous epistemological difference whether the objects of a concept are taken to figure into the identity conditions of the concept, and if so, how. For if I can have the *same* concepts no matter what their objects are, then it is at least logically possible for me to have the same mental states whether they in fact represent what they appear to represent or not. So this conception immediately gives rise to the imagination of an omnipotent deceiver who, being omnipotent, is capable of realizing whatever is logically possible, and so is capable of completely cutting me off from external reality. Indeed, I take this to be the most fundamental issue dividing the epistemological positions of late-medieval thinkers and driving many of the epistemological discussions of early modern philosophers. Cf. Klima, G. "Ontological Alternatives vs. Alternative Semantics in Medieval Philosophy," in *Logical Semiotics, S—European Journal for Semiotic Studies*, ed. J. Bernard, 3(1991), pp. 587–618.

(11.) These parenthetical qualifications, which are not important from the point of view of the present contrast between Ockham and Buridan, will be discussed soon.

(12.) SD 7.3.4, p. 522.

(13.) The passage quoted in n. 4 above suggests that, in the same mind, numerically the same token-concept is activated and reactivated on each occasion of its use. Therefore, once the concept is acquired it stays there numerically the same even when it is not active (when it does not enter into the formation of a thought, and so we are not actually thinking about the thing(s) conceived by means of this concept). However, this seems to be in conflict with Buridan's insistence in his psychology that a mental act and the corresponding habit are not the same. Cf. QDA3, q. 15, esp. pp. 163–164. But Buridan's position may simply be that in logic, token-concepts are counted to be the permanent, reusable intellectual habits, and not their fleeting counterparts, the acts of thought, for even if one token-act may not be

numerically the same as the next, if it corresponds to numerically the same habit, then it carries the same content. Therefore, even though two token-utterances of the same type may be subordinated to two distinct volatile, occurrent acts of thought, they may still be said to be subordinated to numerically the same concept, namely, the same habit giving rise to the two acts. Indeed, even if these habits themselves are mere capacities relative to the occurrent acts, they are *acts* in comparison to the initially “blank” intellect activated by the sensory information of phantasms. Therefore, it is appropriate to refer to them as “acts” in logic, where their distinction from occurrent acts of thought is irrelevant because of their sameness in content. However, this solution may only apply to simple concepts, which are certainly permanent intellectual habits, but not to complex concepts formed “on the spot,” say, on the occasion of a conversation.

(14.) Cf. again the text quoted in n. 4.

(15.) In fact, in accordance with the doctrine of *conversio ad phantasmata*, according to which our intellectual concepts constantly need to be reinforced by the mind’s “turning to the phantasms” or else they “fade out” from the mind, it is quite natural for us to lose our concepts for want of such reinforcement.

(16.) This might be taken to be a fundamental postulate concerning the identity-conditions of concepts, not requiring further justification. However, it also may be regarded as a consequence of more general Aristotelian metaphysical considerations concerning the individuation of accidents. For if two concepts of the same mind representing different objects or the same objects differently at the same time were merely numerically different, but not different in kind, then they would be merely numerically distinct accidents of the same subject at the same time. However, this is impossible, just as it is impossible for a thing to have, say, two shapes or two colors all over. By contrast, the thing certainly can have both a shape and a color, because these are two numerically distinct accidents that are also distinct in kind. Cf. Albert of Saxony, *Albert of Saxony’s Twenty-five Disputed Questions on Logic* (ed. M. J. Fitzgerald), Brill: Leiden, 2002, 79.1, p. 100, and Albert of Saxony, *Quaestiones in Artem Veterem* (ed. A. Muñoz-García), pp. 484–486, 731. See also Aristotle, *Metaphysics*, IV, c. 6, 1015b32s.

(17.) For a more detailed discussion of the philosophical consequences of this view of concepts in connection with the idea of different “conceptual schemes,” see Klima, G. “Understanding Matters from a Logical Angle,” Essay V in Klima, G. *Ars Artium: Essays in Philosophical Semantics, Medieval*

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The Various Kinds of Concepts and the Idea of a Mental Language

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Abstract and Keywords

Common representational content allows the Buridianian classification of human concepts discussed in the fourth chapter, which provides the first thoroughgoing, systematic survey of Buridan's conception of a mental language. The chapter discusses the divisions of concepts into syncategorematic and categorematic, simple and complex, absolute and connotative, and singular and common concepts. Besides presenting these classifications, the chapter provides a detailed discussion of the idea of conceptual complexity as semantic compositionality, its role in Buridan's nominalist program of "ontological reduction," and his precarious positioning of his account of the distinction between the representational contents of universal and singular concepts "somewhere between" those of Ockham and Aquinas. The discussion relates the emerging issues to contemporary concerns in the philosophy of mind and language, such as the possibility of forming genuinely singular concepts and simple substantial concepts that would allow some terms of our language to function as rigid designators; the differences between consciousness and mental content; and the problem of universal representation without real universals.

Keywords: syncategorematic concepts, categorematic concepts, simple concepts, complex concepts, absolute concepts, connotative concepts, singular concepts, common concepts, ontological reduction, rigid designators, universals, mental content

4.1 Syncategorematic versus Categorematic Concepts

Concepts, being representative acts of the mind, are naturally classified in terms of their representative function, which in turn is specified in terms of what and how these concepts represent or naturally signify. ¹ However, some concepts represent something only in connection with other concepts, whereas others represent something in themselves. The former are called syncategorematic, whereas the latter are called categorematic concepts. ²

Syncategorematic concepts, being corepresentative rather than representative absolutely speaking, do not represent anything in themselves, and so the terms subordinated to them do not signify anything in themselves apart from their concepts in the minds of competent users of the language to which these terms belong. ³

For example, the term-negation 'non' in the term 'nonhuman' does not signify anything in extramental reality, for there is no such a thing as a negation *in re* existing on a par with humans, beasts, plants, and rocks. However, this does not mean that this word does not signify at all. For even if it does not signify *something*, it does signify *somehow*: even if it does not signify a *negation in re*, it does signify *negatively*, namely, by negating the *significata* of the categorematic term with which it is construed, so that the resulting (p. 38) complex term supposit in a proposition for what is *not* signified by the negated categorematic term. For even if, according to Buridan, "the term 'non-man' signifies whatever the term 'man' signifies, although these are contradictory terms", ⁴ they obviously cannot *supposit for* the same things in a proposition, precisely because the negative term signifies negatively whatever the positive term signifies positively. That is to say, the term 'nonhuman' signifies the same things that the term 'human' does, but not in the same way, and this *different way* of signifying is provided by the presence of the concept of negation operating on the concept of 'human' in the mind forming the concept corresponding to the term 'nonhuman'. ⁵

Accordingly, we should think of the syncategorematic concept of term-negation as an act of the human mind operating on categorematic concepts that could be subjects or predicates of propositions. The result of this operation is a complex categorematic concept, which again can be the subject or predicate of a proposition; but this new concept supposit for those things that are *not* signified by its embedded categorematic concept. ⁶

Again, a mental proposition is formed by applying the syncategorematic concept of the copula to two categorematic concepts, the concepts of the subject and the predicate. ⁷ Accordingly, the concept of the copula is an act of the human mind operating on two categorematic concepts, to form a new complex concept, which, however, is not a term, because it cannot itself be a subject or a predicate.

By contrast, the concept corresponding to the English conjunction 'that' (and to the Latin conjunction *quod* or *quia* in one of their uses) has precisely the function of operating on a proposition so as to turn it into a term. The resulting term, therefore, can again be joined by the copula in forming another proposition, as in the complex concept corresponding to the construction 'That a man is an animal is necessary' or (more naturally in English) 'It is necessary that a man is an animal'. Indeed, these operations can be iterated indefinitely, yielding 'It is necessary that it is necessary ... that a man is an animal'.

4.2 Simple vs. Complex Concepts

These considerations naturally give rise to the distinction between simple and complex concepts. Syncategorematic concepts modify the representative function of categorematic concepts by forming with them new concepts that (p. 39) have a representative function different from that of the original categorematic concept. Therefore, it is natural to think of these new concepts as resulting from the combination of categorematic and syncategorematic concepts, and thus, as having some intrinsic structure, that is to say, a certain complexity. Indeed, when Buridan is talking about complex concepts as being the result of combination [*complexio*], he definitely gives us the impression that the conceptual combination in question strictly parallels the syntactical combination of the corresponding written or spoken phrases. As he writes:

It should, therefore, be realized that three kinds of expressions and three kinds of terms can be distinguished, as is touched upon at the beginning of *On Interpretation*: ⁸ namely, mental, spoken, and written. The combination [*complexio*] of simple concepts is called a 'mental expression', [and results from] compounding or dividing [*componendo vel dividendo*] by means of the second operation of the intellect, ⁹ and the terms of such an expression are the simple concepts that the intellect puts together or separates. ¹⁰ Now, just as

simple concepts are designated for us by means of simple utterances, which we call 'words', so also do we designate¹¹ a combination of simple concepts by a combination of words. It is for this reason that a spoken expression is an utterance made up of several words, which signifies for us the combination of concepts in the mind.¹²

However, despite possible appearances to the contrary, the combination of written and spoken words does not always have to run strictly parallel to the combination of concepts in the mind. As Buridan continues:

Further, a spoken expression should be called an 'expression' only insofar as it designates a combination of concepts in the mind. For if the whole utterance 'A man runs' were imposed to signify simply stones, as the utterance 'stone' does, then 'A man runs' would not be an expression, but a simple word, as is 'stone'. Hence, something is called a spoken expression or proposition only because it designates a mental expression or proposition, and a spoken proposition is called true or false only because it designates a true or false mental proposition, just as a urine sample is said to be healthy or unhealthy only because it designates that the animal is healthy or ill. It is in the same way that every utterance that appropriately designates a simple concept by convention [*ex institutione*] is said to be incomplex, [precisely] because it is subordinated in order to designate a simple concept.¹³

That is to say, just because some spoken or written sign has some sort of recognizable complexity (as even single words consist of syllables, and those (p. 40) of sounds or letters), one must not assume that the corresponding concept has some corresponding complexity. Indeed, it happens even in ordinary usage that an originally complex phrase is transferred to designate a simple concept. This is the case, for example, with the phrase "man's best friend" in English, which, at least according to one of its uses, is transferred to designate the same concept that is designated by the simple word "dog," which, as we can assume with Buridan, is a simple concept.¹⁴

However, even more importantly from the point of view of Buridan's nominalist project, the converse can happen just as well, in the case when a simple word is imposed to designate a complex concept. As he writes:

But we should also clearly realize that since it is in accordance with our will [*ad placitum nostrum*] that utterances are instituted [*instituuntur*] to signify our concepts, it often happens that we impose one whole utterance to signify a huge mental expression, in such a way that although that utterance signifies this mental expression, no part of that utterance taken separately signifies any simple concept of this mental expression. Under such circumstances, such an utterance is called a 'word' by the grammarian, as it is not divided into parts any of which would separately signify something. But it would not be inappropriate for the logician to call it a 'significant expression'; for example, if the name 'Iliad' were to be imposed to signify the same as the whole Trojan story, ¹⁵ or in the way the name 'vacuum' is imposed to signify the same as the expression 'place not filled with body', and in the way we can agree in a disputation that by A we understand the same as we do by 'golden mountain' and by B the same as by 'risible horse' and by C the same as by 'A man runs', and so forth. Under such circumstances, C would then be a spoken proposition, attributively speaking, ¹⁶ because it would designate a mental proposition. However, the grammarian would not call it a proposition, but rather a simple utterance, for it would not be divisible into utterances any one of which would signify some concept separately. ¹⁷

Accordingly, the divergence between grammatical and conceptual structure is the point of departure between the grammarian's and the logician's judgment on the simplicity or complexity of expressions. That is to say, it is the origin of the difference between what we may distinguish as *syntactic* vs. *semantic* complexity and simplicity. Because of this difference, a syntactically simple utterance may obviously be semantically complex by virtue of being subordinated to a complex concept. However, can a syntactically (p. 41) complex utterance be subordinated to a simple concept? Did not the example of "man's best friend" show just this possibility? Despite appearances to the contrary, I do not think "yes" would be Buridan's answer, or the correct answer, for that matter.

A syntactically simple utterance is one that is imposed to designate a concept as a whole, so that, although it does have distinguishable parts, none of its parts, as such, is imposed to designate some concept separately. Indeed, even if the utterance in question does have distinguishable parts

that are imposed to designate some concepts separately when they *do not* occur as a part of this utterance, because they do not have the function of designating these concepts when they *do* occur as parts of this utterance, the utterance is still syntactically simple. For example, the obviously simple English word ‘polecat’ is imposed as a whole to signify a concept whereby we conceive of a particular species of stinky animals. However, a polecat is neither a pole nor a cat. Even if the utterance ‘polecat’ has the distinguishable parts ‘pole’ and ‘cat’ which separately are also imposed in English to signify concepts whereby we conceive of some sorts of things, these concepts have nothing to do with the concept to which ‘polecat’ is subordinated. The representative function of this concept is in no way dependent on the representative function of those other concepts, and, so, the signification of this utterance is in no way dependent on the signification of its parts.

So, it seems we have to say that even if the syntactic simplicity/complexity and the semantic simplicity/complexity of utterances (and of corresponding inscriptions) are to be distinguished, they are not entirely independent of one another. For we can regard an utterance as syntactically complex only if its parts are, so to speak, “semantically relevant”—insofar as these parts have significations of their own *and* the signification of the whole is determined by their significations, that is, if the signification of the whole is compositionally dependent on the signification of its parts. Therefore, the English phrase “man’s best friend” in this sense is syntactically simple in its use when it is used as subordinated to the simple concept of dogs. However, of course, the same phrase is not syntactically simple in its use when it is used in its literal sense, when the signification of this phrase is determined by the signification of its parts. In that usage, the phrase signifies whatever it does by virtue of its signification being determined by the signification of its parts (and that could clearly be something completely different from dogs), because the parts function in the whole insofar as they are subordinated to **(p. 42)** their respective concepts. In this usage, therefore, the whole phrase signifies precisely what the complex concept resulting from the combination of those simple concepts represents.

Obviously, all these considerations concerning utterances analogically apply to inscriptions subordinated to these utterances. As Buridan continues:

We should also note that just as conventionally significant utterances have the function of signifying mental concepts, so do written marks have the function of signifying utterances.

Thus, just as utterances signify extramental things only by the mediation of mental concepts, so do written marks signify concepts only because they signify the utterances that signify those concepts. This is why you cannot read Hebrew letters when you see them, for you do not know what utterances they designate. Again, those who know what utterances our letters designate, but who do not know the significations of Latin utterances, correctly read the psalms, but they apprehend nothing further as to the signification of those letters, since they do not know the significations of Latin utterances. For the letters of the written word 'homo' signify man only because they signify the utterance that signifies man. ¹⁸

Therefore, whether it is an utterance or an inscription, a linguistic sign, which obviously has some physical parts, is syntactically complex only if its parts are semantically relevant in the previously described sense. That is to say, the syntactic complexity of a linguistic sign entails its semantic complexity. However, the converse entailment clearly does not hold: a linguistic sign's semantic complexity does not entail its syntactic complexity, for its syntactic simplicity is compatible with its semantic complexity, because of the complexity of the concept to which it is subordinated. Nevertheless, the complexity of the concept, and this is perhaps the most important general point from the perspective of Buridan's nominalism, need not match any corresponding complexity on the part of the thing or things represented by the complex concept. Even the simplest thing can be conceived in various ways, by means of concepts of any complexity. As Buridan explains:

We should note, therefore, that an inscription is said to be an expression only because it signifies a spoken expression, and a spoken expression is said to be an expression only because it signifies a mental expression. However, a mental expression is called an expression not because it signifies yet another expression in reality, but because it is a combination of several concepts in the mind, and these need not signify diverse things. For the same most simple thing, namely, God, can be conceived **(p. 43)** in terms of a great number of diverse concepts, which the soul can compose and divide in itself, and from which it can form a mental expression. Similarly, a written word is called a word or a term only because it signifies a spoken word. And the spoken word is called a word by the logician, properly speaking, if it is significatively

subordinated to a simple concept. But it would be called a word by the grammarian, even if it were not subordinated to a simple concept but to a [mental] expression, namely, if it were imposed in itself and as a whole together upon that mental expression, so that no part of it would separately signify some part of that mental expression. For example, if the word 'Iliad' were imposed to signify just as much as the whole text of the Trojan story, it would nonetheless be called a word, because no part of it, namely, neither, 'I', nor 'li', nor 'ad', would separately signify anything of that story. ¹⁹

However, would this not mean that a term and a proposition, or even two contradictory propositions, signify the same? As Buridan continues:

But you will immediately ask: "If there is not some sort of combination in the thing or things signified, what then does the mental expression signify by which the intellect asserts that God is God or that God is not God?" I reply that neither of these two expressions ²⁰ signifies anything more or anything else in external reality [*ad extra*] than the other does. For both of them signify in external reality only God. But the affirmative signifies Him in one way and the negative signifies Him in another way, and these [two different] ways are those complexive concepts ²¹ in the soul that the second operation of the intellect adds to simple concepts, and which are designated by the spoken copulas 'is' and 'is not'. ²²

Again, Buridan's answer holds the key to his nominalism in general: because linguistic items are mapped onto reality by the mediation of concepts, any sort of linguistic complexity (syntactic and semantic complexity, or mere semantic complexity) can be the result of the complexity of the concepts whereby we conceive of things in different ways. Therefore, the structure of reality represented by our language and thought need not mirror the structure of our language or our thought. Accordingly, by implication, any fashionable modern talk about speakers of different languages or thinkers of different cultures "living in different universes" should be handled with extreme caution.

However, this answer, although its implications may sound appealing, may give rise to some further concerns as well. In the first place, the whole business of conceptual complexity may sound spurious without any detailed **(p. 44)** understanding of what conceptual complexity consists in. Complexity

involves structure. But what sort of structure can we attribute to thoughts? And even if there is such a structure, how can we detect it, especially given Buridan's insistence on the relative independence of an invisible and inaudible conceptual structure from a visible or audible linguistic structure?

Indeed, the question is more pressing *ad hominem*, given the common medieval view, shared by Buridan, that concepts of the human mind are simple, immaterial qualities of an immaterial substance, the human intellective soul, which, therefore, should lack any genuine spatiotemporal structure. But the question should also be difficult for materialists, who would identify concepts with some brain-activity, such as some specific firing patterns of the cerebral cortex, for even if such patterns may have some genuine spatiotemporal structure, why should that structure be the same as, or just strictly correspond to, the representational complexity of a thought any more than linguistic structures do? After all, different people (or the same people at different times) may think thoughts with the same representational content, despite their possibly very different physiological constitution due to differences in age, gender, race, or even such drastic influences as brain damage, or lobotomy.

To address these questions, it is useful to start with what seems to be unproblematic, namely, the complexity of written or spoken expressions. As we have seen, in their case, we had to distinguish between syntactic and mere semantic complexity, but at least it seemed to be pretty clear what their complexity consisted in. The syntactic complexity of a complex written expression consists in the fact that its visually or even tangibly distinguishable spatially distinct parts each have their own semantic function in determining the semantic values of the entire expression. In the case of a spoken expression, the same applies to the audibly distinguishable and temporally distinct parts of the expression as it is uttered. By contrast, the mere semantic complexity of a syntactically simple written or spoken phrase consists in the fact that although such syntactically simple expressions may have spatially or temporally distinct parts, these parts, *insofar as they are parts of this expression*, do not have separate semantic functions whereby they would determine the semantic values of the whole expression. Still, in this case, the semantic function of the expression is not primitive, for it depends on the semantic values of other simple or complex signs, which are not their parts. (Just remember how the letter C could function as a proposition, or how we could arbitrarily introduce the word 'polecat' to do the same.)

(p. 45) But this idea can help us provide a coherent interpretation of the semantic complexity of concepts as well, regardless of whether concepts have any ontologically distinct (and hence possibly distinguishable) parts. For, if mere semantic complexity consists in the dependency of the semantic values of the complex sign on the semantic values of other signs, regardless of whether those other signs are its parts or not, we can certainly attribute mere semantic complexity to concepts without thereby attributing to them any ontologically distinct parts. However, with this understanding of semantic complexity, we can safely talk about those other concepts as the “parts” or “components” of the complex concept in an extended, improper sense (*per attributionem*, as Buridan would say), insofar as their semantic contribution in determining the semantic values of the complex concept in question is analogous to the determination of the semantic values of complex written or spoken expressions by the semantic values of their syntactic parts or components, in the strict, literal sense.

Indeed, Buridan has no qualms talking about simple concepts as being the components or integral parts of complex concepts; even if he maintains that no such concept has any quantity. As he writes:

... a mental proposition consisting of a simple copula, a simple subject, and a simple predicate is an integral whole of these simple concepts, yet none of these has any quantity. ²³

A complex concept is complex because its semantic values are functionally dependent on the semantic values of its “components,” that is, other concepts, which nevertheless clearly cannot be its quantitative parts. Still, because its semantic values are compositionally determined by the semantic values of its “components” in the same way as the semantic values of the corresponding complex written or spoken expression are determined by their components, we can clearly identify this conceptual structure by means of the corresponding syntactic structure of these spoken or written expressions. So, just as the semantic complexity of a syntactically simple written or spoken word can be explicated by means of the syntactic complexity of the synonymous complex expression, say, a nominal definition (*definitio exprimens quid nominis*), or exposition, or interpretation, so the mere semantic complexity of a complex concept is explicated by the syntactic structure of the corresponding linguistic expression. Indeed, this has to be the case, because according to Buridan the mere semantic complexity of a syntactically simple word consists precisely in its being subordinated (p. 46) to a complex concept, the compositional structure of which is explicated

by the syntactical structure of the synonymous complex expression, subordinated to the same concept:

... a definition that gives precisely the meaning of a name and the name thus defined have to have entirely the same intention corresponding to them in the soul. And the same goes for a proposition that requires some exposition on account of its syncategoremata, for the proposition and its exponents have to have entirely the same intention corresponding to them in the soul. ²⁴

Accordingly, despite the fact that syntax in general does not have to mirror conceptual structure, in principle, we can always establish a mapping of syntactic structure onto conceptual structure, thereby clearly identifying the latter in terms of the former.

For example, take the sentence: 'A bachelor is unmarried'. On the face of it, this English sentence is a simple categorical proposition consisting of two simple terms flanking the copula, which joins them into a proposition. Therefore, apparently, if syntax mirrored conceptual structure, then the corresponding mental proposition should consist of two simple categorematic concepts corresponding to the two terms, joined by the syncategorematic concept of the copula. (We may disregard here the indefinite article in front of 'bachelor', which is required by English syntax but completely lacking in Latin.) However, given that 'bachelor' is equivocal between 'Bachelor of Arts' and 'unmarried male', in the interpretation of this sentence one certainly has to consider which imposition it is according to which the term is to be understood. Furthermore, if these two phrases are to be two different nominal definitions of the same word according to different impositions, then the conceptual structure underlying this apparently simple word should also be reflected in the interpretation. As Buridan writes:

However, if a word has been imposed to signify a complex concept consisting of several simple concepts, then it needs an interpretation by means of several words that signify separately the simple concepts that make up the complex one. This is how 'philosopher' is interpreted as 'lover of wisdom' (for 'philosophos' in Greek comes from 'philos', which is 'love,' and from 'sophos,' which is 'wisdom', thus yielding, as it were, 'lover of wisdom'), and so the word 'philosopher' should signify to us nothing more or other than the expression 'lover of wisdom', and conversely. ²⁵

(p. 47) Therefore, if $C(i_n)$ is a function mapping phrases of a language onto concepts according to the acts of imposition i_n , then the concept corresponding to 'bachelor' according to its imposition in which it signifies unmarried males, should not be simply given as $C(i_n)$ ('bachelor'), but rather as $C(i_n)$ ('unmarried male'). However, the latter is obviously composed of the concepts corresponding to the adjective 'unmarried' and the substantive 'male,' so we should regard the concept corresponding to the adjective, namely, $C(i_m)$ ('unmarried'), as being applicable to the concept corresponding to the substantive, namely, $C(i_k)$ ('male'), thus functionally determining the resulting complex concept as the result of applying a function to its suitable argument, yielding:

$$C(i_n)$$
('unmarried male') = $C(i_m)$ ('unmarried')($C(i_k)$ ('male'))

Now already this simple example sufficiently illustrates the complications one may expect to encounter in actually constructing a semantic theory along these lines. Here I will just allude to some of these along with a brief indication of how I think they can be handled. A fuller treatment will be possible only after we have covered some more details of Buridan's semantic ideas.

4.2.1 Some Questions About Conceptual Complexity

Even the sketchy account of conceptual composition provided here raises at least the following questions:

1. Does this account entail that whenever we use the word 'bachelor' according to this imposition, we are aware of the relevant nominal definition?
2. Does this account entail that the components of the nominal definition are simple? If not, does this mean that we have to be aware of their analyses, as well as their components' analyses, and so on, possibly *ad infinitum*?
3. How is the functional composition attributed to concepts by this account supposed to be realized in the actual workings of a human mind? How can there be such a composition if we are not always aware of it? Do we consciously build these complex concepts out (p. 48) of their components every time we use them? Do we understand them by "decomposing" them every time we use them?

4. Whose concepts are we talking about here? Yours or mine? Are we supposed to have the same concepts in order to understand each other?
5. What are these “acts of imposition”? How are they identified? Are we supposed to be aware of them when we use equivocal terms subordinated to different concepts?
6. How can we attribute such an idea of functional composition to Buridan, given that he did not have any idea whatsoever of mathematical functions in the way we use and understand them in contemporary model theoretical semantics? ²⁶
7. Given the ontological simplicity of mental acts, their difference cannot be structural. Apparently, on the present account this is not a problem, because it is not structural but functional: the difference between simple vs. complex concepts boils down to a difference between semantically noncompositional and semantically compositional concepts. However, how on earth can there be such a functional difference between these ontologically equally simple mental acts without there being any structural difference between them? ²⁷
8. Finally, what is the role of language in the formation of these complex concepts? Obviously, we do not acquire most of these concepts through learning their explicit definitions. Rather, we just pick up the meanings of some simple terms as used by other speakers of the language, and it is only upon reflection that we realize their definability. However, if these concepts are not explicitly *constructed* in our minds based on some explicit definitions, then how can we ever obtain these complex concepts without even being aware of their complexity?

4.2.2 Some Possible Answers on Buridan’s Behalf

Clearly, many of these questions can only be raised from a contemporary standpoint (say, the one concerning model theoretical semantics). Furthermore, these questions imply some potential objections to Buridan’s view (or its explication presented here) based on the same, contemporary standpoint. Therefore, these questions and the implied objections were not, indeed, could not have been, considered explicitly by Buridan. However, in answering these questions, I will attempt to provide such answers that are implied (**p. 49**) by, or are at least consistent with, Buridan’s explicit views, and hopefully provide satisfactory solutions to these implied objections.

1. In response to the first question, therefore, we first have to make clear that conceptual complexity interpreted as semantic dependency of the representational content of a complex concept on other concepts (its “components”) need not imply that someone having the complex concept has to be aware of its analysis. For just because a concept of mine is functionally dependent for its representative content on other concepts, even if I am actually aware of this concept, I need not be aware of this dependency; in fact I may even be in doubt as to whether the concept I am aware of is simple or complex. In general, awareness of the content of a concept (i.e., awareness of what and how it represents) is radically different from the semantic compositionality of the content of this concept (i.e., the semantic dependency of the content of this concept on other concepts). Awareness is a *psychological* state of a cognizer, having to do with what a cognizer actually comprehends by means of a concept. Conceptual complexity is a *semantic* feature of a concept, having to do with how the content of a concept (whatever a cognizer comprehends by means of a concept) is dependent on the content of other concepts. So, being aware of the content of a concept, or even being aware of the concept itself (by reflecting on it), need not involve awareness of its compositional character, let alone its full exposition in terms of a complete nominal definition. Nevertheless, awareness of this compositional character to at least some degree is attainable precisely by reflecting on the compositional relation between this concept and its “components,” that is, by providing its analysis in terms of a nominal definition, thereby “reducing” it to simpler concepts, or even to absolutely simple, undefinable concepts.

2. Accordingly, an analysis of a given complex concept need not be complete in the sense that it provides a full expansion of the compositional content of the complex concept in terms of its “ultimate building blocks,” the further unanalyzable simple concepts. In fact, most of the time the nominal definitions or analyses we provide are incomplete in the sense that their components are still further analyzable. ²⁸ This is, in fact, the case with ‘bachelor’. For the concept of ‘unmarried’ is apparently analyzable as being the concept subordinated to ‘not married’, in which, ‘married’ is further analyzable as a complex of other concepts, such as ‘having a spouse’, and so on. But not having in mind such a further analysis, let alone a complete analysis,

does not (p. 50) mean not having the concept at all, even if the concept does have the semantic compositionality that is fully articulated only by a complete analysis. For having and using a concept of any semantic complexity need not imply our awareness of this complexity, as has been argued above. Still, such analyses cannot go to infinity, a claim that Buridan explicitly endorses in another context.²⁹ And so there must be some simple, undefinable concepts from which complex ones are ultimately constructed. For having a complex concept entails having all its components. Therefore, one can only have a complex concept of infinite analysis if one has an actual infinity of concepts. But, if concepts need to be acquired in this life (as we may assume with Aristotle), and they are acquired successively (as seems plausible), then it would seem to be impossible to acquire such a concept in a finite lifetime.

3. The functional compositionality involved in this account is a strictly semantic relationship between concepts, expressing the functional dependencies between their representational contents, but it says nothing about the actual psychological mechanisms establishing or utilizing these dependencies in the workings of an individual mind, let alone in its consciousness. To be sure, this account does entail that a complex concept cannot be possessed without possessing each of its component concepts, but it says nothing about how the conscious mind acquires or processes any of these concepts. For instance, it is clear that I cannot have the concept of bachelors if I have no idea of what it is to be unmarried, precisely because of the dependency of the former on the latter for its representational content. Indeed, if I do not have the concept expressed by 'unmarried', I cannot have the concept of bachelors in the same way as I cannot have the concept expressed by 'unmarried male'. For then the utterance 'unmarried' would be just as meaningless to me as is the utterance 'biltrix'. Therefore, in that case I could not have the concept of 'unmarried male' (and hence of 'bachelor'), just as I cannot have the concept putatively expressed by 'A biltrix flies mostly by night'. Still, this does not mean that I can only understand the term 'bachelor' in English, if on hearing, reading, or using it, I am aware of the fact that its analysis is 'unmarried male' or that the concept I have in mind is also the concept subordinated to this phrase. In fact, I may become aware of further details of this analysis only upon further reflection. For example, I may realize that 'unmarried' in this analysis cannot simply be the same as 'not married', for I would certainly not

call a baby boy a bachelor just because he is not married. ³⁰ Furthermore, it also may turn out that I would not want to apply the term 'bachelor' to Mowgli (the boy raised (p. 51) by wolves in Kipling's story) even when he reaches the appropriate age, because I take it that bachelorhood in the required sense should also entail the presence of appropriate social circumstances in which marriage would at least be possible for the person in question. By contrast, you may not find this requirement implied in the concept, and so you would not hesitate to apply 'bachelor' to Mowgli in his adulthood, while still living among the wolves. However, this point already takes us to the next question.

4. The sort of minor discrepancies in the understanding of the same term by different users of the same language described here are commonplace. Accordingly, any semantic theory of natural languages has to be able to account for such discrepancies, while also accounting for the possibility of intersubjective understanding despite these discrepancies. If reflection on the ways that we would use the same term indicates that I would involve something in the definition of the term that you would not, this clearly shows that we are not using the same term according to exactly the same concepts. Obviously, I am speaking here about the sameness of concepts not in the sense of numerical sameness, for in that sense we can never have the same concepts, but in the broader sense of sameness—sameness with respect to representative content (i.e., having individual concepts that represent the same things in the same ways). Now, in this sense it is clear that a semantically complex concept can be the same in my mind and yours only if it is functionally dependent on the same concepts in the same ways in my mind and yours. Therefore, since assigning different definitions means recognizing different conceptual dependencies, which in turn indicate different concepts, it is clear that in the case described above we are not using the term 'bachelor' in exactly the same sense, as subordinated to the same concept. But then, how is it possible for us to understand each other? Clearly, the answer is that our concepts are *partially* the same, which allows us to apply the same term to the same things in most, or in "ordinary" cases. In the foregoing example, we would only disagree on whether to include the condition of the presence of appropriate social circumstances among the conditions of applicability of the term. But then this merely shows that besides the well-known lexical equivocation of the term (between academic degree and

marital status), there may be further idiosyncrasies in the usage of individual users (or social groups), who use the same term according to different impositions, as subordinated to different, yet, partially agreeing concepts. Buridan's remarks concerning slang and temporary stipulations clearly indicate that he was aware of the phenomenon, and would have (p. 52) treated it along these lines—in terms of different impositions of different tokens of the same type-term, subordinating them to different concepts in the minds of different users or even of the same user on different occasions. But this observation, again, leads us directly to the next question.

5. In the foregoing sketch of a formal reconstruction of Buridan's idea of conceptual composition, it is precisely the possibility of equivocations as well as non-lexical idiosyncrasies in usage that are taken into account by relativizing the relation of subordination to different acts of imposition. Accordingly, the acts of imposition in question should not always be taken to be solemn occasions of name-giving, such as baptism, nor even as the original act of introducing a new term or an old term with a new meaning to be recognized by the entire linguistic community. Indeed, the acts of imposition in question may actually be specified as any singular occasion of use of a single linguistic token by a particular user, whereby it will specify the token-concept actually subordinated to that linguistic token on that particular occasion in the mind of that particular user. However, specifying concepts down to the level of tokens is rarely interesting from the point of view of semantic theory (except when the theoretical point we are making essentially hinges on a consideration of particular tokens). So, in the specification of acts of imposition we might use variables indistinctly referring to any number of individual users, various times, places, or any other relevant contextual factors, in the form of, say, ordered n-tuples that can be the values of the variables standing for acts of imposition in the formulation given earlier. Such technical details would need to be worked out in a formal semantic theory reconstructing Buridan's ideas. But the mere allusion to these technicalities may already prompt the next question. After all, using these very recent technical notions of a formal semantic theory seems to be absolutely alien to Buridan's medieval mind-set. So how can we attribute such notions to Buridan in these considerations?

6. The first point to note in this connection is that by a formal reconstruction of Buridan's (or for that matter anybody else's) ideas we are *not* attributing to him the formal notions of the reconstruction. In general, by describing in our own words, and in terms of our own concepts, what someone else has in mind, we do not attribute to the person in question awareness of our words or concepts. This is most obvious in the case of the words of people speaking different languages. By formulating Thales's theorem (according to which all triangles inscribed in semicircles are right-angled) (p. 53) in modern English, I do not attribute to Thales knowledge of English. In the same way, by describing Buridan's ideas about conceptual composition in terms of the modern concept of compositionality (understood as functional dependency of semantic values) we do not attribute to him any awareness or even some unaware possession of the modern concept of compositionality. For, in general, it is always possible for two persons to conceive the same things differently, in terms of different concepts. So, it should also be possible for us to conceive in terms of compositionality what Buridan conceived in terms of an "improper" part-whole relationship analogous to grammatical construction. But by declaring that we are conceiving of the same thing by means of a different concept than another person, we certainly do not attribute our concept to the other person.

7. Clearly, the previous answers all presupposed that it is possible to distinguish between concepts on purely functional grounds, in terms of their functional dependencies alone, to the exclusion of any properly structural differences. But this may seem to be quite impossible. After all, how can there be any functional difference between equally simple, and thus structurally indistinguishable, acts of the same mind? As I have indicated earlier, the idea of purely semantic compositionality in and of itself does not say anything about the psychological mechanisms of concept formation. This does not mean, however, that it need not be supplemented by some psychological theory about these mechanisms. In fact, Buridan's Aristotelian psychology would distinguish between simple and complex concepts precisely in terms of the different processes of their formation, using the Aristotelian distinction between the first operation of the intellect, namely, the formation of simple (common, categorematic) concepts by abstraction,³¹ and the second operation, the combination (*compositio* or *complexio*) of simple concepts. Now

if we understand this operation of conceptual combination in semantic terms, all it means is that the formation of a semantically complex mental act presupposes the previous formation of other, semantically simple mental acts. So, those categorematic concepts that are primarily formed by abstraction, not presupposing any other concepts for their formation, are semantically simple, whereas those that cannot be formed without such primary concepts are semantically complex. In brief, the psychological difference grounding the semantic difference between simple and complex concepts is not structural, but genealogical. To be sure, the functional, semantic dependence of complex concepts on other concepts need not mean (p. 54) that these complex concepts would always have to be explicitly built up from their components in a conscious process in the way we put together a sentence to express a thought. Although as far as I can tell Buridan does not explicitly deal with this issue anywhere in his writings, it would certainly be compatible with his ideas to account for the formation of most complex concepts in our minds in terms of the process of language acquisition, which is precisely the point raised by the eighth question.

8. In response to the eighth question, therefore, we can say that although complex concepts are *constructed*, as opposed to simple concepts that are *abstracted*, my complex concepts do not have to be explicitly constructed *by me* (indeed, perhaps, not even all my simple concepts have to be abstracted by me). Language is the medium of human thought and communication that encodes the mental activity of generations. This is precisely why new generations do not have to begin engaging the world "from scratch." Every new generation starts out in possession of all the information encoded in language (and culture in general), which they acquire in the process of their socialization. However, this process does not merely consist in passing down useful factual information about the experiences of previous generations. Indeed, perhaps, this is not even the most important part of the process. For the process of language acquisition is at the same time a process of concept acquisition. But this process, especially at the beginning of life, is largely an organic, uncontrolled, irregular process; it becomes more controlled and systematic only in institutionalized education. Therefore, we acquire most of our complex concepts in this uncontrolled process of becoming competent speakers of our language, without ourselves actually

having to (re-)construct those “premanufactured” complex concepts conveyed to us by this language. For instance, when I acquire the concept of ‘bachelor’ in the process of acquiring my mother tongue, this need not happen by means of receiving the “official” nominal definition of the term that allows me to build up the concept of ‘unmarried male’ to which I learn to attach the simple spoken utterance ‘bachelor’. I rather learn to form the relevant concept by acquiring the ability to use the term, learning that I can only apply it to male persons who are unmarried, and learning the further possible specifications, such as the requirement of a certain age, and possibly the presence of relevant social circumstances, and so on. However, these further specifications may already express certain idiosyncrasies in usage within a broader sphere of linguistic competence, due to the different *connotations* ³² that different, equally competent users may (or may not) attach (p. 55) to the same term, associating it with partially different concepts. In fact, this *partial* difference of concepts in most cases may be precisely the difference in these slightly different connotations. These concepts, therefore, have overlapping denotations, which differ *only* in the “marginal cases” on account of their different connotations. ³³ These partially different concepts thus enable those language users who subordinate the same term to these partially different concepts to identify the same things in typical situations. Hence, despite the differences in their concepts, these users will be able to communicate without a hitch in most cases, because their differences of interpreting the same term will come out only in marginal cases, when the different connotations of their concepts come into play.

All in all, this discussion of the example of ‘bachelor’, which was only meant to illustrate the phenomenon of functional composition in general, should also make clear the following points: (a) conceptual composition need not be propositional, since it can also result in complex concepts that are not propositions but the terms of a proposition; (b) conceptual composition need not be explicit in the surface syntax of the expression subordinated to the resulting complex concept; (c) conceptual composition is always explicable by means of a complex expression subordinated to the complex concept in question; (d) this explication need not be complete; and (e) the composition in question need not always take place by means of *complexive*,

syncategorematic concepts, for some categorematic concepts are also “unsaturated” (*Ungesättigt*—to use Frege’s happy term),³⁴ which means that they can and need to be applied to other concepts to yield a complex concept that can figure as a term of a mental proposition.

Buridan, using a common medieval distinction,³⁵ also distinguishes between *complexio distans*, a combination of concepts and the corresponding terms by means of a (mental, or spoken, or written) copula yielding a proposition, and *complexio indistans*, a combination of concepts yielding a complex term.³⁶ Because a complex concept can always be designated *ad placitum* by syntactically simple spoken or written words, these need not “wear on their sleeves” the complexity of the concept they designate; still, this complexity can always be made explicit by means of the syntactical structure of an equivalent phrase, “mimicking,” as it were, the conceptual dependencies of the complex concept. Nevertheless, such conceptual analyses, as we have seen, need not be complete, down to the level of absolutely simple concepts, which originate by means of a psychological mechanism (namely, (p. 56) *abstraction* in the case of common concepts, to be discussed later in detail) altogether different from the process that produces complex concepts. In most cases, it is sufficient to secure mutual understanding between speakers of a language by means of partial analyses in terms of “formulaic” nominal definitions, which merely indicate a certain level of composition. But at least this much composition has to be present (in the form of semantic dependency) in the mind of any competent user of the corresponding utterance or inscription type. Nevertheless, this still allows for idiosyncratic differences between the usages of competent users due to partial differences between their concepts (as far as the content of these concepts is concerned).

As I have already indicated, these partial differences often are a result of the different *connotations* these users would attach to the same type-terms in their typical use. It is precisely this idea that can be spelled out in more detail in terms of Buridan’s (“Ockhamist”) distinction between *absolute* and *connotative* concepts.

4.3 Absolute vs. Connotative Concepts

As we have seen, conceptual combination (*complexio conceptuum*) may be the result of the combination of several categorical concepts by means of syncategorematic concepts (as in the case of *complexio distans*, yielding a mental proposition by applying the copula to the categorematic terms of the

subject and predicate). However, it also may take place without the help of any syncategorematic concepts, as in the case of the *complexio indistans* occurring in the complex concept explicated by the nominal definition of 'bachelor'. In this case, what allows the combination is the applicability of one categorematic concept to another, because one can serve as a *determination* of the other, the *determinable*. A typical combination of this sort is the combination of the concepts subordinated to a substantive noun-plus-adjective construction, as in 'wise man', where the determination 'wise' determines the specific sort of things falling under the determinable 'man' we are talking about. According to Buridan, what makes this type of combination possible without any further addition is the radically different ways in which the components of this combination represent their objects. For the concept of 'man' whereby we conceive of human beings regardless of their individual differences represents humans absolutely, not in relation to anything else. But the concept of 'wise' represents wise persons (whether **(p. 57)** human or not human, as in the case of angels or God) in relation to their wisdom, that is, insofar as they are wise, *connoting* their wisdom. In general, an *absolute concept* is one that represents something absolutely, not in relation to anything, whereas a *connotative concept* is one that represents something in relation to something, connoting it as somehow related to the thing it directly represents.

The most obvious examples of connotative concepts, therefore, are relative concepts, by which we certainly conceive of things in relation to one another, such as the concepts of 'father', 'teacher', 'equal', 'similar', and so on. But as the example of 'wise' shows, not all connotative concepts are relative (in the sense of being in the Aristotelian category of relation), although all relative concepts are connotative. Furthermore, as the example of 'father' shows, not all connotative concepts as such can serve as the determination of a determinable, for the term 'father', being a substantive noun, cannot be added to another substantive noun to determine the specific kind of things falling under that substantive (for we cannot grammatically say 'father man' or 'teacher man', as we can say 'wise man'). Indeed, neither is it true that all determinations of a determinable would have to be connotative concepts, for, as Buridan insists, essential specific differences, which determine a particular species of a given genus, are not connotative concepts. They are absolute ones, despite the fact that they are denoted by adjectives.
³⁷ Finally, it also should be clear that according to the given definition of connotative concepts, it is not only the determinations added to substantive concepts that are connotative but the resulting complex concepts as well.

4.3.1 Categorematic Concepts and The Logic and Ontology of the Categories

According to Buridan, relative concepts and the corresponding spoken and written terms are only in the category of relation, which is but one of the ten categories Aristotle distinguished in his *Categories*, namely, the category of substance, and the nine categories of accidents: quantity, quality, relation, action, passion, time, place, position and habit. Connotative concepts, by contrast, can belong to any of the categories, except the category of substance, which can only contain absolute concepts. (As we shall see, however, according to Buridan there are also absolute concepts in the category of quality and quantity, namely, the concepts expressed by some abstract terms of those categories.) The Aristotelian categories are distinguished (p. 58) according to the different ways in which categorematic terms, subordinated to categorematic concepts, can be predicated of particular substances, and these different ways of predication are determined precisely by the different connotations these terms have in the accidental categories.

As Buridan writes, commenting on his own text in the *Summulae*:

Of those [utterances] that are said without any combination, some signify substance, others quantity, or quality, or relation, or place, or time, or position, or habit, or action or passion. Substance, as 'man' or 'horse', quantity, as 'two-cubits-long' or 'three-cubits-long', quality, as 'white', 'black', relation, as 'double', 'half', place, as 'in-this-place', time, as 'yesterday', position, as 'sits', 'lies', habit, as 'shod', 'armed', action, as 'cut', 'burn', passion, as 'being cut', 'being burnt'.

We should note that not every incomplex utterance falls under this classification of incomplex terms; only those that taken significatively can be subjects or predicates. So, first he ["the author"] says that some predicable terms signify substance without any extraneous connotation, and these are in the category of substance. Others signify, or connote, something around [*circa*] substance, so that when they are said of a primary substance, they signify not only what it is, but also what it is like, if they are in the category of quality, and likewise with quantity and the others. 38

Thus, terms in the category of quantity *denote* substances, but connote the substances' magnitude, or the number of several substances. Likewise, terms in the category of quality denote substances, but *connote* their qualities, that is, those of their features that determine what they are like. Terms in the category of relation denote substances, but connote other things they are related to, specifying the ways in which they are related to them, whereas terms in the categories of action, passion, time, place, position and habit similarly denote substances while connoting their actions, passions, duration, location, position (i.e., the spatial arrangement of their parts relative to their place), and other substances they wear (such as clothes, arms, etc.), respectively.

We should note here that this sort of account of the categories squarely places Buridan in the Ockhamist tradition, in opposition to previous accounts of the categories, which, using the phrase that came to represent this sort of approach in later medieval philosophy to contrast it with the Ockhamist *via moderna*, can be termed the *via antiqua* account.³⁹

According to the *via antiqua* account, concrete accidental terms primarily signify accidents, such as the inherent quantities, qualities or relations (p. 59) of substances. Therefore, apparently, this account is committed to all sorts of nonsubstantial entities, such as individual quantities, qualities, relations, actions, passions, times, places, positions, and habits, *as a matter of semantics or logic*. No wonder this was one of the major qualms Ockham and his followers had about this account. As Ockham famously remarked, in his view, this account would entail that:

a column is to the right by to-the-rightness, God is creating by creation, is good by goodness, just by justice, mighty by might, an accident inheres by inherence, a subject is subjected by subjection, the apt is apt by aptitude, a chimera is nothing by nothingness, someone blind is blind by blindness, a body is mobile by mobility, and so on for other, innumerable cases.⁴⁰

And this is nothing, but:

multiplying beings according to the multiplicity of terms ... which, however, is erroneous and leads far away from the truth.⁴¹

As I have argued elsewhere, as far as the issue of ontological commitment is concerned, these and similar charges made by Ockham and later nominalists

are quite unjustified. ⁴² The semantic framework of the *via antiqua* in itself need not imply greater ontological commitment than the nominalist framework; it merely requires rather different logical tactics to eliminate unwanted ontological commitment. Nevertheless, despite the fact that such eliminative tactics were readily available and extensively used by *via antiqua* thinkers, it must be granted that the nominalist conception of connotative concepts is less likely to give the impression of a commitment to nonsubstantial entities, at least, apart from entities in the categories of quality and quantity. For in the case of relations and the remaining six accidental categories, the *via moderna* conception of connotative concepts does not even appear to be committed to the accidents to which the *via antiqua* apparently is.

The easiest way to see this is through a simple example. Take the relational term 'father'. Whereas on the *via antiqua* conception this term would be treated as signifying a relation, fatherhood, that holds between a man and his child, on the *via moderna* conception it is treated as simply signifying (denoting) a man connoting his child. On the latter analysis, no "mysterious" fatherhood emerges demanding a special ontological account.

To be sure, the fatherhood demanded by the *via antiqua* semantic analysis need not turn out to be a mysterious entity in a *via antiqua* ontology: after all, (p. 60) their semantic analysis allowed *via antiqua* thinkers to identify what terms signified (their *significata*) with what they could stand for in propositions (their *supposita*), or with any other properties or forms of their *supposita*. Indeed, many *via antiqua* authors opted in their ontology for identifying relations with their foundations, that is, the properties on account of which things were thus and so related. ⁴³ But the important difference from the *via moderna* conception is that even if the nominalist charge of multiplying entities with the multiplicity of terms may not be justified as far as the *via antiqua ontology* is concerned, the *via antiqua logic* does give rise to the separate ontological *questions* that in the *via moderna* framework need not emerge.

This is one of the typical examples of the elimination of old questions mentioned in the introduction. Given the *semantic* conception of the *via antiqua*, according to which any common categorematic term signifies some form (whether a substantial or accidental form) of the individuals that can bear such a form, a whole bundle of *ontological* questions become inevitable. What is the nature of the entities signified by the various terms in the several categories distinguished by Aristotle? How are they related to the entities

we are all familiar with, namely, individual substances, and to each other? For example, what is the relation of equality? Is the equality of one thing to another the same as its quantity or distinct from it? If it is the same, then how can one thing become equal to another with the change of the other (i.e., without a change of its own quantity)? If they are distinct, then would it not be possible for one thing to have equality with another without having the same quantity? Also, would it not be possible for it to have the same quantity but not the equality? ⁴⁴

On the *via moderna* conception, such questions are simply *eliminated*. For example, the issue of whether the relational entity signified by a relative term is the same as or distinct from the absolute entity supposed for by the same term does not arise at all. For on this conception the term 'father' is not construed as signifying a relational entity in the first place; the relation between the man who is a father and his child is nothing but a connotative concept, an act of the mind conceiving of the man in relation to his child.

The situation may not seem to be just as clear-cut in the case of other connotative terms, which are not explicitly relational, such as quality-terms in the species of shape, for example, the term 'round'. Apparently, on the *via moderna* account, this term should signify round things connoting their roundness, whereas on the *via antiqua* account it should signify the roundnesses inherent in round things. In this case, it seems that both accounts face (p. 61) the same ontological task of accounting for the status of the inherent quality of roundness, their difference consisting merely in what they take to be primarily signified and secondarily signified, that is, connoted, by this term. For although on the *via antiqua* account the term 'round' would primarily signify the (actual or potential) roundnesses of actually or potentially round things cosignifying the things that are or can be round, on the *via moderna* account the same term would primarily signify (actual or potential) round things connoting their (actual or potential) roundnesses.

However, despite such possible appearances, this is not the case, and this is precisely where the ontological significance of Buridan's (and Ockham's) conception becomes obvious. For, as we have seen earlier, the syntactic simplicity of a written or spoken term does not necessarily go together with its semantic simplicity: the term in question may be subordinated to a complex concept, that is, one with a "compositional structure," as described earlier. If this is the case, then this conceptual structure, *hidden* by the term's simplicity, can always be explicated by means of a nominal

definition (*definitio exprimens quid nominis*). The nominal definition, then, is going to be an expression that by its syntactical structure “mirrors” the compositional structure of the complex concept by making it clear how its semantic values are dependent on the semantic values of the concepts to which the syntactical components of the definition are subordinated.

In that case, however, the semantic values of the syntactically simple term will be but the semantic values of the nominal definition, and, so, the entities signified and/or connoted by the term will be those signified/connoted by the definition. Therefore, the whole issue of whether the signification/connotation of a term should be accounted for in terms of a “new” (and, especially, for any reason, “weird”) category of entities will be simply the matter of seeing whether the *significata/connotata* of its nominal definition should belong to such a “new” category of entities.

In the case of ‘round’, for instance, this means that we should see whether the *significata/connotata* of the phrase ‘having all points of its surface equidistant from a given point’ (provided this is a correct nominal definition of ‘round’) belong to a category of entities distinct from those we are already committed to. Now in this case, it seems obvious that all terms in this phrase are either absolute terms in the category of quantity, or relative terms relating the things signified by those absolute terms. In other words, the terms occurring in this phrase are subordinated to either absolute concepts whereby we conceive quantities absolutely, or connotative concepts whereby we (p. 62) conceive quantities in relation to each other. So, even without going into further details, it should be obvious that despite possible appearances to the contrary, the term ‘round’ need not be construed as signifying or connoting anything over and above quantities. Therefore, by providing its nominal definition, we have successfully produced an “ontological reduction,” showing that the semantics of this term does not require the positing of any “new” entities, thereby “eliminating” the apparent commitment to entities in a “new” category.

Indeed, this ontological tactic, which elsewhere I have called the tactic of “elimination by definition,” is the most characteristic and novel approach used in the *via moderna* to handle unwanted ontological commitment.⁴⁵ By assigning nominal definitions, the function of explicating by their syntactical structure the complex conceptual structure lurking behind many of our syntactically simple written or spoken connotative terms, Buridan, following Ockham’s lead, has turned these definitions into a most powerful logical instrument for carrying out his ontological program. But further discussion

of the issues involved here will be possible only after covering some further preliminary distinctions, after which we shall be in a better position to address directly the details of that program itself. In particular, we need to see first how Buridan's theory of nominal definitions fits into his systematic account of definitions in general, in connection with the issue of conceptual composition.

4.3.2 Buridan's Theory of Definitions in the *Summulae*

In the first part of the eighth treatise of his *Summulae*, Buridan provides a systematic account of his theory of definitions. The theory presents us with four kinds of definitions, namely, nominal, quidditative, causal, and descriptive definitions. In addition to these, Buridan also touches on "composite definitions" (*definitiones complexae*), that is, definitions resulting from a combination of the aforementioned kinds. However, because the issue of conceptual composition primarily concerns quidditative and nominal definitions, I will concentrate on these two in this account of Buridan's theory.

Buridan begins his discussion of nominal definitions as follows:

(1) A nominal definition [*diffinitio explicans quid nominis*] is an expression convertibly explaining what thing or things the *definitum* signifies (p. 63) or connotes, and properly speaking it is called 'interpretation'. (2) It pertains to incomplex spoken terms to which there do not correspond simple concepts in the mind, but complex ones, whether these terms supposit for some thing or things or do not supposit for some thing or things. ⁴⁶

In accordance with this doctrine, a nominal definition provides precisely the meaning of a simple term that is subordinated to a complex concept. Indeed, a correct nominal definition of a term is going to be one that by its syntactical structure faithfully mirrors the semantic structure of the complex concept to which the term is subordinated. Therefore, the nominal definition and the term will be strictly synonymous: the term is to be regarded as a mere shorthand for the complex phrase clearly explicating the structure of the corresponding concept. Consequently, *only* such simple terms can have nominal definitions to which there correspond complex concepts in the mind. As we read in the *Treatise on Suppositions* [4.2.4]:

[...] to some incomplex utterances there correspond complex concepts, and to some others incomplex concepts. Those to which there correspond complex concepts can, and should, be expounded as to their meaning [*quid nominis*] by complex expressions that are equivalent to them in signification. Those, however, to which there correspond incomplex concepts do not have definitions precisely expressing their meaning [*quid nominis*]. ⁴⁷

The same point is spelled out in more detail in the *Treatise on Definitions* [8.2.3]:

(2) The second section shows what sort of terms has such definitions. And as a basis for this point we should realize that spoken words are imposed to signify our concepts in the mind, ⁴⁸ and we signify the conceived things by the mediation of the concepts. But some of our concepts are simple, and some are complex, consisting of several simple ones, as has been observed elsewhere. ⁴⁹ If, therefore, a word is imposed to signify a simple, or incomplex, concept, then such a word is not interpretable, but if its signification is unknown to someone, then it can be explained to him by another, synonymous word, as when a [French] child is taught Latin by means of the French language. Sometimes this is taught by pointing at the thing signified, as when a mother teaches an infant her language, and sometimes it is taught by means of a description of the word, or by a quidditative definition.

But if a word has been imposed to signify a complex concept consisting of several simple concepts, then it needs an interpretation by means (p. 64) of several words that signify separately those simple concepts which make up the complex one.

In view of this doctrine, a simple term can have a nominal definition if and only if it is subordinated to a complex concept. And, since in accordance with Buridan's account of the difference between absolute and connotative terms, all simple absolute terms are subordinated to simple concepts, this means that absolute terms cannot have nominal definitions.

To see this in more detail, suppose we have a simple absolute term A, which is not imposed to be a shorthand for a quidditative definition or some

similar combination of other simple absolute terms.⁵⁰ This means that its signification and natural supposition are the same, taking these simply to be the set of its ultimate significata.⁵¹ But suppose A has a nominal definition. Then this nominal definition has to be subordinated to a complex concept. However, because A was supposed to be absolute, the concepts making up this complex concept cannot be connotative, and cannot signify a connotation in respect of the significata of one another (as would be the case for instance in a genitive construction of two absolute terms, such as *hominis asinus*, 'a man's donkey'); therefore, the total signification of the complex concept would have to be the union of the sets of the significata of its components. But if this complex concept is made to be the subject of a mental proposition in which it has natural supposition, then it can supposit only for the intersection of the sets of the significata of its components. But then, because these components have to be different, they have to have different nonempty sets of significata. Thus, the intersection and the union of these sets will never be the same, which means that the total ultimate signification and the natural supposition of the same complex concept will never be the same. However, as was stated earlier, the total signification and the natural supposition of A have to be the same. Therefore, the simple term A cannot be subordinated to the same complex concept, and so A cannot have a nominal definition, contrary to our assumption.⁵²

Absolute terms, therefore, can have only other types of definitions, most importantly, quidditative definitions. Buridan describes quidditative definitions in the following manner:

(1) A quidditative definition is an expression indicating precisely what a thing is [*quid est esse rei*] by means of essential predicates. (2) These latter are the genus of the *definitum* and the essential difference, or differences, which are added until the whole definition is convertible with the **(p. 65)** *definitum*. (3) This definition responds precisely, most properly and truly to the question 'What is it?'⁵³

As Buridan explains, this description entails that no connotative terms can have quidditative definitions in this strict sense:

... let us assume that nothing is white, except a stone. Then a white [thing] is a stone, and it is nothing other than a stone, nor is it a whiteness, or an aggregate of a stone and a whiteness, if we express ourselves properly, but it is only that to which a whiteness belongs [*inest*], namely, the stone,

just as a wealthy man is not his wealth, nor the aggregate of a man and wealth, but only a man to whom this wealth belongs [*adjacent divitiae*]. But when I ask precisely 'What is the white thing [*Quid album est*]?' I do not require that the reply should indicate what a whiteness is, or what an aggregate of a stone and a whiteness is, nor do I ask on account of what disposition a white thing is white; I only ask what the thing is which is white, and that is nothing but a stone. Therefore, in the case assumed above I give a satisfactory reply to the question if I declare that the white thing is a stone; and if I add something else that signifies or connotes something other than the stone, then I provide more in my reply than what was asked for. Since, therefore, a purely quidditative definition should precisely indicate what a thing is, it is necessary that if the term 'white [thing]' [*album*] has a quidditative definition, then it should be the term 'stone', or [rather] its quidditative definition, or [at any rate] that it should be an expression consisting exclusively of substantial terms. ⁵⁴ But this is impossible, for after removing whiteness and retaining the substance subjected to it, the *definitum*, namely, 'white [thing]', would not supposit for something, for nothing would be a white thing, and the definition would still supposit for something, namely, for the thing that it supposited for before. Thus, it would not be converted with the *definitum*, nor would it be truly predicated of it, which is impossible; therefore, it is impossible that 'white [thing]' [*album*] should have a purely and properly quidditative definition. ⁵⁵

So, to sum up, if a simple term is absolute, then it has to be subordinated to a simple concept, and hence cannot have a nominal definition. Thus, any simple term that has a nominal definition has to be subordinated to a complex connotative concept, and so the term has to be connotative. ⁵⁶ Nevertheless, an absolute term can have a quidditative definition in the strict sense, namely, a definition that convertibly *supposits* for the same things as its *definitum* does, but that always *signifies* more, for it can contain only other absolute terms, (p. 66) namely, the strictly quidditatively predicable genera and differences of the *definitum*. ⁵⁷ However, since connotative terms cannot have quidditative definitions in this strict sense, it follows that a term can have a quidditative definition in the strict sense if and only if it is absolute.

But this conclusion imposes a rather severe limitation on the scope of quidditatively definable terms. And since the middle term of the most powerful scientific demonstrations has to be a quidditative definition, this would also severely limit the scope of what is scientifically knowable. Therefore, Buridan immediately adds that in a less strict sense even a connotative term can have a quidditative definition:

... a connotative term can have a quidditative definition in a less proper sense, and one which is more broadly so-called. For it is by means of the subjects that their *per se* attributes are defined, as is stated in bk. 1 of the *Posterior Analytics* and bk. 7. of the *Metaphysics*.⁵⁸ Therefore, a definition of a connotative term is called quidditative because it indicates what-it-is not only where the suppositum is concerned, but also the connotatum. For example, the definition of 'pug' [*simum*] is 'concave nose'; and by saying 'nose' I say what-it-is and I likewise indicate what the term 'pug' supposits for (since it is a concave nose, and a pug is nothing else but a nose); however, by adding 'concave' I indicate what that term appellates, for that is the very same thing, and none other, that the term 'concave' signifies, namely, concavity. Similarly, if I define 'pugness', then I say that it is the concavity of the nose; and when I say 'concavity', then I indicate what 'pugness' supposits for, since it is concavity (because pugness is a concavity, and nothing else); but when I add 'of the nose', I indicate what 'pugness' appellates, for it is the nose, given that a concavity would not be a pugness, were it not in a nose.

Therefore, in this connection we have to note that in the case of connotative terms, the genus is not predicated of its species *in quid* in the strictest sense, but broadly speaking it *is* predicated of it *in quid*. Thus when I say: 'A white [thing] is [a] colored [thing]' I do not say precisely what a white [thing] is, but I add what it is like, as I said earlier; therefore, this is not quidditative predication in the strictest sense. But broadly speaking it is admitted to be quidditative, because it indicates what it is for which 'white [thing]' supposits, this being the very same thing as that for which 'colored [thing]' supposits, and at the same time it indicates what 'white [thing]' appellates, for this is the same as that which 'colored [thing]' appellates.

So, clearly, what allows Buridan to say that even simple connotative terms can have quidditative definitions is that it is possible to construct **(p. 67)** complex phrases which are convertibly predicable of such terms by means of quidditative or essential predication. That it is not only absolute terms that can be essentially predicated is clear from Buridan's general characterization of the distinction between essential and denominative predication in his treatise *On Predicables*:

... everything that is predicated of something is either predicated essentially, so that neither term adds some extraneous connotation to the signification of the other, or it is predicated denominatively, so that one term does add some extrinsic connotation to the signification of the other. This division is clearly exhaustive, for it is given in terms of opposites. ⁵⁹

Thus, whenever the subject of a predication is a connotative term, the predication is essential if and only if the predicate does not connote anything over and above the signification and connotation of the subject. The reason for this should also be clear. A connotative term is only contingently true of a thing it supposits for on account of the fact that it may become false of the thing in question simply because of a change in something else that it connotes. Thus, a connotative term is what in the modern parlance we would call a nonrigid designator of its supposita: it can cease to supposit for its supposita without their destruction, as a result of removing its connotata. ⁶⁰ Take away a wealthy man's wealth, and the man, although he will still go on existing, will cease to be supposited for by the term 'wealthy man'. Nevertheless, it is still possible to form an essential predication in which the subject term is the connotative term 'wealthy man', provided the predicate does not connote anything over and above the connotation of this term. Thus, the predication 'A wealthy man is a man who possesses wealth' is an essential predication, in which whenever the subject supposits for something the predicate also has to supposit for the same thing, and thus which is always true, assuming the natural supposition of its terms. ⁶¹

All in all, we can summarize Buridan's conclusions concerning what sorts of terms can have which of the two sorts of definitions discussed in table 4.1 .

As can be seen from table 4.1, only simple connotative terms subordinated to complex concepts can have both nominal and quidditative definitions. Such terms also can have quidditative definitions, but only in the improper sense characterized here. To be sure, a nominal definition in the strict sense

is not the only way of clarifying meaning, and a quidditative definition is not the only way of providing scientific information about a certain sort of (p. 68)

Table 4.1 Simple Common Terms and the Kinds of Definitions They Can Have

	Simple Spoken Absolute Term, Simple Concept	Simple Spoken Connotative Term, Simple Concept	Simple Spoken Connotative Term, Complex Concept
Has nominal definition	No	No	Yes
Has quidditative definition	Yes	Strictly no, but improperly yes	Strictly no, but improperly yes

thing. This is why Buridan also considers *descriptions* and *causal definitions*, described by him as follows:

(1) A description is usually defined thus: a description is an expression indicating what the thing is [*quid est esse rei*, the quiddity or essence of the thing] in terms of its accidents or effects that are posterior to it absolutely speaking [*posteriores simpliciter*]. (2) Therefore, in a description the subject is defined in terms of its attribute or attributes and the cause in terms of its effect or effects. (3) However, a description incorporates items that are prior and better known to us [*ex prioribus et notioribus quoad nos*], but which are not so absolutely speaking [*simpliciter*]. (4) Therefore, by means of descriptions one sometimes proves quidditative definitions or causal definitions to apply to their *definita*, not *propter quid* but only *quia*.⁶² [...]

(1) A causal definition is an expression that convertibly indicates the quiddity of the thing [*quid est esse rei*] and the reason why [*propter quid*] it is. (2) Such a definition is provided by means of terms which in the nominative case would supposit for the cause or causes of that thing or those things for which the term defined [*definitum*] supposits. (3) These terms are placed in those definitions in an oblique case.

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The last section in this quote and Buridan's subsequent comment on it clearly establishes that a causal definition cannot be quidditatively

predicated of its *definitum* even in the less proper sense, for it has to appellate the cause of the thing defined. Thus, descriptions and causal definitions can apply to all sorts of terms we have considered so far (whether written, spoken, or mental), namely, common terms. But we also have categorematic terms and concepts that are strictly speaking *undefinable* in any of these ways, even in terms of descriptions, namely, singular terms.

(p. 69) 4.4 Singular versus Common Concepts

Buridan divides categorematic terms and the corresponding concepts into singular and common. We may describe a common concept as one that represents several singular things indifferently in a single act of cognition, whereas we may describe a singular concept as one that represents only one singular thing so that it does not or even *cannot* represent any other singular thing at the same time *on account of its mode of signification*.

This description may seem simple and intuitive enough, but Buridan's discussion of the issue of singular cognition, which is the cognitive act of the formation or utilization of a singular concept, turns out to be surprisingly complex, leading to some profound questions in cognitive psychology, logic, and metaphysics.

4.4.1 Singular Concepts and the Problem of Singular Cognition

So what is Buridan's problem with singular cognition? Isn't it obvious, for instance, that when I see a horse, I have a singular cognition of this particular horse, which therefore I can name by a proper name expressing my singular concept of this particular horse? And so is it not clear that in this case I have a singular concept of this horse in my mind? Well, here is the problem. For all I know, the horse I actually see might be just *any* other sufficiently similar horse. This is shown by the fact that if in a blink of my eye someone (say, God, to go directly to the top) swapped it for another, exactly similar one, I would not notice the difference. Accordingly, it seems that even if the object of the act of my sight is singular, this act itself can concern just *any* singular of a certain sort *indifferently*, and so apparently *in a universal manner*. Therefore, the question inevitably arises: do we ever have a mental act that concerns its singular object not in a universal, but *in a truly singular manner*, targeting *this* individual as such, so that it *cannot* target any other? And if so, how is that possible? What is it that renders a singular mental act *truly singular* in this sense?

One may think that if any mental acts at all, then at least acts of sense perception ought to be regarded by all philosophers as singular. However, in view of the foregoing considerations, it is just not a trivial issue exactly what it is that renders an act of sense perception singular and distinguishes (p. 70) it from some other act of cognition that would be regarded as universal. So, apparently, paralleling the epistemic problem of universals (*how is universal cognition possible?*), we have here an epistemic problem of singulars (*how is singular cognition possible?*).⁶⁴

A piece of reasoning leading to this problem was quite poignantly formulated by William Ockham in his *Quodlibetal Questions*. The argument concerns an act of intuitive cognition, that is, the sort of cognition we have in the direct perception of an object.⁶⁵ Because this is the sort of cognitive act that appears the most to be singular, and thus “proper” to that particular object, if this turns out *not* to be singular, then it seems that despite appearances to the contrary, we have no genuine singular acts of cognition after all. The argument proceeds as follows:

... it does not seem that an intuitive cognition is a proper cognition, since any given intuitive cognition is equally a likeness of one singular thing and of another exactly similar thing, and it equally represents both the one and the other. Therefore, it does not seem to be more a cognition of the one than a cognition of the other.⁶⁶

Because of its importance in nominalist cognitive psychology, I will refer to this piece of reasoning as *the argument from the indifference of sensory representation*, or rather, for short, *the argument from indifference*.⁶⁷ To be sure, the argument in and of itself would not be earth-shattering. However, its real importance from our point of view lies in the fact that Ockham’s reply to it *does not* reject the idea that the *representative content* of an intuitive act of cognition (i.e., the descriptive information content that a thing has to “match” in order to count as an object of this act) is indifferent to several singulars. Instead, it argues that the singularity of such an act has to be accounted for *not* in terms of its distinctive *content*, but, rather, in terms of the *actual causal connection* between the object and the cognitive act. Thus, as far as Ockham is concerned, the argument establishes that even an intuitive act of cognition, the sort of cognition that is most likely to be genuinely singular, *in its representative content is inherently indifferent* to several singulars:

I reply that an intuitive cognition is a proper cognition of a singular thing not because of its greater likeness to the one thing than to the other, but because it is naturally caused by the one thing and not by the other, and it is not able to be caused by the other. ⁶⁸

(p. 71) However, this solution immediately raises a problem about the possibility of supernatural causation of the same act of cognition, which Ockham handles in the following way:

You might object that it can be caused by God [acting] alone. This is true, but such a vision is always apt by nature to be caused by the one created object and not by the other; and if it is caused naturally, then it is caused by the one and not by the other, and is not able to be caused by the other. Hence, it is not because of a likeness that an intuitive cognition, rather than a first abstractive cognition, is called a proper cognition of a singular thing. Rather, it is only because of causality; nor can any other reason be given. ⁶⁹

So, the gist of *the argument from indifference* seems to be that, apparently, the *content* of any simple act of cognition can never be distinctive enough to yield a truly singular representation. Adopting an example of Nicholas of Oresme, ⁷⁰ if we take a picture of one of two eggs that are exactly alike, it is certainly true that just by looking at the picture we can never tell which egg is pictured in it. Indeed, by a little tweaking of the example, we can illustrate Ockham's solution in the following way. Suppose that we picture one of the eggs on a TV screen by means of a video camera. By *looking at the picture* on the screen, we cannot tell which egg is pictured there. But *looking at the entire setup*, involving the light reflected from the surface of this egg, captured, encoded, and transmitted to the screen by the camera, we can tell that the picture on the screen is of this egg and cannot be of the other, because of the actual causal chain leading from this egg and not from the other to the picture on the screen. By contrast, if we cut off this actual causal chain by removing the egg from the view of the camera, and we freeze the last frame before the removal of the egg, then the picture *without the actual causal link* could be the picture of either of the two eggs. Since the information content of the picture does not distinguish one from the other, and there is no actual causal link to distinguish the egg pictured there, the picture now has become a universal representation, indifferently representing the eggs equally similar to it. So, the first abstractive cognition

resulting from the first intuitive cognition of the thing is like the frozen image of the egg: even if it was generated by this egg, because it is no longer causally linked to it, and its information content does not distinctively represent this egg, it is no longer a singular representation of this (p. 72) egg, but, rather, an indifferent, universal representation of this egg and all others sufficiently similar to it.

It is important to note how different this account is from the account of another influential authority, considered very seriously by Buridan especially in questions of psychology, namely, Thomas Aquinas. In his commentary on Aristotle's *De Anima*, Aquinas addresses the issue of the difference between singular and universal cognition in the following way:

In connection with what is being said here, we should consider why sensation is of individuals and knowledge is of universals, and how universals are in the soul. Concerning the first point, we should know that a sense is a power in a corporeal organ; whereas the intellect is an immaterial power, which is not the actuality of some corporeal organ. But everything is received in a subject in accordance with the nature of the recipient. And all cognition takes place on account of the thing cognized somehow being in the cognizer, namely, by its similitude, for the cognizer in actuality is the thing cognized in actuality. Therefore, a sense has to receive the similitude of the thing sensed in a corporeal and material manner. The intellect, on the other hand, receives the similitude of what is understood in an incorporeal and immaterial manner. However, the common nature of corporeal and material things is individuated by their corporeal matter contained under determinate dimensions; whereas a universal is abstracted from this sort of matter and from the material individuating conditions. Therefore, it is obvious that the similitude of the thing received in a sense represents the thing insofar as it is singular, while received in the intellect represents it with regard to a universal nature; and this is why a sense cognizes singulars and the intellect universals, and knowledge concerns the latter. ⁷¹

From this passage, it seems that according to Aquinas we can have a very simple and intuitive answer to the question of what renders different acts of cognition singular or universal: a singular act of cognition represents singulars, whereas a universal act of cognition represents their universal

natures. As Aquinas immediately clarifies, contrary to the opinion of the Platonists, the difference is not to be accounted for simply in terms of the difference of the entities represented by these different cognitive acts.⁷² Because there are only singulars in reality to serve as the ultimate objects of these acts, the difference between these cognitive acts is *not* that one type allows us to cognize singular entities and the other universal entities. Rather, both types of cognitive acts ultimately allow us to cognize singulars, but in different ways. What (p. 73) makes the difference between these different ways is simply the *different information content* of these different acts: the singular cognitive act is singular because it is “assimilated” to its object, that is, it encodes information about its object⁷³ with regard to the principle of individuation of this object. That is to say, a singular cognitive act carries distinctive information about the principle of individuation of the object. The universal act, by contrast, is not “assimilated” in this regard, because it abstracts precisely from this information.

By contrast, accepting the argument from indifference, Ockham rejects the possibility of having something in the information content of an act of cognition that could make it singular. Therefore, what singularizes a cognitive act for him is exclusively its actual causal link to its singular object, and nothing like Aquinas’s representation of the individuating conditions of the singular object by the material conditions of the representing subject (in particular, its dimensions). Accordingly, as soon as this causal link is severed, the act of cognition in question immediately turns into a universal representation for Ockham. But for Aquinas, singular sensory representations (*phantasms*), even when they are no longer actually produced in the process of perception, but are stored in sensory memory, still have to be further processed by the agent intellect, which actively rids their information content of the singularizing information through the process of abstraction to produce the first universal representations, the first intelligible species.⁷⁴

To be sure, Ockham had a very good reason to come up with his argument. Based on his conception of the indifference of the representative content of sensory representation, and identifying universality with this sort of indifference, he could immediately provide an uncompromisingly nominalist account of *universal cognition, without having to invoke any reference to some universal nature* to be abstracted from singulars in the process of universal concept formation. For, the argument from indifference immediately seems to establish *all cognitive acts as being inherently universal* on account of the indifference in their representational content,

considered apart from the actual causal relation a genuinely singular intuitive cognitive act has to its cause, namely, its singular object. ⁷⁵

But is Ockham right? Even if we accept the argument from indifference, does it really follow that it is *only the actual causal link* to its object that can singularize an act of cognition? And, if so, does it really follow that cutting off the causal link in question immediately yields a universal, abstractive act of cognition? And, finally, if this is indeed the case, can we **(p. 74)** ever form genuine singular concepts of individuals apart from their actual perception? Questions of this sort inevitably had to be faced by as careful a reader of both Aquinas and Ockham as Buridan himself.

Buridan is apparently willing to go along with Ockham's argument from indifference. He makes the point time and again that we cannot form a genuine singular concept of a thing unless we conceive of it as being *in prospectu nostro*, that is, in our view. In fact, at one point in his *Questions on the Metaphysics*, Buridan even identifies this sort of cognition as what "some people" call "intuitive," although, apparently, he is not particularly fond of this terminology (given that this appears to be the *only* place where he uses it). Concluding his discussion of whether the name 'Aristotle' is genuinely singular and whether there corresponds to it a genuinely singular concept, he states:

And thus, in the end it seems to me to be said that no concept is singular, unless it is a concept of a thing [conceived] as existing in the presence and in the view of the cognizer, in the way that thing appears to the cognizer as designated by an act of pointing; and some people call this sort of cognition intuitive. ⁷⁶

However, the problem for Buridan is that we, including both Buridan and his audience, living several centuries later, have never seen Aristotle. Therefore, accepting that we can form a singular concept only of a thing that we have in our view, it appears that we can never have a singular concept of Aristotle. Formulating the problem, and using as an example the name 'Socrates', Buridan wrote:

... if I know Socrates whom you never met, and you ask what I understand by the name 'Socrates', I respond to you that by 'Socrates' I understand a man, who is a visiting master of theology, etc. But in this way, adding whatever circumstances I wish, I would still not express to you a singular concept, for a

description of this sort [*talis oratio*] could just as well apply to another person, if the same circumstances applied to him. And thus it appears that I cannot conceive of a thing in a singular fashion, unless it is pointed out to the senses. ⁷⁷

But then, as, in accordance with his general semantic conception, Buridan has to insist that whether a name is singular or common depends on the type of concept it is subordinated to, ⁷⁸ he is apparently committed to the claim that this name is not a singular name. In his reply, switching the example to the name 'Aristotle', Buridan solves the problem in terms of a theory of (p. 75) singular reference, which, as Jennifer Ashworth has recently pointed out, ⁷⁹ is reminiscent of modern "causal-historical" theories of reference:

But there is a greater doubt concerning the term 'Aristotle', namely, whether it is a singular term, and whether there is a singular concept corresponding to it. And I believe that it certainly *was* a singular term, and *was* imposed according to a singular concept, namely, when Aristotle was named, for then it was said 'Let him be called "Aristotle",' and *since we believe that the name was imposed according to a singular concept, we always take that name to be singular.* ⁸⁰ However, I believe that in us, who have never seen Aristotle, there does not correspond to that name a singular concept, for in saying whom I understand by the name 'Aristotle' I cannot but say that a man, a great philosopher, coming from such and such a place, doing such and such things, and so on for other circumstances. But all these would apply to someone else, if there were another person like this along with Aristotle. However, since as a matter of fact there was no other person like this, our concept corresponding to the term 'Aristotle', and also the term itself, supposits only for one person in our usage.

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So, what secures the singularity of the reference of the name 'Aristotle' in the first place is the genuine singularity of the concept of those who first gave Aristotle his name having him in their view, and of those who learned his name in direct personal acquaintance with the man, also having him in their view. Next, the singular reference which the name has from these "primary users" is "inherited" through linguistic means by those "secondary users" who are not in a position to form such a genuine singular concept of Aristotle. These "secondary users," in turn, are able to form general

descriptions (and the corresponding concepts) that as a matter of historical fact happen to apply only to one person. But this circumstance alone would not render the descriptions and the corresponding (complex) concepts genuinely singular, according to Buridan.

And this much is certainly plausible enough. For what determines the reference of the name insofar as it is functioning in our usage as a genuine singular term is definitely *not* a collection of some associated descriptions. Otherwise, *if* those descriptions *did determine* the reference of the name, then none of these descriptions could turn out to be false of the man who is the intended referent of the name, which is obviously not the case.⁸² For example, if the referent of the name 'Peter of Spain' is *by definition* the author of the *Summulae*, then it can never turn out to be the case that (p. 76) Peter of Spain after all did not author the *Summulae*. By contrast, if 'Peter of Spain' is reserved to be the name of this particular man, who may or may not have written the *Summulae*, but of whom we happen to know that he later became Pope John XXI, then of course it may turn out that he, Peter of Spain, did not author the *Summulae*, but another man, equivocally called 'Peter of Spain', did.⁸³

Therefore, what fixes the reference of the name first is the intention of the genuinely singular concepts of its *primary users*, in particular, the intention of the name-giver. Next, the secondary users intend to apply the name to the same referent that was intended by the singular concepts of the primary users. In this way, the reference of *secondary users* is *parasitic* on the reference of the primary users, and it is *only* this parasitism that can account for the *genuine semantic singularity* of a proper name, as opposed to the logically contingent, factual singularity of a semantically common description.⁸⁴

So, with this solution, apparently tying the singularity of reference, both on the linguistic and on the corresponding conceptual level, to the causality of the object rather than to the "assimilation" of the content of the cognitive act (that is to say, its encoding some distinctive information about the object), Buridan seems to be squarely in Ockham's corner. However, on a closer look, some interesting differences start to emerge between the two thinkers.

As we have seen, on the basis of the *argument from indifference*, Ockham concluded that because cognition by assimilation can never yield sufficiently distinctive representative content, the only reason why a cognitive act can be singular is its actual causal connection to the object cognized.

Accordingly, if the causal link of the cognitive act to the singular object is cut off, then the act of cognition (or rather a copy thereof in memory) *eo ipso* becomes an abstractive, universal representation of all objects sufficiently similar to the singular in question. This, however, immediately raises the problem of the possibility of singular memory for Ockham. Does this mean that we can never remember a particular person we saw on a particular occasion? Ockham's answer is that of course we can, but only by means of a complex abstractive cognition, which determines the various circumstances under which we saw the person in question. ⁸⁵

This answer, however, cannot be satisfactory for Buridan, given his conception that no piling up of common circumstances would ever yield a properly, semantically singular concept, except one that is merely *de facto* (p. 77) singular. Accordingly, Buridan seems to tie the singularity of sensory memory *not to its content* or *to its actual causal link* to its object, but rather *to its causal history*. As he writes in his *Questions on Metaphysics*:

It is true, however, that we can certainly conceive of a thing in a singular fashion because we remember it to have been [in our view, i.e.,] in the view of the cognizer, and to have cognized it in this fashion. And so, remembering Socrates whom I saw, I conceive of him again in a singular fashion, even if I do not see him. But if I had not seen him, then I would not be able to form a concept that would supposit only for him, except by virtue of an aggregation of common circumstances.

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However, Buridan's idea is apparently more complicated than just having a simple "record" of the causal history of some sensory representation stored in memory, such as the date stamps on digital photos. This becomes clear in the immediately following passage, in which he considers the singularity of acts of imagination:

Likewise, even in dreams, we conceive of things in a singular fashion, because [we conceive of them] in the way of things existing in our view, whence they appear to us designated in our view; but often those concepts are fictitious, because they have no external thing corresponding to them. For it is not unacceptable that there should be singular fictitious concepts, just as well as there are common ones. ⁸⁷

In the case of such fictitious singulars, we certainly cannot account for the singularity of the cognitive act in terms of either the actual or the past causal relation between the fictitious object and its representation, so we cannot say that we ever had such objects in our view in the way we did objects that we actually saw. What is it, then, that accounts for the singularity of imagination? In answering this question, we should heed more carefully Buridan's actual wording. He does not say that we must have or must have had such things in our view; rather, he says we have to conceive of these things *in the way of things existing in our view (per modum existentium in conspectu nostro)*.

Indeed, if we take a closer look at the texts in which Buridan uses this phrase or its equivalents, we can see that he is always careful to talk *not* about *the actual presence* of the thing in our view as required for the singularity of its cognition, but, rather, about its *way of being presented as if it were in our view*, especially, as something distinguishable even from other, **(p. 78)** qualitatively indistinguishable particulars on account of its particular position in space. In his *Questions on Aristotle's De Anima*, he writes:

Indeed, things belonging to the same most specific species have so great an essential agreement that the only way you have of perceiving their difference is by extraneous considerations. For example, let there be two stones alike in size, shape, color, and other singular accidents, and suppose that at this moment you see one of them and can consider it as much as you like. After a while, when you have gone away, it is taken away and the other is put in its place. Then when you return, you will judge that the one that is there now is the same one that you saw before. And likewise, you will judge that the color that is in it is the same color that you saw before, and so on for size and shape. Nor will you have any way of knowing whether it is the same stone, or the other, (and the same is true of men). But *if you should see them together, you will judge that they are different by a difference in place or location.* ⁸⁸

But then, contrary to our first impressions, it may seem that Buridan is *not* in Ockham's corner after all. If it is the distinctive location of individuals encoded in sense perception, sensory memory and imagination that renders their cognition in these sensory acts singular, then it is *not the actual causal contact*, but, rather, *some distinctive, singularizing content resulting from*

this causal contact that accounts for the singularity of these cognitive acts. Such a singular cognitive act, then, has to be stripped of this singularizing content to obtain universal acts of cognition, that is, universal concepts, pretty much as Aquinas said. Indeed, immediately after this passage, Buridan launches a discussion of how universal concepts are to be formed by abstracting them from such individuating circumstances, quite contrary to Ockham's conception of the immediate production of the first abstractive cognition by simply severing the actual causal contact between the cognitive act and its object. So, does Buridan end up with Aquinas after all?

Well, not quite. Indeed, in the crucial eighth question of his *Questions on De Anima*, Buridan begins his discussion in the body of the question with the claim that the position we find in Aquinas's *Commentary on De Anima* (but which Buridan found in Averroes as well) is wrong:

... it appeared to some that sense does not have the nature for cognizing universally, but singularly, because it has extension and a determinate place in a corporeal organ. But on the other hand, the intellect has the nature for understanding universally and not singularly, because it is **(p. 79)** immaterial and unextended, and does not determine for itself a location in a corporeal organ. [...] But this opinion appears defective. ⁸⁹

If we take a closer look at his arguments, it is clear that in attacking this opinion Buridan is only arguing against the following two implications:

1. the materiality of the senses implies the singularity of sensory acts.
2. the immateriality of the intellect implies the universality of intellectual acts

Buridan finds both of these implications false, because, according to his arguments, (1) the materiality of a cognitive power is compatible with the universality (i.e., nonsingularity) of its act, and (2) the immateriality of the intellect is compatible with the singularity (i.e., nonuniversality) of its act.

Still, despite possible appearances to the contrary, denying these implications does not quite separate his view from Aquinas's *from the point of view of our present concern*, namely, the reason for the singularity of a singular act. For Buridan does agree with Aquinas on the claim that *the*

universality of a cognitive act is a result of the *abstractive ability* of the cognitive power in question, and the *singularity* of a cognitive act is a result of its carrying *distinctive information* about singulars as such, *from which it is unable to abstract*:

... even though an exterior sense cognizes Socrates, or whiteness, or [something] white, nevertheless this is only in a species representing it confusedly with the substance, the whiteness, the magnitude, and the location, in accordance with what appears in the prospect of the person cognizing it. And this sense cannot sort out this confusion: that is to say, it cannot abstract the species of the substance, the whiteness, the magnitude, and the location from each other, and so it can only perceive the whiteness, or the substance, or the white in the manner of something existing in its prospect. Therefore, it can only cognize the aforesaid things singularly. ⁹⁰

Indeed, because singularity is thus tied to distinctive representational content about, rather than to the actual causality of, the object, Buridan argues again that the singularity of representation is inherited by all those sensory powers that do not abstract from this distinctive, singularizing information:

Again, if common sense receives species from exterior sense with this sort of confusion, and it cannot sort out the confusion, it apprehends in a singular manner of necessity. That is why we judge what appears to us in dreams as being this or that, and as being here or there, and so also, **(p. 80)** if a species is produced by sense with this sort of confusion of location in the memorative power, a memorative cognition will be produced in us in a singular manner, although we judge with pastness that it was this or that, here or there. ⁹¹

So, given that he ties the singularity of sensory representation in general (including sensory memory and imagination) to its distinctive content, rather than to the actual causality of the object, Buridan does not seem to have fully accepted Ockham's argument from indifference after all.

The important point that Buridan seems to have noticed against Ockham's argument (in view of his own observation about the nonrecognition of perfectly similar stones swapped while the viewer turns away, but *cognized as distinct when viewed simultaneously*) is the fundamental difference

between what is required for the distinctiveness of singular *cognition*, on the one hand, and singular *recognition*, on the other. For even if the qualitative similarity of two objects may render *singular recognition* sometimes *impossible*, the simple *cognition* of individuating circumstances *here and now* is distinctive enough for *singular cognition*, barring the miracle of two completely overlapping bodies occupying the exact same location. ⁹²

Although Buridan does not seem to make this distinction systematically, it is intuitive enough and something like it certainly seems to be operative in his thinking about these issues. In general, I think we should make the following observations here in connection with singular *cognition* as opposed to singular *recognition*, which is the main idea figuring in *the argument from indifference*.

Clearly, when we are talking about the cognition of singulars in a singular manner, what is meant is that singulars are cognized in their singularity, *qua* singulars. But this characterization is not specific enough. For cognizing something in its singularity may mean (1) cognizing it as distinct from any other singular in the *actual* cognitive situation (call it the *actual cognition of singularity*), but it also may mean (2) cognizing it *unmistakably*, as distinct from any other singular in any possible situation (call it the *necessary cognition of singularity*)—and this would be cognizing the singular together with or rather, under the aspect of, its principle of individuation, which “tags” it, as it were, as *this* individual in all possible situations, which could serve for error-free *re-cognition*.

With this distinction at hand, we may say that Aquinas (as well as Aristotle, as Thomas interprets him) is correct in saying that the senses cognize (p. 81) singulars in a singular manner, in the sense of the *actual cognition of singularity*, in a natural situation, excluding the supernatural possibility of perfectly overlapping bodies. However, in the second sense, or in a supernatural situation, there is always the *possibility* of mistaking one individual for another on account of the *not sufficiently distinctive* representation of sufficiently similar individuals. Yet, just because sensory representation is *not sufficiently distinctive* in this way, it does not mean that it is not sufficiently *singular* in the first sense, or that it is universal without further ado. For in contrast to the mere nondistinctiveness of sense perception in all possible situations, there is the obvious universality of intellectual cognition in contrast to the actually singular cognition of the senses in an actual situation. If I see a man to my right and another to my left, then I obviously cognize them in their singularity (no matter how similar

they appear), in the actual situation (although I may be fooled about their identity in a possible situation by divine power, or a mere natural swap of them while I am not watching). By contrast, if I am told that the object on my left is a man and the object on my right is a man, too, cognizing each only insofar as a man will in no way distinguish one from the other; indeed, it will not distinguish each from any other possible man, no matter how *dissimilar* they might appear to my senses (which is why I could form universal truths concerning all possible men, *qua* men).⁹³

Indeed, Aquinas provides a very compelling reason why location can have this crucial, naturally distinctive role in singular cognition, while discussing the sensory cognition of *common sensibilia* (i.e., sensible qualities that are cognized by several senses, such as shape, size, position, etc., as opposed to *proper sensibilia* that are cognized only by one sense):

... there are objects which differentiate sensation with respect, not to the kind [*species*] of the agent, but to the mode of its activity. For as sensible qualities affect the senses corporeally and locally, they do so in different ways if they are qualities of large or small bodies or are diversely situated, i.e. near, or far, or in the same place or in diverse places. And it is in this way that the common sensibles differentiate sensation.⁹⁴

So, the *common sensibilia* are the necessary spatiotemporal determinations of all *proper sensibilia*. The *proper sensibilia*, in turn, are the individualized sensible qualities of material individuals that the external senses are specifically attuned to be affected by, such as color, sound, smell, taste, (p. 82) texture, and temperature. But these *proper sensibilia* are individualized precisely by their spatiotemporal determinations here and now, the *common sensibilia*. The cognition of *common sensibilia*, therefore, provides precisely that distinctive sensory information that singularizes the cognition of individualized sensible qualities, presenting the singulars having these qualities *qua* the singulars actually affecting the senses *here and now*.

However, if the external senses receive this distinctive, singular information about the individuating spatiotemporal conditions of their objects precisely on account of receiving the causal impact of these objects through their own spatiotemporal features, then this seems to establish the implication Buridan argued against in the first place—that the materiality of a cognitive power entails the singularity of its cognitive act. For if sensory representation is singular *precisely because* it represents its object in a material fashion, encoding the distinctive, singular information about the object by its own

material features, then this means that sensory representation is singular *because it is material, that is, its materiality implies its singularity.*

Indeed, if he is successful in establishing this much, then, *pace* Buridan (who extensively argues against the knowability of the immateriality of the intellect), ⁹⁵ Aquinas does have a good argument for the immateriality of the intellect. For the contrapositive of this implication, namely, that *the nonsingularity of its cognitive act entails the immateriality of a cognitive power*, together with the fact that the intellect does have some nonsingular, namely, universal cognitive acts, establishes the immateriality of the intellect. Thus, when Buridan endorsed the claim that the singularity of sensory cognition is due to its carrying distinctive singular information that it cannot abstract from, he did not move too far away from Aquinas's position. Aquinas just made the further, quite plausible, claim that the encoding of this distinctive singular information in the senses is a result of their material character, as they receive the localized, spatiotemporal causal impact of material singulars in a similarly localized, spatiotemporal fashion. But then, it seems, Aquinas is quite entitled to his further conclusion concerning the immateriality of the intellect. ⁹⁶

Still, *pace* Aquinas, and in favor of Buridan, we have to say that this much does not establish that the immateriality of the intellect has to entail the universality of its cognitive act, that is, that the intellect can cognize *only* universally, and never in a singular fashion. For even if sensory information is singular on account of the materiality of the senses, because sensible objects always have to affect the senses as determined by their individuating, **(p. 83)** spatiotemporal, material conditions, the distinctive singular information encoded in the process may be *transcoded* by an immaterial intellect in an immaterial fashion, that is, not by any corresponding spatiotemporal features of this intellect, without abstracting from it. Thus, the immateriality of the intellect need not entail the nonsingularity of its acts, provided that besides *abstracting*, the intellect is also capable of this sort of *transcoding*, which is at least not impossible.

So, apparently, the basis of Aquinas's famously contended position concerning the intellect's inability to represent singulars is simply his view *that human intellectual acts are always abstractive*. The immateriality of the intellect implies the universality of intellectual acts, *only if these intellectual acts are abstractive*. However, if there are intellects that have nonabstractive acts (which Aquinas took to be the case with divine or angelic

thought) or if the human intellect can have nonabstractive acts (as medieval “Augustinians” would contend), then this implication is not valid.

But apart from these differences in the (perceived or genuine) metaphysical implications concerning the nature of the human soul, Buridan’s position on singular cognition is surprisingly close to that of Aquinas. Indeed, it is much closer to Aquinas’s than to Ockham’s. However, given the earlier-mentioned role of Ockham’s conception of singular cognition in his nominalism, it becomes a big question whether Buridan is able to provide a consistent combination of his own surprisingly “Thomistic” account of singular cognition with his “Ockhamistic” account of universals. But before pursuing this question, let us see a brief, systematic summary of Buridan’s account of singular concepts and the corresponding terms in their logical role.

4.4.2 A Systematic Summary of Buridan’s Account of the Logic of Singular Terms and Concepts

Buridan himself most appropriately summarizes the issue with singular terms in his question-commentary on Porphyry’s *Isagoge*. He begins the discussion by recounting a threefold division of singular terms provided by Porphyry: ⁹⁷

Porphyry noted three sorts of individuals, that is, singular terms. The first is [exemplified by terms] like ‘Socrates’ or ‘Plato’ (and you should (p. 84) always interpret [this division] in material supposition); ⁹⁸ the second, [by terms such as] ‘this man’, ‘this one approaching’; the third, by ‘the son of Sophroniscus’, if he has only one son. ⁹⁹

Obviously, this division distinguishes proper names, demonstratives, and descriptions, respectively. In the first place, Buridan dismisses descriptions from his consideration, as not being properly individual:

But we should know that the third of these sorts is not properly said to be an individual [term]. For although the term ‘God’ or the expression ‘first cause’ supposits for one thing and it is impossible that there be several such things, nevertheless, this term or this expression is not taken to be an individual [term] but a species [term], because it is not impossible for the term ‘God’ on the basis of its mode of signification or imposition to signify or supposit for several things. For if it were the case, as we can imagine, that there were another world that had a first cause other than the first cause of this world, then

the term 'God' would signify that first cause without a new imposition, just as it signifies the first cause of this world, and it would be true to say without equivocation 'there are two worlds' and 'there are two gods'; and for this reason the terms 'God' and 'world' are not singular. In the same way, although "Sophroniscus's son" *de facto* supposits for only one thing, nevertheless, it is not impossible, on the basis of its signification or imposition, for it to supposit for several things; therefore it would supposit for several things without a new imposition if Sophroniscus had another son born to him. Therefore, such a name or expression is not properly called an individual [name], except by similarity, for it shares in the condition of an individual [name] insofar as *de facto* it supposits only for one thing. ¹⁰⁰

Thus, descriptions are not properly singular, even if *de facto*, or even by the necessity of the nature of things, they signify or supposit for only one thing. For even if they *do* or *can* supposit for only one thing (as a matter of fact or as a matter of the nature of things) as far as their *mode of signification* is concerned, they *could* supposit for several things.

However, as we have seen, this strict conception of singularity, involving the *semantically necessary uniqueness* of what the term signifies, renders questionable whether even proper names are really singular in the strict sense, provided they are to be construed as mere abbreviations of complex descriptions:

And the same goes for what Porphyry says, namely, that an individual [term] consists of properties whose collection will never be the same in another. Such an expression, namely, one that is an aggregate of properties (p. 85) of this sort, is never properly called an individual [name] or singular term, for it is not impossible for it to supposit for several things on the basis of its mode of signification. For example, you describe Plato to me so that he was the son of Socrates, born in Athens, in such and such a place, in this year, day and hour, and was the teacher of Aristotle. And I posit the case by divine power or by imagination that at the same time and in the same place to the same father another son is born, to whom the other conditions of the same sort also apply. It is obvious that your expression and description applies just as well to that other

person as it does to Plato, without equivocation or a new imposition; therefore this third mode is excluded [from among individual names] as improper. ¹⁰¹

This leaves us, then, with proper names, such as 'Plato' and 'Socrates', *not construed as abbreviated descriptions*, and (complex) demonstratives, such as 'this man' or 'this rock'. If these are singular in the strict sense, then the question is what secures their singularity. Buridan goes on to provide the same answer here that we have already found in his relevant question on Aristotle's *On the Soul*, namely, that it is the "*in prospectu cognition*" of this singular that guarantees the singularity of its cognition:

But concerning the first two sorts [of individual names] we should know, as should be seen in more detail in bk. 7 of the *Metaphysics*, that it is impossible to conceive of a thing purely individually unless it is conceived as existing in the prospect of the cognizer, whether this happens by remembering that it was there or the thing is cognized as signified by being pointed out; otherwise there would not result a concept suppositing for this unique thing, except by description [*per circumlocutionem*], which would not be properly singular, as has been said. And the thing is signified by being pointed out by the names 'this man', 'this one approaching', 'this white thing', etc. And so such terms are properly and primarily singular, for on the basis of the mode of signification of the demonstrative pronoun, such as 'this' or 'that', it is impossible for the complex term resulting from it and the [common] term to which it is added to supposit for anything except for that which is signified by being pointed out. And thus, if I say: 'this man runs', and I am pointing to nothing, the expression is ungrammatical [*incongrua*], and it is neither true, nor false, and the term (p. 86) 'this man' supposits for nothing. And if I am pointing to something, but not to a man, then the proposition is grammatical [*congrua*], but false, for its subject supposits for nothing. And if I do not point to one unique man, but indifferently to two, then the proposition is again ungrammatical, and is neither true, nor false, and the utterance 'this man' supposits for nothing. And thus it is impossible for a term like 'this man' or 'this white thing' to supposit for several things at the same time. ¹⁰²

Thus, it might seem that it is *only* complex demonstratives that are properly singular, because these are the ones whose very meaning involves the presence of the thing “in the prospect” of the speaker. But then, the proper names ‘Plato’ and ‘Socrates’ may not be really singular terms, because they cannot be subordinated to truly singular concepts in the minds of those who have never had the individuals named by these names “in their prospect.” So, how can we even talk about the individuals named by these names? After all, they are not “in our prospect”; therefore, we cannot form singular concepts of them. And Buridan has already made it clear that whether a spoken or written term is truly singular depends on whether it is subordinated to such a singular concept.

Buridan “saves” the singularity of these names in terms of his version of the “causal-historical” theory of reference: ¹⁰³

Furthermore, concerning the terms ‘Socrates’ and ‘Plato’ I say that *they are truly and properly individual terms*, for the name ‘Socrates’ was imposed on this man by means of pointing [to him], as for example [by saying that] let this boy be named by the proper name ‘Socrates.’ For that name imposed in this way cannot apply to anybody else, except as a result of a new imposition, but then there will be equivocation. ¹⁰⁴

Therefore, these proper names *are* properly singular terms after all, not because we can form the properly singular concepts of the individuals they refer to, since those individuals have never been “in our prospect,” but because these names were introduced by people who did have those individuals “in their prospect” and so were able to form the truly singular concepts whereby these names were imposed to signify those individuals. But then, what originally fixed the reference of these names were such properly singular concepts; later on, others who used the names had to *intend* to refer “parasitically” to the objects of those singular concepts, even if they themselves could not form such singular concepts, for otherwise they would have used these names equivocally.

Thus, these names have to refer “rigidly” (to use the familiar modern phrase) ¹⁰⁵ to the objects of their original singular concepts, even though nobody is in a position anymore to form the same sort of singular concepts. Therefore, although these names may be associated in later users’ minds with (p. 87) certain descriptive concepts and not with properly singular concepts, because they were originally imposed according to properly singular concepts, in accordance with this imposition, and in their proper usage,

they have to refer rigidly to the objects of those original, properly singular concepts. (And this is why some of the descriptions normally associated with these names may even turn out to be wrong.) Thus, Buridan is entitled to conclude:

Therefore I posit the conclusion in accordance with the foregoing that the definition of individual [name] properly so-called is good in this way, namely, “an individual [name] is predicable of one thing only, that is to say, an individual [name] is a predicable for which it is impossible to supposit except for one thing only on the basis of its signification or imposition.”¹⁰⁶

4.4.3 Singular Concepts and the Singularity and Plurality of Things

As Buridan’s subsequent discussion makes clear, however, even with this understanding of the Porphyrian definition, there are some further difficulties to consider. First, it is not quite clear just how we are able to “carve out” a single thing from our experience *by pointing*.¹⁰⁷ After all, any single thing in our experience is a number of other things, namely, its several parts into which it is divisible:

But concerning this point a number of doubts arise at once. The first is that the term ‘this man’ supposits for this man, and this man is several things, for he is his parts; therefore, it supposits for several things.¹⁰⁸

Furthermore, we also have demonstrative constructions consisting of a demonstrative pronoun and a common term that are explicitly in the plural form, where it is obvious that we are pointing to several things, but where these constructions are construed as singular terms:

Again, the term in the plural ‘these men’, pointing to two men, is a singular term, whence the proposition ‘these men run’ is taken to be singular, and yet the term ‘these men’ supposits for several men, as is clear.¹⁰⁹

In response to the first of these objections, Buridan introduces an important distinction:

In reply to the first of these doubts I concede that an individual [name] supposits for one thing that is many things. Therefore,

I concede that (p. 88) speaking conjunctively [*coniunctim*] it supposits for many things, but not dividedly [*divisim*], so that it would supposit for any one of them. But a common term supposits in this way for several things. ¹¹⁰

That is to say, for a term to be a common term, it is required not only that it can supposit in a proposition for several things, since a singular term can do that, too, but it is also required that it can supposit *divisim* for each of those several things, which a singular term suppositing for several things *coniunctim* does not do. When a term supposits for several things *coniunctim*, then it does not supposit for any of the things supposited for by the members of a nominal conjunction of names naming those several things. For example, if we say that the name 'Socrates' supposits for Socrates' left half and his right half, and thus the proposition 'Socrates is his left half and his right half' is true, then the name 'Socrates' supposits for several things, namely, his left and right half. ¹¹¹ However, it supposits for these several things *together*, without suppositing for any of them separately. Indeed, the predicate term of this proposition, namely, 'his left half and his right half', is also a singular term, suppositing as a whole for Socrates (after all, that's why the proposition is true), although it does not supposit for his halves referred to by the members of this conjunctive term, for this conjunctive term is to be understood as referring *collectively* to all the things referred to by its members taken together. This is why we cannot "descend" to the members of the conjunctive term and say 'Socrates is his left half and his right half; therefore, Socrates is his left half and Socrates is his right half', for the consequent of this consequence is obviously false.

Buridan's remark, therefore, sets up an interesting conceptual link between singular terms, nominal conjunctions, and collective names. Indeed, the next reply expands these conceptual connections also to plurals:

In reply to the other [objection] I concede that the term 'these men' is a singular term. But we do not claim that a singular term or individual [name], if it is in the plural number, should supposit for a single thing; but it has to supposit for some [collection of] several things individually in such a way that it does not supposit for another [collection of] several things, nor for any of these things, but only for these several things together that are pointed out. For if I say 'these men' pointing to Socrates and Plato, the term 'these men', does not supposit for either Plato or Socrates, nor does it supposit for other men

than Socrates and Plato taken together. But the term ‘men’ is a common term, and it supposit indifferently for two or for three, or for these or for those men. ¹¹²

(p. 89) So, quite interestingly, Buridan seems to have recognized the importance of nominal conjunctions in the explanation of a number of apparently disparate semantic phenomena, even though he did not systematically exploit this recognition in his theory of supposition in the way later nominalists did. ¹¹³ I briefly will return to this issue in the systematic treatment of Buridan’s theory of supposition.

However, because we are by now in a good position to see exactly how Buridan draws the distinction between singular and common categorematic concepts and their corresponding terms, we can first return to the issue of this distinction, as well as to the “big question” of whether Buridan manages after all to reconcile his “Thomistic” account of singular cognition with his “Ockhamistic” account of universal concepts.

4.4.4 Common Concepts and the Problem of Universals

In view of the foregoing considerations concerning singular terms, we can say that for Buridan a singular term is one that *on account of its imposition and signification* can supposit only for one thing and not for any other or others, or for several things, but only *coniunctim* (taken together) and never *divisim* (taken one by one), and it cannot supposit for any other thing or things (but for the one, or the ones taken together, for which it actually does supposit). Therefore, by contrast, a common term must be one that *on account of its imposition and signification* can supposit for several things *divisim* (taken one by one). Because, however, spoken and written terms have their semantic properties from the semantic properties of the concept to which they are subordinated (i.e., on which they are imposed), the question of the difference between the semantics of singular and common terms boils down to the question of the difference between the respective representative functions of singular and common concepts.

As we have seen, that difference for Aquinas was a difference between the information contents of singular and universal representations. A singular representation is one that carries distinctive information about its singular object, whereas a universal concept is one that abstracts from this information, but carries information about the common nature of singulars of the same kind.

We also have seen that Ockham rejected the idea that even what he takes to be a genuinely singular, intuitive cognition is singular *on the basis (p. 90)* of carrying distinctive information. As far as Ockham is concerned, no human cognitive act can carry such distinctive information, whence all such cognitive acts are indifferent in their representational content to several sufficiently similar singulars. (And because similarity comes in degrees, more or less universal concepts will simply reflect these differences in degrees of similarity among singulars.) Therefore, the only reason why a genuinely singular intuitive act of cognition is singular is its actual causal contact with its singular object. Thus, as far as Ockham is concerned, there is no need to explain the universality of universal cognitive acts, that is, common concepts. All such acts are universal simply on account of what they are, and there is no need to explain their universality with reference to some abstracted common content or a common nature that can somehow be stripped of its individualizing conditions by the abstractive power of the agent intellect. All of this serves Ockham's nominalism well. However, it gives rise to a number of problems with which Buridan has to cope.

In the first place, Ockham's account gives rise to "the problem of singulars": how can we possibly have genuinely singular cognition of singulars, if at all? His answer in terms of actual causation left Buridan with the problem of accounting for the genuine singularity of memory and imagination, which he certainly did not want to give up given the role these cognitive acts play, according to his own semantic account, in the logic of singular names. Thus, Buridan reached back to an earlier tradition, very clearly expounded by Thomas Aquinas, which explained the singularity of sensory cognition in terms of its carrying distinctive information that the sensory powers are unable to abstract from. Correspondingly, in his account of universal cognition, Buridan had to come up with an "abstractionist story." But could he possibly provide this "abstractionist story" in a way that was compatible with his "Ockhamist" account of the logic of universal terms and concepts? Buridan certainly thought he could. Indeed, in a crucial passage, he provides a mixture of both in the same breath:

Next, I again suppose that if there are any things similar to each other, whatever is a similarity for one of them, is, in the respect in which the two are similar to each other, a similarity for each of them. For example, if A, B, and C are similar with respect to whiteness because they are white, just as D is similar to A [in whiteness], it must also be similar to both B and C [in whiteness]. Therefore, it follows from the

fact that representation occurs by means of likeness that that which was representative of one thing will be indifferently representative of others [...] From this (p. 91) it is finally inferred that whenever the species (and likeness) of Socrates has existed in the intellect and has been abstracted from the species of external things, it will no more be a representation of Socrates than of Plato and other men; nor does the intellect understand Socrates by it any more than other men. On the contrary, the intellect understands all men by it indifferently, in a single concept, namely, the concept from which the name 'man' is taken. And this is to understand universally. ¹¹⁴

I will soon return to the issue of whether Buridan's account in this passage does indeed provide a coherent solution to the problem. But to see more clearly what is at stake here, we should first deal with another problem generated for Buridan by Ockham's conception (which Buridan, of course, wants to adopt for his own nominalist program).

Ockham's conception of universality as stemming from *the inherent indifference of all cognitive acts* does not seem to provide a plausible account of the *different kinds of aspectuality* of sensory and intellectual cognition: just how can we ever get from *seeing* objects as white and round, and *feeling* them as hard, cold, smooth and round, and so on, to *thinking* of them as snowballs or as billiard balls? Indeed, how can we possibly get from sensory representations of material substances (which represent them only with regard to their sensible qualities) to the concepts of these substances themselves? Ockham never provided a detailed answer to this question, whereas Buridan had a pressing need to answer it in view of some contemporary skeptical challenges. ¹¹⁵

In his question-commentary on Aristotle's *Physics*, Buridan raises the question of "whether in every science the knowledge and understanding of things arises from the preexisting cognition of their causes, principles, and elements." ¹¹⁶ After advancing a number of arguments supporting the negative reply, Buridan begins his discussion by expounding a skeptical opinion on the issue, which he is about to refute:

This question and the arguments brought up in connection with it raise several difficulties. One such difficulty is whether from the cognition (*noticia*) of one thing one can obtain the cognition of another; for there are two sorts of cognition, namely, complex and incomplex. About the incomplex sort

some people say that no incomplex cognition can be obtained from another, since no cognition can be obtained from another, except by means of a consequence, but a consequence can only lead from a complex [cognition] to a complex one; therefore, etc. In the second place, they infer as a corollary that we have no cognition of any (p. 92) substance in terms of incomplex cognition, for we can arrive at the cognition of substances only by means of the cognition of accidents; and so by means of some consequence, which can only obtain between complex [cognitions]. But I do not agree with this opinion, and I posit two conclusions against it. 117

Buridan's first conclusion directly attacks the first claim of this opinion, namely, that no simple cognition can be obtained from a simple cognition. He points out that the claim is self-defeating insofar as the simple intellectual cognitions it involves had to come from some simple sensory cognitions (in line with the commonly accepted Aristotelian "empiricist" assumption that at least our categorematic concepts must come from sensory experience). Therefore, at least *some simple intellectual cognition* has to come from *some simple sensory cognition*, whence some simple cognition has to be obtained from some simple cognition, contrary to the original claim. As Buridan writes:

The first [conclusion] is that some incomplex cognition can be obtained by means of another. For there are incomplex intellectual cognitions, and all intellectual cognitions are obtained by means of another act of cognition; therefore, some incomplex cognition is obtained by means of another [act of cognition]. The major premise has to be accepted, for if a caviler were to deny it, then [by virtue of this denial] he would have to concede at least the existence of some complex intellectual cognition; but the complex [cognition] would have to be composed of simple ones, for it is not divided to infinity like the continuum, and an intellectual cognition is not composed of sensory cognitions; therefore, it is composed of incomplex intellectual ones. But the minor of the principal argument is also clear, for at least the first intellectual cognition has to be obtained from a sensory one, and, in general, every intellectual cognition must be obtained from sensory cognition either directly or indirectly, since one who understands has to attend to [*speculari*] the phantasms, as is stated in book 3 of *On the Soul*; and for this reason it is

also claimed in book 1 of the *Posterior Analytics* that if we lose one of our senses, we also lose the knowledge of the proper object of that sense. ¹¹⁸

So, simple intellectual cognition must somehow come from simple sensory cognition. But how is this possible? And even if we can provide an explanation of the derivation of simple intellectual cognition from simple sensory cognition in general, how do we know that we have such a simple cognition of *substance* obtainable from sense experience? Indeed, why (p. 93) would the intellectual cognition of substance have to be simple? After all, if a couple of centuries later the British empiricists Locke, Berkeley, and Hume were right, then the only way we can *make sense* of our substantial terms is to conceive of them as being associated with relatively stable collections of sensory ideas. The reason for this is that these terms certainly cannot be associated with anything over and above the sensory ideas we can gain from experience, whence, apparently, they *have to* be associated with those relatively stable bundles of these ideas that the mind usually perceives together, and so associates with substantive names for practical reference. ¹¹⁹ Buridan's second conclusion addresses this issue as follows:

The second conclusion is that we do have simple concepts of substances, for the concept of man from which we take the substantial term 'man' is a concept of substance, if man is a substance. And that concept supposits only for a substance, for if it supposited for an accident or for something composed from substance and accident, then it would not be true that man is a substance, for neither an accident nor something composed from substance and accident is a substance; but precisely a substance is a substance, and that concept, while it supposits for a substance, does not even connote an accident other than that substance, for then it would not belong to the category of substance, but to that of an accident, as do the terms 'white' or 'big' or 'small', etc. For these terms supposit for substance and not for anything else, just as the term 'man' does, but they depart from the category of substance because of their connotation; therefore, a concept from which a term in the category of substance is taken is not a concept of any accident, or of something composed from substance and accident, but only of a substance or substances.

And if anyone were to say that they are complex, then the complex ones are combined from simple ones, for in the analysis of concepts one cannot go to infinity; and then those simple ones and the ones composed from them are only of substances; therefore, there are simple concepts of substances. ¹²⁰

The first important thing to note about Buridan's argumentation here is his insistence on the Aristotelian distinction between substance and accident, and his combination of this Aristotelian doctrine with his own semantic analysis of the terms and the corresponding concepts belonging to the Aristotelian categories. The point of the argument is that even if substances had complex concepts, those complex concepts would have to be made of simple concepts. But those simple concepts cannot be concepts (p. 94) of accidents, so those simple concepts would have to be simple substantial concepts. Therefore, we would still have to have some simple substantial concepts, which was the point to be proved. However, the claim that complex substantial concepts cannot be made up from accidental concepts (contrary to the British empiricists' conception of collections of sensory ideas) is proved here with reference to Buridan's doctrine of the semantics of substantial vs. accidental terms and concepts as being absolute vs. connotative terms and concepts.

For Buridan, concrete substantial terms are distinguished from concrete accidental terms by their different modes of signification as a result of the different sorts of concepts to which they are subordinated, yielding their different modes of predication. Concrete substantial terms are subordinated to *absolute concepts*, whence they signify their *significata* absolutely, without relating them to anything else. Concrete accidental terms, on the other hand, are subordinated to *connotative concepts*, ¹²¹ whence they signify their *significata* in relation to their *connotata* (which are also called their *appellata*, when they obliquely refer to these *connotata* in the context of a proposition). It is a consequence of this difference that substantial terms are predicated of their *significata* essentially or quidditatively, whereas the accidental terms are predicated of their *significata* non-essentially, or denominatively. ¹²² For example, the term 'man' signifies human beings absolutely, not in relation to anything. Therefore, Socrates will be actually supposed for by this term as long as he is a man, that is, as long as he exists; and so, the predication 'Socrates is a man' is necessarily true as long as Socrates exists, thus, this is an *essential* predication. By contrast, the term 'taller than Plato' obviously signifies Socrates in relation to Plato,

and actually supposit for him as long as he is taller than Plato. But as Plato grows, Socrates may become shorter than Plato without, of course, ceasing to exist. Thus, this term may cease to supposit for Socrates without him ceasing to exist. Therefore, the predication 'Socrates is taller than Plato' may become false of Socrates without Socrates' ceasing to exist, and so this is a contingent, accidental, or, as Buridan would say, *denominative* predication.

Accordingly, absolute terms, and in particular substantial terms, function in Buridan's semantics as "rigid designators,"¹²³ for these terms are true of their *significata* in a proposition as long as they supposit for them. But because the *supposita* of an absolute term are nothing but its *significata* that exist at the time connoted by the copula of the proposition in which the term is predicated, absolute terms always and necessarily supposit for their (p. 95) *significata* as long as these *significata* exist at the time connoted by the copula of the proposition in which they are predicated of these *significata*. So, these terms may never become false of these *significata* as long as these *significata* exist. Therefore, absolute terms are always predicated of their *significata* essentially, or quidditatively, and thus designate them "rigidly." By contrast, concrete accidental terms supposit for their *significata* only when their *appellata* (namely, their connotata obliquely referred to by these terms in the context of a proposition) belong to their *significata* in the way that they are signified to belong to their *significata*. So, if the *appellata* cease to exist or cease to belong to the *significata* in the way demanded by the signification of the term, then these terms cease to supposit for their *significata*, whence they become false of their *significata*, even though these *significata* continue to exist. Therefore, the essential vs. nonessential predication of concrete substantial vs. accidental terms is a direct consequence of their mode of signification, which, in turn, is determined by the sorts of concepts to which they are subordinated.

What Buridan's argument shows is that the assumption that substantial concepts are collections of connotative concepts (which is precisely the implication of the British empiricist conception), leads to the absurd conclusion that a substantial term is not a substantial term, for in that case it would be subordinated to a nonsubstantial concept. As he writes later:

Again, if the substantial concept of man were complex, then let us posit that it consists of three simple ones, namely, **a**, **b**, and **c**. Then, if no concept of substance is simple, **a** can only be a concept of accident, and the same goes for **b** and **c**; therefore, the whole combined from them would also be only a concept

of accident, and not one of substance, for a whole is nothing over and above its parts. But this is absurd, namely, that the substantial concept of man should be nothing but a concept of accidents; therefore, etc. ¹²⁴

The British empiricists, who provided precisely this sort of analysis for substantial terms, happily embraced this conclusion, and did not regard it as absurd at all. But Buridan's previous argument, combined with his semantic considerations, also shows that this conclusion directly entails the impossibility of the essential predication of these "phony" substantial terms. This, however, entails further that they cannot serve as the basis for valid scientific generalizations, an implication that was to be worked out in the fullest detail by David Hume. But then, unless Humean skepticism is the **(p. 96)** inevitable consequence of empiricism in general, an empiricist who wants to save the possibility of scientific knowledge in the traditional sense has to be able to find an alternative way to account for the derivation of our substantial concepts from experience, without turning the terms associated with these concepts into nonessential predicates of their significata.

Such a way is precisely what Buridan offers in his subsequent considerations, moderating his "empiricist nominalism" with "Aristotelian naturalism," which was abandoned by his contemporary opponents. Buridan offers four different ways in which one may account for obtaining some simple cognition from another without any inference. As he writes:

Next, [I respond] to the arguments supporting this opinion. To the first, we have to reply that some cognition is obtained from another without inferring one proposition from another or others in four ways. First, objectively. For if there is some cognition in an external sense, then it is related to the cognition of the common sense as its object, and also any sensory cognition is related to intellectual cognition as its object. ¹²⁵

In this way, the higher cognitive faculty forms some act of cognition distinct from the act of cognition of a lower cognitive faculty simply because it takes the act of the lower faculty as its object. To be sure, one has to make here the common distinction between an immediate and ultimate object: in the cognition of external objects (as opposed to the soul's reflecting on its own acts, as, for example, when one is thinking about one's own thinking), the act of the lower faculty is only the immediate object of the act of the higher faculty. For in this case, the higher faculty cognizes the object of the lower

faculty *by means of* cognizing the act of the lower faculty—in the same way as when I see my face in a mirror *by means of* its reflection. In any case, this is certainly the most general way in which one simple act of cognition can give rise to another, or, indeed, in general, one stage of information processing can give rise to another, as when a picture taken by a digital camera is electromagnetically stored on a computer's hard drive possibly for further processing. The important point here is that information received by one sort of encoder can be actively used and further processed by another encoder, by reason of its own receptive and processing ability. In fact, in this way, the second encoder may even add information not contained in the first, as when a computer tags the picture files on its hard drive with time and date stamps. This is precisely the point that Buridan makes (p. 97) concerning the second way in which a simple act of cognition may give rise to another:

Second, [a simple act of cognition may give rise to another] elicitive, as Avicenna says that the estimative power from a sensed intention, namely, of color, or shape, or motion, elicits an intention not sensed, namely, that of attraction or repulsion [*amicitie vel inimicitie*]. This is why sheep fear and flee the wolf, and follow the shepherd. And this is not a miracle. Since the soul is much nobler than fire, yet fire in generating heat is able by that heat also to generate lightness and rarity, so it is reasonable that the soul, by means of one act of cognition is able to generate another one, naturally following upon the former. 126

This is indeed plausible. However, when he specifically addresses the issue of how simple substantial concepts may be derived from sensory cognition, Buridan warns us that this way of accounting for this specific process of concept acquisition may contain a false assumption. In his questions on Aristotle's *On the Soul*, he analyzes the issue in the following way:

... there is one way, in the first place, in which the cognition of accidents leads us to the cognition of substance. And this assumes *first* that the intellect is moved by phantasms, the imagination by the senses, and the senses by external objects. It assumes in the *second* place that the senses and the imagination are only of accidents. It assumes in the *third* place that the estimative power is superior to and more excellent than the external sensitive power; and so it is able to elicit

from the sensed intentions some intentions not sensed. Thus also the intellect is superior to any sensitive power, whether external or internal; therefore, it is able from the intentions of accidents, which fell into the imagination, to elicit intentions of substances, which did not fall into the imagination. And so, by means of the cognition of accidents, we can arrive at the cognition of substances.

Briefly, this way [of addressing the issue] is defective in its second assumption, which was that the senses are only of accidents. For this goes against Aristotle, who in bk. 2 of this work [namely, *On the Soul*] asserts that the son of Diarus is sensed; although it is true that this is not *per se*, but *per accidens*. Indeed, we do not perceive substances under substantial concepts, but we do perceive them under accidental and connotative ones, and not under purely absolute ones. ¹²⁷

So, even though the intellect may have the power to elicit intentions (concepts) not contained in the senses, in the formation of substantial concepts, **(p. 98)** it is simply not true that these would have to be “cooked up” by the intellect alone, for *the sensory data provided by the senses about accidents does carry information about the substances* to which these accidents belong. This is the idea that Buridan elaborates in the continuation of this passage, listing three further ways in which one can account for the intellect’s ability to form substantial concepts from sensory data by extracting the information this sensory data carries about substances:

The second way is that the senses first perceive both substance and accident in a confused manner, and afterwards the intellect, which is a superior power, differentiates between substance and accident. Therefore, if I see someone now to be white and later I see him to be black, and at the same time I perceive that he remains the same, I arrive at the cognition by which I notice that this is other than whiteness and likewise other than blackness. And thus, although at first substance and accident are apprehended by means of the senses in a confused manner, the intellect, which is a superior power, can arrive at the cognition of substance itself.

The third way is possible because things are cognized by means of their similitudes. For it is stated in bk. 3 of this

work that “a stone is not in the soul, but the species of the stone is.” Since, therefore, it is the case that any effect bears the similitude of its cause, and an accident is an effect of a substance, it follows that an accident also bears a similitude of a substance, and consequently the intellect is able to arrive at the cognition of substance by means of the accident.

The fourth way can be this: prime matter, before a substantial form is educed from its potentiality, needs accidental dispositions preparing it for receiving such a form; the same can be imagined of the potential intellect, namely, that before there would be the similitude of substance in it, there have to be in it the species and similitudes of accidents. Once these are in the potential intellect, the agent intellect is able to extract from them the natural similitude of that substance to which those accidents belonged whose similitudes and intentions were in the potential intellect. ¹²⁸

Basically the same point is made in the continuation of the previously discussed passage from the *Physics*-commentary. ¹²⁹

In view of these passages, we can summarize two Aristotelian principles allowing Buridan to maintain his empiricist nominalism without slipping into skepticism in the following way.

(p. 99)

1. The intellect is not just a passive receiver of sensory information but a cognitive faculty actively processing this information, extracting from it content that is not so extractible from it by the senses.
2. The sensory information received by the senses, in addition to its primary, *per se* content concerning the sensible qualities of sensory objects, also carries some further content about the substances bearing these sensible qualities.

Once these two principles, which may be dubbed *the principle of the activity of the intellect*, and *the principle of the substantial content of sensory information*, respectively, are acknowledged, any empiricist should be able to provide a plausible account of our ability to acquire *genuine* substantial concepts from sensory information. For in view of the first principle, the

intellect is obviously able to extract content from sensory information which the senses could not so extract even though they may carry it, in the way that, for instance, light received by a telescope carries not only visible information about the stars, but also information about their material constitution, which, however, is only extractible by means of spectral analysis. But, in view of the second principle, the information about sensible accidents also *does* carry such extractible information about the substances to which these accidents belong. Therefore, the intellect should be able to form genuine substantial concepts from this sensory information. But then, these genuine substantial concepts will be denoted by essential predicates of the things conceived by means of these concepts, which will always necessarily apply to these things as long as these things exist. Thus, these predicates will be scientifically knowable characteristics of these things.

However, the issue of skepticism, which was Buridan's main motivation in this discussion, is not directly our present concern. I am going to return to this issue later, once we are in a better position to assess Buridan's epistemology in general. For the time being, what is important for us to see is exactly how Buridan conceives of the process of acquiring simple substantial concepts from sensory experience. In particular, we should now return to the "big question" of whether his abstractionist account of this process is compatible with his Ockhamist account of the logical function of the concepts acquired in this process.

What caused Buridan's problem in accounting for the process of acquiring simple substantial concepts from experience is the fact that substances do not present themselves to our senses as being this or that kind of substance, **(p. 100)** but as something white, round, cold, wet, and so on.¹³⁰ That is to say, objects of our experience affect our senses by means of their *per se, proper and common sensibilia*. When we perceive a snowball, for example, we do not directly perceive it as a snowball. What we perceive with our eyes is some white object that is round, and what we perceive with our touch is some cold and wet object that is round. What we perceive through our common sense is that the white round thing we perceive with our sight is the cold and wet round thing we perceive with our touch. Obviously, the external senses receive only the sensory information by which they are directly affected. However, they then each pass on this information to the next "processing unit," the common sense, which is able to collate and synthesize this information as coming from the same external source, which of course none of the external senses can cognize on its own. The crucial point here is that this information, namely, that the wetness and the whiteness belong

to the same object, is not a perception of either of the two external senses that perceive whiteness and wetness. For this perception is possible only for something that perceives both the whiteness and the wetness, which neither sight nor touch does. Still, the information that these belong to the same thing *is present* in the information that they transmit to the common sense, for they transmit the information about wetness and whiteness as each coming from *a round object located here* in my perceptual field. Of course, that the wet, round object *here* is the same as the white round object also *here*, can only be cognized by the common sense receiving information through *both* channels. But once this *is* cognized by the common sense, we do have a cognition of *the same* wet round white object located *here* in our perceptual field *as such*.¹³¹

However, this is still not the perception of the *snowball as such*. Indeed, until I acquire the concept of snow, I cannot have that sort of perception. However, *being snow* is not like *being white* or *being cold* or even *being round*. Being white and being cold are *proper* sensible qualities directly affecting our senses of sight and touch, respectively, and being round is a *common* sensible quality, which again directly affects our senses, although not just one of these, but both. But *being snow* is not such a sensible quality at all. Still, I learn about snowballs that they are made of snow (as opposed to billiard balls or ping-pong balls that are not) *through* what I perceive about them by my senses.

So, the information of this object's *being snow* is somehow ("potentially," as Aquinas would say) there in these perceptions. However, this is the sort **(p. 101)** of information that can only be obtained through multiple exposures to several objects of this kind, which yield the accumulation of this information in sensory memory, "confused" as Buridan says (i.e., "fused together," to quote Peter King's happy explication of the word's literal meaning)¹³² with all the coincidental, circumstantial information that constantly pours in through the senses. It is this accumulation of experiences with the same type of object under various circumstances that allows for the next stage of processing all this accumulated information, namely, abstraction, which is precisely the sorting out of the common information content of all the accumulated sensory information of singulars of a certain kind.¹³³ Indeed, *that several singulars are of a certain kind* is precisely that further, *extractible* bit of information that the mere reception and accumulation of all the sensory information about singulars would not allow the perceiver to cognize *as such*. For the information that this singular is cospecific or cogenerated with another and yet another, and so on can only be gained from

the accumulation of sensory experiences about these singulars by a “higher” cognitive power, that is, a further information processing unit, that has access to all the accumulated sensory experiences and is able to extract this information from them, by stripping this information of all the other circumstances together with which it is stored in sensory memory.

This higher cognitive power is the intellect, and the operation it carries out is *intellectual abstraction*. So, contrary to many modern descriptions of the process (in particular, the one provided by John Locke), abstraction does not involve a *mere loss of information*. Instead, it involves losing some explicit, singular, accidental information, and explicating some implicit, universal, essential information. However, the universality of this information does not require the positing of any sort of corresponding universal entity existing over and above or somehow *in* singular things. The universality of this information does not have to consist in its depicting a corresponding universal entity, but in its universal applicability to several singulars, indeed, not only to those from which it is gained but also to others of the same sort (i.e., others that would behave in essentially similar ways under essentially similar circumstances on account of what they are).

Therefore, this abstractionist account of the process of acquiring our substantial concepts is clearly compatible with a nominalist ontology. However, I believe the foregoing discussion also clearly shows that this abstractionist account necessarily entails the *aspectuality of all concepts* obtained by abstraction, that is, the idea that any universal concept represents its objects under (p. 102) some commonly applicable aspect. On this account, thinking of things of a certain kind in general is necessarily thinking of them *with respect to* what they agree in while disregarding their individual differences. Indeed, in order for abstraction to work, that is, to provide us with truly universal concepts, it is crucial that the concepts acquired by abstraction represent the things observed in the process *in that respect* in which they do not differ from unobserved things of the same kind. For a concept acquired from the observed things can *only* represent the unobserved things because the latter do not differ from the former *in that respect* in which the concept represents them indifferently. 134

By contrast, on the “indifference-account,” thinking of individuals of the same kind in terms of a universal absolute concept (a concept that represents its objects *not with respect to* anything) is supposedly *not aspectual*: thinking of these things in terms of this concept is merely thinking of them indifferently, not more of one than of the other. But this is *not*

on account of thinking of them *with respect to* what they agree in and disregarding what they do not agree in (which is what the abstractionist account would demand of all universal concepts), because this goes precisely against what the “indifference-account” demands from absolute concepts. To be sure, it is an open question whether even Ockham can consistently claim this. After all, even on his “indifference account,” the indifference of any cognition is based on some nondistinctive “assimilation,” that is, on the cognition’s encoding only nondistinctive information about singulars that do not differ in respect of that information. So, it seems that even Ockham is at least implicitly committed to some aspectuality of all mental representation, although this is precisely what he wants to deny. ¹³⁵

In any case, this is an issue Ockham never sufficiently elaborates, and that he, indeed, deliberately tries to eliminate, a move that some of his commentators even claim to be a virtue of his approach. ¹³⁶ But, however that may be, Ockham’s account definitely left a number of questions open for Buridan both concerning the logic of singular concepts and concerning the cognitive psychology of universal concepts. Thus, motivated by the considerations discussed earlier, Buridan felt compelled to reach back in his cognitive psychology to an earlier, abstractionist tradition, apparently hoping it would cause no conflict with his nominalism. And indeed it does not conflict with his nominalist ontology. However, it does cause a conflict with his logical semantics, insofar as his *abstractionist cognitive psychology demands the aspectuality of all common concepts*, whereas his *logical semantics (p. 103) implicitly denies the same to absolute concepts*, insofar as absolute concepts on that account are *not* supposed to represent any thing *in respect of* anything. We shall see the real significance of this problem in connection with the broader conflict between Buridan’s essentialist epistemology and nominalist semantics. However, we first need a systematic survey of Buridan’s divisions of categorematic concepts, which provide the theoretical underpinnings for that semantics.

4.5 A Systematic Survey of Buridan’s Divisions of Categorematic Concepts and Some Remaining Problems

Table 4.2 shows all possible subdivisions of categorematic concepts resulting from the earlier-discussed distinctions, filling them with unproblematic examples, and noting with question marks the problematic cases. The remainder of this chapter is going to deal with the problematic cases.

The first problematic case noted in table 4.2 is not so much a problem for Buridan as it is, apparently, for Ockham. What may cause the problem for Ockham with the case of simple connotative concepts is his commitment to the claim that *all* written or spoken connotative terms have nominal definitions. But if nominal definitions are supposed to explicate the conceptual structure of the complex concepts to which their *definienda* are subordinated, a view to which Ockham also appears to be committed, then by implication

Table 4.2 Buridan's Divisions of Categorematic Concepts

Categorematic Concepts	Common		Singular	
	Absolute	Connotative	Absolute	Connotative
Simple		'Man', 'Whiteness'	'White'?, 'Having'?	'Socrates', 'This', 'That' 'This white, round, wet, cold, etc. (thing)'???
Complex	'Rational animal'	'White thing', 'Something having whiteness'	'This man', 'This whiteness', singular definition?	'This white thing', 'This thing having this whiteness'

(p. 104) he is also committed to holding that all connotative terms are subordinated to complex concepts. To be sure, Ockham's commitment is not quite explicit, and his explicit claims allow certain latitude of interpretation, which, after Claude Panaccio's ground-breaking research into the issue, generated an interesting scholarly debate over Ockham's commitment to the rejection of simple connotative concepts.¹³⁷ Nevertheless, for the sake of the present discussion, in order to make the contrast clear, I will disregard the niceties of this scholarly debate, and I will talk about "Ockham's approach" as a theory of the relationship between spoken and mental language that involves commitment to a conception of mental language according to which it would not contain simple connotative concepts, but in which the only simple concepts would be either syncategorematic or absolute categorematic concepts.

One trouble, then, with "Ockham's approach" would be that it renders Ockham's semantic theory merely programmatic, unfinished, indeed, perhaps in principle unfinishable. For in a complete semantic theory governed by the principle of compositionality (no matter how broadly it is understood), semantically complex expressions can only receive their

semantic values on the basis of the semantic values of their components (again, talking about “components” in a broad sense, also covering *merely* semantic, and not necessarily syntactic components). But then, in the framework of Ockhamist semantic theory, this should mean that *all* semantically complex connotative concepts and the corresponding spoken or written terms can get their semantic values only if their (semantic) complexity is clearly expounded in terms of their nominal definitions, spelling out the way their semantic values are to be determined on the basis of the semantic values of their (semantically) simple components. Thus, on “Ockham’s approach” the semantic theory of connotative terms cannot even take off before providing the nominal definitions of all syntactically simple, but semantically complex connotative terms of natural languages exclusively in terms of absolute and syncategorematic terms.

However, whether such a project can be carried out even *in principle* is rather dubious. After all, on Ockham’s analysis, the concrete term ‘white’ is to be analyzed as ‘[something] having whiteness’, in which the term ‘having’ is obviously connotative, yet one would be hard-pressed to provide a nominal definition for *this* term, namely, a nominal definition that contains only absolute and syncategorematic terms.¹³⁸ In any case, Ockham never provided one, and in fact, neither he or nor anyone else ever carried out the program of providing such analyses.

(p. 105) By contrast, Buridan (and, if Panaccio is right, then the *real* Ockham as well) simply avoids this trouble by rejecting the claim that all connotative terms would have to have nominal definitions strictly synonymous with (because subordinated to the same complex concepts as) their *definita*, and therefore explicitly endorses strictly undefinable connotative terms subordinated to simple connotative concepts.¹³⁹ Therefore, whenever Buridan provides a nominal definition that contains an obviously connotative term, he is not committed to analyzing it any further, for he may just assume that the connotative term in question is subordinated to a simple (and hence semantically unanalyzable) connotative concept.

However, we should note that this move on Buridan’s part might not completely eliminate the problem for his semantic analyses (needed for the nominalist project of “ontological reduction”). For one may argue that the *only* advantage Buridan’s approach has over “Ockham’s” is that he can afford a larger “primitive vocabulary” for his conceptual analyses, insofar as his nominal definitions may contain terms subordinated to

simple connotative besides those terms subordinated to absolute and syncategorematic terms, as were allowed by “Ockham’s approach.”

Indeed, even this may not appear to be a great advantage if we consider that whenever Ockham would find himself stuck in his analyses with what is apparently an ineliminable simple connotative term, he may always assume that it is a complex of some simple absolute term and a syncategorematic term possibly unmarked in the syntax of the corresponding spoken or written language. For instance, in the complex Latin expression ‘asinus hominis’ (‘donkey of a man’) it might appear that the genitive form ‘hominis’ (‘of-a-man’) is subordinated to a simple connotative concept that cannot be analyzed any further. But as the syntax of the corresponding English phrase indicates, there may well be some semantic complexity on the conceptual level underlying this apparent simplicity on the level of Latin syntax. So, Ockham might claim that he would not have to be stuck with a simple connotative concept in this analysis, for on the conceptual level he could distinguish the absolute concept of humans and the syncategorematic concept expressed in English by the particle ‘of’ (and in Latin by the inflection of the noun).

This solution would face enormous difficulties in characterizing this “hidden” syncategorematic concept. In the first place, it is rather doubtful that one could assume the existence of a single concept (type) that would correspond in mental language to both the English preposition and the (p. 106) Latin inflection, given the extreme diversity of the uses of these syntactical devices in these languages.

But perhaps one does not have to make this assumption. If we can establish the synonymy of these devices at least in certain uses, we can assume the existence of a single concept (type) for those uses: after all, this should be precisely the reason for translating one with the other. However, this approach would render the “Ockhamist approach” to semantics a project that could never get off the ground *before* an enormous amount of comparative linguistic investigation is carried out. For given the near-ubiquity of the genitive construction and its enormously diverse uses in all sorts of languages, the characterization of the semantics of the various concepts that these different uses of the corresponding constructions in different languages express would have to precede even the already daunting task of providing “the correct” nominal definitions of categorematic terms subordinated to *all* connotative concepts. ¹⁴⁰

Buridan's account, by contrast, is definitely not committed to the demand of fully expounded nominal definitions, for even if the nominal definition of a connotative term contains a further connotative term, he may safely assume that (at least for the purposes of the actual analysis) ¹⁴¹ the connotative term in question is simple, and that it relates its *connotata* and *significata* in a further unanalyzed and perhaps even in principle unanalyzable way (which is the case when the term is in fact subordinated to a simple connotative concept).

Therefore, Buridan is consistently able to go ahead and provide a semantics for a spoken or written language without having already provided all nominal definitions of all connotative terms, for simply specifying what sorts of connotata they relate to what sorts of significata will sufficiently characterize their semantic function on the assumption that they relate these connotata and significata on account of being subordinated to a simple connotative concept. To be sure, further analysis, if it is available, might reveal that the term in question is after all subordinated to a complex concept. However, if the initial characterization of the semantic function of the concept was correct in the first place, the subsequent analysis should simply determine the same types of connotata and significata related in the same way, but this time the way they are related will be further specified in terms of the compositionality of the nominal definitions provided for the syntactically simple connotative term.

To see this in more detail, let us consider an example. Initially, Buridan might take 'blind' as a semantically simple connotative term, privatively **(p. 107)** opposed to the semantically simple connotative term 'sighted'. Both terms are connotative, because they signify animals in relation to their sight. But they differ, because 'sighted' connotes sight positively, whereas 'blind' connotes it negatively. The difference in the mode of connotation is reflected in the fact that whereas the term 'sighted' will supposit for an animal if and only if the animal actually has sight, the term 'blind' will do so if and only if the animal actually lacks sight, although it actually could and should have sight by nature. However, the same semantic behavior may also be characterized by providing the nominal definitions 'animal having sight' and 'animal that could have sight by nature, actually not having sight' for 'sighted' and 'blind', respectively. In this case, the syntactical complexity of these definitions reflects the conceptual complexity underlying these simple terms, explicating the fact that the privative connotation of the term 'blind' is a result of an implicit negation in its concept. ¹⁴²

The important point here is that the semantic behavior of this term was already correctly characterized without this analysis, and so Buridan's logical theory characterizing these terms as privative opposites could already properly function (say, in predicting that the sentence 'Nothing can be both sighted and blind' will be logically true) even *without* such an analysis. Of course, the analysis provides a fuller and more detailed description of the semantic phenomena, even yielding the possibility of a general, formal characterization of privative opposition (distinguishing it from, say, contrary, contradictory, or relative opposition).¹⁴³ But in response to the possible criticism that the nominalist conception of nominal definitions (as providing conceptual analyses of syntactically simple, but semantically complex terms) renders the nominalist program merely programmatic, Buridan's approach at least provides a sensible way out: his logical theory is not committed to providing fully expanded nominal definitions for all connotative terms *before* the calculations of the semantic values of these terms can even begin, for on Buridan's approach it is permitted to treat at least some (and in principle any) connotative terms as semantically simple, the semantic values of which therefore need not be determined by such calculations based on the values of their (semantic) components.

The second problematic case in table 4.2 is that of simple singular connotative concepts. The reason why these are problematic can be summarized as follows. The prime candidates for being singular connotative concepts are obviously concepts representing *this* determinate individual with respect to some other (or even itself), such as the concept of *this white thing* in my (p. 108) view, represented to my sight as *this* determinate individual under *these* dimensions here, having *this* particular whiteness. However, the concept expressed by the phrase 'this white thing' appears quite obviously to be a complex concept, having some compositional complexity reflected by the syntactical complexity of the phrase expressing it. So, it seems that even if the concept expressed by 'this white thing' is singular and connotative, it fails to be simple, whence it has to be complex.

However, it may also seem that this concept cannot be complex after all. For according to Buridan's account of intellectual concept acquisition, we can only have the universal concept of 'white' if we first have the concept of *this* white thing and *that* white thing, and so on, that is, the singular concepts of several singulars. However, if the concept expressed by the phrase 'this white thing' is supposed to be complex, then we can form this concept only if we already have the concept expressed by 'white', because the formation

of a complex concept presupposes the formation of its components, as was argued earlier.

Thus, apparently, these singular connotative concepts present us with a serious problem. If they are complex, then they have to be posterior to their components. But according to Buridan's theory of concept acquisition, they have to be prior to the same. However, if they are taken to be simple, then apparently nothing accounts for the obvious compositionality of the phrases that express them.

Buridan was never quite explicit about this issue, and his followers and interpreters treated these "vague singulars" in a number of different ways, some treating them as complex concepts, others as simple concepts.

For example, in q. 14 of Book III of his *De anima* commentary, Nicholas of Oresme writes as follows:

First of all there is the distinction that some concept is universal, namely, one with which no singular circumstance is conceived, as when the intellect conceives man absolutely, not imagining quantity, figure, color, place or time, and so forth. Such a concept is said to be absolute, quidditative, [and] not connotative. And some such [concepts] are more general than others, e.g., substance [is more general] than animal, and animal [is more general] than man, etc. Secondly, there is another sort of concept which someone conceives together with some singular circumstance, such as *here* and *now*. And it is in this way that a body seen from afar is conceived sometimes; it is conceived to be this body, situated here, but it is not yet known what color or figure it has, or if it is a man or a horse. In this way, (p. 109) such a concept is said to be singular, but it is in some way also universal, since by the same concept another thing would be conceived if it were placed there, and we could not perceive the difference at such a distance. And some such concepts are more common, when they are conceived with few circumstances, and others are more specific, when they are conceived with several circumstances, as when getting closer and seeing motion, it is conceived that it is an animal, and next, that it is a man, and at last, when every circumstance is apprehended, it is perceived that it is Socrates. And then, thirdly, such a concept is said to

be singular, since it is perceived that it is white, and of such a figure, and so on. ¹⁴⁴

Concerning the second type of concepts, a little bit later Oresme remarks:

The second conclusion is that a concept in the second sense *is not simple, but connotative*, as has been said. And this is evident in the example: If some body is seen from afar, then it is conceived to be a body, and together with this that it is here and now. And although this sort of concept is in a sense confused, nevertheless, it is said to be singular in comparison to the first sort. And this is what the Commentator means when he says that the intellect understands the universal *per se* and the singular by means of the senses. ¹⁴⁵

So, Oresme clearly takes these concepts to be complex connotative concepts. However, Oresme merely states his view, apparently without even noticing the problem of either the complexity or the simplicity of these concepts. By contrast, Buridan's fifteenth-century commentator, John Dorp, did provide an analysis of the problem, along with the gist of an interesting solution. In this passage, Dorp first argues against the view that would regard a vague singular concept as a complex concept, indeed, as an aggregate of a common concept and a demonstrative pronoun:

... for an external sense cognizes in a vague singular manner; however, an external sense does not form in itself common concepts, because those concepts are had by abstraction from various circumstances, but an external sense is not capable of abstracting from such circumstances. Therefore, it follows that an external sense cannot cognize by means of a common concept, and consequently does not cognize an aggregate of a common concept and a demonstrative pronoun. In the second place, if a vague singular were an aggregate of a common term and a demonstrative pronoun pointing to a member of the species, then it would follow that the thing would not be cognized earlier in a vague, singular manner than universally, which is against the Philosopher's claim in bk. 1 of **(p. 110)** the Physics. The consequence is proved, because if a singular vague concept were an aggregate of a common term and a demonstrative pronoun, then whenever a thing would be cognized by means of a vague singular concept, then it would

also be cognized by means of a common concept, whence the inferred consequent would follow. ¹⁴⁶

In his alternative solution, therefore, Dorp introduces a type of vague singular that is not such an aggregate:

We should therefore say differently that a vague singular is a term representing a thing in a singular manner along with a description of many circumstances that are impossible to find in another thing, and such a vague singular generally has no name imposed on it. But if the name 'a' were imposed to signify Socrates connoting this position, this shape, this color, this place, and so on for other circumstances, then 'a' would be a vague singular. ¹⁴⁷

I believe this solution is in perfect agreement with the doctrine of Buridan, along with certain basic psychological observations, provided that we complement it with a rather plausible distinction and an account of the semantics of such syntactically obviously complex demonstrative phrases as 'this white thing'. Thus, in this case also we should first distinguish the context of simple *cognition* from that of *recognition*, just as we did in connection with Buridan's passing remark concerning the problem of the indifference of sensory representation. Clearly, when I first experience something in my life I can only have a confused, inarticulate, and in this sense simple, yet information-rich sensory *cognition* of it of the sort Dorp described, yet without any *recognition* of what sort of object it is, that is, without being able to classify it by subsuming it under one of my already formed intellectual concepts. Thus, this cognition is certainly semantically simple, that is, noncompositional, and yet it contains all the information that my external senses receive and my internal senses synthesize about the object I am experiencing. ¹⁴⁸ In this case, my act of cognition merely enables me to perceive the object as a certain unit in my perceptual field, to which I can react, if needed. But the rich information content "streaming" from this object through my senses is unanalyzed in terms of semantically distinguishable components. By contrast, when I have *recognition* of the object, so that I am able to describe it verbally, then the act of recognition expressed by the verbal phrase is certainly a complex concept having the compositional structure reflected by the syntactical structure of the phrase.

(p. 111) With this distinction at hand, then, we can say that *in the context of initial cognition* we do have simple, that is, noncompositional (yet information-rich) connotative cognitions, the confused, vague,

nonverbalizable individual concepts Dorp is talking about (and probably Buridan as well in his cognitive psychology of the process of concept acquisition). But *in the context of recognition*, the concept we express by a complex demonstrative phrase is semantically complex, corresponding to the syntactic complexity of the phrase.

Dorp's idea, therefore, highlights one of the points of divergence between nominalist cognitive psychology and logic. The confused, nonverbalizable vague individuals are obviously important cognitive acts, which serve as the starting point of the rational activity described and regulated by logic. But these acts themselves, being nonverbalizable, do not directly figure in that rational activity. In order to get to the mental acts that logic deals with, the mind has to perform a great deal of preverbal, and strictly speaking preconceptual, processing of the information streaming in through the external senses. And this observation takes us to the last problematic issue concerning Buridan's classification of categorematic concepts, namely, the issue of complex, singular absolute concepts, which in a way comprises all the issues we have dealt with concerning singular and universal intellectual cognition.

Let us take the phrase 'this man'. What is the concept expressed by this phrase, and how do we obtain this concept? In the first place, if it is a complex concept, then it is compositionally dependent on its "components," that is, the (presumably) simple concepts expressed by the words 'this' and 'man' (in English, and the corresponding words in other languages). Furthermore, if this concept is supposed to be absolute, then it cannot connote anything extrinsic or accidental, so both its simple "components" must be absolute, that is, nonconnotative as well. But then, if the "confused" nonverbal vague singular as well as the verbalized semantically complex vague singular concept is connotative, and the singularity of cognition is dependent precisely on this confusion of external circumstances, as was argued earlier, then it becomes doubtful whether we can ever form such absolute concepts, and if so, how.

I think the clue to the answer lies in how Buridan conceives of the further processing of the information first encoded in the confused, information-rich vague singulars, and, correspondingly, in how he conceives of imposing names on the concepts obtained in this process. Buridan gives us the **(p. 112)** "best hints" of his approach to the issue in his treatment of how we obtain the nonconnotative concepts of essential specific differences, an issue to which I promised earlier that I would return. ¹⁴⁹

Essential specific differences are problematic for Buridan because by their very definition they have to be predicable essentially of their supposita (which according to Buridan's conception of essential predication means that they have to express absolute, i.e., *nonconnotative* concepts) and they also have to be predicable *in quale*, that is, in response to the question 'what is it like?' (whence they appear to *connote* some quality, i.e., an accident):

A difference is something predicable essentially *in quale*. But then it is difficult to tell what we should understand by essential predication and by 'quidditative' or 'essential definition'. And to this it seems to me to be responded that a term is *not* said to be predicated of a term essentially because these terms supposit for the same, because then all true predications would be essential [which is false]. But a predication is said to be essential just in the case when the subject and the predicate signify the same essence and neither of them signifies something accidental or extraneous to the signification of the other. If, on the other hand, one of them connotes something besides the signification of the other, then the predication is not essential, but denominative. However, if both terms connote something besides what they supposit for, as do the terms 'white' and 'colored', then the predication is still essential, if the terms supposit for the same and connote the same, so that one of them does not add yet another connotation over and above the signification and connotation of the other. And then that definition is called 'purely essential' and 'quidditative' that is constituted precisely from such essential predicates; and this is the one given in terms of the true genus and the true difference or differences. ¹⁵⁰

Having thus clarified the notion of essential predication involved in the definition of 'difference', Buridan lays out three problems stemming from this conception. The first merely concerns a further clarification of the notion of essential predication:

But then there emerge a number of very difficult problems. The first is that in this way it seems that the genus is not predicated essentially of the species, because the signification of the genus adds a great deal over and above the signification of the species, for 'animal' signifies not only what **(p. 113)**

'man' signifies, but also donkeys and horses, which are of course extrinsic to the things signified by 'man'.¹⁵¹

The second problem concerns the predication of certain peculiar predicates, such as 'one' or 'identical with itself', which seem to be both essential and connotative:

Again, it seems that the following are quidditative predications: 'God is one', and 'God is identical with Himself', or 'A man is one' or 'A man is identical with himself'. But this is false, because the subjects here are in the category of substance, while the terms 'one' and 'identical' are not in the category of substance. However, no term in one category is essentially predicated of another term in another category. The consequence is clear, because the terms 'one' and 'identical' do not signify or connote anything in man or God over and above the essence of man or God; for if there were nothing but the simple essence of God, then God would still be one and self-identical, and in the same way if everything non-essential to a man were excluded from him, he would still be one and self-identical.¹⁵²

Finally, the third, both metaphysically and epistemologically most difficult problem concerns the very possibility of forming an absolute concept that is expressed by a predicate that is predicable *in quale*:

Again, the most difficult problem arises if we assume that 'animal' is the true genus of 'man' and 'man' is a true species of 'animal', and 'rational' is the true, essential difference constituting the species 'man' under the genus 'animal', holding in accordance with the foregoing that 'rational' does not signify or connote anything at all in Socrates or as pertaining to or related to Socrates, indeed, not any more than do the terms 'animal' or 'man'. How can it come about, then, that the difference is predicated of Socrates *in quale* and not *in quid*, whereas the genus and the species are only predicated of him *in quid*? Whence can proceed the diversity of the concepts from which we take the names of 'species' and 'difference', and from which these diverse modes of predication derive? For this appears to be entirely impossible, since the diversity of concepts or ways of conceiving would be false or fictitious if there did not correspond to it some diversity in things, either in

their accidents or in those things that pertain or are somehow related to them. But we exclude all such diversity; therefore we cannot save the diversities from which species, genus and difference derive, except fictitiously. ¹⁵³

(p. 114) Buridan clearly sees that these problems, especially the third, do not strictly belong to logic, but, rather, to metaphysics, and so he decides to deal with them only “in passing,” true to the spirit of Porphyry’s discussion:

These problems do not belong to Porphyry’s book, but to the highest wisdom, which is metaphysics. For the third difficulty gave rise to the opinion of Plato, who claimed that to the genus and difference there correspond diverse separate substances, which he called ‘ideas’, and the opinion of those who hold that in the same substantial suppositum there are several substantial forms corresponding to the plurality of quidditative predicates, namely, genera and differences. And these are the problems from which Porphyry declared himself to want to abstain; therefore, I do not want to discuss them in detail either, but only in passing. ¹⁵⁴

Accordingly, he relatively quickly takes care of the first two problems. In response to the first problem he points out that merely signifying more does not prevent the essentiality of predication; what does prevent it is connotation, which is not the case in the predication of a genus of a species, where both terms are absolute. ¹⁵⁵ In response to the second problem, Buridan concedes that these predications are nonessential, but denominative, on account of the connotative character of these predicates (even if they are necessarily true of their supposita as long as those supposita exist). ¹⁵⁶

However, the third problem, which is our main concern here, deserves a fuller discussion:

In connection with the third problem we should first note that accidents contribute a great deal to the cognition of essence, as is stated in the preface of *On the Soul*, because substance cannot be sensed on its own [*per se*] without accidents, rather it is always sensed confusedly together with accidents. For we are sensing *this* thing because it is white or sweet or big or thus-and-so shaped or moving. Again, because we perceive the same thing to change from white to black or from hot to cold,

or even because we see that this is white and sweet and that is black and sweet or white and bitter, the intellect perceives that which is white or black or sweet or bitter to be other than the dispositions on account of which it was first white and sweet and later black or bitter; and the intellect judges even these dispositions to be different from one another. Therefore, from that first confused concept the intellect is able to abstract and elicit or form separately the concept of substance and the concept of whiteness and sweetness; and then by the mediation of this concept, we impose on the substance itself a name signifying it entirely in abstraction from (p. 115) the accidents that led to the cognition of substance, such as the name 'substance'.¹⁵⁷

So far, this is the same account we have already seen in Buridan's *Questions on Aristotle's On the Soul*. However, although there the primary issue was the singularity of the first, confused cognition, and the universality of the concept abstracted from it, in this discussion Buridan is primarily interested in how we obtain the distinct concepts of substance and its accidental dispositions from the initial confused concept, and how these distinct concepts account for the different semantic functions of the terms expressing them. The next important point he makes is that these differences in semantic function may certainly be accounted for by the differences in the concepts expressed by these terms, yet these differences in the concepts need not reflect directly corresponding differences in the nature of things:

Furthermore, to designate that first confused concept we impose a concrete name, such as the name 'white' or 'sweet'. But to designate an abstract concept representing an accidental disposition we derive from the concrete name an abstract name, such as the name 'whiteness' or 'sweetness'. And then, imitating these, we can grammatically derive abstract names from concrete names in all other cases, for example, 'essentia' ['essence'] from 'esse' ['to be'], 'entitas' ['entity'] from 'ens' ['being'], 'humanitas' ['humanity'] from 'homo' ['man'], 'deitas' ['deity'] from 'Deus' ['God'], 'divinitas' ['divinity'] from 'divinus' ['divine'], and so on, even though the things for which the concrete and the abstract names supposit do not differ, and the names do not connote anything else. For the grammarian does not have to know

whether these things differ or not and in which cases they do and in which they do not, but he has to impose these names according to [the grammatical] derivation; it is the metaphysician who has to determine in which cases the abstract name signifies an additional disposition or even supposits for a disposition added to the thing for which the concrete name supposits. And so the grammarian can signify the same thing concretely and abstractly, and without extrinsic connotation, or even adjectively, as the difference signifies, or substantively, as the genus or species signifies it in the category of substance. ¹⁵⁸

So, the semantic differences of concrete and abstract terms do reflect some differences between the concepts they express, but whether these conceptual differences further express some real distinction in things is a question of further metaphysical inquiry. But then, we seem to be back at the original question: how can we provide an account of a conceptual difference (p. 116) (grounding the “grammatical” difference between concrete and abstract terms) without a corresponding difference in reality, that is, without rendering the conceptual difference vacuous or fictitious? How can two concepts of the same subject differ if they do not differ in their representative content reflecting some genuine difference in the thing or things represented by these concepts? Buridan’s answer is based on the idea of *the different causal histories of the formation of these different concepts*:

Next we should note that in the same subject there are many accidents, even ones that are *per se* and originate in the nature of the thing, as when Socrates happens to reason, laugh, sense or eat, and with any of those accidents we confusedly perceive the substance, for we perceive the one who laughs, reasons, senses, etc., and from any of those concepts we are able to abstract the concept of substance and [we are able to abstract] one from the other. For the substantial concept abstracted from the concept of someone who laughs or reasons will be formed as common to all who can laugh or reason, and it is by means of this concept that the name ‘man’ will be imposed to signify. Likewise from the concept of something that senses will be formed the concept common to all sensitive beings, and the name ‘animal’ will be imposed [according to this concept], and so on in other cases. And thus there will be a diversity of

universal names that are more common or less common, which [diversity], however, is not fictitious, because *there will be a diversity corresponding to it in the things, although not in the things signified by those names, but in the intermediaries whereby we arrive at the concept from which those names are imposed*. And the Commentator expressly declares this in his commentary on bk. 12 of the *Metaphysics*, namely, how it happens that to the most simple God we attribute very different predicates, abstract and concrete, as well as substantive and adjective ones, and there is nothing fictitious there, for their diversity originates in the diversity of the things by means of which we arrive at the cognition of God. And thus, similarly to those [cases] in which the things signified by a substantive and an adjective and a concrete and an abstract name do differ (because the concrete name is not predicated of the substantial name *in quid*, but *in quale* or *in quantum*), even those adjective names in the case of which these do not differ retain that mode of predication, so that they are predicated of God *in quale*, as are 'knowing', 'just', 'good', etc. Therefore, even the substantial difference retains its mode of being predicated *in quale*, although the genus and species are predicated *in quid*, as it adjectively signifies and not substantively. ¹⁵⁹

(p. 117) The most important point in this passage is highlighted in the italicized remark. The crucial point is that there may be a difference between the significations of terms (and thus between the concepts on the basis of which they have their significations) such that this difference corresponds to *some difference in things, but not to a difference in the things signified*. What this means is that there may be a *nonvacuous difference* between the *modes of signification* of terms without a difference in the things signified by these terms. Thus, even if the term 'rational' does not signify or connote anything other than the term 'animal' does in Socrates, because both of these terms absolutely signify Socrates himself without any extrinsic connotation, these terms signify Socrates differently because the concepts to which they are subordinated were formed *per diversa media*, through *really* different intermediaries, in different processes of abstraction.

In his *Questions on Aristotle's Metaphysics*, Buridan makes a similar point regarding absolute singular terms (and hence the corresponding concepts):

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Substantial terms in the category of substance are not entirely absolved from the connotation of accidents; *at least in their imposition* one has to consider accidents. However, since the intellect is able to absolve the concept of the subject from the concept of the accident, *in imposing a name we intend in this way to absolve it so that the term would not connote accidents, although it is through them that we are led to the cognition of the substance*. Alternatively we can say, as will be seen in more detail later, that a pure individual concept requires that the thing should appear in the view of the cognizer. This is how both substances and accidents are individually conceived, and so a name can be imposed on both substance and accident separately. ¹⁶¹

To summarize, Buridan's fundamental idea seems to be that the initial, non-verbalizable, simple, confused, singular, connotative cognitive act the intellect first receives from the senses ¹⁶² is processed by the intellect in multiple ways, in several simultaneous as well as consecutive processes of abstraction, yielding the various, already verbalizable, simple, absolute or connotative, and universal or singular categorematic concepts. These simple concepts then serve as the "building blocks" in forming complex concepts, ¹⁶³ including mental propositions, that is, judgments, which, being the primary bearers of truth and falsity, are the primary units of reasoning, the primary subject matter of logic.

(p. 118) But, again, how exactly are these diverse processes of abstraction supposed to work to yield the variety of simple concepts Buridan envisions? The abstraction of the simple connotative concepts of accidents from other accidents is relatively unproblematic. After all, the different bits of information abstracted in them enter the cognitive process separately to begin with, through the separate channels of the different external senses, to be synthesized only in the internal senses. In any case, it is clearly possible for someone to think of a white object that is cold without thinking that it is cold and *vice versa* (just as one can see the white object without feeling that it is cold or feel the cold object without seeing that it is white). Again, the abstraction of simple, common absolute concepts is relatively unproblematic, once we accept Buridan's principles of the *substantial content of sensory information* and *the activity of the intellect* in extracting this information. ¹⁶⁴ In any case, it is clearly possible to think of humans as such without thinking of any of their accidental features, such as height, color, or location, even if, of course, any human being has to have *some* height, color, or location.

But if in forming an absolute substantial concept we are abstracting from this sort of accidental information, which Buridan insists is precisely what singularizes an act of cognition, then it is certainly problematic how one can form a singular absolute concept of a substance *without* this singularizing information.

Buridan's discussion of the way we form the concept of essential difference and the italicized remark in the earlier-quoted passage give us, I think, the right clues to the solution. The initial confused act of cognition we receive through the senses is certainly singular, because it contains all the singularizing information that identifies *this* thing in our view. But this act is certainly connotative, as it presents this thing through presenting its sensory accidents. However, it is possible for our intellect to disregard all these accidents and to form a concept that in its representative content represents none of these accidents. Still, when forming a *singular absolute* concept, we form the concept of *this* thing obtained by abstracting from *these* accidents "right on the spot," as it were, in *this particular experience*, as opposed to the case when we form when we form a *common absolute* concept that can be obtained by abstracting from *these* and *those* accidents of various sorts of *this sort of things* that we have been exposed to in *multiple experiences*. And what determines what kind of absolute concept we form through these multiple experiences is precisely the range of the accidents we abstract from in obtaining this concept.

(p. 119) So, in forming the complex, singular absolute concept expressed by the phrase 'this man', we need to have the absolute singular concept whereby we conceive *this* thing in our view, abstracted from all actually experienced accidents that identify *this particular* thing present to us, and we need to have the concept expressed by 'man', which we have obtained through multiple exposures to things of this kind by abstracting from their characteristic, *specific* behavior that identified them for us as *this specific kind* of thing. In this way, although none of these absolute concepts contain in their representative content any connotation of any of the accidental features of the things they represent, they owe their distinction precisely to those accidents they abstract from in their content, as a result of their *diverse causal histories*, their diverse ways of having been obtained from actual and accumulated experience.

Thus, it would seem that what Buridan is arriving at in this way is the notion of what would nowadays be called a "bare particular," that is, the notion of an individual bereft of any qualitative content. In fact, one may surmise

that Buridan's conception is indeed an important historical ancestor of the modern idea. But however that may be, one may still have worries about this conception. For although in this way Buridan is certainly able to provide a coherent account of absolute concepts as abstracting from the connotation of anything accidental to the things represented by these concepts, the question remains whether he can coherently sustain both his abstractionist account of concept acquisition in general and the Ockhamist doctrine of the semantic function of absolute concepts. For even if these concepts do not represent substances in respect of any of their accidents, it does not follow that they do not represent these things together in *any respect whatsoever*. Indeed, as I have argued earlier, if they are obtained by any sort of abstraction, then they can represent things never experienced by a cognizer only if they represent them *in that respect* in which the things never experienced do not differ from things experienced by the cognizer and in which they represent the things already experienced.

To be sure, this is a problem that Buridan apparently does not really have to worry about *in his logic*, where he can take his classifications of concepts (and thereby the semantic functions they confer upon the words subordinated to them) for granted in his account of how language is mapped onto his sparsely populated nominalistic ontology. However, in this classification, precisely in line with his nominalism, he cannot ground the distinctions of various sorts of concepts on the corresponding distinctions of the **(p. 120)** items of reality they represent as medieval realists, such as Peter of Spain did.¹⁶⁵ Instead, he has to account for these distinctions between concepts in terms of their different "genealogies." But then, precisely for this reason, his cognitive psychology is essential for the foundation of Buridan's logical theory.

However, if we disregard this foundational issue,¹⁶⁶ then we do get a semantic system that "works" in the sense that it is able to provide a "fine grained" semantics for natural languages by mapping linguistic constructions onto sufficiently rich conceptual structures in a mental language, which in turn can be mapped onto a parsimoniously construed reality without any loss of semantic distinctiveness.

But, again, these general observations will gain more concrete meaning as soon as we systematically survey exactly how these "mappings" are to be carried out in Buridan's semantics. So now we need to turn to a systematic discussion of Buridan's treatment of the semantics of spoken and written

languages, as it is determined by their mapping onto the elements of mental language we have just covered.

Notes:

(1.) Although, prompted by a suggestion of Ria van der Lecq, I noted in the *Introduction* to my translation of Buridan's *Summulae* (in n. 23) that Buridan in the text never uses the Latin equivalent of 'represent' to refer to the relation of natural signification between concept and object, this happens to hold *only* for the *Summulae*. In QDA3, q. 8, Buridan consistently uses the language of 'representation/representative/etc.' to refer to the relationship between concepts and their objects. (Perhaps, he simply found this usage more appropriate in psychology than in logic.) Therefore, the usage of the *Summulae* certainly does not carry the theoretical weight Michael Fitzgerald attributes to it in his *Introduction* to his edition of *Albert of Saxony's Twenty-five Disputed Questions on Logic*, p. 17.

(2.) Cf. "if a term is called categorematic with reference to signification, then terms are called categorematic as being significative in themselves, and syncategorematic as being significative not in themselves, but with something else; for ['syncategorematic'] derives from 'syn' in Greek, which is the same as 'cum' ['with'] in Latin, [and so, 'syncategorematic' is interpreted] as 'significative with something else.'" SD 4.2.3, p. 233. I should note here that Buridan draws this distinction between various utterances on two grounds, namely with respect to predication (syntactically) and with respect to signification (semantically). However, here I am only concerned with signification, which spoken utterances have by virtue of being subordinated to different kinds of concepts. For a general account of the medieval distinction between categorematic and syncategorematic terms, discussing both the various syntactic and semantic criteria of the distinction, see Klima, G. "Syncategoremata", *Encyclopedia of Language and Linguistics*, 2nd ed., ed. Keith Brown, Oxford: Elsevier, 2006, vol. 12, pp. 353–356.

(3.) We should note here in passing that Buridan also distinguishes mixed utterances (and hence the corresponding mixed concepts), namely, ones that besides operating on categorematic concepts signify something outside the mind too. Cf. SD 4.2.3, pp. 232–233. Indeed, according to Buridan, the proposition-forming concept of the copula, insofar as it also connotes some time, is such a mixed concept, but by abstracting from this connotation we may be able to form in our minds a purely syncategorematic concept

of the copula as well. Cf. SD 4.3.4, pp. 261–262. I will return to this issue in connection with Buridan’s analysis of propositional composition and the function of the copula.

(4.) SD 6.2.3, p. 404.

(5.) Indeed, in general, Buridan would identify the different ways of signifying that syncategorematic terms have with the syncategorematic concepts themselves. As he says: “... the copulas ‘is’ and ‘is not’ signify different ways of combining mental terms in order to form mental propositions, and these different ways [of combining] are in their turn complexive concepts pertaining to the second operation of the intellect, insofar as this goes beyond the first operation.” SD 4.2.4, p. 234. With regard to the “first” and “second operation of the intellect”, see n. 9 below.

(6.) In view of this point, the common description of personal supposition, according to which a term in a proposition has personal supposition if it supposits for its ultimate *significata*, needs to be understood as applying only to nonnegative terms without qualification. For negative terms, the definition needs to be modified in such a way as to reflect the negative signification of the term: a negative term has personal supposition in a proposition if it supposits for things that are not the ultimate significata of its negated term and are not its immediate significata or tokens of the same type as itself. (Obviously, the second clause is needed to distinguish material from personal supposition in cases such as “Every ‘nonman’ is a complex term” from “Every nonman is either God or a creature.”) But even this definition is not entirely satisfactory: for even if it works for ‘nonman’ or ‘nonbrute’, how should we handle, say, ‘non white man’? Obviously, depending on the scope of the negation, this term may stand in a proposition either for men who are not white or for anything that is not a white man. Issues like this will have to be considered concerning logical syntax, which for Buridan is nothing but the syntax of mental language, the language of thought.

(7.) Disregarding the temporal connotation of the copula, just as Buridan does in connection with natural supposition. Cf. SD 4.3.4, pp. 260–262.

(8.) Aristotle, *On Interpretation* 1, 16a4–16a6.

(9.) The “second operation of the intellect” is the second of three operations of the intellect commonly distinguished in scholastic philosophy (based on Aristotle’s relevant considerations). These are: (1) the formation of simple

concepts (*indivisiibilium intelligentia*); (2) the formation of judgments (or other complex concepts) by combining the concepts produced by the first operation (*compositio et divisio*); (3) reasoning (*ratiocinatio*), which uses the propositions formed by the second operation to arrive at the cognition of unknown truths based on known truths.

(10.) “Composition”, “compounding”, or “putting together” [*componere*] in this context mean the combination of two categorematic terms into a proposition by means of an affirmative copula, whereas “division”, “dividing”, or “separating” [*dividere*] mean their combination into a negative proposition by means of a negative copula.

(11.) “Designate” [*designat*] is apparently the technical term that Buridan used quite consistently to express the relationship in which a spoken phrase stands to what it immediately signifies, namely, the mental “phrase” to which it is subordinated. Therefore, “designation” in this sense is the same as “immediate signification”, that is, the converse relation of “subordination”.

(12.) SD 1.1.6, p. 11.

(13.) Ibid.

(14.) I will have more to say about this assumption later. Cf. Klima, G. “John Buridan on the Acquisition of Simple Substantial Concepts”, in *John Buridan and Beyond: The Language Sciences 1300–1700*, Copenhagen: The Royal Danish Academy of Sciences and Letters, 2003.

(15.) Buridan’s actual Latin phrase is *imponeretur ad significandum aequivalenter*. Literally, this could be translated as ‘were to be imposed to signify equivalently’. However, this English phrase would actually convey a weaker sense of synonymy than the simpler ‘to signify the same’. For Buridan’s phrase is used by him to express the relation of strong synonymy: two phrases are synonymous in this sense, if they have not only the same *significata*, but also the same *connotata*, signified and connoted in the same manner, respectively. In fact, two phrases are synonymous in this way because they are subordinated to the same concept. For Buridan’s example, cf. Aristotle: *Metaphysics*, VII, 3, 1030a10.

(16.) “Attributively speaking”, that is, in the same manner as ‘healthy’ applies to a urine sample by the *analogy of attribution* [*analogia attributionis*], because it is a sign of the health of an animal. The basis of

this type of analogy in general is that if a term T is properly predicable of a (kind of) thing A, then T can be predicated in an analogous, secondary sense also of another (kind of) thing B which is somehow related to A. Therefore, in the case in question, C would be called a proposition only because it would signify a mental proposition, not because it would have any of the inherent attributes of a spoken proposition. That is to say, C would not be called a proposition because it is a spoken expression that signifies some truth or falsehood, for it is not an expression in the first place, given the fact that an expression should be an utterance that has separately significative parts, which does not hold for C.

(17.) SD 1.1.6, pp. 12–13.

(18.) SD 1.1.6, p. 13.

(19.) SD 1.1.6, p. 13.

(20.) Although the question directly concerned the difference in the signification of mental propositions, Buridan's answer here concerns the spoken propositions. Perhaps the reason for this is that once the answer is given concerning spoken propositions, then the answer concerning mental propositions should be obvious.

(21.) Simple concepts of the soul are combined into complex concepts by means of *complexive* concepts. For example, in the case of the spoken sentence 'God is God', the simple concept by which we conceive of God is combined with itself by means of the *complexive* concept of the present tense affirmative copula designated in English by the utterance 'is' (and in Latin by the utterance *est*) into the complex mental proposition which is designated in English by this sentence (and in Latin by the sentence *Deus est Deus*).

(22.) SD 1.1.6, pp. 13–14.

(23.) SD 6.4.4, p. 428. Cf. "... if a word has been imposed to signify a complex concept consisting of several simple concepts, then it needs an interpretation by means of several words that signify separately those simple concepts, of which the complex one consists." SD 8.2.3, p. 636.

(24.) SD 5.1.3, p. 309. Buridan here makes it entirely clear that as far his theory is concerned synonymous expressions of spoken or written languages are not distinguished in mental language—a point that is still controversial

in the secondary literature concerning Ockham's theory. See Spade, P. V. "Synonymy and Equivocation in Ockham's Mental Language"; Panaccio, C. "Connotative Terms in Ockham's Mental Language", *Cahiers d'épistémologie* 9016(1990), pp. 1-22. For more recent treatments of the issue see Chalmers, D. "Is There Synonymy in Ockham's Mental Language?" in *The Cambridge Companion to Ockham*, ed. P. V. Spade, Cambridge: Cambridge University Press, 1999, pp. 76-99; and Panaccio, C. "Semantics and Mental Language," in the same volume, pp. 53-75. For a more recent account of the issue, see Spade, P. V., "William of Ockham," in *The Stanford Encyclopedia of Philosophy* (fall 2006 edition), ed. Edward N. Zalta; <http://plato.stanford.edu/archives/fall2006/entries/ockham/>.

(25.) SD 8.2.3, p. 636.

(26.) In model theoretical semantics, we use set theoretical structures to model the semantic relations of language to reality in terms of semantic functions that assign semantic values to items of a given language from a domain of interpretation, an arbitrary set whose elements represent items that the language is about.

(27.) This question was raised to me by Calvin Normore (on behalf of contemporary philosophers in general).

(28.) The phenomenon of having only explicitly defined complex concepts, constructed from an explicit list of primitive, indefinable concepts, probably only exists in formal axiomatic theories.

(29.) "in resolutione conceptuum non sit processus in infinitum"—"in the analysis of concepts one cannot go to infinity" Buridan, J. *Quaestiones super Octo Libros Physicorum Aristotelis: Kommentar zur Aristotelischen Physik*, Paris, 1509; reprint, Frankfurt a.M.: Minerva G.B.H.M., 1964 (henceforth: QiP), lb. 1, q. 4.

(30.) Indeed, we would call him neither married nor unmarried, neither just nor unjust, neither courageous nor cowardly, and so on, just as we would call a rock neither sighted nor blind, simply because it cannot be either. Cf. SD 3.8.4 for the common medieval doctrine that privative opposites can only apply to a subject that is capable of receiving either of both.

(31.) As far as I can tell, Buridan does not discuss the origin of simple syncategorematic concepts. But we may safely assume that he would take

them to be innate operations of the human mind. In any case, this would still be compatible with the Aristotelian conception of the native mind as *tabula rasa*, insofar as it still does not possess any categorematic content, which can only be acquired from the input of the senses.

(32.) ‘Connotation’, as a technical term of nominalist logic, indicates the secondary signification of terms that signify their primary significata in relation to their secondary significata. For instance, the connotative term ‘teacher’ primarily signifies persons who teach in relation to their students, whom it signifies secondarily.

(33.) When I am talking about a term’s denotation or what it denotes, as opposed to its connotation or what it connotes, I am not using Buridan’s terminology. However, I am using a terminology that I believe is more natural in modern English and probably actually derived from Buridan’s terminology. In any case, Buridan would contrast a connotative term’s primary or direct *significata* (which I will occasionally call its *denotata*) with its secondary or indirect *significata*, which Buridan would also occasionally call its *connotata* or even *appellata* (although, as we shall see, *appellata* are more properly contrasted with *supposita*). These terminological variants, however, should all be regarded as conveying the same basic distinction, namely, that between the things that a term directly signifies in relation to other things (its direct *significata* or *denotata*) and the things in relation to which it signifies the former (its *connotata*). So, for example, what the term ‘father’ directly signifies are men who have children. Therefore, these men are the term’s (primary or direct) *significata* or *denotata*, whereas their children, in relation to whom this term signifies these men, are the term’s *connotata*.

(34.) *Ungesättigt* in Frege’s usage indicates the incompleteness of a function-sign taken by itself, such as a square symbol ‘()²’ without a number or variable serving as its argument. Clearly, such a symbol does not pick out a number until it is completed with an argument.

(35.) For later complications in the history of the distinction, see Nuchelmans, G. *Late-Scholastic and Humanist Theories of the Proposition*. 3.2, pp. 31–36.

(36.) Cf. SD 4.6.6, p. 302; SD 8.3.2, p. 669.

(37.) QiPl, q. 11, esp. pp. 168–174. This is actually a somewhat dubious point to which I will have to return when I examine some epistemological

problems arising from Buridan's "Ockhamist" distinction between absolute and connotative concepts. See the discussion that follows n. 149.

(38.) SD 3.1.8, pp. 150–151.

(39.) Note that, here and in the subsequent discussion, I am using the phrase "*via antiqua* account/framework" *not* in any historically precise sense but merely as a designation of a characteristic way of constructing medieval semantic theory. For a summary account of this semantic framework as contrasted with the "*via moderna* framework," see Klima, G. "The Nominalist Semantics of Ockham and Buridan: A Rational Reconstruction," *Handbook of the History of Logic*, ed. D. Gabbay and J. Woods, Amsterdam: North Holland, 2008, pp. 389–431. I should also point out that even among authors who could otherwise reasonably be regarded as all working within the "*via antiqua* framework," one would have to note significant differences concerning the issue of primary vs. secondary signification of concrete accidental terms. See the relevant essays in Kretzmann, N., *Meaning and Inference in Medieval Philosophy*, Dordrecht: Kluwer Academic, 1989.

(40.) William of Ockham, *Summa logicae*, in *Opera Philosophica I*, eds. G. Gál and S. Brown, New York: St. Bonaventure, 1974, part 1, c. 51, p.169 (henceforth "SL").

(41.) *Ibid.*, p. 171. Here Ockham explicitly claims that this is the root (*radix*) of the errors of "the moderns".

(42.) For detailed discussions of the issues touched on here, see Klima, G. "The Changing Role of *Entia Rationis* in Medieval Philosophy: A Comparative Study with a Reconstruction", *Synthese* 96(1993), pp. 25–59; Klima, G. "Ockham's Semantics and Ontology of the Categories," in *The Cambridge Companion to Ockham*, ed. P. V. Spade, Cambridge: Cambridge University Press, 1999, pp. 118–142; Klima, G. "Buridan's Logic and the Ontology of Modes," in *Medieval Analyses in Language and Cognition*, eds. S. Ebbesen and R. L. Friedman, Copenhagen: The Royal Danish Academy of Sciences and Letters, 1999, pp. 473–495.

(43.) For an excellent summary account of various medieval theories of relations, see Henninger, M., S.J. *Relations: Medieval Theories 1250–1325*, Clarendon Press: Oxford, 1989. For a more recent treatment, see Brower, J. "Medieval Theories of Relations," in *The Stanford Encyclopedia of Philosophy*

(fall 2005 edition), ed. E. N. Zalta; <http://plato.stanford.edu/archives/fall2005/entries/relations-medieval/>.

(44.) Such questions were in fact raised and systematically discussed, especially when they had theological or other scientific importance. For instance, it was a regularly discussed question in commentaries on the *Sentences* of Peter Lombard, whether Christ's *filiatio*, his sonship whereby he is temporally related to the Holy Mother, is the same as or is distinct from his *filiatio* whereby he is eternally related to the Heavenly Father. For more such discussions, see the references of the two previous notes.

(45.) Klima, G. "Ontological Alternatives vs. Alternative Semantics in Medieval Philosophy." As I have argued in my papers referred to in n. 42, the nominalists' interpretation of the role of nominal definitions as expositions or interpretations in this strict sense was one of their important innovations in semantic theory. Almost two centuries later, Domingo Soto still expresses astonishment at the nominalist conception of nominal definitions: "Furthermore, a nominal definition is what explicates the quiddity of a name, and the quiddity of a name is its signification: that definition, therefore, which explicates what a name signifies, is the nominal definition. And this, as Aristotle says in bk. 1 of his *Posterior Analytics*, is presupposed from the beginning of each science. For example, if we set out to deal with the science about man, we have to presuppose what the name 'man' signifies. And the phrase that explains what it signifies is the nominal definition, even if it would not explain the nature of man at all, as if you were to say, 'man signifies the animal than which none is more excellent'. And so I do not know from where recent authors [*iuniores*] took it that an absolute name cannot be defined by a nominal definition, for what is signified by an absolute name, such as 'elephant', is just as well explained, as [what is signified by] the name 'white'." Soto, D. *Summulae, Svmmvlarvm aeditio secunda*, Salmanticae: Excudebat Andreas a Portonariis, 1554; reprint Hildesheim, New York: Georg Olms Verlag, 1980, f. 22c.

(46.) SD 8.2.3.

(47.) Note that strictly speaking, despite existing translational traditions to the contrary, *quid nominis* is not to be rendered as 'nominal definition', for the latter is *definitio exprimens quid nominis*, that is, 'definition expressing the *quid nominis*, therefore, because the phrase *quid nominis* alone is usually expounded as *quid significatur per nomen*, that is, what is signified by the name, *quid nominis* may justifiably be rendered as 'the meaning of the name'. Accordingly, Buridan's point here is that significative utterances

subordinated to simple concepts do not have nominal definitions, that is, definitions precisely expressing their *quid nominis*, but of course they do have *quid nominis*, that is, they do have meaning or signification, given that they are meaningful in virtue of being subordinated to a concept in the first place. Nevertheless, for the sake of simplicity, in its subsequent occurrences I will translate the whole phrase *definitio exprimens quid nominis* not as 'definition expressing the meaning of the name' but simply as 'nominal definition'. Furthermore, as even Buridan himself occasionally uses the shorter phrase *quid nominis* to refer to a nominal definition, on such occasions I will also translate *quid nominis* as 'nominal definition'.

(48.) Or, according to another reading, *immediate*, that is, 'immediately,' as opposed to the reading *in mente* translated here.

(49.) SD 4.2.4.

(50.) I have to provide this restriction to rule out the artificial cases when, for example, someone introduces the simple term B with the nominal definition 'rational animal'.

(51.) In natural supposition, a simple absolute term supposit for all its ultimate significata (past, present future, or maybe merely possible), so the signification and natural supposition of a simple absolute term can be adequately characterized in terms of the set of its significata. Note also that according to Buridan in the case of an absolute term this set is never empty, although the term may actually supposit for nothing. Cf. *Sophismata*, c. 1, sixth conclusion.

(52.) Cf. "The reply to this is that this definition of 'man' is not a nominal definition, namely, one expressing what thing or things and in what ways the name 'man' signifies, but is, rather, a definition expressing what the thing is for which the name 'man' supposit, this being the same as that for which the expression 'rational mortal animal' supposit. But it is not necessary that those terms should precisely and adequately supposit for the things that they signify. So only a spoken term to which there does not correspond a simple, but a complex concept, is one which has a nominal definition in the strict sense, namely, [a definition] which signifies precisely what and how that term signifies. For the signification of such a spoken term is explicated by means of spoken terms corresponding to the simple concepts of which the complex concept corresponding to that term is composed. But when to some spoken term there corresponds a simple concept, as when to the term 'donkey' there corresponds the specific

concept of donkey, which we assume to be simple, it is not possible for another spoken term to signify precisely and adequately the thing or things that that term signifies, unless it is entirely synonymous with it. Nor is it possible to posit a spoken expression consisting of terms of diverse significations, without there corresponding to them other concepts which do not correspond to that term. But where a spoken term to which there corresponds a simple concept is concerned, it is possible to provide a causal definition, or a description declaring what the causes or properties of the thing or things for which this term suppositis are, or even a quidditative definition consisting of the genus and difference, to which there corresponds a complex concept, but which adequately suppositis for the same things which are suppositis for by the incomplex concept that corresponds to that spoken term. But these points had to be clarified in more detail in the treatise on definitions, divisions and demonstrations. And I am glad that I have understood these issues." *Sophismata*, c. 1, eleventh conclusion.

(53.) SD 8.2.4.

(54.) The critical text has here the following: *Cum ergo definitio pure quidditativa debeat indicare praecise quid est, necesse est, si ille terminus 'album' habeat definitionem quidditativam, quod illa, si sit illius termini 'lapis', vel <sit> eius quidditativa definitio, [V101va] vel quod sit oratio constituta praecise ex terminis substantialibus*—"Since, therefore, a purely quidditative definition should precisely indicate what a thing is, it is necessary that if the term 'white [thing]' [*album*] has a quidditative definition, then that, if it is that of the term 'stone', should either be its quidditative definition, or that it should be an expression consisting exclusively of substantial terms." However, on the basis of the apparatus this can be amended as follows (providing the reading consonant with the Hubien-text, which I translated in the main text): *Cum ergo definitio pure quidditativa debeat indicare praecise quid est, necesse est, si ille terminus 'album' habeat definitionem quidditativam, quod illa sit iste terminus 'lapis', vel quod <sit> eius quidditativa definitio, [V101va] vel [omnino—Hubien] quod sit oratio constituta praecise ex terminis substantialibus*.

(55.) SD 8.2.4. Cf. Buridan, J. *Quaestiones in Duos Aristotilis Libros Posteriorum Analyticorum*, unpublished edition of H. Hubien, lb. 2, q. 8.

(56.) Obviously, this much need not entail that all connotative terms have to have nominal definitions; indeed, because Buridan allows the possibility that some connotative concepts are simple, the terms subordinated to them cannot have nominal definitions in this strict sense. (Cf. 8.2.4, second doubt.)

(57.) "... the quidditative definition should signify much more or something other than the *definitum*. And this derives from the other difference between them, namely, that to the *definitum* of a nominal definition there should correspond a complex concept, whereas the species defined quidditatively has an incomplex concept; for it is not the species, but the definition of the species which is composed of genus and difference, whether in respect of utterance or concepts." SD 8.2.4.

(58.) Aristotle, *Posterior Analytics*, I, 3, 73a8sqq.; *Metaphysics*, VII, 5, 1030b29–35.

(59.) SD 2.1.3; cf.: "Now, that these predications are essential is obvious, for a relative concept is not only a concept of something, but also a concept of something [with respect] to something; therefore a relative term, in virtue of its proper signification and imposition connotes something [with respect] to something, whence the addition '[with respect] to something', construed with a relative term, amounts only to the explication of the connotation of that term, but it does not add some connotation extrinsic to that term, and so the predication is essential." SD 3.4.1.

(60.) For the significance of this point in the nominalist ontological program, see Klima, G. (1999) "Buridan's Logic and the Ontology of Modes," in *The Copenhagen School of Medieval Philosophy*, ed. S. Ebbesen, Copenhagen: The Royal Danish Academy of Sciences and Letters, and Klima, G. (1999) "Ockham's Semantics and Metaphysics of the Categories," in *The Cambridge Companion to Ockham*, ed. P. V. Spade, Cambridge: Cambridge University Press.

(61.) For the example of 'wealthy', see 4.5.2. For natural supposition see 4.3.4; 8.4.4.

(62.) SD 8.2.6.

(63.) SD 8.2.5.

(64.) For excellent surveys of the medieval problem in general, which is not of the concern of the present discussion, see Bérubé, C. *La connaissance de l'individuel au Moyen Âge*, Montréal: Presses Universitaires de France, 1964, Boler, J. "Intuitive and Abstractive Cognition" in *The Cambridge History of Later Medieval Philosophy*, ed. N. Kretzmann et al., Cambridge: Cambridge University Press, 1982, pp. 460–478, and Pasnau, R. *Theories of Cognition*

in the Later Middle Ages, Cambridge: Cambridge University Press, 1997, pp. 295–305.

(65.) For excellent analyses of Ockham's notion of intuitive, as opposed to abstractive, cognition, see Karger, E. "Ockham's Misunderstood Doctrine of Intuitive and Abstractive Cognition" in *The Cambridge Companion to William of Ockham*, ed. P. Spade, Cambridge: Cambridge University Press, 1999, 204–226, and Tachau, K. *Vision and Certitude in the Age of Ockham: Optics, Epistemology and the Foundations of Semantics 1250–1345*, *Studien und Texte zur Geistesgeschichte des Mittelalters*, vol. 22, Leiden: E. J. Brill, 1988. As we shall see, however, Buridan is not particularly fond of Ockham's notion or terminology.

(66.) See William of Ockham. *Quodlibeta septem*, in *Opera Theologica IX*, ed. J.C. Wey, New York: St. Bonaventure, 1980 I, q. 13, p. 74 (henceforth "QDL"). Translation: William of Ockham. *Quodlibetal Questions*, vols. I and II, trans. A. J. Freddoso and F. E. Kelly, New Haven, CT: Yale University Press, 1991, p. 65.

(67.) As Giorgio Pini has kindly pointed out to me, this argument is not original with Ockham, but can be found in Scotus, in the following passage: "... a single action of a sense has an object that is one in virtue of some real unity; but not numerical unity. Therefore, there is some real unity other than numerical unity. Proof of the minor premiss: a power that cognizes an object in this way (namely, insofar as it is one by *this* unity), cognizes it as distinct from anything else that is not one [with this object] by *this* unity. However, a sense does not cognize its object insofar as it is distinct from anything that is not one [with it] by numerical unity. And this is clear, because a sense does not distinguish *this* ray of sunlight to be numerically different from *that* other ray of sunlight, although they are diverse on account of the movement of the sun. If all common sensibles were to be excluded [from our consideration], such as the diversity of location or position, and if we assumed two quantities to exist in the same place by divine power, which however were altogether similar and equal in whiteness, then sight would not discern that there are two white things there; however, if it cognized one of them insofar as it is numerically one, then it would cognize it insofar as it is a unit that is distinct [from the other] by numerical unity." *Ordinatio* II, d. 3, p. 1, q. 1, nn. 20–21 (ed. Vat. VII, pp. 399–400). For an intriguing discussion of a closely related argument in a contemporary philosophical context, see Sainsbury, R. M., *Reference without Referents*, Oxford: Oxford University Press, 2005, pp. 246–254, in which the author also provides further important references. But I cannot pursue the comparison with the contemporary discussion here.

For detailed discussions of the medieval problem and an account somewhat different from the one presented here (especially, concerning the position of Buridan relative to those of Aquinas and Ockham), see Lagerlund, H. "What Is Singular Thought? Ockham and Buridan on Singular Terms in the Language of Thought," in *Mind and Modality: Studies in the History of Philosophy in Honour of Simo Knuuttila*, ed. V. Hirvonen, T. Holopainen and M. Tuominen, Leiden: Brill, 2006; "Making Aristotle Modern: John Buridan on Psychology and Language," in *Mind, Perception, and Cognition: The commentary Tradition on Aristotle's De anima*, ed. J. M. M. H. Thijssen and P. J. J. M. Bakker, Aldershot: Ashgate, 2008; "Singular Terms and Vague Concepts in Late Medieval Mental Language Theory or the Decline and Fall of Mental Language," in *Intentionality, Cognition and Mental Representation in Medieval Philosophy*, ed. G. Klima, New York: Fordham University Press, forthcoming.

(68.) Ibid. , p. 76; trans., p. 66.

(69.) Ibid.

(70.) Nicholas Oresme, *Expositio et Quaestiones in Aristotelis De anima*, III, q. 14, p. 421.

(71.) Aquinas, T. *Sentencia de Anima*, lib. 2, l. 12 n. 5. The quotations from Aquinas here and below are taken from the texts published on the *Corpus Thomisticum* website by Enrique Alarcón, <http://www.corpusthomisticum.org> —the translations are mine.

(72.) Aquinas, T. *Sentencia de Anima*, lib. 2, l. 12 n. 6. Cf. QDA3 lb. 3, q. 8, p. 64 (Zupko's translation, p. 288): "And since apart from our soul, that is to say, outside it, there is no universal horse distinct from a singular horse or singular horses, nor a universal stone apart from singular stones, and likewise for other things (as we suppose on the basis of *Metaphysics VII*), the proposed question must be properly worded: whether the intellect understands the same things or the same thing universally, that is, according to a common concept, before it understands singularly, that is, according to a singular concept, or vice versa."

(73.) Concerning Aquinas's conception of the intentional assimilation of a cognizer to the thing cognized as being simply the process of encoding information about the thing, see Klima, G. "Tradition and Innovation in Medieval Theories of Mental Representation," *Proceedings of the Society for*

Medieval Logic and Metaphysics, 4(2004), pp. 4–11; <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM4/PSMLM4.pdf>.

(74.) The *agent* or *active intellect* (*nous poietikos*), according to Aristotle, is the faculty of the soul whose task is to produce the intelligible species in the process of abstraction, which it then impresses on the *receptive* or *possible intellect* (*nous pathetikos*). The possible intellect, once “activated” by the intelligible species, is then able to form the universal concepts whereby the singulars of a species or genus are conceived of in a universal manner.

(75.) Cf. Panaccio, C., *Ockham on Concepts*, Aldershot: Ashgate, 2004, esp. pp. 9–11 and c. 7.

(76.) Buridan, J. *Quaestiones in Aristotelis Metaphysicam: Kommentar zur Aristotelischen Metaphysik*, Paris, 1518; reprint, Frankfurt a.M.: Minerva G.M.B.H., 1964, VII, 20, f. liiii ra–va (henceforth “QM”).

(77.) Ibid.

(78.) Buridan, QDA3 q. 8, p. 78 (tr. p. 301): “But you might ask whether the name ‘Aristotle’ is not a singular and individual name. And I say that a spoken name must only be called universal or singular because a universal or singular concept corresponds to it.”

(79.) “Buridan adds a very important clause to his discussion at this point. He remarks that I can treat ‘Aristotle’ as a singular term because I believe that the name was imposed or given its signification by a person who did have the appropriate singular concept. This move allows him to avoid the awkward consequence that whether ‘Aristotle’ is a proper name or not depends entirely on the experience of the speakers, and not at all on the linguistic practices of the community. If I have never known Aristotle, but am speaking with someone who did know him, we can both be taken to be using a proper name when we utter the word ‘Aristotle’. Buridan’s remarks can be expanded in at least two closely related ways. On the one hand, given his references to an original baptism or name-giving ceremony, we can regard Buridan as offering an early hint of the historical chain theory of proper names. On the other hand, given his apparent recognition of the speaker’s intention to refer to the person who was baptized as related to the social practices of the community, and to a body of information which, accurate or not, is causally connected with the man baptized ‘Aristotle’, perhaps Buridan is nearer to Gareth Evans than to Kripke (to mention just two names).” Ashworth, E. J. “Singular Terms

and Singular Concepts,” in *John Buridan and Beyond: Topics in the Language Sciences 1300–1700*, ed. R. L. Friedmann and S. Ebbesen, Copenhagen: The Royal Danish Academy of Sciences and Letters, 2004, pp. 121–151, esp. 137–138. Cf. Schwartz, S. P., ed. *Naming, Necessity and Natural Kinds*, Ithaca, NY: Cornell University Press, 1977, pp. 13–41.

(80.) It is especially the italicized claim that indicates the conception I am expounding below. In other places, namely, in QDA3 q. 8, Buridan seems simply to settle for the claim that such proper names are not properly and strictly singular to us, who have never met their bearers, since to us these names are merely abbreviations of some semantically common descriptions: “... ‘Socrates’, ‘Plato’, and ‘Aristotle’, were strictly speaking singulars having singular concepts corresponding to them absolutely, because they were imposed for signifying things conceived in the manner of something existing in the prospect of the people imposing them, because they said that this boy is called by the proper name ‘Socrates’. But to others who have not seen them, those names are not now singular, nor do they have absolutely singular concepts corresponding to them, but as Porphyry indicates, they are called singulars by them by a description ‘on the basis of properties the collection of which never was, nor will be, the same in anything other than it’: for example, by the name ‘Aristotle’, we understand a man generated, most wise, a student of Plato, etc., for this description is thus called singular because it fits but one man alone. But it is not singular, because it is naturally suited to agree with others, for it would not have been impossible for another to have been of the same sort. But when I say ‘this man’, it is impossible that some other man is this man.” However, see also this passage: “Concerning the terms ‘Socrates and ‘Plato’ I say that they are truly and properly individual terms, because the name ‘Socrates’ was imposed on this man through an act of pointing, for example, by saying that let this man or this boy be called by a proper name ‘Socrates’. For a name imposed in this way cannot apply to any other except by means of a new imposition, which would yield equivocation. And thus it appears to me that it is not impossible for the same utterance or a similar one to signify several things individually, through several impositions and equivocally.” QiPI, q. 9, p. 162.

(81.) Buridan, QM VII, 20, f. liiii ra–va.

(82.) In fact, Buridan himself quite clearly states this argument in the following passage, in which he again clearly commits himself to the view that proper names are genuinely, that is, semantically, singular referring phrases:

“But you might say: how can I conceive of Aristotle in a singular manner, given that he has never been in my sight? And I reply that properly speaking this is not possible for you, since you do not conceive of him differently from other people, except through some description, as for example that he was the best philosopher, the teacher of Alexander, and a student of Plato’s, and who wrote the philosophy books which, or the likes of which, we read, etc. Although this description actually applies only to him, it is not properly a singular term, as neither is the term ‘God’, although it applies only to God, for on account of its mode of signification or imposition it could apply to many and supposit for many. For if there were another, similar God, the name ‘God’ would apply to him and would supposit for him without a new imposition. In the same way, if there had been someone, who was the best philosopher, Alexander’s teacher, and Plato’s student, etc., the description would have applied to him, and would have supposited for him. But this is not the case with an absolutely and properly singular term. For if I call this individual pointed out in my sight ‘Socrates’ by a proper name, not because he is such and such, but because [he is the one in my sight, then] the name ‘Socrates’ would apply to him and never to any other no matter how similar individual, except through another imposition, if it were imposed to signify that other, and then equivocally. But if another, similar individual were presented to me, then I would believe that he is Socrates, although he is not Socrates, and then I would be deceived.” QiP I, 7, f. ix ra. The bracketed insertion reflects my *ad sensum* emendation of what appears to be a lacuna in the text.

(83.) Thus, when I was asked to write an article on Peter of Spain for *Blackwell’s Companion to Philosophy in the Middle Ages*, I actually had to make the deliberate decision to use the term ‘Peter of Spain’ *improperly*, not as a proper noun, but as an abbreviation of a description, ‘the author of the *Summulae*’, whoever that person may turn out to be. Cf. Klima, G. “Peter of Spain.”

(84.) For the phenomenon I dubbed “parasitic reference” (as opposed to “constitutive reference”) and its significance in understanding the problems with Anselm’s ontological argument, see Klima, G. “Saint Anselm’s Proof: A Problem of Reference, Intentional Identity and Mutual Understanding” in *Medieval Philosophy and Modern Times*, ed. G. Hintikka, Dordrecht: Kluwer Academic, 2000, pp. 69–88, Proceedings of “Medieval and Modern Philosophy of Religion,” Boston University, August 25–27, 1992; Klima, G. “Conceptual Closure in Anselm’s Proof: Reply to Tony Roark,” *History and Philosophy of Logic* 24(2003), pp. 131–134. If my reconstruction of Buridan’s theory

of proper names above is correct, then he is committed to the view that “parasitic reference” is a ubiquitous, essential feature of all “secondary” uses of proper names. As I learned *after* writing the above-mentioned papers, the phrase “parasitic reference” was originally introduced (in a similar, but perhaps slightly different sense) by John R. Searle in *Speech Acts: An Essay in the Philosophy of Language*, Cambridge: Cambridge University Press, 1969, p. 89.

(85.) QDL I, q. 13, ad 3-um, p. 77. (Trans. p. 67): “To the third problem I reply that when I see something, I have a proper abstractive cognition. But this cognition will not be simple; rather, it will be composed of simple cognitions. And it is this composite cognition that is the principle of the memory. For I recall Socrates because I have seen him as having such-and-such a shape, color, height, and girth, and as being in such-and-such a place; and it is by means of this composite concept that I remember that I have seen Socrates. But if you set aside all the simple concepts except one, then by means of that simple concept you will not be remembering Socrates more than another man who is exactly similar to him: “I can indeed recall that I have seen this man, but whether he is Socrates or Plato I do not know.” And, therefore, a simple abstractive cognition is not proper to a singular thing, whereas a composite abstractive cognition can indeed be proper.”

(86.) Buridan, QM VII, 20, f. liiii ra–va.

(87.) Ibid.

(88.) Buridan, QDA3 q. 8.

(89.) Ibid.

(90.) Ibid.

(91.) Ibid.

(92.) Perhaps it is important to note here that this miracle is fundamentally different from the miracle Ockham considered, namely, the alleged possibility of God sustaining an act of intuitive cognition without its corresponding adequate object. Given his doctrine of the formal unity of the cognizer and the cognized thing, Aquinas may not have regarded Ockham’s miracle possible (or *ought* not to have, anyway), but he definitely argues for the miraculous possibility of overlapping bodies, on account

of scriptural authority, such as the risen Christ entering the room of the apostles through closed doors. Cf. Klima, G. "The Demonic Temptations of Medieval Nominalism: Mental Representation and 'Demon Skepticism'," *Proceedings of the Society for Medieval Logic and Metaphysics* 4(2004), pp. 37-44, <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM4/PSMLM4.pdf>.

(93.) Therefore, when Scotus says "a single action of a sense has an object that is one in virtue of some real unity; but not numerical unity" [cf. n. 67], this may well be interpreted that *what* is cognized is a singular, but it is not cognized *qua* singular, that is, not in its singularity. That is to say, the *formal object* of the act of sensory cognition is not the singular object itself without further ado. But

with this it is compatible that its *material object* is the singular object. However, this seems to be just another way of saying that the singular is not cognized in its singularity. What Scotus insists on is merely that this *formal object* of sensory cognition is something having some real, but nonnumerical, unity (for the formal object as such is a form, a sensible quality). But this, again, is compatible with the further claim that this formal object is cognized by the senses in concretion with the singular, as it is individualized in the singular (though its individuating principle itself is not cognized), whereas it is cognized by the intellect in abstraction from the singular, and it is only then that the formal object itself is cognized *qua* universal, and the material object of intellection, the singular itself, is cognized in a universal manner. Thus, despite the fact that Scotus employs the argument from indifference, he would not make the further move of identifying indifferent singular cognition without an actual causal link to the object with universal cognition in the way Ockham does. Hence the same argument has a radically different systematic role in his thought.

(94.) Aquinas, T. *Sentencia De anima*, lib. 2 l. 13 n. 12.

(95.) For a detailed analysis of and textual references to Buridan's argumentation see Zupko, J. "John Buridan on the Immateriality of the Intellect," *Proceedings of the Society for Medieval Logic and Metaphysics*, 1(2001), pp. 4-18, <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM1.pdf>.

(96.) See Klima, G. "Aquinas' Proofs of the Immateriality of the Intellect from the Universality of Thought," *Proceedings of the Society for Medieval Logic and Metaphysics*, 1(2001), pp. 19-28, <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM1.pdf>. (See also Bob Pasnau's comments and my rejoinder in the same volume, pp. 29-36 and pp. 37-44, respectively.)

(97.) QiPI 9, pp. 159–162.

(98.) That is to say, when talking about ‘individuals’ in this context, we should use the names of individuals not as standing for the individuals they name, but rather as standing for themselves or other tokens of the same type. Thus, perhaps paradoxically, when I say: “[Any term] ‘Socrates’ is a singular term”, the subject of this sentence, insofar as the sentence is true, is functioning as a *common term*, standing for itself and for any other token term of the same type. However, the sentence is true precisely because any of those token terms *by their signification* is a singular term, because all these terms (themselves are, if they are mental terms, or) are subordinated to singular concepts whereby we conceive of this singular thing, namely, Socrates. But the subject term of the earlier-quoted sentence is not subordinated to such a singular concept but to a common concept whereby we indifferently conceive of any of these singular concepts and the singular terms subordinated to them.

(99.) Ibid. as in n. 97.

(100.) Ibid.

(101.) Ibid.

(102.) Ibid.

(103.) Cf. n. 79.

(104.) Ibid. as in n. 97.

(105.) The notion of “rigidity” of reference was introduced into modern philosophy by Saul Kripke. Kripke, *S. Naming and Necessity*, Boston: Harvard University Press, 1982. The idea simply is that a “rigid designator” refers to the same thing (or things) it actually refers to in any possible situation in which that thing exists (or any of those things exist), as opposed to a non-rigid designator, which may change its reference across possible situations. For example, the description “the president of the US” now refers to George Bush, but earlier it referred to Bill Clinton, whereas their proper names refer rigidly to the same persons respectively under any possible circumstances, unless we use their names equivocally (intending to pick out, say, another person, who also happens to be named ‘Bill Clinton’). For a discussion of the modern “possible-worlds-essentialism” stemming from Kripke’s approach (as applied to common terms) in comparison to medieval essentialism, see

Klima, G. "Contemporary 'Essentialism' vs. Aristotelian Essentialism," in *Mind, Metaphysics, and Value in the Thomistic and Analytic Traditions*, ed. J. Haldane, South Bend, IN: University of Notre Dame Press, 2002, pp. 175–194. A discussion of Buridan's own special brand of nominalist essentialism in relation to the idea of "rigid designation" will follow later in this chapter.

(106.) Ibid. as in n. 97.

(107.) Readers familiar with Quine's philosophy (especially, his *Word and Object*) will certainly notice some points of contact between Buridan's problems here and Quine's with "gavagai", but I will not pursue this issue here.

(108.) Ibid. as in n. 97.

(109.) Ibid.

(110.) Ibid.

(111.) Cutting up poor old Socrates in various ways was in vogue in medieval mereological considerations in general. The authoritative survey of this is provided by D. P. Henry in *Medieval Mereology*, Bochumer Studien zur Philosophie, vol. 16, Amsterdam-Philadelphia: B. R. Gruner, 1991.

(112.) QiPI 9.

(113.) Cf. Read, S. L. "Thomas of Cleves and Collective Supposition," *Vivarium* 29(1991), pp. 50–84; Read, S. L. "Descensus Copulativum: Albert of Saxony vs. Thomas Maulfelt," in *Itinéraires d'Albert de Saxe: Paris-Vienne au XIVe*, ed. J. Biard, Paris, 1991, pp. 71–85.

(114.) QDA3 q. 8.

(115.) In his "John Buridan and Nicholas of Autrecourt on Causality and Induction," in *Traditio* 43(1987), pp. 237–255, Hans Thijssen has plausibly argued that since some of the theses and arguments Buridan opposes here do not reflect Nicholas of Autrecourt's doctrine as we know it, despite reasonable expectations to the contrary, Buridan may well have had other opponents in mind. However, because the theses and arguments in question are at least not incompatible with Autrecourt's known doctrines, it is still possible that Buridan had in mind some further works or even just oral presentations of Autrecourt's that we simply do not know of from other sources. Indeed, this latter alternative has the advantage of explaining the

phenomena *per pauciora*. In any case, the identity of Buridan' actual target of criticism in this question is irrelevant to the subsequent discussion.

(116.) QiP, lb. 1, q. 4.

(117.) Ibid.

(118.) Ibid.

(119.) See Locke, J. *An Essay Concerning Human Understanding*, New York: Dover Publications, 1959, bk. II. cc. 22–23; bk. III. cc. 5–6; Berkeley, G. *A Treatise Concerning the Principles of Human Knowledge*, Hackett: Indianapolis, 1982, nn. 1, 24, 54; Hume, D. *A Treatise of Human Nature*, Oxford: Clarendon Press, 1978, Bk. I, sec. VI.

(120.) QiP, lb. 1, q. 4.

(121.) SD, pp. 147, 173, 639, 642, 644–646, 729, 735.

(122.) SD, pp. 106, 123, 126–128, 131, 135, 138, 147–149, 147n.9, 155, 155n.20, 156–158, 163, 169, 169n.38, 175, 183, 202, 629, 640, 653, 668, 732, 787, 885, 886.

(123.) Cf. n. 105.

(124.) QiP, lb. 1, q. 4.

(125.) QiP, lb. 1, q. 4.

(126.) Ibid.

(127.) Buridan, J. *Le traité de l'âme de Jean Buridan (De Prima Lectura): Édition, Étude Critique et Doctrinale*, ed. B. Patar, Louvain-la-Neuve: Éditions de l'Institut Supérieur de Philosophie, 1991, *Quaestiones in De Anima* (henceforth: QDA), lb. 1, q. 5. This passage is in perfect agreement with the doctrine of known authentic texts of Buridan. Cf. QiP, lb. I, q. 7, ff. 7vb–10ra; QDA3 q. 8, pp. 64–89, esp. pp. 74–75, pp. 79–80; QM, lib. VII, qq. 15–20, ff. 50rb–54va; QiPI, pp. 111–195, esp. pp. 172–173. Because of this doctrinal agreement, I take this passage to be a reliable report of Buridan's ideas (whether by himself or someone else), despite serious doubts concerning the text's authenticity. For contrast, see “Hence it is plain we do not see a man —if by man is meant that which lives, moves, perceives, and thinks as we do—but only such a certain collection of ideas as directs us to think there is

a distinct principle of thought and motion, like to ourselves, accompanying and represented by it.” Berkeley, G. *A Treatise Concerning the Principles of Human Knowledge*, Part I, n. 148, p. 88.

(128.) QDA, lb. 1, q. 5. (prima lectura).

(129.) “In the third way, abstractively; as when I first have a concept that represents substance and accident together in a confused manner, for example, when I perceive something white, for I see not only whiteness, but something that is white, and then if I perceive the same thing to move and change from white to black, then I judge that this is something distinct from whiteness, and then the intellect naturally has the power to analyze that confusion, and to understand substance abstractively from accident, and accident abstractively from substance, and it can form a simple concept of each, and it is in the same way, by abstraction, that a universal concept is formed from a singular one, as one should see in bk. 3 of *On the Soul*, and bk. 7 of the *Metaphysics*.” QiP, lb. 1, q. 4. Cf. QiP, lb. 1, q. 7, ff. 7vb-10ra; QDA, lb. 3, q. 8; QiPl, pp. 111–195, esp. pp. 172–173; and QM, lb. 7, qq. 15–20, ff. 50rb–54va.

(130.) Incidentally, this is precisely why sensory appearances can be deceptive: a thing may just look to be something it is not, because it carries the directly perceivable sensible qualities we would normally associate with a thing of a different sort.

(131.) Notice that already at this early stage of cognizing a sensible object we have an example of the phenomenon that a subordinate cognitive faculty transmitting information to a higher faculty carries information that is only cognized by the higher faculty. As we have seen, this point is also the key to Buridan’s solution to the problem of intellectual cognition.

(132.) King, P. “John Buridan’s Solution to the Problem of Universals,” in *The Metaphysics and Natural Philosophy of John Buridan*, eds. J. M. M. H. Thijssen and J. Zupko, Leiden: Brill Publishers, 2001, pp. 1–27.

(133.) Note how different this is from Ockham’s “indifference-account”, which immediately yields an “abstractive cognition”, that is, a universal concept, as soon as the actual causal link with the object is cut off. Thus, it is no wonder that Ockham explicitly claims that one can gain a species concept from a single experience of an individual of a species. Cf. Panaccio, C. *Ockham on Concepts*, pp. 9–11.

(134.) See again how Buridan exploits the necessary aspectuality of abstracted concepts in his account of this process, which is quoted at n. 114.

(135.) This issue recently has been the subject of some exchange between Claude Panaccio, Peter King and myself. In his excellent study (Panaccio, C. *Ockham on Concepts*, esp. pp. 133–136), Panaccio provided a careful reconstruction of Ockham’s theory of concept-acquisition, which attempted to avoid an objection to Ockham’s account I had raised in an earlier discussion with Peter King over the same issue. I have presented my reservations that remained even after Panaccio’s elaboration of Ockham’s theory in an unpublished note, Klima, G. “Is Ockham off the Hook?” which is available on my Web site along with King, P. “The Failure of Ockham’s Nominalism”, (the unpublished piece that had originally prompted Panaccio’s reply in his book), and my response, Klima, G. “Comments on Peter King: ‘The Failure of Ockham’s Nominalism.’” For all these items, see <http://www.fordham.edu/gsas/phil/klima/index.htm>. See also Normore, C., 2003, “Burge, Descartes, and Us,” in *Reflections and Replies. Essays on the Philosophy of Tyler Burge*, ed. M. Hahn and B. Ramberg, Cambridge, MA: MIT Press, 2003, pp. 1–14; Panaccio, C. “Ockham’s Externalism,” in *Intentionality, Cognition and Mental Representation in Medieval Philosophy*, ed. G. Klima, Fordham University Press, forthcoming.

(136.) At least, this seems to be the line taken more recently by Peter King on Ockham’s approach, especially in his “Thinking About Things: Singular Thought in the Middle Ages,” in *Intentionality, Cognition and Mental Representation in Medieval Philosophy*, ed. G. Klima, New York: Fordham University Press, forthcoming.

(137.) Cf. n. 24 in this chapter; Panaccio’s most recent summary account of the debate can be found in his *Ockham on Concepts*.

(138.) In a bold move, Ockham could claim that ‘having’ in this phrase is subordinated to a simple syncategorematic concept. But he never made such a suggestion, and it would probably lead to further complications, like the ones I am going to discuss immediately in connection with Buridan’s approach.

(139.) Because Ockham explicitly commits himself to the claim that *all* connotative terms have nominal definitions, Panaccio’s “real Ockham,” contrary to Buridan, does not endorse the claim that all nominal definitions have to be *strictly* synonymous with their *definita*, being subordinated to the same complex concept. I am grateful to Claude Panaccio for calling

my attention to this point in connection with the simpler, but sloppier, formulation of an earlier draft.

(140.) Even if the required comparative linguistic research *were* carried out, one could still have worries about the apparent arbitrariness of assigning a single concept (type) to certain uses of certain constructions in diverse languages just on the basis of translatability.

(141.) Of course, the foregoing considerations concerning the dispensability of fully expounded nominal definitions in our awareness of connotative concepts apply here, too.

(142.) Further technical details of this example are worked out in Klima, G. "The Changing Role of *Entia Rationis* in Medieval Philosophy: A Comparative Study with a Reconstruction."

(143.) For the details of Buridan's doctrine, see his account of Aristotle's distinctions in the *Postpraedicamenta* (the doctrines included in Aristotle's *Categories* following the discussion of the properties of individual categories) in SD 3.8, pp. 206–218.

(144.) Nicholas Oresme, *Quaestiones in Aristotelis De anima*, III, q. 14., as quoted and translated by Henrik Lagerlund, "Vague Concepts and Singular Terms in a Buridanian Language of Thought Tradition," *Proceedings of the Society for Medieval Logic and Metaphysics* 4(2004), pp. 25–36, esp. pp. 29–30. (I have slightly revised the translation.)

(145.) Ibid.

(146.) Dorp, J. *Compendium*, sig. e 1 va–yb, quoted in Ashworth (for ref. see n. 79), p. 135. n. 58. See also Dorp's sig. e 2 ra.

(147.) Ibid.

(148.) In fact, I am using the continuous tense here to indicate that this sort of experience is not to be regarded like a static "snapshot," but, rather, as the active, indeed, *interactive* processing of information continuously *streaming* through the external senses, resulting from the active "scanning" of the object directed by subconscious *reflex mechanisms* as well as the ever changing *attention* of the perceiver. These are further details of the process of perception that need not detain us here, although they are very important to keep in mind.

(149.) See n. 37.

(150.) QiPI, q. 11, pp. 168–174.

(151.) Ibid.

(152.) Ibid.

(153.) bid.

(154.) bid.

(155.) Ibid. Clearly, if both terms of a true affirmative predication are absolute (i.e., they are true of their *significata* as long as they exist), then the predication will also necessarily be true if the common *significata* of the two terms exist; that is to say, the predication is essential. By contrast, if one of the terms connotes some external *connotata* over and above the common *significata* of the two terms, the predication may cease to be true on account of the “passing away” of some of those *connotata*, even if the common *significata* continue to exist; that is to say, in this case the predication is not essential. It should also be noted, though, the necessity of the predication with the assumption of the existence of the common *supposita* is not sufficient for its essentiality according to Buridan’s criterion. For, as is clear in his discussion in the second problem, there are connotative predicates (such as “one” or “identical”) that necessarily apply to their *supposita* provided those *supposita* exist. Still, because of their connotation, their predication of a substantial term is not regarded as essential according to Buridan’s strict criterion for essential predication.

(156.) Ibid.

(157.) Ibid.

(158.) Ibid.

(159.) Ibid.

(160.) I am grateful to Julie Brumberg-Chaumont for calling my attention to the significance of this passage in her excellent presentation at the *Montreal Workshop on Late-Medieval Nominalism* organized by Claude Panaccio in May 2006.

(161.) QM, lb. 7, q. 17.

(162.) Cf. QDA, q. 15.

(163.) Of course, here, as well as throughout this book, by conceptual complexity we should understand the mere semantic complexity of the compositional dependence of the “complex concept” for its representative function on the representative function of its “components,” in accordance with the foregoing discussion.

(164.) Cf. n. 129.

(165.) Cf. Klima, G. “Peter of Spain.”

(166.) As we shall see in more detail, this foundational issue lies at the bottom of the separation of the *via moderna*, the new, nominalist way of doing logic and all theoretical subjects, from the *via antiqua*, the old, realist way. Therefore, this issue is absolutely important, both historically and philosophically. However, from the point of view of the question of the mere viability of a nominalist system of logic, we may disregard this historical-philosophical issue here. But we are going to *have to* return to it in the last chapter, evaluating Buridan’s essentialist nominalism in general.



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Natural Language and the Idea of a “Formal Syntax” in Buridan

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Abstract and Keywords

The fifth chapter provides a detailed discussion of Buridan’s strategy of identifying the conceptual structures discussed in the chapter 4 by means of the various “syntactical clues” provided by spoken and written natural languages (in particular, Latin). The chapter compares the Buridanian strategy of “regimentation” with the modern (post-Frege-Russell-Montague) strategy of formalization, and argues that for the purposes of a “natural logic” the former is not inferior to the latter. But in order to bridge the conceptual gap between the two approaches, the chapter also discusses a simple extension of standard quantification theory (using restricted variables) that is capable of faithfully representing a large part of Buridan’s logic. Indeed, the chapter argues that the resulting formal system is in accord not only with Buridan’s logic, but with our natural language intuitions in general, providing more faithful representation of natural language reasoning than standard quantification theory.

Keywords: regimentation, formalization, natural logic, restricted variables

The distinctions of the various sorts of concepts that we have just discussed and their combination in forming complex conceptual structures can be regarded as somehow “mirroring” the more obvious distinctions of different linguistic categories and their syntactical composition that we are familiar with from grammar. Yet, as we have seen, this apparent “mirroring” is a much more complicated relationship than a simple one-to-one mapping between linguistic items and conceptual items. Indeed, it has to be. For in

addition to the well-known phenomena of equivocation and synonymy in natural languages, we must not forget that in this framework *very different* natural languages are supposed to be mapped onto the *same* mental language, ¹ so the rules of mapping will certainly vary from one language to another. Indeed, if we take into consideration Buridan's conception of the radical conventionality of natural languages discussed earlier, it should be clear that these rules can even vary from one individual person to the next, as well as for the same individual over time.

Yet, again, just as we have observed earlier, this need not mean that the interpretation of spoken languages in terms of mental language should be chaotic, and that intersubjective understanding should be reduced to a radically hopeless guessing game. For despite the immense actual diversity and potentially unlimited variability of these rules of interpretation, there are certain invariant features of human reasoning carried out in any (p. 122) particular spoken language whatsoever that allow the formulation of universal logical laws applicable to any language. It is precisely for expressing these universal, invariant aspects of human reasoning underlying various possible expressions in various natural languages that in modern logic we construct an artificial language, a sort of *Begriffsschrift* (conceptual notation), to use Frege's happy phrase, which is then conceived to serve as a more direct linguistic expression of those invariant conceptual structures that are variously expressed by various natural languages.

But this is not the only possible way to achieve the desired universality of logical theory. The way Buridan (and medieval logicians in general) achieved this was by using *not* a full-fledged artificial language but an artificially "regimented" Latin. We can get a nice, yet relatively simple illustration of what this "regimentation" of Latin consists in if we take a closer look at how Buridan introduces the idea that every simple categorical proposition of Latin can be reduced to the "canonical" subject-copula-predicate form. After briefly stating the division of propositions into categorical and hypothetical, and the description of categorical propositions as those that consist of subject and predicate ² as their principal parts, Buridan launches into a detailed discussion of this description as follows: ³

The third section expounds the above description of categorical proposition, illustrating it by the proposition: 'A man runs', in which the name 'man' is the subject, and the verb 'runs' is the predicate. Concerning this point we should note, as the author immediately remarks, that the verb is

not the predicate, strictly speaking, but it is either the copula joining the predicate to the subject or implies in itself the copula and the predicate together. For the verb 'is' as the third adjacent [*tertium adiacens*] is the copula, and what follows is the predicate. But the verb 'is' occurs as second adjacent [*secundum adiacens*], when I say 'A man is'; but then, like any other verb, it implies in itself the copula with the predicate or with the principal part of the predicate ⁴; therefore, to make the subject, predicate and copula explicit, such a verb has to be analyzed into the verb 'is' as third adjacent, provided that the proposition is assertoric [*de inesse*] and in the present tense [*de praesenti*], ⁵ and into the participle of that verb, as for example, 'A man runs' is to be analyzed into 'A man is running', and similarly, 'A man is' into 'A man is a being'. ⁶

The English reader might note that the proposed transformation does not always yield equivalent sentences, given the tendency in English to (p. 123) use the simple present tense to signify habitual action as opposed to the continuous present tense, consisting of the copula and the appropriate participle, which is used to express present action. For instance, if I say 'I smoke', I may simply want to express that I am a smoker, a person who has the habit of smoking, but this does not mean that I am actually smoking, which would properly be expressed by the sentence 'I am smoking'. ⁷

But Buridan might answer that this is merely a difference in the different syntactical "clues" a different language uses to indicate a different sort of underlying conceptual construction. The simple present tense of English, when it is used to signify habitual action, should then not be analyzed into a participle and a simple assertoric copula, but *perhaps* (somewhat unidiomatically) into a participle and an adverbially modified copula, as in 'I am usually smoking', ⁸ in which we just express in the surface syntax of this sentence an adverbial modifier that is unmarked in the simple tense (as is the implicit copula), but which is nevertheless present in the corresponding mental proposition. In any case, it is in this spirit that Buridan answers four questions he raises in connection with the issue of the earlier-described "canonical form" of categorical propositions:

But then some questions arise. The first concerns what such a copula signifies. The second is whether that copula is a principal part of a categorical proposition. The third question is whether the proposition 'The one lecturing and disputing

is a master or a bachelor' is categorical or hypothetical; for it seems that it is hypothetical, since it has two subjects and two predicates. The fourth question is the same concerning the proposition 'A man who is white is colored'; for it seems that it is hypothetical, since here we have two subjects, two predicates and two copulas; and also because it seems to be equivalent to 'A man is colored, who is white' ⁹ which is apparently hypothetical. ¹⁰

In his reply, Buridan provides the rationale for the canonical subject-copula-predicate structure in terms of what modern linguists would certainly recognize as "deep structure," and what for Buridan is the conceptual structure of the corresponding mental proposition:

To the first question we should reply that a spoken proposition has to signify a mental proposition, as was said before. A mental proposition, however, involves a combination of concepts [*complexio conceptuum*], and so it presupposes in the mind some simple concepts, to which it adds a (p. 124) complexive concept, by means of which the intellect affirms or denies one of those [presupposed simple] concepts of the other. Thus, those presupposed concepts are the subject and the predicate in a mental proposition, and they are called the matter of the mental proposition, for they are presupposed by the common form of a proposition, just as matter is presupposed by the substantial form in [the process of] generation. And then it is clear that the subject and the predicate of the spoken proposition signify in the mind the subject and the predicate of the mental proposition. The copula 'is' signifies an affirmative complexive concept, whereas the copula 'is not' signifies a negative complexive concept; and the intellect is unable to form that complexive concept except when it has formed those which are the subject and the predicate, for it is impossible to have the combination [*complexio*] of the predicate with the subject without the predicate and the subject. And this is what Aristotle meant ¹¹ when he said that 'is' signifies a certain composition which cannot be understood without the components. ¹²

What fundamentally justifies sticking to the idea of this "canonical form" according to Buridan is that no matter how a mental proposition is expressed

in the (“surface”) syntax of a spoken language, the concept of the copula is there in the mental proposition. Therefore, indicating it in the syntax of the spoken proposition merely explicates the presence of the complexive concept of the copula in the corresponding mental proposition. Indeed, this explication is *always* justified because, as Buridan now explains in his answer to the second question, that complexive concept *has to* be present in *any* mental proposition:

To the second question we should reply that the copula is truly a principal part of the proposition, because there could not be a categorical proposition without it; and also because it can be compared to a form of the subject and the predicate, and the form is a principal part of a composite. Therefore, those correctly supplemented the second section who said that a categorical proposition is one that has a subject, a predicate and a copula as its principal parts. ¹³

Thus, given that the copula is the “formal,” principal part of a categorical proposition, that is, it is that complexive concept (proposition-forming functor) in the mind without which the concepts corresponding to the terms would not constitute a proposition, it is obvious that no matter how complex those terms and the corresponding concepts are, if they are joined (**p. 125**) by one copula, then they form one proposition. This is precisely the basis of Buridan’s answer to the third question:

To the third question we should reply that that proposition is categorical; for it does not contain two categoricals, as there is only one copula here; neither are there several subjects, nor several predicates here, for the whole phrase ‘the one lecturing and disputing’ is a single subject, although hypothetical, namely, conjunctive, and the whole phrase ‘master or bachelor’ is similarly a single predicate, although disjunctive. ¹⁴

As this remark clearly illustrates, Buridan would allow complex terms in either the subject or the predicate positions of otherwise simple, categorical propositions. In fact, given the potentially unlimited complexity of the terms of categorical propositions, these propositions may exhibit a *very* complex structure *within* their terms, despite the simplicity of the general subject-copula-predicate scheme. For it is not just the (iterable) “Boolean” operations of disjunction, conjunction and negation that can yield potentially infinite complexity in these terms, but also the fact that any proposition can be

turned into a term (by forming a “that-clause”) or into a determination of a determinable term (in the form of a relative clause). For example, if we take the proposition ‘A man is running’, it can easily be transformed into the term ‘That a man is running’, which can then be the subject of another proposition, for example, ‘That a man is running is possible’ or a part of another more complex term in another proposition, as in ‘That a man is running is believed by Socrates’. Again, taking the proposition ‘A man is white’, and inserting a relative pronoun after its subject, we get another complex term ‘A man who is white’, which can then be the subject in the proposition ‘A man who is white is colored’.

Now if we look at this proposition in this way, namely, as having a complex subject term built up from a head noun as the *determinable* determined by a relative clause, then it should be obvious why Buridan gives the following answer to the problem raised in connection with this proposition:

To the fourth question we should reply that there is one predicate here, namely, ‘colored’, which by the mediation of the copula is predicated of the whole of the rest as of its subject, namely, of the whole phrase: ‘man who is white’; for the whole phrase: ‘who is white’ functions as a determination of the subject ‘man’. And the case is not similar to ‘A man is colored, who is white’,¹⁵ for there are two separate predicates here, which (p. 126) are predicated separately of their two subjects, and there is not a predicate here which would be predicated by the mediation of one copula of the whole of the rest. And although these [propositions] are equivalent, they are not equivalent if we add a universal sign. For positing the case that every white man runs and there are many others who do not run, the proposition ‘Every man who is white runs’ is true, and is equivalent to: ‘Every white man runs’; but the proposition ‘Every man, who is white, runs’ is false, for it is equivalent to: ‘Every man runs and he is white’.¹⁶

Buridan’s response to the objection in terms of distinguishing two interpretations of the relative clause indicated by different word order is particularly revealing of his practice of using a “regimented Latin” to make logical distinctions. Indeed, the difference between the syntactical devices used in English and Latin to make the same distinction is also very instructive concerning the advantages and disadvantages of developing

logical theory in a “regimented” natural language, as opposed to doing the same using an artificial language, as we usually do nowadays.

Let us take a closer look at the syntax and the semantics of the propositions distinguished here, both in English and in Latin:

- (1) Homo qui est albus est coloratus
- (2) A man who is white is colored
- (3) Homo est coloratus qui est albus
- (4) A man, who is white, is colored
- (5) Omnis homo qui est albus currit ↔ (5′) Omnis homo albus currit
- (6) Every man who is white runs ↔ (6′) Every white man runs
- (7) Omnis homo currit qui est albus ↔ (7′) Omnis homo currit et ille est albus
- (8) Every man, who is white, runs ↔ (8′) Every man runs, and he is white

Every other line here is the English translation of the Latin of the preceding line. Yet, the syntactical devices by which the Latin and the English sentences bring out the intended conceptual distinction are obviously different (word order vs. punctuation). Nevertheless, the important thing (**p. 127**) from our present point of view is that these different devices can (and do) bring out the *same* conceptual distinction. To see this in more detail, we should consider exactly what the distinction in question is. As a little parsing makes clear, the important difference is whether, on the one hand, the relative clause ‘who is white’ (‘qui est albus’) is construed as the determination added to the determinable, that is, to the head-noun ‘man’ (‘homo’), so as to build the complex subject term ‘man who is white’ (‘homo qui est albus’), or, on the other hand, the relative clause is construed as having been lifted out of the subject term to form a separate clause with a relative pronoun (‘who’, ‘qui’) functioning as its subject, referring back to the simple subject of the other clause (‘man’, ‘homo’).

To be sure, in the case of (1) and (3), and correspondingly in the case of (2) and (4), this makes no difference in the truth-values in the resulting propositions. For it makes no difference whether we describe a situation by picking out a white man and making the claim that he is colored or we describe the *same situation* by picking out a man, stating that he is colored, and adding that he is white.

By contrast, the different construction obviously yields a difference in truth-values in the case of (5) and (7) and in the corresponding case of (6) and (8). For if we describe a situation by first picking out white men, and stating of each of them that he is running, then the predicate is supposed to apply to all white men, but there may well be other men not running. However, if we describe a situation by picking out men, and stating of each of them that he is running, adding that he is white, then the predicate 'running' as well as the predicate 'white' is supposed to apply to all men, which is obviously *not the same situation* as the previous one.

In short, the fundamental difference in all the contrasted cases is whether the relative clause is construed as a *restrictive relative clause*, forming part of the complex subject term, or it is construed as a *nonrestrictive relative clause*, making a separate claim referring back to the simple subject of the main clause.

The "regimentation" of the syntax of a natural language, therefore, is the *explication*, and occasionally even the *stipulation*, of *which* syntactical structures of the given language are supposed to convey *which* conceptual constructions. The governing principle of Buridan's regimentation of his technical Latin seems to be what may be called the *principle of scope-based ordering*. This principle is most clearly at work in the "Polish notation" in modern formal logic (where the order of application of logical connectives (**p. 128**) is indicated by their left-to-right ordering), but something similar is quite clearly noticeable in Buridan's rules of logical syntax in general.

To be sure, Buridan never goes as far as to organize Latin according to the rules of a formal syntax in the way a modern artificial language is constructed.¹⁷ And for all his views about the conventionality of language, even he would shy away from rewriting the rules of Latin grammar to fit the requirements of the syntax of an artificial language. Rather, he uses the existing grammatical, structural features of Latin (sometimes stretching, and sometimes bending them a little) to make conceptual distinctions. However, once such a distinction is somehow made, using some such existing syntactical device, Buridan's regimentation of Latin consists in his insistence on the point that this syntactical device should be consistently regarded as expressing this conceptual distinction, at least when we use language for the purposes of logic (as opposed to, for example, using it to do poetry, as we could see earlier).

5.1 Regimentation versus Formalization

Thus, even if doing logic by means of a full-fledged artificial, formal language did not even emerge as a theoretical alternative for Buridan, given the fact that in our time this is the dominant approach to logic, we should pause here a little to reflect on the theoretical as well as the practical advantages and disadvantages of these two different approaches.

One apparent disadvantage of Buridan's "regimentational" approach in comparison to the modern "formalizational" approach is that an informal system can never be as exact as a formal one, given all the possible ambiguities and arbitrariness of an informal approach. By contrast, in the formal approach, the rules of interpretation in a formal semantics and the manipulations with formulae in a formal syntax are fixed by the highest standards of mathematical exactitude, which can never be matched by any sort of informal approach. Therefore, it seems that Buridan's approach suffers from an inherent *inexactitude* that can be overcome only by the formalizational approach.

Again, Buridan's approach renders the construction of logical theory in a fundamental sense *unfinishable*. Given the immense variety and variability of the syntactical forms of a natural language, a logical theory based on its regimentation will never cover *all* syntactically possible constructions in a natural language. By contrast, because in an artificial language we have **(p. 129)** an explicit and effective set of construction rules, we can formulate logical laws that apply to all possible well-formed formulae of that language without having to worry about possible formulae that may not be covered by these laws.

Furthermore, Buridan's approach seems to be plagued by what may be termed its *linguistic provincialism*. If logical rules and distinctions are formulated in terms of the regimentation of the existing syntactical devices of a particular natural language, then, given the obvious syntactical diversity of natural languages, this approach seems to threaten the universality of logical theory. Indeed, following the lead of the syntax of a particular natural language may even provide "false clues" concerning what we may mistakenly believe to be the universal conceptual structure of Mentalese. By contrast, the formalizational approach provides equal access for speakers of all languages to *the same* "conceptual notation," which directly reflects the structure of the common mental language of all human beings endorsed by

Buridan. So, apparently, even Buridan's logic would be much better off if it were also couched in an artificial, formal language.

Finally, if we use the natural language embodying our logic in our *reflections* on *the same* natural language, then we are obviously running the risk of Liar-type paradoxes, which are bound to emerge under the resulting conditions of *semantic closure*, first diagnosed as such by Alfred Tarski.¹⁸ By contrast, an artificial language embodying our logical theory can serve as the *object language* of the considerations concerning the syntax and semantics of this language which are to be carried out in a distinct *meta-language*. In this way, we avoid the risk of paradox, because keeping the object language apart from the meta-language eliminates semantic closure.

Perhaps these would be the most obvious reactions against Buridan's "regimentational" approach coming from someone comparing it to the modern "formalizational" approach. Nevertheless, these considerations may not be sufficient to establish once and for all the "absolute superiority" of the modern approach over Buridan's. For if we take a closer look at the modern practice, we can see that it is not much better off concerning these issues.

It must be conceded at the beginning that the mathematical exactitude of a formal logical system is unmatched by any "natural" logic (i.e., a logical system based on a certain regimentation of reasonings in some natural language). But the exactitude in question concerns only the formal system in and of itself. Concerning the formal system, we may have absolutely rigorous proofs of consistency or inconsistency, completeness or (p. 130) incompleteness, and so on, which we may never have concerning an "unfinishable" system of "natural" logic. However, as soon as we use a formal logical system to represent and evaluate natural language reasonings, the uncertainties and ambiguities of interpretation return with a vengeance, as anyone who has ever tried to impart "formalization skills" in a symbolic logic class can testify. "Formalization" is the largely intuitive process of translating natural language sentences to formulae of a formal language based on the linguistic competence of the speakers of the natural language in question and their understanding of the import of the symbols of the formal language. Therefore, this process involves just as much inexactitude, uncertainty, and ambiguity as does working with "unregimented" natural language expressions in general.

This difficulty can be overcome by constructing a formal syntax for an interesting portion of a natural language, in the vein of the approach of Richard Montague,¹⁹ which can then serve as the basis for an exact and

effective translation procedure into the artificial language of a formal logical system. In this way, having a formally constructed (not to say, “regimented”) part of a natural language at our disposal, the problem of the inexactitude of the otherwise merely intuitive formalization process can certainly be avoided. However, given that the formal syntax can only cover a sufficiently interesting, yet manageable, part of a natural language, this approach brings out most clearly the inherently “unfinished” character of the enterprise as far as the representation of *all possible natural language reasonings* is concerned. Thus, the formalizational approach can overcome the problems of inexactitude only by carving out a manageable part of natural language reasonings, thereby making explicit the “unfinished” character of the enterprise. Buridan’s regimentational approach, in comparison, simply acknowledges from the start that it can only explicate and regulate certain manageable types of natural language reasonings, and it does this with the requisite degree of exactitude, yet without introducing the explicit, full-fledged formal syntax of an artificial language that would allegedly universally reflect the structure of Mentalese underlying all natural linguistic structures.

Because the process of formalization as it is commonly practiced is based on the linguistic competence of the speakers of particular natural languages, it involves just as much “linguistic provincialism” as does the regimentational approach. Actually, it is quite instructive to observe the differences between different Montague-style approaches to formalization (p. 131) motivated by different languages, especially if they are also motivated by certain logical considerations that are “most natural” in those languages. But we can also say that the syntax of standard predicate logic as we know it was also motivated by some fairly “provincial” linguistic considerations, namely, considerations concerning the language of mathematics, rather than any actual natural language. This is probably the historical reason for the notorious “mismatch” between the syntax of predicate logic, on the one hand, and the syntax of various natural languages, on the other, which otherwise agree among themselves in those of their syntactic features that predicate logic systematically fails to match. Consider again sentences (5)–(8) listed earlier:

- (5) *Omnis homo qui est albus currit* ↔ (5′) *Omnis homo albus currit*
- (6) *Every man who is white runs* ↔ (6′) *Every white man runs*
- (7) *Omnis homo currit qui est albus* ↔ (7′) *Omnis homo currit et ille est albus*

(8) Every man, who is white, runs \leftrightarrow (8') Every man runs, and he is white

In modern predicate logic, these sentences have to be represented in terms of the basic vocabulary of the formal language of this logic. In that language, in addition to the logical constants (which Buridan would recognize as syncategorematic terms, such as negation, conjunction, conditional, etc.), we have primitive symbols referring to individuals, namely, individual names (intuitively corresponding to proper nouns) as well as variables (roughly corresponding to pronouns), ²⁰ and predicates (corresponding to common terms). All complex expressions are built up from these primitive symbols by means of an explicit set of rules that effectively determine which strings of these symbols are to be regarded as well-formed. Frege's original rationale for this type of construction was that he regarded all common terms as functional expressions: on this conception, a common term, such as 'man', denotes a function from individuals to the two truth-values, the True and the False. Thus, the term itself is essentially predicative; it needs to be completed with a referring expression picking out an individual to yield a complete sentence that denotes one of these truth-values. Therefore, **(p. 132)** because for Frege *all common terms denote functions of this sort, all common terms are essentially predicative*. Accordingly, in the sentences here, even their grammatical subject terms need to be construed as predicates of individuals, which are picked out by variables bound by the quantifier word 'every' or 'omnis'. It is for this reason that universal sentences in this logic are to be represented as universally quantified conditionals. Because the subject terms of these sentences are not regarded as having the function of restricting the range of individuals to be considered in determining whether the sentence is true, these sentences will have to be interpreted as concerning all individuals in the universe, stating of them all conditionally that *if* they fall under the subject, *then* they also fall under the predicate.

Thus, (6) and (8), and the corresponding Latin sentences as well, would on this approach be parsed as expressing the same as:

(6'') For everything (it holds that) if it is a man and it is white, then it is running

(8'') For everything (it holds that) if it is a man, then it is white and it is running

In other words, using the variable x in place of the pronoun:

(6'') For every x , if x is a man and x is white, then x is running

(8'') For every x , if x is a man, then x is white and x is running

And these, using the symbols of predicate logic, directly yield the matching formulae:

(6''') $(\forall x)[(Mx \ \& \ Wx) \supset Rx]$

(8''') $(\forall x)[Mx \supset (Rx \ \& \ Wx)]$

However, given Buridan's radically different conception of the semantic function of common terms, he would provide a very different parsing for (6) and (8) (or, rather, for (5) and (7)). For on his conception common terms have the function of signifying several individuals indifferently (as opposed to singular terms that would signify one individual as distinct from any other), and correspondingly they *supposit*, that is, stand for (some of) these (p. 133) individuals in the context of a proposition in which the term is actually used for this purpose. Therefore, on Buridan's reading, (6) and (8) (or, rather, (5) and (7)) do not make a conditional claim of all individuals in the universe, but rather a categorical claim about a restricted range of individuals, namely, those marked out by the subject term, that is, the *supposita* of the subject.

In fact, as anyone checking their own linguistic intuitions in English can testify, Buridan's analysis, coming from a "provincial" natural language, namely, Latin, matches much better the intuitions of speakers of another "provincial" natural language, namely, English. For English speakers would also find it "more natural" to understand the corresponding sentences as being categorical claims about a restricted range of individuals, rather than conditional claims about absolutely everything. To be sure, further reflection on the implications of this sort of analysis may further influence one's judgment on what "the correct" analysis of these sentences ought to be, but at least it should be clear that the Fregean analysis is definitely *not the only possible* or even the "most natural" one.

Thus, the Fregean analysis, being only one possible theoretical option, turns out to be just as provincial as Buridan's approach based on a particular natural language. Nevertheless, one may still object that at least for the Fregean analysis we have a working formal system with all the advantages of

mathematical exactitude going for it, whereas we have nothing comparable for Buridan's approach. But this is simply not true.

Starting in the late 1970s and early 1980s, building on the results of earlier "unorthodox" (meaning non-Frege/Russellian) logicians, a number of philosophers started rethinking the possibility of recovering Aristotelian logic using the formal methods worked out primarily for standard predicate logic. ²¹ The gist of all these efforts was a rethinking of the idea of quantification in natural languages along traditional, Aristotelian lines, as being restricted by the terms bound by the "quantifier-words," such as 'every', 'some', 'both', 'all', and so on.

In the next section, I will briefly summarize my own approach to the issue, as it was primarily motivated by my reading of Ockham, Buridan, and other nominalist authors (Albert of Saxony, Marsilius of Inghen, Peter of Ailly, etc.). The upshot of these investigations, as we shall see, is that, beginning from a natural language, it is absolutely possible to produce a formal semantic system that matches and even surpasses standard predicate logic in its expressive power. Indeed, the resulting system can at the (p. 134) same time incorporate both the standard Fregean, quantificational representation of natural language sentences and the representation of their *more natural*, Buridanian parsing, in terms of restricted quantification. In this way, this system certainly tackles the problem of the "provincialism" of the Fregean analysis, while providing a much richer *Begriffsschrift*, one that is capable of representing not only Frege's but also Buridan's parsing.

However, Buridan's parsing leads to some peculiar issues concerning the existential import of these sentences, which will also naturally lead to considerations of the ontological commitments of this semantic system as a whole. It is at this point, in connection with these "meta-considerations," that "the real Buridan" (as opposed to the "reconstructed Buridan") would part company with the formal reconstruction produced on his behalf. As we shall see, Buridan's handling of the issue of what we would call "ontological commitment" would be to reject the object-language/meta-language distinction built into the formal reconstruction of his semantic ideas.

But Buridan would also find this reconstruction inadequate on account of some particular considerations he has in his theory of supposition and appellation, especially those concerning *intentional contexts* (those involving terms that signify acts of the mind, such as thinking, believing, imagining, wanting, etc.). ²²

Thus, in response to the last argument against Buridan’s “regimentational” approach and on behalf of the “formalizational” approach stated earlier, we should say that Buridan is committed on principled grounds to a rejection of the modern “global” distinction between object language and meta-language, and thus to the Tarskian approach to formal semantics in general. Accordingly, he has to tackle the semantic paradoxes emerging under the conditions of semantic closure, which in fact he does with remarkable subtlety. These considerations will then lead us further into Buridan’s unique and very peculiar construal of the central logical notions of validity and truth, and eventually to considerations of some basic issues in his epistemology.

But before getting there, let us see how much of Buridan we can reconstruct with what will turn out to be a rather conservative extension of standard predicate logic. As we shall see, with a minor tweaking of the standard apparatus, a great deal of Buridan’s logic can become just as “our own” as standard predicate logic is. It is only after this *partial* “appropriation” that (p. 135) we can meaningfully consider some systematic reasons why Buridan’s logic *cannot fully* be appropriated by the standard modern approach.

5.2 Buridan’s Logic as a Predicate Logic with Restricted Variables

As we have seen, for Buridan, a proposition minimally has to consist of two terms joined by a copula. The resulting proposition is a *categorical* proposition, as opposed to a *hypothetical* proposition, which results from joining several categorical propositions by means of propositional connectives, such as ‘and’, ‘or’, ‘if’, and so on.²³ Although a categorical proposition is *simple* as far as propositional composition is concerned (i.e., it does not consist of compositional units that in themselves would be propositions combined by means of propositional connectives),²⁴ it can actually be *very complex in its terms* and *in its syncategorematic components*.

The general structural schema of categorical propositions in accordance with Buridan’s doctrine would be the following:

(CAT) [neg][Q] S [neg][mod][neg]copula P

Here the bracketed parts of speech are optional, so their omission yields the simplest possible form ‘S copula P’. (The copula, however, may be of various tenses, and, in fact, Buridan treats a negated copula as a single unit, a negative copula.²⁵) The optional negations ([neg]) determine the

quality of the proposition, namely, whether it is affirmative or negative. The modalities or other adverbial modifiers ([mod], such as ‘possibly’, ‘necessarily’, or even the ‘usually’ of one foregoing example) determine what Buridan calls the *substance* of the proposition, namely, whether it is assertoric or modal. Finally, the signs of *quantity* ([Q], ‘some’, ‘all’, ‘both’, ‘most’, ‘many’, ‘more than half of’, ‘two’, ‘three’, etc.) determine the quantity of these propositions, namely whether they are universal, particular, and so on. 26

The medieval theory of categorical propositions, therefore, is far from being a theory of simple, “atomic” propositions, as such propositions are conceived in modern logical theory. For according to the modern idea, an “atomic” proposition consists of a simple predicate applied to a simple referring phrase, such as an individual name or a variable, or to several of these, if the predicate is polyadic (‘Fa’, ‘Fx’, Rab, ‘x = y’, etc.). Any further complexity (p. 136) in propositional structure according to this conception is the result of applying propositional connectives and quantifiers to such atomic predications (as in ‘(∃y){[Fy & (∀x)(Fx → x = y)] & Gy}’, representing ‘The F is a G’).

By contrast, according to the traditional conception of categorical propositions advanced by Buridan, the potential complexity of categorical propositions resides in the potential complexity of their terms. Because modern quantification theory does not deal with complex terms in general, this sort of complexity is not reflected in it, except in the interesting case of definite descriptions.

In the case of definite descriptions, it is the referring phrase itself that has some intrinsic complexity, as a result of the complexity of its (propositional) matrix. For example, the sentence ‘The one lecturing and disputing is a master’ could be represented by the formula: ‘M(ιx.Lx & Dx)’. Indeed, we might even represent the disjunctive predicate in Buridan’s example in a similar fashion, if we modify the example to have a definite description also as the predicate, as in the sentence: ‘The one lecturing and disputing is the one who is a master or a bachelor’. This sentence could then be represented by the formula: ‘ιx.Lx & Dx = ιy.My ∨ By’. In fact, the structure of this formula is already pretty close to Buridan’s parsing of his original example, except that, on his reading, the original Latin sentence ‘*legens et disputans est magister vel baccalaureus*’ would contain not definite, but indefinite descriptions, that is, referring phrases that would refer to individuals from the extension of their matrix, just as a definite description does, except that

they would not require that the extension in question be a singleton set. Accordingly, we might represent Buridan's original example with the formula 'x.Lx & Dx = y.My v By', in which the indefinite descriptions (i.e., complex terms) of the Latin sentence are represented by two complex referring phrases, namely, *restricted variables*.

Once we enhance the language of standard predicate logic with restricted variables, and provide the appropriate formal interpretation for their semantic evaluation in a formal semantic system, the resulting system at once becomes capable of capturing an enormous amount of traditional logic, and especially Buridan's version of it. We do not have to go into the technical details of constructing that formal system ²⁷ to explain its basic intuitive idea and its important philosophical implications concerning the relationships between this "enhanced predicate logic," classical predicate logic, and Buridan's informal logic.

(p. 137) The "basic intuitive idea" can be articulated in the following principles of construction:

- (1) Restricted variables function as variables in classical predicate logic, that is, they are quantifiable terms that fill in the argument places of predicate letters.
- (2) Restricted variables have the general form of 'v.Av', where v is what is referred to as the operator variable of the restricted variable, and 'Av' as the matrix of the restricted variable, which is a well-formed formula open in v (i.e., having at least one occurrence of v that is not bound by a quantifier). The operator variable may itself be a restricted variable, in which case we can refer to it as a "nested" restricted variable (a restricted variable "nested" in another); other restricted variables occurring in the matrix of a restricted variable are spoken of as "embedded" in that restricted variable.
- (3) Restricted variables pick their values in a value-assignment *not* from the entire domain of interpretation ("universe of discourse"), but from the extension of their matrix, that is, from the set of individuals of which the matrix is true (under a certain value-assignment of variables).
- (4) If the extension of the matrix of a restricted variable is empty, then the restricted variable has no value (which in the formal system can be represented by assigning an arbitrary value to it, outside the domain of interpretation, a so-called zero-entity).

When a restricted variable has no value (i.e., technically, its value is outside the domain of discourse), then its value cannot fall within the extension of any predicate, that is, all simple affirmative predications containing this variable in the argument of a predicate letter will come out as false.

Once these “principles of construction” are in place, we can obtain a system that (i) reflects more faithfully the syntax and semantics of natural languages than standard predicate logic, ²⁸ (ii) naturally extends itself to a generalized quantification theory, (iii) whence it not only matches but surpasses standard predicate logic in expressive power, and (iv) provides an analysis of categorical propositions perfectly in tune with Aristotelian (p. 138) logic, validating all relations of the traditional *Square of Opposition* and the traditionally valid syllogistic forms.

Let us now take these four points in turn, and see exactly how the system constructed in accordance with (1)–(4) can obtain these results.

(i) Predicate logic formulae using unrestricted quantification exhibit a compositional structure involving propositional connectives that are nowhere to be found in the corresponding natural language sentences (be they English, Latin or even Hungarian, etc.). If we take a look, for example, at (6''')–(6) above, the structural mismatch is obvious. But the same sort of mismatch becomes even more striking if we change the quantifier from universal to particular (or “existential”), which requires that the main conditional be replaced with a conjunction in the resulting formula, whereas no such change is apparent in the syntax of the corresponding natural language sentence. Indeed, the variation of the natural language determiner does not require any change at all in the rest of the sentence, whereas changing the corresponding quantifier always requires a change in the propositional connectives of the formula following it, if a corresponding formula can be produced at all.

Therefore, there is no single propositional connective that could fill the place of the question-mark in the following semi-formal schemata:

For every x	}	Fx? Gx
For some x		
For the x		
For most x		
For five x		

so that we would get correct representations of the following sentence-schemata, which obviously exhibit a uniform structure (just as would the corresponding Latin, etc.):

(1)Every
 (2)Some
 (3)The
 (4)Most
 (5)Five

F”sis/are G”s

Among these schemata, (1) and (2) can be represented in predicate logic only with formulae involving different propositional connectives, (3) and (p. 139) (5) demand complex formulae to provide their correct truth-conditions (such as ‘ $(\exists y)\{[Fy \ \& \ (\forall x)(Fx \rightarrow x = y)] \ \& \ Gy\}$ ’ for (3)), and for (4) there is demonstrably no quantificational formula that would provide its correct truth-conditions. ²⁹

(ii) By contrast, in the system of predicate logic enhanced with restricted variables (as well as with the requisite set of quantifiers), the following formula schema provides an intuitive formalization of (1)–(5): ‘ $(Qx.Fx)(Gx.)$ ’. This states that Q x that is an F is a G, or in the plural form, that Q xs that are Fs are Gs, where Q stands for any of the appropriate determiners or “quantifier words” of English (and *mutatis mutandis* the same goes for any other natural language). This immediately establishes the claim that this system naturally extends itself to a generalized quantification theory. ³⁰

(iii) People who argue for the superiority of modern predicate logic over “traditional,” Aristotelian logic often refer to (various versions of) De Morgan’s famous example as proof that the Aristotelian analysis of categorical propositions, and correspondingly Aristotelian syllogistic, is incapable of handling reasonings involving relational terms. Intuitively, the following looks like a valid inference: ‘Every man is an animal; therefore, every man’s head is an animal’s head’. However, there is no way of parsing this inference along traditional lines so it would fit into a valid Aristotelian syllogistic form.

Medieval logicians, taking their cue from Aristotle’s *Prior Analytics*, treated such inferences under the heading *de syllogismis ex obliquis*, that is, “on syllogisms involving oblique terms,” which is to say, terms in cases other than the nominative case, such as the genitive “man’s” in the conclusion of De Morgan’s example. ³¹ To be sure, “standard syllogistic” treats the terms

of a syllogism as unbreakable units (just as propositional logic treats atomic sentences as such units), although it allows complex terms as substituends of such units. Therefore, when the validity of an inference turns on the conceptual connections between parts of such complex terms, “standard syllogistic” is indeed inapplicable (just as uniform quantification theory, involving only monadic predicates, is unable to handle inferences with multiply quantified sentences.) So, to account for such inferences, Buridan (in particular, in SD 5.8) distinguished between the *terms of the syllogism* and the *terms of the propositions*, where the *terms of the syllogism* (in particular, the middle term) can be parts of the *terms of the propositions*, and provided further syllogistic rules in terms of this distinction, referring to the intrinsic complexity of the terms of the propositions involved.

(p. 140) Correspondingly, the predicate logic with restricted variables inspired by Buridan provides a compositional semantics for formulae that represent the internal structure of propositions with complex terms. Therefore, this logic has no more difficulty in handling such inferences than standard predicate logic does. There are, however, some important and instructive differences between the two.

In standard predicate logic, the De Morgan-example can be reconstructed as follows:

$$(\forall x)(Mx \rightarrow Ax)$$

For every x, if x is a M, then x is an animal

$$(\forall x)(\forall y)((Mx \& Dxy) \rightarrow (Ax \& Dxy))$$

32

For every x and every y, if x is a man and y is the head of x, then x is an animal and y is the head of x

Using restricted variables, the same example can be reconstructed in the following way:

$$(\forall x.Mx)(\exists y.Ay)(x. = y.) \text{ }^{33}$$

Every(x that is a)man is(identical with)some(y that is an)animal

$$(\forall x.(\forall y.My)(Dxy.))(\exists u.(\exists v.Av)(Duv.))(x. = u.)$$

Every (x that is a) head of some (y that is a) man is (identical with) a (u that is a) head of some (v that is an) animal ³⁴

One important difference between these two reconstructions is that if we drop the parenthetical phrases in the semiformal sentences that are simply transcribed into the formulae with restricted variables, then we get perfectly good English sentences, which cannot be done with the semiformal sentences transcribed into the standard formulae. This quite clearly indicates the close match between the syntax of the natural language sentences and the formulae with restricted variables.

Another important difference is that although the standard formulae are true if there are no men or they have no heads, those with restricted variables in those circumstances would be false. Therefore, according to the formalization with restricted variables, the inference is not formally valid, unless there is a further premise to guarantee that if there are men, then (p. 141) there are men's heads. Actually, this is how it should be. After all, even if it is actually true, it is not a *logical truth* (i.e., a truth based on the meaning of logical connectives) that if there are men, then they have heads. Therefore, the formulation with restricted variables provides an even better analysis of the natural language sentences, in the sense that it better reflects our semantic intuitions as to what is and what is not implied by the sentences in question.

Thus, we have to conclude that the "Buridan-inspired" predicate logic with restricted variables, besides covering more than standard predicate logic does as far as nonstandard quantifiers are concerned, can handle whatever standard predicate logic can, indeed, while sticking more faithfully to the syntactic construction of natural languages and reflecting better our semantic intuitions concerning reasonings in natural languages.

(iv) What accounts for the difference between the judgments of the two different formalizations concerning the validity of De Morgan's example is their difference in attributing vs. denying existential import to universal affirmative propositions. The reason why De Morgan's example at first appears to be intuitively valid is that we tend to tacitly assume the nonlogical truth that if there are men, then they have heads, too. However, a formally valid inference has to yield truth from truth with any terms, which is actually not obvious with De Morgan's example. Consider the following, analogous example: 'Every man is an animal; therefore, every man's hat is an animal's hat'. Suppose there are men, but no man has a hat, which is certainly possible. In that case it is obviously true that every man is an animal, but is it true that every man's hat is an animal's hat? Or take the following, perhaps even more obvious example: 'Every horse is an animal;

therefore, every horse's wing is an animal's wing'. Knowing that there are no winged horses, and hence no horse's wings, we would naturally tend to reject the conclusion. To be sure, one may still understand this conclusion conditionally, as saying that *if* something is a horse's wing, *then* it is an animal's wing, but that conditional reading would lose precisely the matter-of-fact character of the original categorical claim.

Indeed, other examples can bolster our intuition that even if universal affirmatives may occasionally have the force of a conditional, hypothetical claim, especially when they are supposed to express a law-like statement; nevertheless, it is simply wrong to assume that they *always* have to be interpreted this way. Consider for example the case of Mary boasting to her friends that every boy kissed her at the party yesterday. If her friends later find out that there were no boys at the party, then they will certainly (p. 142) take her for a liar, rather than accept her claim as being "vacuously" true on account of her universal claim expressing a universally quantified conditional with a false antecedent. Such and similar examples could be multiplied *ad nauseam*. What is important, though, is the fact that we do have the intuitive distinction between the categorical and hypothetical readings of universal affirmatives; therefore, a logic that can acknowledge both of these readings is certainly preferable to one that can only handle one of them. Because predicate logic with restricted variables is a conservative extension of standard predicate logic in the sense that all formulae of the standard logic are formulae of the logic enhanced with restricted variables, the latter is of course capable of representing whatever the former can, but not *vice versa*.

So, let us see exactly how this enhanced predicate logic handles existential import and how this relates to medieval ideas, especially concerning the validity of the traditional *Square of Opposition*. Once we have seen what this enhanced predicate logic is able to capture from Buridan's logic and why, we shall be in a good position to see also the limitations of this sort of reconstruction.

Notes:

(1.) Again, we should not forget that the idea of "sameness" involved here is compatible with the numerical distinctness of individual mental acts of different people, as well as with the individual and social variations of different peoples' conceptual apparatuses. The "sameness" of mental language for all people can only mean that if at any given time person A has

a concept C (a singular mental act of A), then person B at any given time has the natural capacity to form a concept C' (a singular mental act of B) such that B conceives by C' the same things in the same way as A does by C (barring any natural defects or limitations on B's part). Of course, this does not mean that A and B always have the same (type of) concepts, or even that the same person should have the same concepts throughout his or her life. But if they *do* have at least some of their concepts in common in this sense, then by those concepts they will understand the same things in the same way, and so by using those concepts, they will understand each other.

(2.) 'Subject' and 'predicate' are defined by Buridan as follows: "A subject is that of which something is said; a predicate is that which is said of something else, namely, of the subject." SD 1.3.3.

(3.) The text Buridan is commenting on is the following: "(1) Some propositions are categorical, while others are hypothetical. (2) A categorical proposition is one that has a subject and a predicate as its principal parts, (3) as for

example 'A man runs'; for in this proposition the name 'man' is the subject, 'runs' is the predicate, and what joins the one to the other is the copula. And this is clear by the following analysis: 'A man runs', that is, 'A man is running'; for here 'man' is the subject, and 'running' is predicated, and the verb 'is' joins the one to the other." SD 1.3.2.

(4.) For example, in *Homo videt asinum* ['A man sees a donkey'], the whole predicate is *videns asinum* ['one seeing a donkey'], of which the verb implies only the principal part, namely, the participle.

(5.) These qualifications are obviously needed because if the original verb is in another tense or modality, then the copula has to be of the same sort; for example, 'Socrates could run' (taken to express a past-tense modal proposition) has to be analyzed with a past-tense modal copula, as in 'Socrates was-able-to-be running'.

(6.) SD 1.3.2.

(7.) In fact, in accordance with Buridan's theory of predication, according to which the affirmative copula expresses the identity of the *supposita* of the terms flanking it, a more appropriate rendering of his proposed transformation would be 'I am [identical with] someone smoking'.

(8.) Alternatively, one might say that the best explication of ‘I smoke’ expressing the habit is ‘I am a smoker’, where the nominal definition of ‘smoker’ may explicate the habit, as in ‘x is a smoker if and only if x has the habit of smoking’. But as Buridan often remarks, “examples are not to be verified,” i.e., it does not matter whether we provide “the right analysis” here, as long as it serves to illustrate the point.

(9.) The sentence *Homo qui est albus est coloratus* is compared here to *Homo est coloratus qui est albus*. The difference in word order, as Buridan will interpret it, expresses the familiar distinction between restrictive and non-restrictive relative clauses, appropriately expressed in written English by adding or omitting commas.

(10.) SD 1.3.2.

(11.) Aristotle, *On Interpretation*, 1, 16b24.

(12.) SD 1.3.2.

(13.) SD 1.3.2.

(14.) Ibid. Note that in Buridan’s usage, ‘hypothetical’ in this context simply means ‘complex’, as opposed to the widespread modern usage that makes it equivalent to ‘conditional’.

(15.) *Homo est coloratus qui est albus*, cf. n. 9.

(16.) SD 1.3.2.

(17.) I tried to do this once for a *tiny* fragment of Latin with an explicitly listed finite vocabulary for the purposes of illustration, and even that resulted in an extremely complex, unwieldy system. See Klima, G. “Latin as a Formal Language: Outlines of a Buridanian Semantics,” *Cahiers de l’Institut du Moyen-Âge Grec et Latin* 61(1991), pp. 78–106.

(18.) Cf. Tarski, A. “The Semantic Conception of Truth,” *Philosophy and Phenomenological Research* 4(1944), pp. 342–375. The gist of the idea of semantic closure is that a language that contains its own truth-predicates and has the means of referring to its own sentences is semantically closed, which is quite obviously the case with natural languages. According to Tarski, in a semantically closed language, Liar-type paradoxes (‘This sentence is false’—is this true or false?) are bound to arise. For a more recent,

generalized version of Tarski's argument, see Priest, G. "Semantic Closure," *Studia Logica* 43(1984), pp. 117-129.

(19.) Cf. Montague, R. "The Proper Treatment of Quantification in Ordinary English," in *Approaches to Natural Language*, eds. J. Hintikka, J. Moravcsik and P. Suppes, Dordrecht: Reidel, 1973; Montague, R. "English as a Formal Language," in *Formal Philosophy*, ed. R. Thomason, New Haven, CT: Yale University Press, 1974.

(20.) The problems of representing anaphoric pronouns with bound variables of quantification theory generated a whole new field of research in the eighties, primarily inspired by Peter Geach's reflections on "donkey-sentences," coming from medieval logic, and especially from Buridan. For a summary account of those developments and their comparison to Buridan's ideas, see Essay III of Klima, G. *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*.

(21.) For details and bibliographical references to alternative approaches, which nevertheless rely on basically the same intuitive ideas, see Klima, G. "Approaching Natural Language via Mediaeval Logic," in *Zeichen, Denken, Praxis*, eds. J. Bernard and J. Kelemen, Vienna: Institut für Sozio-Semiotische Studien, 1990, pp. 249-267, available at <http://www.fordham.edu/gsas/phil/klima/TiffedPapers/ApproachingNL.pdf>. More recent challenges to the "Frege/Russell orthodoxy" along pretty much the same intuitive lines can be found in the works of Terence Parsons, Alex Orenstein, George Englebretsen, and Hanoch Ben-Yami.

(22.) This is actually Buridan's very useful characterization of what we call intentional contexts.

(23.) As was noted earlier, in Buridan's usage 'hypothetical' is not synonymous with 'conditional'; rather, as applied to propositions, it means 'compound'.

(24.) This characterization is supposed to take care of apparent counter-examples, such as 'Peter thinks that a man walks', where apparently we do have a propositional component embedded in a categorical proposition. However, that apparent propositional component ('a man walks') is not a "compositional unit", in the sense that it does not contribute its semantic value (in particular, its truth-value) in this proposition to determining the semantic value of the whole, indeed, not any more than 'pole' and 'cat' do in 'polecat'.

(25.) For the important consequences of this view in Buridan's treatment of the "Fregean" force-content distinction and propositional composition in general, see Klima, G. "John Buridan and the Force-Content Distinction," in *Medieval Theories On Assertive and Non-Assertive Language*, Acts of the 14th European Symposium on Medieval Logic and Semantics, eds. A. Maierú and L. Valente, Rome: Olschki, 2004, pp. 415-427.

(26.) For Buridan's discussion of these divisions of categorical propositions, see SD 1.3.4-1.3.7. In this discussion, Buridan only deals with these "classical quantities" and the other "classical quantities" of singular and indefinite propositions (which are indicated by the lack of a sign of quantity in front of a singular or a common subject term respectively), but his theory is clearly applicable to the theoretically intriguing cases of 'dual', 'pleonotetic' or 'numerical' determiners illustrated by the remaining examples. It also should be noted here that because Buridan attributes the same sort of semantic function to predicates as to subjects, namely, referring to (i.e., suppositing for) individuals, he also would endorse the quantification of predicate terms. However, he regards those quantifiers as parts of the predicate terms, which is why they did not have to be marked separately in this schema. See Buridan's intriguing discussion of the issue in SD 4.2.2. It is also in this discussion that Buridan takes care of the apparently, at least from the point of view of his theory, "anomalous" cases of adjectival predicates, which do not seem to supposit and cannot be quantified. For example, 'Every man is some wise' is ungrammatical (as is the corresponding Latin), although 'Every man is some wise thing' is grammatical, as is 'Every man is wise' (and the same goes for the corresponding Latin sentences). In brief, Buridan's solution is that the adjectival predicate term does not have to supposit in and of itself, but it picks up the supposita of the subject. Thus, on this parsing 'Every man is wise' amounts to the same as 'Every man is some wise man' or perhaps more naturally, and probably better expressing the underlying "mental syntax," 'Every man is a wise one'. I owe thanks to Terence Parsons for raising the issue, and for coming up with the latter paraphrase in correspondence.

(27.) For the technically minded reader, a semantic system of this sort is available in Klima, G. "Existence and Reference in Medieval Logic," in *New Essays in Free Logic*, eds. A. Hieke and E. Morscher, Dordrecht: Kluwer Academic, 2001, 197-226.

(28.) For a precise characterization of the notion “faithfulness” involved in this intuitive claim, see Essay III of Klima, G. *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*.

(29.) For the proof, if “most” is understood as “more than half the,” see Barwise, J. and Cooper, R. “Generalized Quantifiers and Natural Language,” *Linguistics and Philosophy* 4(1981), pp. 159–219, pp. 214–215; section (C13).

(30.) For good surveys of the booming research on generalized quantifiers in the mid-1980s, see Van Benthem, J. and Ter Meulen, A., eds. *Generalized Quantifiers in Natural Language*, Dordrecht: Foris Publications, 1985, and Van Benthem, J. *Essays in Logical Semantics*, Dordrecht: Reidel, 1986. For a recent survey of later developments, see Westerståhl, D. “Generalized Quantifiers,” in *The Stanford Encyclopedia of Philosophy* (Winter 2005 Edition), ed. E. N. Zalta, <http://plato.stanford.edu/archives/win2005/entries/generalized-quantifiers/>.

(31.) For Buridan’s treatment, see SD 5. 8.

(32.) I am providing here the “stronger,” but “more intuitive” formalization of this sentence. Cf. Merrill, D. “On De Morgan’s Argument,” *Notre Dame Journal of Formal Logic* 18 (1977), pp. 133–139.

(33.) To simplify formulae with restricted variables, the matrix of a restricted variable may be omitted after its first occurrence.

(34.) For a similar analysis with the same results, see Orenstein, A. “The Logical Form of Categorical Sentences,” *Australasian Journal of Philosophy* 78(2000), pp. 517–533. For a detailed discussion of the neat syntactical match between restricted quantification and natural language sentences, see Essay III of Klima, G. *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*, pp. 44–84.



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Existential Import and the Square of Opposition

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Abstract and Keywords

The sixth chapter discusses the issue of how the reconstruction of the relevant parts of Buridan's logic and medieval logic in general, using restricted variables, validates the attribution of existential import to affirmative propositions, in turn establishing the validity of all relations of the traditional Square of Opposition (and consequently of traditionally valid Aristotelian syllogistic forms). The chapter also discusses how Buridan's theory of natural supposition handles some objections to this conception concerning law-like statements, and, in general, how his theory of ampliation handles the issue of existential import in intensional (modal, temporal and intentional) contexts.

Keywords: existential import, Square of Opposition, syllogistic, natural supposition, ampliation, intensional contexts, modal contexts, temporal contexts, intentional contexts

According to some modern interpretations of Aristotelian syllogistic, Aristotle simply assumed the nonemptiness of *common* terms. ¹ Indeed, the need for such an assumption seems to be supported not only by a number of syllogistic forms that without this assumption appear to be invalid but also by the doctrine of Aristotle's *De Interpretatione* concerning the logical relationships among categorical propositions, commonly summarized in the *Square of Opposition*. Aristotle's theory states that universal affirmative propositions imply particular affirmative propositions. But if we formalize such propositions in standard predicate logic, then we get formulae between which the corresponding implication does not hold. So, evidently, there is

some discrepancy between the ways in which Aristotle and predicate logic interpret these propositions.

One possible suggestion concerning the nature of this discrepancy could indeed be that Aristotelian logic contained the (tacit) existential assumption as to the nonemptiness of common terms. However, we know that this suggestion would be rejected by Buridan, and by medieval logicians in general. ² And, indeed, with good reason. This is not only because we obviously happen to reason with “empty” terms (especially, when we intend to prove precisely that they do not apply to anything, as in the case of the term ‘greatest prime number’) but also because several complex terms are necessarily empty (as the same example illustrates). ³

(p. 144) Thus, we simply have to accept that the laws of the *Square of Opposition* (figure 6.1) are supposed to be valid as a result of a semantic analysis of the four types of categorical propositions that is radically different from what is provided by Fregean predicate logic.

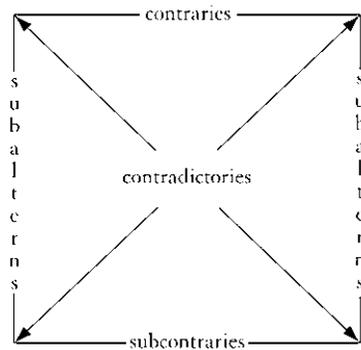
According to this analysis, as we have seen, the subject terms of these propositions have a referring function: they stand for (*supponunt pro*) the particulars falling under them, provided there are any such particulars. ⁴

If, however, these subject terms are “empty,” ⁵ then they simply refer to nothing (*pro nullo supponunt*). But then the affirmative categoricals are false, whence their contradictories are true, which is to say, affirmative categoricals have existential import, while negative ones do not, which “automatically” yields the relationships of the *Square*. Namely, if A: universal affirmative; E: universal negative; I: particular affirmative; O: particular negative, then $A \Rightarrow I$; $E \Rightarrow O$; $A \Leftrightarrow \sim'O$; $E \Leftrightarrow \sim'I$; $A \Rightarrow \sim'E$; $\sim'I \Rightarrow O$.

Notice that from $A \Rightarrow I$, $E \Leftrightarrow \sim'I$ and $A \Leftrightarrow \sim'O$ the remaining are derivable, that is, if A is assigned existential import and the diametrically opposed propositions are construed as contradictories, then all relationships of the *Square* are valid.

A: Every S is P

E: No S is P



I: Some S is P

O: Some S is not P

There are basically two types of justification for attributing existential import to affirmative categoricals (regardless of their quantity, that is, **(p. 145)** whether they are singular, indefinite, universal, or particular), on the basis of the two fundamental types of predication theories endorsed by various medieval authors. ⁶

According to what historians of medieval logic have dubbed the *inherence theory of predication*, an affirmative categorical proposition is true only if an individualized property (form, or nature) signified by the predicate term actually inheres in the thing(s) referred to by the subject term. So, for example, the proposition 'Socrates is wise' is true if and only if wisdom actually inheres in Socrates, that is, Socrates has wisdom, or, in other words, Socrates' wisdom actually exists. But of course Socrates' wisdom, or for that matter any other inherent property of Socrates, can actually exist only if Socrates himself exists. So, it follows that if Socrates does not exist, then the proposition 'Socrates is wise' is false, and so are all affirmative categoricals, the predicate term of which signifies some inherent property of Socrates.

By contrast, according to the other basic type of medieval predication theories, the so-called *identity theory* (endorsed by Buridan and all nominalists after Ockham), an affirmative categorical proposition is true only if its subject and predicate terms refer to the same thing or things. For example, on this analysis, 'Socrates is wise' is true if and only if Socrates, the referent of 'Socrates', is one of the wise persons, the referents of the term 'wise'. If any of the two terms of an affirmative categorical is "empty," then the term in question refers to nothing.

Consequently, because “nothing is identical with or diverse from a nonbeing,” as Buridan put it, “every affirmative proposition whose subject or predicate supposits for nothing is false.” ⁷

In any case, as we can see, from the point of view of the doctrine of the *Square* it does not matter which predication theory a medieval author endorsed, as both of these theories imply that affirmative categoricals in general, including universal affirmatives, have existential import. ⁸

6.1 Two Objections to the Medieval Analysis and Their Replies

Anyone trained in the modern Frege-Russell tradition in logic may have at least two immediate misgivings concerning attributing existential import to all affirmative categoricals, regardless of further philosophical worries concerning the earlier-mentioned theories of predication.

(p. 146) Objection 1

First, if universal affirmatives have existential import, then their contradictories must be true when their subject terms are empty. But the contradictory of, say, ‘Every winged horse is a horse’ is ‘Some winged horse is not a horse’. The latter, however, cannot be true, both because it is contradictory and because it implies the existence of winged horses, although there are no winged horses.

Objection 2

Second, this position seems to undermine the very idea of the affirmation of universal laws concerning hypothetical, never actualized situations. For example, Newton’s law of inertia, referring as it does to bodies not acted on by external forces, would not be true on this analysis as a categorical statement.

Medieval logicians in general were quite aware of these problems, and worked out their theory accordingly. Buridan, in particular, provided solutions for both problems, in line with commonly accepted solutions as well as with peculiar features of his own nominalist logic.

Reply 1: Reference and Negation

The first type of objection was commonly dismissed by a distinction between *negating negation* (what we would call *propositional* or *external negation*) and *infinitizing negation* (what we would call *term-* or *internal negation*).⁹ To use Russell's famous example, the intended contrast is between:

[1] The King of France is not bald

[⇔ It is not true that the King of France is bald]

which is true, because France presently has no king, and so it is not the case that the King of France is bald [*negating negation*], and

[2] The King of France is nonbald

which is true when the King of France is a nonbald person, that is, when there is a person who is both King of France and has hair, whence the (p. 147) proposition is actually false, precisely because there is no such a person [*infinitizing negation*].

The regimented Latin syntax of medieval logic could systematically express this distinction by placing the negation [*non*] either before [*negating negation*] or after [*infinitizing negation*] the copula, yielding:

[1L] *Rex Franciae non est calvus*

and

[2L] *Rex Franciae est non calvus*

respectively.¹⁰

Of course, anyone familiar with Russell's treatment of this example would recognize the distinction between the scopes of the negation in [1] and [2] (or, sticking with Russell's original terminology, the distinction between

primary and *secondary* occurrences of the description ¹¹), but they would reject in the same breath that this scope-distinction has anything to do with the strange claim concerning the truth of:

[3] Some winged horse is not a horse

as is implied by the medieval analysis. After all, Russell's distinction is based on the *elimination* of the *merely apparent reference* to the King of France in both [1] and [2] by paraphrases in which there is not even an appearance of such a reference. This is immediately evident if we consider the corresponding formulae of quantification theory:

[1'] $(\exists y)\{[Ky \ \& \ (\forall x)(Kx \supset x = y)] \ \& \ By\}$

[2'] $(\exists y)\{[Ky \ \& \ (\forall x)(Kx \supset x = y)] \ \& \sim By\}$

In these formulae (where 'K' represents '... is present King of France', and 'B' represents '... is bald'), there is not even a trace of the apparent referring phrase 'the King of France', and this is why there is not even an apparent reference here to a person who is presently King of France. So, Russell's distinction boils down to the difference in the position of the negation in the logical form of [1] and [2], whereas in the case of [3] no such distinction (**p. 148**) seems to make sense. Indeed, [3] can be formalized *only in one way* with respect to the position of negation in it, namely:

[4'] $(\exists x)(Wx \ \& \sim Hx)$

(where 'W' represents '... is a winged horse' and 'H' represents '... is a horse'; the reason for the apparently inconsistent numbering of this formula should become clear soon). Placing the negation anywhere else in this formula would obviously yield a formula that is not a formalization of [3], but either of 'No winged horse is a horse' or of 'Something that is not a winged horse is a horse', which are clearly different from [3]. But then [3] evidently does not contain the kind of scope-ambiguity that sentences with definite descriptions do, and that Russell's distinction is intended to handle.

However, if we recall what I said earlier about the medieval analysis of categoricals, we can easily see what connects the cases of sentences with definite descriptions and [3]. According to this analysis, *all* categorical propositions are instances of the following scheme, regardless of their quantity:

[Cat] [neg] [Q] S [neg] cop P

where bracketed parts of speech are optional, *neg* stands for negation (possibly even iterated), *Q* stands for some *signum quantitatis*, that is, some determiner, *cop* stands for a copula (in any tense and with any modality) and *S* and *P* stand for the (possibly very complex) subject and predicate term, ¹² respectively. Accordingly, if we regard the definite article as one possible substitution in this scheme (to complicate matters, one that does not exist in Latin), we can easily see the required analogy:

[Cat]* [neg] [a/the/some/every/ ...] S [neg] cop P

where the English determiners in the place of *Q* are going to determine that, by completing the scheme with appropriate English parts of speech, the resulting categorical sentences are going to be indefinite, definite, particular or universal, ¹³ respectively. But then, the relative scope-relations concerning negation and the definite article in this scheme will apply to the other determiners occurring in this scheme as well. Hence, [Cat]* may be completed, for example, as:

[C₁] [neg] [a/the/some/every/ ...] *winged horse is not a horse*

(p. 149) or as

[C₂] [neg] [a/the/some/every/ ...] *winged horse is a nonhorse*

where the further rule is that the initial [neg] may be replaced by the phrase: 'It is not the case that', yielding the contradictory of the sentence to which it is prefixed. But then it is clear that no concrete instances of [C₁] and [C₂] are going to be equivalent, and that, in particular, there is a clear difference between:

[3] Some winged horse is not a horse

and

[4] Some winged horse is a nonhorse

The intuitive difference between [3] and [4] (matching that between [1] and [2]) in the logical forms of these sentences can easily be expressed if we expand the language of standard quantification theory with restricted variables. ¹⁴ A restricted variable, as has been said, is a variable formed from an open sentence, which takes its values from the extension of

the open sentence, if this extension is not the empty set, whereas it takes a zero-entity as its value otherwise. For example, let 'x.Wx' be the restricted variable formed from the open sentence 'Wx', so that, for all value assignments, it takes an element of the extension of this open sentence in a model in which this extension is not empty, whereas it takes 0 as its value in all those models in which this extension is empty, where the only requirement concerning 0 is that it is not an element of the universe of discourse of that model. Also, to reflect the difference between 'is not a horse' and 'is a nonhorse' we should introduce the term-negation of a predicate parameter by simply bracketing a negation sign together with the predicate parameter, along with the semantic rule that the extension of the resulting negated predicate will be the complement of the original, relative to the universe of discourse. So, for example, if the extension of 'H' in a model is some subset A of the universe of discourse U of that model, then the extension of '~[H]' in that model is going to be U-A.

But then [3] may be formalized as:

$$[3''] (\exists x.W\check{x})(H(x.Wx))$$

(p. 150) while [4] will become:

$$[4''] (\exists x.Wx)\check{([H](x.Wx))}$$

which, in view of the earlier-sketched semantic rules, will obviously have a different import than [3'']. Indeed, in a model in which the extension of 'Wx' is empty (representing the actual situation, that is, that there are no winged horses), it is easy to see that [3''] is true, whereas [4''] is false, in perfect parallelism with [1] and [2], which, using ι as the definite descriptor, may now be reformalized as:

$$[1''] (\iota x.K\check{x})(B(x.Kx))$$

and

$$[2''] (\iota x.Kx)\check{([B](x.Kx))}$$

In a complete semantics for such and similar formulae, it is easy to see the equivalence between these and the Russellian formulae [1'] and [2'], and also between [3''] and [4''] and:

$$[3''] (\exists x)(Wx) \vee (\exists x)(Wx \ \&\check{H}x)$$

and

[4'] $(\exists x)(Wx \ \&\sim Hx)$

respectively. However, the advantage of the formulations with restricted variables lies in the fact that they reveal the structural analogy between Russell's distinction that concerns *only sentences with definite descriptions* and the medieval distinction that concerns *all types of categorical propositions*.

But then to the original objection we can reply that it fails to distinguish between [3] and [4]. For the objection draws its conclusions from 'Some winged horse is not a horse' using it in the sense of [4] 'Some winged horse is a nonhorse' (i.e., as having the logical form [4'], equivalent to [4']). However, in that sense, 'Some winged horse is not a horse' is *not* the contradictory of 'Every winged horse is a horse' (analyzed, of course, as another (p. 151) instance of the same scheme [Cat]). So we can hold without any absurdity that, precisely because there are no winged horses, 'Every winged horse is a horse' is false, and that its contradictory, [3] (having the logical form [3''], that is, [3']), is true. Of course, if anyone still feels that this analysis is in conflict with their linguistic intuition, in that 'Some winged horse is not a horse' according to that intuition has to carry existential import, they may always use this sentence in the sense of [4], but then they would have to distinguish between 'Some winged horse is not a horse' and the contradictory of 'Every winged horse is a horse', that is, 'It is not the case that every winged horse is a horse'. Actually, this was the course taken by Abelard in the twelfth century, but later medievals, rather, settled on not attributing existential import to particular negatives, treating them as the genuine contradictories of universal affirmatives.¹⁵

In any case, as from the general scheme earlier it should be clear, the great advantage of this type of analysis is that it provides us with a uniform, systematic account of relative scope relations of negation and all sorts of determiners in categorical propositions. So, the formulae with restricted variables immediately point us in the direction of formulating a generalized quantification theory, that is, one in which for any replacement of *Q* we can easily construct the corresponding formulae giving the correct truth conditions for the resulting sentences, some of which will demonstrably have no equivalents in classical quantification theory (those formulated with the determiner 'most', for example). This is precisely why the medieval analysis could easily accommodate even English sentences with definite determiners, despite the fact that Latin, the language in which and for which medieval

logic was primarily framed, does not contain a definite article. This is just further evidence for the explanatory power of the medieval approach to natural language semantics. But instead of dealing with the details of a generalized quantification theory constructed along these lines, let us see how the other objection was handled in the medieval framework in general, and by Buridan, in particular. ¹⁶

Reply 2: Habitual Predication, Natural Supposition, and Ampliation

The second objection received two different types of answer in medieval logic, both of which introduced further distinctions concerning the possible (p. 152) interpretations of categorical propositions. One answer distinguished between modes of predication in a categorical proposition, whereas the other attributed a different type of reference to the subject terms of lawlike statements. Interestingly, the first type of answer is akin to the modern, conditional analysis of universal claims. But Buridan and other nominalists following Ockham opted for the second type of answer.

According to the first type of answer, the predication expressed by the copula of an affirmative categorical proposition may be interpreted not only *actually*, or *according to real existence*, as when it requires the existence of what it is about, but also *absolutely*, or *habitually* ¹⁷, in which case the categorical proposition is equivalent to a hypothetical proposition, similar to the way quantification theory analyzes *all* universal categoricals. Accordingly, if the sentence:

[5] Every winged horse is a horse

is put forth with the force of a universal, nomological truth, *absolutely* or *habitually*, or as one concerning the conceptual connection between the subject and predicate of this sentence regardless of the actual instantiation of its subject, then it may be handled as having the form:

[5] $(\forall x)(Wx \rightarrow Hx)$

which is indeed going to be necessarily true in a formal semantics in which we stipulate that the extension of 'W' is a part of the extension of 'H' in every model, whereas it may well be the case that the extension of 'W' is empty in some models. However, because in the medieval framework this is not *the only* available analysis of a universal affirmative proposition, we are not stuck with the truth of such a claim when it is put forth with the force of a statement of fact; neither is the hypothetical analysis going to undermine the

validity of the *Square of Opposition*, which concerns categorical propositions put forth with categorical force, having the form:

$$[5''] (\forall x.Wx) (Hx.) [\Leftrightarrow (\exists x)(Wx) \& (\forall x)(Wx \rightarrow Hx)]$$

For this reason, the nominalists were not moved at all by the suggestion that an obviously categorical sentence should be analyzed hypothetically. (p. 153) Indeed, Ockham vehemently rejected this approach as threatening the very foundations of logical theory:

... supposing that there are no donkeys they reject this syllogism: 'Every animal is a man; every donkey is an animal, so every donkey is a man', saying that 'is' equivocates here, for in the major premise 'is' is taken as the operation of being, in the minor premise, however, 'is' is taken as the 'is' of habitude, or consequence, as in: 'if it is white, then it is colored'. And this is entirely absurd, for this leads to the destruction of all syllogistic forms. For whenever I liked, I would say that 'is' equivocates in the propositions and reject at caprice any syllogism on account of this equivocation. Similarly, just as a syllogism is valid with any terms, so it is valid however the things may change [...] So even if [...] all donkeys were destroyed, this would be a valid syllogism. [...] And so such distinctions as 'is' is either the operation of being or it is the 'is' of consequence are frivolous and are posited by those who are unable to distinguish between a categorical and a hypothetical proposition. So these propositions are to be distinguished: 'A donkey is an animal' and 'If it is a donkey, then it is an animal', because the one is categorical and the other is conditional or hypothetical; and they are not equivalent for the one may be true the other being false. As this is now false: 'God not-creating is God', but this conditional is true: 'If this is God not-creating, then this is God'.¹⁸

Probably moved by this type of consideration, but not following Ockham's own treatment of "lawlike statements," Buridan opted for a solution according to which even lawlike statements could be analyzed as *necessarily true categoricals* put forth with *categorical force*, despite the *actual "emptiness"* of their subjects. The key to the possibility of this position is the possibility of assigning the subject terms of such statements a *different type of reference*, commonly called *natural supposition* by medieval logicians.

Natural supposition has an interesting early history,¹⁹ but what renders it interesting from our point of view is Buridan's creative use of this older tradition to come up with a nominalist answer to the challenge posed by the necessary truth of lawlike statements with empty subject terms. It is quite instructive in itself that Buridan felt compelled to defend the existence of this type of reference against those of his contemporaries (including Ockham) who did not admit it. But it is even more interesting to see that his defense of it is based on what he recognizes as its obvious use in science:

Furthermore, fourthly, also the demonstrative sciences use this sort of supposition. For if we say in [a commentary on] the *Meteorologica* that (p. 154) every thunder is a sound made in the clouds, or that every rainbow is a reflection or refraction of light, then we do not intend to say these things only concerning the present ones; indeed, even if there were no thunder or rainbow at the present time, we would nevertheless state the same things. And if a geometer has a demonstration that every triangle has three angles equal to two right angles, we should not imagine that thereby he would have knowledge only of those triangles that actually exist; on the contrary, if this habitual knowledge of his remains for three years, and meanwhile many triangles are generated, he will have knowledge of those as well as of the others without a new demonstration. Aristotle explicitly states this in bk. 1. of the *Posterior Analytics*: "I call '[true] for all' ['*de omni*'] that which is not such that it holds for some and does not hold for another, nor such that sometimes it holds and sometimes it does not." [73a30-73a35] And he clarifies this by an example, saying: 'just as 'animal' [is true] for all men, because if it is true to call someone a man, then it is true to call him an animal, and if the one is true now, then so is the other'. He also confirms this by a further evidence [*signum*], saying: 'an evidence [*signum*] for this is that when we object to such a [true]-for-all-claim then we inquire whether it does not hold for some or sometimes'. Nevertheless, we can correctly say that in this case [putting forth] such a locution with this intention is not in accord with its proper meaning [*de proprietate sermonis*], but [it is put forth] for the sake of brevity. For when we want to speak demonstratively, and we say that every thunder is a sound made in the clouds, or that every lunar eclipse is due to the interposition of the Earth between the

Sun and the Moon, these propositions would not be true in virtue of their proper meaning [*de proprietate sermonis*], for the verb 'is' in virtue of its proper meaning was imposed to signify only the present time, while there may be no thunder or lunar eclipse at the present time. And so such propositions are put forward for the sake of brevity in place of 'Every thunder, whenever it is, was, or will be is, was, or will be a sound made in the clouds' and 'Every lunar eclipse, whenever it is, was, or will be is, was, or will be due to the interposition of the Earth between the Sun and the Moon'. Such propositions therefore are not to be denied, since they are true as they are put forward, but they would be false if they were put forward and taken in their proper sense [*ad sensum proprium*]. And since sophists want to take propositions only in their proper sense [*secundum sensus proprios*], they do not use such supposition in the manner described in this case. ²⁰

In order to be able to appreciate Buridan's point, we have to know that *supposition*, or *reference*, was commonly regarded by medieval logicians as (p. 155) a property of terms *only in the context of a proposition*. ²¹ Accordingly, on this view, the same term may refer in different ways to different things in different propositional contexts, or it may even refer to some thing(s) in one proposition, whereas it may refer to nothing at all in another. For a medieval logician, it would not make much sense to say that the name 'Bill Clinton' has a referent whereas the term 'King of France' ²² does not, without specifying a propositional context. For example, we can say that in the sentence 'Bill Clinton is the President of the US' the name 'Bill Clinton' refers to Bill Clinton, if this sentence is uttered in 1994, whereas the same name will refer to nothing, if the same sentence will be uttered, say, in 2194, when Clinton will not exist, and, similarly, it would have referred to nothing if the same sentence had been uttered in 1794, when Clinton did not exist. (To be sure, this case is not to be confused with the case when the name does have a referent, but the sentence is simply false, as in the same sentence uttered, say, in 1990.) But, of course, in the sentence 'Bill Clinton was the President of the US', which *will be true* if uttered in 2194, the same name will refer to the same person, Bill Clinton, even if at the time of the utterance of this sentence the person referred to does not exist, and similarly in 'Bill Clinton *will be* the President of the US', which would have been a true sentence already in 1794, if it had been uttered then, by a soothsayer for example. Again, in 'The King of France is bald' the term 'King of France' actually refers to nothing, whence the sentence uttered in 1994 is

false. But if the same sentence had been uttered in 844, for example, then it would have been true, as its subject would have referred to Charles the Bald, then King of France. Also, *now* we can truly say: 'A King of France was bald', precisely because France once had a bald king, who, among other past kings of France, is referred to by the subject term of this sentence. ²³

As can be seen, on this approach both singular and common terms are treated as referring phrases the actual reference of which is determined by the propositional context in which they occur (besides by their meaning, the speaker's intention, and relevant circumstances of their formation and/or interpretation). Most notably, general terms in the context of a past-tense proposition can refer to things to which they applied in the past (if there were any such things), which may be things that actually do not exist but existed, and, similarly, in a future-tense context these terms can refer to things to which they will apply in the future (if there will be any such things), which may be things that do not exist now but will exist in the future. As medieval logicians put it, in these contexts the subject terms get **(p. 156)** *ampliated (ampliantur)*, that is, their range of reference extends beyond the domain of actually existing entities, and this is why affirmative categoricals about the past or the future may be true even if their subject terms are *actually* empty, that is, even if in a present-tense affirmation these subject terms apply to nothing. So, for example, the sentence 'Every dinosaur was a reptile' is true, because its subject term refers to things that either *are* or *were* dinosaurs, all of which were reptiles, even if there *is* nothing in the world *now* of which one could truly affirm that it *is* a dinosaur. ²⁴

But such *ampliative contexts* were recognized also in present-tense sentences. For example, in 'Some man *is* dead' the subject term has to refer to past men, that is, things that *were* men, for certainly no actually existing human being is dead (*zombies* do not count as humans). In the same way, in 'Every dinosaur is extinct', 'dinosaur' has to refer to things that *were* dinosaurs, despite the fact that the copula of the sentence is in the present tense. Indeed, we can say that the *theory of ampliation* was designed to cover all contexts which modern logicians would recognize as *intensional contexts* in general. So, for example, *modal* and *intentional* verbs and their participles, as well as related adjectives and adverbs, also were regarded as *ampliative*, and so terms also were regarded as *ampliated* in their contexts even in present-tense sentences.

But then we can see why, in this analysis of the categoricals, acceptance of the subalternation $A \Rightarrow I$ does not necessarily mean attributing *existential*

import, properly speaking, to universal affirmatives. For if their subject terms are *ampliated*, then neither the A nor the I propositions imply the *actual existence* of their referents, or *supposita*.

In view of these considerations, however, we can easily see why the *actual emptiness* of their subject terms will not falsify lawlike categorical statements whose subject terms were interpreted as having *natural supposition*, that is, a type of reference amplified to all times (or perhaps even to all [logical] possibilities), on account of the intention with which they were put forward, namely, the intention of concerning everything to which their subjects do or did or will [or perhaps only can or could] ²⁵ apply. And this gives us the answer to the second objection.

Now, clearly, if we construe general terms in their referring function as restricted variables along the lines sketched earlier, then accepting *ampliated* terms, that is, terms referring to things that were, will be, or can be, but that actually do not exist, means that here we have an analysis in which variables are allowed to range over *nonexistents*. So, again this medieval (p. 157) analysis takes us beyond the limitations of classical quantification theory, into the realm of free logics, in which we may, if we so choose, distinguish between existent and nonexistent values of our variables. ²⁶

Technically, the simplest way to construct a formal semantics of *ampliated terms* is to combine the well-known techniques of possible worlds or intensional semantics with the idea of using restricted variables as representing general terms in their referring function. Instead of going into the technical details here, however, let me now turn to a brief, concluding discussion of what we could glean from medieval logic about the *philosophical significance* of the idea of a free logic.

6.2 Reference and Intentionality

The foregoing sketch of some of the main medieval ideas concerning reference and existential import is far from being a complete account of all the complexities of (the many varieties of) the theory of *supposition*. Still, I think even this sketchy account provides us with enough to let us reflect on the broader significance of the medieval approach. In view of this discussion, we can regard this approach as yielding a comprehensive and highly flexible system of many-sorted quantification in which the ranges of variables are determined differently in different types of propositional contexts.

This approach, aside from having the obvious advantage of “automatically” leading to a generalized quantification theory, also has the philosophical advantage that it is not going to leave us wondering about the “weird features” of “nonactualized entities,” which have caused so much headache to philosophers exploring, gardening, or uprooting (depending on their temper) “the Meinongian Jungle” (the overpopulated ontology, teeming with all sorts of nonexistents, of Alexius Meinong and his followers). For, on this approach, we can refer to nonexistents only in contexts in which no actual properties can be attributed to them. So when we are talking about them, we are not going to get the false impression of exploring a *different realm of entities*, where just *anything* can happen—even things that *cannot* happen. For, in the first place, by contradictory terms such as ‘round square’. We cannot possibly refer to anything even in ampliative contexts, whence not only ‘A round square is round’ will be false but also the modal propositions with amplified terms: ‘A round square is necessarily round’ and ‘A round square could be round’. Again, we are not going to be wondering about the (p. 158) mysteriously missing further properties of an “incomplete” merely possible entity, like a winged horse, for we are going to concede in the beginning that a winged horse is not winged, indeed, it is not even a horse, for it *is* nothing at all. Still, we might concede the truth of, say, ‘A winged horse *can be* pink’, in which we *refer to something that can be a winged horse*, which, after all, *can be* pink.

At this point, however, someone with a *strong* “taste for desert landscapes” might immediately decry this approach on the basis that, despite its apparent capability of resolving many of the inconveniences of talking about entities in the Meinongian Jungle, it *leaves them right where they are* and does nothing *to eliminate them*. For although now we cannot say anything truly about winged horses in a *non-ampliative* context, by conceding that *we can refer to something that can be a winged horse* we smuggle winged horses back into our universe of discourse. Therefore, the medieval universe of discourse is just as overpopulated as Meinong’s, and so the medieval approach does not provide any more peace of mind to a genuine nominalist than the Meinongian Jungle does.

Well, because it is hard to imagine any “more genuine” nominalists than, say, Ockham, Buridan, or Albert of Saxony, and because these thinkers did not have any qualms about referring to nonexistents in the appropriate contexts (although they would certainly not tolerate the “slum” of abstract entities endorsed by their contemporary counterparts in set theory), it is

perhaps not entirely unjustified here to take a closer look at the worries of our contemporary “nominalists.”

In his comprehensive analysis of these worries, William Lycan characterizes the basis for the incapability of our “nominalists” to stomach Meinong’s Jungle in the following manner:

In particular, what I am implicitly demanding is a *model-theoretic* semantics, done entirely in terms of actual objects and their properties—for what else *is there really*? I am allowing the Meinongian his funny operator [an “existential” quantifier ranging over *possibilia*—G. K.] only on the condition that he explain it to me in non-Meinongian terms. To this the Meinongian may reply that he will be happy to give us a model-theoretic semantics—one whose domains include nonactual objects, true enough, but that is all right, since *there are* nonactual objects after all. And so it seems we have arrived at another impasse. ²⁷

In a way, the issue is trivial. The only difference between the Meinongian and the anti-Meinongian seems to be that while the anti-Meinongian (p. 159) regards the notion of *being, existence, reality, actuality*, and so on, whichever words we use, as coextensive with the range of *quantification* (whence he is more than willing to call a *particular*—as opposed to a universal or a singular—proposition *existentially* quantified), the Meinongian, on the contrary, views the notion of *actuality, or real existence*, and so on, as covering only a part of the range of quantification, and hence he is prepared to make distinctions between items within that range that are *actual, really existing*, and so on, and items that are not such, but that, still, somehow, *there are*. However, what seems to be the common assumption of both parties, not shared by medieval nominalists, is that for quantification and reference things somehow already *have to be there*, they must be somehow *given* in order to be referred to or to be quantified over. The only disagreement seems to be that when we come across an apparent instance of reference to or quantification over something that is agreed on by all hands not to exist (*really and genuinely*), then the Meinongian happily admits this item into his bloated universe of discourse, that is, within the range of his quantifiers, although outside the domain of real existents, whereas his opponent would look for any means within his ken by which he could *analyze away* what he regards as an instance of a *merely apparent* reference to or

quantification over something that does not exist, in terms of phrases in which his quantifiers will range only over admittedly existing things.

The medieval approach sketched here certainly has a greater superficial resemblance to the Meinongian than to the anti-Meinongian position. (And this is of course not without historical reasons. In fact, I suspect that Meinong himself was much closer to the medieval conception than contemporary American “Meinongians” are, but I will not pursue this point here. My basis of comparison here are the “relentless Meinongians,” characterized as such by Lycan in his earlier-mentioned paper.) Nevertheless, the fundamental difference between both antagonistic modern positions and the medieval approach seems to be that from the point of view of the medieval approach discussed here it is just sheer nonsense to talk about nonactual entities somehow *being out there*, awaiting our reference to and quantification over them. Nonactual entities, mere *possibilia*, are *literally nothing* for this approach.²⁸ But, then, how can we say we can *refer to them* (in the appropriate, *ampliative contexts*, of course)?

The answer is that ‘refer’ (*supponit*), just as other *intentional verbs*, also creates an ampliative context, wherefore a term construed with it also will be amplified to things that possibly do not exist, but that did, will, or can **(p. 160)** exist. For *referring* is not something that words, that is, inscriptions or utterances, do *per se*, but it is *something that we humans do by means of our words*. For words mean and refer to what *we mean and refer to* by means of them.²⁹ And we mean and refer to the things we *think of*. But of course we can think of whatever can be an object of our consciousness, which need not be an actually existing thing, as anyone who ever had dreams, memories, fantasies, wishes, expectations, let alone abstract, universal thoughts, can easily attest.

As Buridan put it in his question-commentary on Aristotle’s *De Interpretatione*:

... a name signifies what is understood by it when it is put in an expression, for to signify is to give rise to some understanding of a thing [*intellectum rei constituere*]. But by the name ‘rose’ we understand a rose and by the name ‘roses’ we understand roses. For example, [suppose] last year we, you and I, saw many red roses together. If I ask you: ‘The roses we saw were red, weren’t they?’, then you say: ‘Indeed’. And this you know to be true. But you wouldn’t know this, unless you thought of those roses. Therefore, by the name ‘roses’, when I say ‘We

saw roses', you understand those things that we saw. But we saw red roses. So you think of roses. [...] the name 'rose' refers to [*supponit pro*] roses, although nothing is a rose, for according to the above-mentioned case, namely, that last year we saw many red roses, you concede the proposition 'There were many red roses last year', and you know that this is true. And since this is an affirmative [proposition], it would not be true, unless its subject, which is the name 'roses', referred to some thing or some things. But it does not refer to [any] other thing or other things, but roses. [...] we should note that we can think of things without any difference of time and think of past or future things as well as present ones. And for this reason we can also impose words to signify without any difference of time. For this is the way names signify. Therefore, by the specific concept of 'man' I conceive indifferently all men, present, past and future. And by the name 'man' all [men] are signified indifferently, present, past and future [ones alike]. So we truly say that every man who was was an animal, and every man who will be will be an animal. And for this reason it follows that the [verbs] 'think/understand' [*intelligere*], 'know' [*scire*], 'mean/signify' [*significare*] and the like, and the participles deriving from them, *ampliate* the terms with which they are construed to refer indifferently to present, past and future and possible [things] which perhaps neither are, nor will be, nor ever were. Therefore, even if no rose (p. 161) exists, I think of a rose, not one that is, but one which was, or will be, or can be. And then, when it is said: the name 'rose' signifies something, I concede this. And when you say: that [thing] is not, I concede that; but it was. If, then, you conclude: therefore, something is nothing, I deny the consequence, for in the major premise the term 'something' was amplified to past and future [things], and in the conclusion it is restricted to present ones. ³⁰

But then, from this point of view, there should be nothing mysterious about objects of reference (and hence of quantification, in appropriate contexts), that is, objects of human thought, which do not exist. At least, there are no separate *ontological* mysteries here, other than those involved in the nature and workings of the human mind. But, again, from the point of view of the theory of reference, all we need is the recognition of such, mysterious or not, but certainly familiar, simple facts of human existence as that we refer by

our words to what we mean by them, that we mean by them things we think of when we use these words in communication, and that we certainly can think of things other than just those that are actually present in our broader or narrower physical environment.

Notes:

(1.) Perhaps the most authoritative account of this interpretation is found in Kneale, W., and Kneale, M. *The Development of Logic*, Oxford: Clarendon Press, 1962, II, 5, pp. 54–67.

(2.) But not by all of them, as is clear from Ebbesen, S. “‘The Present King of France Wears Hypothetical Shoes with Categorical Laces’: Twelfth Century Writers on Well-Formedness,” *Medioevo* 7(1981), pp. 91–113. But the authors mentioned here represent the exception, rather than the rule, especially if we consider what was the norm in late medieval logic, and especially in nominalist logic. Cf. Ashworth, E. J. “Existential Assumptions in Late Medieval Logic,” *American Philosophical Quarterly* 10(1973), pp. 141–147.

(3.) For further reasons why we cannot afford to ignore the medievals’ treatment of empty terms, see Broadie, A. *Introduction to Medieval Logic*, Oxford: Clarendon Press, 1987, p. 120.

(4.) For good bibliographies on the vast recent literature on supposition theory, see, for example, Ashworth, E. J. *The Tradition of Mediaeval Logic and Speculative Grammar*, Toronto: Pontifical Institute of Medieval Studies, 1978; Kretzmann, N., Pinborg, J., and Kenny, A., eds. *The Cambridge History of Later Mediaeval Philosophy*, Cambridge: Cambridge University Press, 1982. For more recent references, see Kretzmann, N., ed. *Meaning and Inference in Medieval Philosophy*, Dordrecht: Kluwer Academic, 1989.

(5.) ‘Empty’, in the case of *natural supposition* and of other *intensional contexts*, created by tenses, modalities, and what medieval logicians would call *ampliative* verbs and their participles, will have to be interpreted more strongly than ‘*actually* not true of anything’. As we shall see, A-propositions with empty subject terms in such contexts do not have ‘*existential import*’ properly speaking (i.e., ‘Every S is/was/will/can/could be P’ does not imply ‘Something *is* an S’ in these cases), still, the relation of subalternation, i.e., $A \Rightarrow I$, is valid even with such propositions. But here I am going to use the phrases ‘empty’ and ‘existential import’ in their usual extensional senses, that is, according to which the subject term of an A-proposition is *empty* iff it

is not actually true of anything and the proposition has *existential import* iff its truth implies that its subject is not empty.

(6.) Cf., for example, L. M. de Rijk's *Introduction* to his edition of Abaelard. *Dialectica*, Assen: Van Gorcum, 1956, pp. 37–38; Henry, D. P. *Medieval Logic and Metaphysics*, London: Hutchinson, 1972, pp. 55–56; Geach, P. T. "Nominalism," in *God and the Soul*, London: Routledge & Kegan Paul, 1969.

(7.) "However, it follows that if B is other than A, then both exist, namely, B and A, as is clear from bk. 10 of the *Metaphysics*. For nothing is identical with or diverse from a non-being" Buridan, J. *Sophismata*, c. 1, 4um sophisma. The reference to Aristotle is *Met* 1054b20. And somewhat later: "But this is a rule about which more will be said later, namely, that every affirmative proposition whose subject or predicate supposits for nothing is false." *Ibid.* Quinta conclusio. Cf. also: "as stated in bk. 7 of the *Metaphysics*, only a being and a being are said to be identical or diverse, although a being and a non-being are said not to be identical or diverse." Buridan, J. *Questiones in Analytica Priora*, unpublished edition of H. Hubien, lb. I. q. 22: *utrum ex puris negativis sequatur aliqua conclusio*.

(8.) For Aristotle's authority on this point, an important factor for the medievals' approach, see, for example, *Cat.* 13a38–13b35; *Periherm.* 19b5–20b13; *Anal. I.*, 51b6–52b25. (Cf. also Boethius's comments on these texts.)

(9.) The medieval distinction goes back, of course, through the comments of Boethius, to Aristotle's remarks in *On Interpretation* 16a30 and 16b13.

(10.) Cf.: "Some propositions are affirmative, others are negative. An affirmative proposition is one in which its formal part is left affirmative, while a negative proposition is one in which its formal part is negated, and by the formal part of a categorical proposition I mean its verbal copula." Albert of Saxony: *Perutilis Logica*, fol. 17.vc.

(11.) Note that the description has what Russell calls a *primary occurrence* (wider scope than the negation) in [2], and what he calls a *secondary occurrence* in [1].

(12.) It should be noted here that in addition to the obvious complexities obtained by genitives, relative clauses, adjectival constructions, and adverbial constructions, the "Boolean" operations (i.e., term-negation/ conjunction/

disjunction), and those caused by participles of transitive verbs, according to Buridan even a determiner possibly added to the predicate term is a part of that term (whereas that added to the subject is a functor operating on the whole proposition). Cf. SD 1.3.3. This is why in the scheme mentioned earlier I did not have to add an optional occurrence of another determiner constructed with the predicate term.

(13.) Of course, the scheme [Cat] may be completed by any other determiner besides the “classical quantifier words.” This is what is indicated by the *unfinished* list in the place of *Q*.

(14.) Of course, “identity-theorists” would regard also the predicate term as a referring expression on a par with the subject term, but I need not pursue this point here. For technical details, and the philosophical significance of this point see Klima G. *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*, Essays II and III.

(15.) For Abelard’s solution, see Abaelard, *Dialectica*, pp. 175–177. Cf. Kneale, W. and Kneale, M. *The Development of Logic*, pp. 210–211

(16.) A full-fledged semantic theory constructed along these lines with a thorough discussion of its applications in natural language semantics can be found in Essay III of Klima, G., *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*.

(17.) Cf.: “it is in two ways that something can be said of something: in the first way absolutely, and for the truth of this the connection of the terms suffices; and in this way ‘animal’ can be said of man although of no men, just as when no rose exists ‘substance’ is said of rose [absolutely], though of no roses; and this is what Porphyry’s authority concludes to, nor Aristotle thought its contrary. But in the second way something is said of something according to real existence. And I call saying something of something according to real existence, when the predicate inheres in the subject that exists in the nature of things.” Cajetan, T. *Scripta Philosophica: Commentaria in Praedicamenta Aristotelis*, ed. M. H. Laurent, Rome: Angelicum, 1939, pp. 50–51. Cf. also William of Sherwood: “When I say ‘Every man is an animal’, here an habitual ‘is’ is predicated. And insofar as it is necessary, this proposition is equivalent to the following conditional ‘If it is a man, then it is an animal’.” William of Sherwood. *Introductiones in Logicam*, ed. M. Grabmann, *Sitzungsberichte der Bayerischen Akademie der Wissenschaften*, 10(1937), p. 83. For a text to the same effect from Garland the Computist (eleventh century), see Henry, D. P. *That Most Subtle Question*, Manchester:

Manchester University Press, 1984, pp. 85–86. Cf. also De Rijk, L. M. *Logica Modernorum*, II-2, p. 730.

(18.) William of Ockham. SL, pp. 263–264. (See also the whole chapter.)

(19.) De Rijk, L. M. “The Development of *Suppositio Naturalis* in Mediaeval Logic,” *Vivarium* 9(1971), pp. 71–107.

(20.) SD 4.3.4.

(21.) Although Peter of Spain, for example, regards natural supposition as the kind of supposition a term has absolutely [*per se*], apparently even outside of the context of a proposition. See Peter of Spain, *Tractatus*, p. 81.

(22.) Note the omission of the definite article here, which on this approach is just one of the possible determiners that one can add to the *common* term ‘King of France’.

(23.) Of course, we cannot truly say: ‘*The King of France was bald*’, but not because the *common* subject term ‘King of France’ refers to nothing, but because there were many kings of France, whereas a categorical determined by a definite article is true only if its subject refers only to one thing. But for the same reason it *is* true to say: ‘*The King of France in 844 was bald*’.

(24.) Note in this analysis the disjunctive subject term. The present-tense disjunct is required to take care of cases like ‘A white thing was black’. This proposition certainly cannot be analyzed as ‘A thing that was white was black’, for in a possible situation (*in casu possibili*, as Buridan would put it) the one may be true and the other false; namely, if everything in the world that is now white has never been white before, but some of them were black earlier. For more on this, see Buridan’s *Sophismata*, cc. 4–5. It is also worth mentioning here that medieval logicians, like Ockham, who rejected the theory of ampliation also recognized reference to nonactual, past, future, or even merely possible entities. Their rejection was not based on any qualms about this issue but on their analysis of such propositions as being systematically ambiguous. Accordingly, they distinguished between two senses of such propositions, one in which the subject is taken to refer to what it actually applies to, and another in which it is taken to refer *only* to what it did/will/can apply, as the context requires. Cf. Priest, G. and Read, S. “Ockham’s Rejection of Ampliation,” *Mind* 90(1981), pp. 274–279. Cf. also William of Ockham. SL, P. I. c. 72, pp. 215–216.

(25.) In medieval works, natural supposition is sometimes interpreted as covering all times, and sometimes as even covering all, perhaps absolutely unrealized, logical possibilities; hence the need for the bracketed addition.

(26.) On this point, see Lambert, K. *Meinong and the Principle of Independence*, Cambridge: Cambridge University Press, 1984, pp. 110–112.

(27.) Lycan, W. “The Trouble with Possible Worlds,” in *The Essential Readings in Modern Semantics*, eds. J. L. Garfield and M. Kiteley, New York: Paragon Issues in Philosophy, Paragon House, 1991, pp. 503–539, esp. p. 511.

(28.) Well, perhaps, Duns Scotus’ conception of possibility provides an interesting medieval counterinstance to what I say here. But of course his *theological* reasons for this conception were (possible, as well as actual) worlds apart from the modern secular belief in the sanctity of existential quantification. Cf.: *Ordinatio* I. d. 36, n. 1. As in many other matters, Henry of Ghent seems to have

had some influence on Scotus’ thought also on this point. For a thorough discussion of the issue and the possible impact of the medieval discussions on Descartes’ conception of eternal truths, see Cronin, T. J. *Objective Being in Descartes and in Suarez*, New York/London: Garland Publishing, 1987, esp. Appendix II and III, pp. 167–207. Buridan’s modal logic in itself, as well as in relation to other medieval modal systems, has been amply covered in the following excellent monographs: Knuuttila, S. *Modalities in Medieval Philosophy*, London: Routledge, 1993; Lagerlund, H. *Modal Syllogistics in the Middle Ages*, Leiden: Brill, 2000; Thom, P. *Medieval Modal Systems: Problems and Concepts*, Aldershot: Ashgate, 2003. This is the main reason I will not discuss it in this work—only to the extent it is relevant to its main focus: the relationships among language, thought and reality.

(29.) Cf. SD 4.3.2.

(30.) QDI, pp.12–14. Cf.: “All verbs, even in the present tense, which of their very nature can concern future, past and possible things as well as present ones such as ‘think’, ‘know’, ‘mean’ and the like amplify their terms to all times, future, past and present. And what accounts for this is that a thing can be thought of without any difference of time, namely, abstracted from any place and time. And so, when a thing is thought of in this way, then a thing which was, or will be, or can be may be thought of as well as a thing which [actually] is. Therefore, if I have the common concept from which we take this name ‘man’, then I can think indifferently of all men, past, present and future. And this is why these verbs can concern past or future things

as well as present ones.” Albert of Saxony. *Perutilis Logica*, Tr. 2, c. 10, 8a regula. For an earlier example of the same explanation of ampliation see the selection from Lambert of Auxerre, *Logica Lamberti*, in *The Cambridge Translations of Medieval Philosophical Texts*, eds. N. Kretzmann and E. Stump, Cambridge: Cambridge University Press, 1988, pp. 104–163, esp. pp. 116–118.



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Ontological Commitment

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Abstract and Keywords

This chapter continues the discussion of the issues raised by the chapter 6, focusing on the issue of ontological commitment. The chapter argues that Buridan's theory of ampliation, reconstructed in terms of quantification with restricted variables, provides a genuine third alternative to the opposing modern views of Quine and "the Meinongians." Furthermore, the chapter argues that Buridan's theory thus reconstructed says "all the right things" according to Quine in its object-language; however, it still seems to side with the Meinongians in its meta-language. However, this is just a feature of the reconstruction: "the real Buridan" does not have this distinction, but works out his natural language semantics under conditions of what Tarski described as "semantic closure."

Keywords: ontological commitment, ampliation, Quine, Meinongians, Tarski, object-language, meta-language, semantic closure

At this point, however, we still have to deal with a serious objection. For the move tying reference (*supposition*) to the mind's intentionality would not be seen by many as adequately handling the original *ontological* problem, namely, the commitment to nonexistents through quantification. On their view, this move will simply assign some *diminished*, mind-dependent existence to these nonexistents, but will not eliminate them as existents in this diminished, mind-dependent sense. What Buridan's treatment does not eliminate is the quantification over nonexistents, even if it demands that those nonexistents are construed as objects of some mind, which therefore can be quantified over in intentional contexts. But in those

contexts quantification over nonexistents, and thus ontological commitment to them, is still not eliminated in Buridan's approach. As Karel Lambert put it in his comments on the foregoing discussion:

According to Klima, the dominant account in medieval logic can be preserved in the face of objections that it cannot accommodate laws like Newton's law of inertia, but only at the expense of allowing non-existents in the range of the variables. He stoutly defends this position against those who might characterize it as relentlessly Meinongian, that is, as requiring there to be non-actual entities "out there" awaiting reference to, and quantification over, them. His view is that such objects are intentional objects, that such objects are what we think of, and as such (p. 163) are things to which we refer. Nevertheless, I still feel uncomfortable. What disturbs non-Meinongians is not the ontological independence of non-existent entities, like bodies on which there are no external forces acting or round squares, but rather that there are any such objects at all serving as the objects of reference, even if always tethered to some mind. Nor is it any real resolution to say that what is referred to is the thought of round square or the thought of body on which no external force is acting because these objects exist whereas round squares and bodies upon which there is no external force acting do not. If the effort to accommodate Newton's law of inertia requires the variables to range over non-existents, they had better be non-existent. ¹

So, *are there* really such objects for Buridan, even if, perhaps, "always tethered to some mind"?

7.1 Quine, Wyman, and Buridan

In view of contemporary discussions of the issue of ontological commitment, it might seem quite appropriate that the title of this section should contain reference to at least one nonexistent. In any case, the title at least appears to do so, referring as it does to Wyman, Quine's imaginary opponent in his seminal paper on the issue of ontological commitment "On What There Is." ²

Of course, Quine might immediately object to this characterization of the title by saying that the reference to Wyman is merely illusory; after all, just

as there is no Pegasus, that is, in Quine's paraphrase, nothing Pegasizes, so there is no Wyman, that is, nothing Wymanizes.

By contrast, Wyman might (fictitiously) retort to this by saying that the title refers not only to one, but to three nonexistents; after all Buridan, and, more recently, Quine as well, are ontologically on a par with him: if we look around and survey the things presently populating our universe, Buridan and Quine are not to be found among existents either. Therefore, if we can successfully refer to *them*, we should be just as successful in referring to *him*, Wyman, and if all agree that they are all non-existents, then, in fact, we have reference to *three* nonexistents here, and not just to one.

To be sure, Quine would disagree. He might say that our existence claims, properly expressible by the use of the existential quantifier, need not be restricted to things presently populating our universe. The variable (p. 164) bound by the quantifier timelessly ranges over everything there is, and he and Buridan *are* some of those things that can be the values of this variable, whereas Wyman, for all his fictitious clamor, *is not*, for, to stress again, just nothing (timelessly) Wymanizes.

But at this point the wily Wyman might (fictitiously) counter Quine again (well, such is the resilience of nonexistents) by saying that if Quine has the right to quantify beyond the range of present existents to include Buridan and himself, then he, Wyman, has *entirely equal rights* to quantify over himself, thereby including himself among things that there are, as a timeless "Wymanizer," as it were, while still excluding himself from among (present) existents.

To this Quine might say that *no*, Wyman cannot quantify over himself, because he is just not there to be a value of a bound variable. But then again, Wyman could say that *yes*, he is there, too, just as well as Quine and Buridan are, because he *is there* for quantification *just as equally as they are all equally not* among present existents, for *at this time* Quine and Buridan *are certainly no more real than he is*. And then to Quine's every 'no' he might just reply 'yes, a gazillion times!'

In the ensuing virtual impasse, Buridan might calmly emerge and expound his own, alternative view.

In the first place, Buridan might note that he finds the entire business of trying to determine how many nonexistents are referred to in the title specious. For on his view of reference, or, rather, on his view of the

corresponding semantic function of terms in his theory, namely, *supposition*, it is something that belongs to terms only *in propositions*. That is to say, referring, or (to use the common modern transcription of Buridan's terminology) *suppositing* is something only the *categorematic terms of propositions*, that is, their subjects and predicates, do. But the title of this section is not a proposition. *Ergo*, the terms in the title do not refer to or supposit for nonexistents, for they do not refer or supposit at all.

Thus, Buridan would agree with Quine that the name 'Wyman' in the title does not refer to Wyman, but not, as Quine would say, because nothing Wymanizes (although, as we shall see, Buridan would agree with that claim, too), but because none of the names in the title refer to anything, as in that context they simply do not have the function of referring or suppositing.

To the possible objection that the terms must refer to something in the title as well, because they certainly bring to our mind the objects they intend to name, Buridan would briefly reply that the objection mixes up (p. 165) two distinct functions of terms, namely, meaning and naming, or in his terminology, *signifying* and *suppositing*.

7.2 Meaning, Naming, and Buridan's Theories of Signification and Supposition

Indeed, Buridan would absolutely agree with Quine's remarks that "a singular term need not name to be significant," ³ and that "there is a gulf between *meaning* and *naming* even in the case of a singular term which is genuinely a name of an object." ⁴ As we saw earlier, Buridan would distinguish not only between *meaning* and *naming*, or in his terminology, between *signification* and *supposition*, but even between two different sorts of signification, namely, *immediate* and *ultimate signification*, and, correspondingly, between two different sorts of supposition, namely, *material* and *personal supposition*.

What a term immediately signifies is the mental act on account of which we recognize the term as a significative utterance or inscription, as opposed to some articulate sound or discernible scribble that makes no sense to us at all. Thus, those utterances that *do* have signification are meaningful precisely because they *are* associated with some act of understanding, or, in late scholastic terminology, because they are *subordinated* to some *concept* of the human mind, whatever such a concept is, namely, whether it is some spiritual modification of an immaterial mind or just a firing pattern of neurons in the brain. The point is that without being subordinated to a concept an

utterance makes no sense, because for it to make sense is nothing but for it to evoke the concept to which it is subordinated.

But this is not to say that what we mean by our categorematic terms are our concepts. For by means of these concepts we conceive of the *objects* of these concepts, again, whatever these concepts are and whatever those objects are in their own nature. A categorematic term, therefore, is said to signify the concept to which it is subordinated *immediately*, but it is *imposed* to signify *ultimately* the object (or objects) conceived by this concept, in the manner that it is (or they are) conceived by means of this concept. Thus, by means of the concept immediately signified by the term 'Quine' in our minds, we conceive in a distinctive, singular fashion ⁵ of the single person we all know and admire as one of the greatest philosophers of the twentieth (p. 166) century. So the term 'Quine' ultimately signifies the person, Quine, to us, even if he is no longer among us, because we can still conceive of him, just as we can conceive of any other person we know, even if he or she is not present in our sight, and even if we may just not know that he or she is no longer among present existents. Indeed, we can also conceive of Quine and any other person we know, and even of persons *we don't know*, indifferently, in a universal fashion, by means of the concept immediately signified by the term 'human', regardless of whether they actually exist, and regardless of whether we know whether they exist. Thus, Buridan would say that the term 'human' ultimately signifies all humans indifferently, just as the concept of humans represents all humans indifferently, regardless of whether they are present to us or not and whether they presently exist or not.

But just because these terms signify Quine or all humans in the ways described, it does not mean that they refer to or *supposit for* them. For, as I have said, terms supposit only in their function of subjects or predicates of propositions.

Indeed, the same term, signifying the same, may supposit for different things, or for the same things in different ways, in different contexts, or for some things in some context and for nothing in another. The medieval *theory of supposition* was devised precisely to describe how the same terms with the same significations may supposit in different contexts for different things or for the same things in different ways or for nothing at all. ⁶

As we have already seen, the supposition of a term is variable not only with respect to its *kind*, namely, when the question is whether the term supposits for itself or its *immediate* or *ultimate significata*, but also with respect to its *range* over the term's *ultimate significata*, when the question is *which* of its

ultimate significata the term supposits for in the given context, if for any at all.

7.3 Buridan's Theory of Ampliation versus Ontological Commitment through Quantification

As we have seen, tenses and modalities, terms implying in their meaning tenses or modalities, as well as verbs and their derivatives that signify the acts of our minds which enable us to be aware of different tenses and modalities, all generate *ampliative contexts*, in which the range of (p. 167) supposition of the terms with which they are construed is *ampliated*, that is, extended to those of their significata that may not be presently existing. But in nonampliative contexts the supposition of terms is restricted to presently existing things.

Because a common term indifferently signifies all things of a given kind, abstracting from whether they actually exist or not, in the appropriate context it may certainly supposit for those of its significata that do not actually exist. The term 'dinosaur', being a common term subordinated to a universal concept whereby we indifferently conceive of all dinosaurs, indifferently signifies all dinosaurs, despite the fact that none of them presently exist, although they did exist in the past. So, in the past-tense proposition 'Dinosaurs roamed the earth before man appeared', the term 'dinosaurs' supposits for dinosaurs that existed in the past, even if presently no dinosaurs exist. But in the present-tense proposition 'Dinosaurs roam the earth', in which its supposition would be restricted to its presently existing significata, there being no such significata, the same term supposits for nothing, and so the proposition is false.

To be sure, present-tense propositions intended to convey not just some factual claim but a "lawlike statement," such as 'Dinosaurs are reptiles', are put forward with the obvious intention of talking about any of the *significata* of the term, regardless of whether they actually exist, that is, the subject terms of such sentences have *natural supposition*.

But properly speaking, when an affirmative proposition is simply used to make a factual claim without producing an ampliative context for its terms, its truth requires the actual existence of its terms' personal supposita. So, affirmative propositions whose terms supposit for nothing are false, and thus their contradictory negations are true.

Accordingly, Buridan's *dictum* to the effect that a nonbeing is not identical with or diverse from anything ⁷ must not be understood, *pace* Wyman, as expressing some profound metaphysical truth about the nature of nonbeings. After all, nonbeings are just not there to have a nature in the first place. This negative claim is simply true because nothing is a nonbeing, and so the subject term of the negative proposition 'a nonbeing is not identical with or diverse from anything' supposits for nothing.

In fact, attributing existential import to affirmatives and making the distinction between contradictory negation and term-negation, Buridan can easily answer Quine's purportedly perplexing questions about the possible fat man in the doorway and the possible bald man in the doorway, (p. 168) when *there is nobody* in the doorway. Are they the same? No. Are they not the same? Yes. So, if they are not the same, are they different? No, and *non sequitur*, because the affirmative 'A is different from B' cannot follow from the negative 'A is not the same as B', given that the negative is true when its terms supposit for nothing, whereas the affirmative in that case is false. So, the answer to the question of how many merely possible men are standing in the doorway must be 'none', which makes the rest of the questions about how many of them are similar or dissimilar, and so on, simply pointless.

By contrast, because we are *talking* about *possibilia*, we can certainly provide true affirmative answers to the corresponding, appropriately modalized questions concerning the possible fat man and the possible bald man who *could be* standing in the doorway. *Could* they be different? Yes, given the fact that it is certainly possible for a single bald man and for a single fat man to stand in the doorway (well, provided that they would fit in together). For on account of this possibility we can form the true affirmative proposition 'the possible fat man in the doorway *could be* different from the possible bald man in the doorway'. But *could* they be the same? Of course, they *could*, given that it is clearly possible for a single fat, bald man to stand in the doorway. For on account of that possibility, this affirmative proposition is true: 'the possible fat man in the doorway *could be* the same as the possible bald man in the doorway' (reading 'could' with wide scope or, as Buridan would say, reading the sentence *in sensu composito*).

But could we talk in the same way about *impossibilia*? For example, could we successfully refer to a round square, say, in the context of the sentence 'The round square to be drawn on the blackboard *could be* round'? Clearly, because a round square just cannot be, it cannot be anything, not even round. Furthermore, because nothing can possibly be a round square

and 'could' can only amplify reference to *possibilia*, the subject of this affirmative sentence refers to nothing, whence the sentence is obviously false, precisely because of the failure of its subject to refer to anything.

But don't we have at least something in mind when we are talking about round squares? And even if we perhaps cannot imagine or genuinely conceive of round squares because we immediately realize the inconsistency of their concept, what about the cases of *impossibilia* that we do not immediately recognize as such or of which we just have no idea that they are impossible? What about the case of someone talking about the greatest **(p. 169)** prime number, failing to realize that assuming its existence leads to a contradiction? Doesn't this person refer to something at least in an appropriate ampliative context, say, in the context of the sentence 'What I am thinking about is the greatest prime'?

In such cases, we have to distinguish between what the speaker (mistakenly) takes himself to refer to and to what the phrase he uses refers. For, of course, it is possible for someone to think, mistakenly, that what he is thinking about is the greatest prime. But what he is thinking about is not, because it cannot be, the greatest prime, but merely an object of his thought of which he mistakenly believes that it is the greatest prime. Therefore, when he says 'The greatest prime is what I am thinking about', what he says is false, since the subject of his affirmative sentence refers to nothing. So, although this person does not refer to the greatest prime by the definite description in this sentence, still, it is true that he mistakenly takes himself to be referring to the greatest prime.

To be sure, the definite descriptions in the propositions just considered are singular terms, and, as Buridan himself remarks, in the case of singular terms one cannot properly speak about *ampliation*,⁸ that is, *extending* the range of their supposition to their nonexisting significata, because they only have one *significatum*. But even so, Buridan can certainly stipulate that if its *significatum* is not among present existents, then in nonampliative contexts a singular term *cannot* supposit for its *significatum*, although in the appropriate ampliative context it *can*.

So, given that Wyman does not exist, he *is not* anywhere, and he *does not* do anything, since he *is simply not* any thing. In short, as Quine would put it, just nothing actually Wymanizes. Still, we *can* truly say that Wyman *could be* somewhere, and that he *is imagined* to be doing something, and that for that reason he *could be* something. That is to say, something *could be* Wymanizing.

Accordingly, when we are *thinking* of Wyman, given the *ampliative force* of the verb 'thinking', we can truly say that we are thinking of someone who does not exist. Indeed, when we are thinking of Quine now, we are thinking of someone else who does not exist either, although someone who existed in the past. However, according to Buridan, from this we cannot conclude that when we are thinking of Quine, or of Wyman, then we are thinking of a nonexistent, or a nonbeing. For according to him, a nonbeing cannot be thought or understood.

(p. 170) Buridan explicitly considers this issue in his *Sophismata*, when he raises the question whether the *sophisma* (problem-sentence) 'A nonbeing is understood' is true.

First, he lays down that the proposition is affirmative with an infinite subject, that is to say, the negation preceding the term 'being' is a narrow-scope term-negation, and not a propositional negation, so the entire proposition is affirmative. Hence he argues for its truth as follows:

... the sophism is proved: for such infinite terms are analyzed so that saying 'A non-man runs' is equivalent to saying 'What is not a man runs'. And thus saying 'A non-being is understood' is equivalent to saying 'What is not a being is understood'. But the second is true, for Antichrist, who is not a being, is understood. ⁹

Next, Buridan argues for the opposite side before resolving the issue:

O.1 The opposite is argued: for the term 'non-being' supposits for nothing, but a proposition is false if its subject supposits for nothing and it is affirmative; therefore, etc.

In his response, Buridan sides with the second position, namely, that the sophism is false, and argues for this position on the basis of his theory of ampliation.

I respond that the sophism is false, for the term supposits for nothing. And this is clear in the following manner: for the verb 'to understand' or 'to be understood' ampliates supposition to past, and future, and even all possible things. Therefore, if I say, 'A being is understood', the term 'being' supposits indifferently for every present or past or future or possible thing. But the rule is that an infinitizing negation added to

a term removes its supposition for everything for which it supposed and makes it suppose for everything for which it did not suppose, if there are any such things. Therefore, in the proposition 'A non-being is understood', the term 'non-being' does not suppose for some present, nor for some past, nor for some future, nor for some possible being; therefore, it supposes for nothing, and so the proposition is false. And I say that 'A non-being is understood' and 'What is not a being is understood' are not equivalent, for by the verb 'is' you restrict the infinity [*infinitatem*] to present things. Therefore, the supposition for past and future [and possible] things remains, and thus this has to be conceded: 'What is not [a being] is understood'. If, therefore, we are to give an equivalent analysis (p. 171) of 'A non-being is understood', then it will be the following: 'What neither is, nor was, nor will be, nor can be is understood', and this is false, just as the sophism was.

So, the upshot of Buridan's discussion is that he would absolutely agree with Quine: nothing is a nonbeing; everything is a being, everything exists, and it is not true that something does not exist. Still, Quine would not be happy with Buridan's solution.

For even if Buridan were to agree with Quine and disagree with Wyman on the claim that everything exists (or, equivalently, that it is not the case that something does not exist), Quine would be quite *unhappy* with Buridan's reasons for agreeing with him. Indeed, he might even regard Buridan as the wolfish Wyman in sheep's clothing, overtly agreeing with his claims denying nonexistents in assertoric contexts, while smuggling them back in through the backdoor, by *sneakily* quantifying over them in his so-called ampliative contexts, thereby recreating Wyman's bloated universe.

7.4 Buridan's Alternative

So whose side is Buridan really on? Would Quine's charge be justified? Is Buridan, and for that matter everybody else in the medieval logical tradition, really just a "crypto-Wyman"?

To see how Buridan's position is related to the other two competing positions as contrasted by Quine, let me first try to restate it in terms that make it more easily comparable to both.

As I have argued earlier, the best way to reconstruct Buridan's theory using modern logical tools is in terms of a quantified modal semantics with restricted variables representing Buridan's common terms in their referring function. In this reconstruction, the ranges of these restricted variables may be "cut off at the edge" of the domain of the actual world, or they may go beyond this domain to pick up individuals from the domains of possible worlds, depending on the context in which these variables occur.

Even without going into technical details, I think it is clear that in such a semantic system one may easily construct formulae representing Buridan's claims that come out as true in models representing the situations in which Buridan would say those claims are true.

(p. 172) So, in this regard, the reconstruction would absolutely faithfully represent Buridan's ideas. But then it might seem that the same reconstruction equally justifies Quine's possible (and Lambert's actual) charges of "crypto-Wymanism" on Buridan's part (and on mine): in this system there *is* "quantification over nonexistents" all over the place. So even if Buridan's claim that nothing is a nonbeing reconstructed in the object-language of the system would come out as true, in the meta-language of the same system we could perfectly consistently say that he is committed to nonentities after all, on account of his quantifying over nonentities, that is, entities in the domains of possible worlds, in his "ampliative" contexts. Accordingly, the situation is this. The object-language formula of the system representing Buridan's claims that nothing is a nonbeing or that everything exists would come out as true, indeed, as logically true. Still, in the meta-language of the system it is equally true that some values of some of Buridan's variables are in the domains of possible worlds; so on Quine's criterion, some values of some of Buridan's variables do not exist, which is to say, in the meta-language of the system it is true that something does not exist. Therefore, the semantic system *in its meta-language* is clearly committed to mere *possibilia* on Quine's criterion.

So, it might seem that Buridan's semantics, represented by this semantic system, is equally committed to mere *possibilia*, which would show that Quine's possible charges are justified. But the tricky thing about Buridan's semantics is that it makes no distinction comparable to the modern distinction between object-language and meta-language, so it has *no* meta-language comparable to the meta-language in which we see Quine's charges justified.

Buridan has only *one* language to talk about the world as well as about that language and its semantic relations to the world. And in that *one* language we cannot truly say that there are mere *possibilia*, or that something that is merely possible exists. Accordingly, from this Buridanian perspective, the issue of ontological commitment in terms of a meta-linguistic description of the relationship between language and the world is radically ill-conceived.

From this Buridanian perspective, one simply cannot make claims about the relationships between language and reality from some external, God-like position, from the position of the user of a meta-language, who has a certain “context-free” or “context-neutral” access to the object-language and “the world” (the totality of semantic values of items in that language), both as it is in itself and as it is conceived by users of the object-language. We (p. 173) only have this *one* language we actually speak (where, of course, it does not matter which particular human language we take this *one* language to be), and we can speak about those semantic values only by means of the context-dependent ways of referring that are afforded to us by *this* language.

But speaking this *one* language, Buridan would absolutely reject the “Meinongian” claim that something does not exist, and would side with Quine, saying that everything exists, despite the fact that he would also endorse the claim that we can think of, signify and refer to things that do not exist, given the ampliative force of ‘think’, ‘signify’, and ‘refer’. For even if we do not have a separate meta-language, we certainly *can* reflect on the relationships between *this* language and what it is about; that is to say, in these reflections we use the *same language* to talk about *its semantic relations*. But our language is about whatever we can think of, and we certainly *can* think of things beyond our narrower or broader actual environment. So, talking about the semantic relations of our language will necessarily generate ampliative contexts, without, however, committing us *in this language*, the *only* language we have, to any spurious existence-claims or actual property-claims concerning things we can talk about, but which do not exist.

Therefore, when we are thinking of something that does not exist, we are not exploring a mysterious realm of nonbeings, say, the realm of merely possible or fictitious beings, for, *pace* David Lewis, there is just no such a realm to be explored. A merely possible being or a fictitious entity is not just a special kind of entity; indeed, no more than a fake diamond is a special kind of diamond or forged money is a special kind of money. Just as a fake diamond is not something that is both a diamond and is fake and forged

money is not something that is both money and forged, so a fictitious entity is not something that is both an entity and is fictitious. And just as a fake diamond is no diamond at all, and forged money is no money at all, so a fictitious entity is not an entity at all.

But then what are these things we have in mind when we are thinking about things that do not exist? Well, some of them are things that existed, but no longer exist, others are things that will exist, but do not yet exist, and still others are things that could exist, but actually do not exist. But what is the nature of these things? Well, nothing, just as these things are nothing, that is, none of the things there are. In short, Buridan's *metaphysical* point is that if you want to do metaphysics, then you should deal with *being qua being*, and not with *nonbeing qua being*, for then, assuming a contradiction, (p. 174) you might just draw any silly conclusion. After all, *ex impossibili quodlibet* (from an impossible proposition anything follows).

Now whether we like it or not, this is certainly an interesting theoretical alternative, which is quite unparalleled in contemporary discussions, perhaps because in those discussions we usually *presuppose* our access to the perspective of a meta-language. Indeed, it might appear that we do so *with good reason*, provided that Tarski is right about semantic closure and the imminent paradoxes it engenders (to be discussed in chapter 10).

However, Buridan has more tricks up his sleeve. He would argue that Tarski was not quite right about the inevitability of Liar-type paradoxes under the conditions of semantic closure. According to him, the paradoxes only emerge because of our unwitting and unrestricted assent to Tarskian biconditionals, which is fine for nonreflective uses of the language but generates paradox in its reflective uses. Accordingly, the solution Buridan offers is not an overall split between object-language and meta-language but a more careful regulation of the *reflective uses* of the *same* language.¹⁰ In any case, if Buridan is right about rejecting, or just doing without, the Tarskian distinction, then he may be just as right about rejecting what he would justifiably regard as the “philosophical mirage” of ontological commitment through quantification. But the further details of this approach will have to be explored in the context of a systematic analysis of Buridan's closed, token-based semantics.

However, before launching that investigation, let us see the details of how Buridan *de facto* constructs his semantic theory *without* the machinery of quantification we are so used to in post-Fregean logic. Once we have seen

that, we are going to be in a better position to evaluate the merits and demerits of Buridan's approach.

Notes:

(1.) Lambert, K. "Comments," in *New Essays in Free Logic*, eds. A. Hieke and E. Morscher, Dordrecht: Kluwer Academic Publishers, 2001, pp. 239–252, esp. p. 243. My original discussion was presented in the paper from which the present chapter derives: Klima, G. "Existence and Reference in Medieval Logic."

(2.) Quine, W. V. O. "On What There Is," in W.V.O. Quine, *From a Logical Point of View*, 2nd rev. ed., Cambridge, MA: Harvard University Press, 1980, pp. 1–19.

(3.) Ibid. , p. 9.

(4.) Ibid.

(5.) Here we can just assume that we are able to form genuine singular concepts and disregard the complications dealt with in section 4.4.1 earlier in this book.

(6.) For an excellent recent survey of the relevant medieval theories and for further references, see Read, S. L. "Medieval Theories: Properties of Terms," in *The Stanford Encyclopedia of Philosophy* (Spring 2002 Edition), ed. E. N. Zalta, <http://plato.stanford.edu/archives/spr2002/entries/medieval-terms/>.

(7.) See c. 6, n. 7 above.

(8.) SD, p. 918.

(9.) SD, p. 923ff.

(10.) Cf. Klima, G. "Consequences of a Closed, Token-Based Semantics: The Case of John Buridan," *History and Philosophy of Logic* 25(2004), pp. 95–110.



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The Properties of Terms (Proprietates Terminorum)

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Abstract and Keywords

Having seen the limitations of a reconstruction of Buridan's semantics in terms of a modified quantification theory, this chapter begins engaging Buridan's theory in its own terms, starting with a detailed discussion of the semantic properties of terms. The discussion moves from a brief discussion of Buridan's distinction between immediate and ultimate signification (securing that the semantic properties of mental terms will be "inherited" by written and spoken terms), to Buridan's theory of reference, namely, supposition, and oblique reference, namely, appellation. The chapter discusses suppositional descents as distinguishing quantifier-scopes, numerical quantification, and appellation in temporal and modal contexts, as well as Buridan's peculiar theory of appellatio rationis, the theory of oblique reference to concepts in intentional contexts.

Keywords: immediate signification, ultimate signification, supposition, numerical quantification, numbers, appellatio rationis

8.1 Signification: Immediate versus Ultimate

As we have seen, the primary semantic property any phrase of any spoken language has is its signification, which it acquires by being imposed on some naturally significative act of the mind, a concept. Syntactically and semantically simple phrases, that is, simple terms, have absolutely conventional signification: their signification is dependent exclusively on the natural semantic properties of the concept they are arbitrarily imposed on, but any such phrase can be imposed on any concept whatsoever.

Semantically complex phrases (which, nevertheless, may be syntactically simple) have compositional signification: what they signify is functionally dependent on the signification of the concepts that enter into the complex concept to which these semantically complex phrases are subordinated.¹ Once their subordination is fixed in terms of their imposition, spoken and written phrases can be classified with regard to their semantic properties as determined by the natural semantic properties of the concepts to which they are subordinated.

Syncategorematic terms may signify only the syncategorematic concept to which they are subordinated. Because the function of such a concept (for example, the concept of negation, conjunction, and similar logical connectives) is not to conceive of anything, but merely to modify the representative (p. 176) function of other concepts, the purely syncategorematic term subordinated to it will not signify anything else. By contrast, because a categorematic concept is one whereby we conceive of something, the term subordinated to it will signify precisely those things we conceive by it, in the way conceived by it. Thus, such a categorematic term has a twofold signification. By virtue of being subordinated to it, the term *immediately* signifies the corresponding categorematic concept “in the mind” (*apud mentem*) and *ultimately* signifies the things *conceived* by the concept “outside” (*ad extra*).² But when the immediate signification of a categorematic term is established by its conventional imposition, then talking about its signification without further qualification is the same as talking about its ultimate signification. To be sure, there are also some “mixed” terms, which, for example primarily signify some syncategorematic act of the mind, but also connote, on account of the connotation of the concept they are subordinated to, something *ad extra*, such as the verbal copula, which primarily signifies the mental act of composition (the joining of subject and predicate in a proposition), but also connotes some time relative to the present time of the speaker.³

The conventional meaning of spoken languages is thus anchored to the natural meaning of the common medium of human thought, which is a naturally compositional semantic system of mental representation, a mental language. We have already seen how the idea of compositionality can be put to work in interpreting Buridan’s conception of conceptual complexity, and how that conception allows him to make various semantic distinctions on the conceptual level without corresponding real distinctions on the ontological level. In fact, *this is the fundamental idea of his nominalism*: by distinguishing between immediate and ultimate signification, Buridan

can work with a two-tiered semantics for conventional spoken and written languages, which enables him to provide a sufficiently “fine-grained” semantics for these languages combined with his “coarse-grained” nominalist ontology. But, as they say, “the devil is in the details”; so now we should see in detail exactly how Buridan thinks he can pull this off.

8.2 Supposition: Its Kinds and Its Modes

Categorematic terms ultimately signify the things the categorematic concepts they are conventionally imposed on naturally signify. But they do not (p. 177) always *stand for* the things they signify. As we have seen, for Buridan, *supposition* is a property a term has only in the context of a proposition, where it is restricted by the present tense and the assertoric mood of the copula to the actual, present significata of the term, unless on account of the intended meaning of the proposition it is taken to have natural supposition. We have also seen that in various propositional contexts the same term may not stand for its ultimate significata at all, but either for its immediate significata (the token concepts it is subordinated to) or for itself and other token terms of the same kind. In all such cases, when a term does not stand for its ultimate significata, Buridan says that it is taken *nonsignificatively*, that is, *materially*, or in *material supposition*. By contrast, when a categorematic term stands for its ultimate significata, it is taken *significatively*, or in *personal supposition*. Obviously, in accordance with these descriptions, only categorematic terms can have personal supposition (since only they have ultimate significata), but both categorematic and syncategorematic terms can have material supposition (thus the term ‘non’ in ‘Non est negatio’ can be taken to stand materially for its immediate significata, the token concepts of negation in individual human minds or itself and other tokens of the same type).

It also should be noted here that this distinction between the two kinds of supposition is to be drawn in terms of how the things the term stands for are semantically related to it and not in terms of what kinds of things they are. For even if it is tempting to say that a categorematic term has personal supposition when it stands for nonlinguistic things outside the mind, and that it has material supposition when it stands either for linguistic items or concepts, we should resist this temptation.

Obviously, the term ‘word’ stands for linguistic items when it stands significatively for its ultimate significata, and the term ‘concept’ stands for concepts in the same way. Indeed, the term ‘being’ in the sentence ‘Some

being is a concept' can be taken to stand personally for any being, say, the mental act whereby I conceive of human beings (as that concept is a being, an act of my mind) just as well as for a human being, although of course the sentence will be verified only for the former and not for the latter *suppositum* of this term. However, the same term in the same sentence also can be taken to stand materially for a token concept to which it is subordinated, namely, for the concept whereby I conceive of all beings indifferently, and for that *suppositum* of the term the sentence is also verified. So it is clear that the *kind* of supposition (material or personal) a term has is not dependent on *what kind of thing* it stands for but, rather, *what kind of semantic relata* (p. 178) it stands for (namely, its ultimate significata in personal supposition, or its immediate significata or "cotypical" tokens, including itself, in material supposition).

But in both kinds of supposition, terms can stand in very *different ways* for *the same kinds* of their semantic relata, indeed, for the very same things. These different *ways* or *modes of supposition* are characterized by Buridan in terms of the various types of *suppositional descents* and *ascents* one may validly make under a given term in a given propositional context. The easiest way to introduce the idea is by way of some examples. Consider the propositions: 'Some man is an animal' and 'Every man is an animal'.

In both cases, the subject term obviously stands for human beings, indeed, in the first *disjunctively* for *any* human being, and in the second *conjunctively* for *every* human being. This idea is captured by the different forms of *suppositional descents* and *ascents*, that is, valid inferences in which the common term whose mode of supposition is being characterized is replaced by singular terms falling under the term in question in disjunctive or conjunctive propositions.

Thus, under the subject term of the A-proposition (i.e., the universal affirmative) we can *descend* to the following conjunctive proposition (schema): 4

'This man is an animal *and* that man is an animal *and* ...' listing all actually existing human beings.

It is also clear that from this conjunction we can validly *ascend* to the original.

By contrast, under the subject term of the I-proposition (particular affirmative) we cannot descend by the same conjunction: just because some

man is an animal, it does not necessarily follow that this man is an animal *and* that man is an animal, and so on. (The conclusion is actually true; yet, the inference is not formally valid, as is clear from the fact that it is obviously invalid with another term, say, in ‘some man is tall, therefore, this man is tall and that man is tall, etc.’, pointing to some short men among all men.) But it does follow that either this man is an animal *or* that man is an animal, and so on. So, although in this proposition we cannot descend under the subject term conjunctively, we *can* descend disjunctively, by means of the proposition (schema):

‘This man is an animal *or* that man is an animal *or* ...’ and so on for all human beings.

(p. 179) Again, it is clear that the corresponding ascent to the original is also valid; indeed, it would be valid from just any disjunct (exemplifying the inference in modern logic that we would call ‘existential generalization’).

So, given these differences between the possible descents and ascents under the subject term of these propositions, we can say that although the same term in these propositions stands for exactly the same things, the same terms stand for the same things in *different ways*, characterizing the *different modes of supposition* the term in question has in these different propositional contexts. In the first case, when conjunctive descent is possible, according to the common medieval terminology adopted by Buridan, the term has *confused and distributive supposition*, whereas, in the second case, when only disjunctive descent is possible, the term has *determinate supposition*.

Buridan, following a well-established tradition, also distinguished a third mode, namely, merely *confused supposition*, exemplified by the predicate term of the universal affirmative proposition. In this case, neither conjunctive nor disjunctive descent is possible: just because every man is an animal it does not follow that every man is *this* animal *and* every man is *that* animal, and so on, and it does not follow either that every man is *this* animal *or* every man is *that* animal, and so on, for the antecedent may be true whereas the consequent is false, namely, when there are at least two men.

However, in this case it is still possible to descend not disjunctively, but disjunctly (or disjointly), that is, not by forming a disjunctive proposition, but by using a disjunctive term:

‘Every man is this animal *or* that animal *or* ...’ and so on for all animals.

In a nutshell, this is the core of the celebrated doctrine of the *modes of supposition* and suppositional descents and ascents. There are, however, a number of interpretational problems with this doctrine.

Perhaps the most obvious and most challenging is the notorious problem of the predicate of O-propositions, which has traditionally been assigned confused and distributive supposition. The problem is the following. If the mode of supposition of a term is to be determined by the corresponding ascent and descent, then an O-proposition, such as ‘Some man is not a philosopher’ would have to be equivalent to the corresponding conjunction of singulars, in this case ‘Some man is not this philosopher and some man is not that philosopher, and so on’. However, although the descent in this (p. 180) case is obviously valid, for if some man is not a philosopher, then some man is not this philosopher and some man is not that philosopher, and so on, still, the corresponding ascent is not valid. For take a possible situation in which the only men are Plato and Socrates, both of whom are philosophers. Clearly, in that situation, the proposition ‘Some man is not a philosopher’ is false. However, the exhaustive conjunction of singulars is true, for ‘Some man is not this philosopher (pointing to Plato) and some man is not that philosopher (pointing to Socrates)’ is true, given that its first member is verified of Socrates and its second is verified of Plato. Therefore, the conjunction does not entail the original O-proposition, whence the ascent in this case is invalid.

So what went wrong? Did the authors, including Buridan, simply miss this? That is highly unlikely. Or is equivalence not required for assigning the modes of supposition? But then what are these ascents and descents for, and how are they supposed to work? We can only guess. In fact, according to Paul Spade, one of the best experts on the subject, the whole business is a “dark mystery,” and, as far as the theory ascents and descents is concerned, “no one knows what that was all about.”⁵

Nevertheless, in what follows, I will present a sketch of what I think these descents and ascents *can* do in natural language analysis. To be sure, this sketch may or may not properly capture what medieval logicians, especially Buridan, actually meant to do with them. So, this sketch may not be able to tell us exactly what Buridan, or medieval logicians generally, *in fact meant* to use their descents for; nevertheless, it can provide us with some (hopefully) interesting suggestions as to what *we* might use them for in

natural language semantics, taking our cue from our medieval colleagues, while at the same time taking our own shot at the “dark mystery” of the supposition of the predicate term of O-propositions.

8.3 Modes of Supposition and Quantifiers

Looking at the descents and ascents presented earlier, there are two things about them that modern commentators immediately would notice (and have in fact noticed on numerous occasions).⁶ First, these descents and ascents obviously correspond to quantifiers and their scope-relations. Second, in this comparison, the system presented above is clearly “incomplete.”

(p. 181) These points will at once be clear if we lay out the correlations between quantifiers and descents and ascents in the following way:

1. $(\exists x)(y)(R(x)(y)) \Leftrightarrow (y)(R(1)(y)) \vee (y)(R(2)(y)) \vee \dots$
2. $(y)(\exists x)(R(y)(x)) \Leftrightarrow (\exists x)(R(1)(x)) \& (\exists x)(R(2)(x)) \& \dots$
3. $(y)(\exists x)(R(y)(x)) \Leftrightarrow (y)(R(y)(1 \vee 2 \vee \dots))$
4. $(\exists x)(y)(R(x)(y)) \Leftrightarrow (\exists x)(R(x)(1 \& 2 \& \dots))$

In these formula-schemata, we can take x and y to stand in for any restricted variable (say, ‘ $x.Fx$ ’ or ‘ $y.Gy$ ’), which, in accordance with our earlier discussion, would provide a fairly good representation of common terms in their referring function as it was conceived by medieval logicians. The numerals represent singular instances of the common terms represented by the variables. The relation R may represent any relation whatsoever, but in accordance with Buridan’s theory of predication and supposition (according to which only complete terms flanking the copula, and not their parts, can have supposition), it should properly be the relation of identity expressed by the copula.

The important point is that we have either conjunctive or disjunctive and either nominal or propositional descents yielding the four types listed earlier. Furthermore, conjunctive descents obviously correspond to universal quantifiers, while disjunctive ones to existential quantifiers, whereas propositional descents correspond to wider scope and nominal ones to narrower scope. Matching these types of descents and ascents with the traditional names of the modes of common supposition they are supposed to characterize, we can get the neat arrangement shown in table 8.1. In this table, the numbering of the modes of common supposition indicates their

“strength.” A proposition in which a term has a mode of supposition with a lower number entails another proposition in which the same term has a mode with a higher number (other things being equal), but not conversely.

Table 8.1

Descent (quantifier) [scope]	Conjunctive (universal)	Disjunctive (existential)
<i>Nominal [narrow]</i>	2. conjunct (<i>copulativum</i>) ^a	4. merely confused
<i>Propositional [wide]</i>	1. distributive	3. determinate

^aFollowing the usage of Stephen Read in “Thomas of Cleves and Collective Supposition.”

(p. 182) Actually, part of what is indicated in this table is explicitly stated by Buridan in his treatise on suppositions:

... these types of supposition are related to each other so that distributive supposition formally implies determinate supposition, and even merely confused supposition, but neither of these latter implies distributive supposition by a formal consequence. In the common mode of confusion, however, determinate supposition formally implies [merely] confused supposition, for ‘An animal is every man; therefore every man is an animal’ is a valid inference. But [merely] confused supposition does not imply determinate supposition, unless the cause of confusion is removed, whence the inference ‘Every man is an animal; therefore an animal is every man’ is not valid, but removing the distributive sign, which was the cause of confusion, yields a valid inference, such as ‘Every man is an animal; therefore an animal is a man’. The reason why I said ‘in the common mode of confusion’ will be given later. ⁷

This remark clearly indicates how Buridan can use these distinctions to handle what we would commonly describe as “the quantifier-shift fallacy” (as in ‘Every road leads to some place; therefore, there is some place every road leads to’). But Buridan, following his predecessors who introduced these basic distinctions, does not deal with the possible type of descent and corresponding mode of supposition that is named *conjunct* supposition in table 8.1, which, however, some later authors explicitly added to the system.

For instance, Hieronymus Pardo, the Spanish Master of Arts who taught at the University of Paris at the end of the fifteenth century, wrote as follows:

For the truth of a proposition in which there is distribution is recognized by means of a conjunctive descent; and that of a proposition in which there is a term suppositing determinately is recognized by means of disjunctive descent; and of a term suppositing merely confusedly, by means of the disjunct or conjunct descent. For what else is it for a term to be distributed, but for it to be taken for its significata conjunctively, and for a term to supposit determinately, but for it to be taken for its significata disjunctively, and for a term to supposit merely confusedly, but for it to be taken for its significata disjunctly or conjunctly? Therefore, to explicate the way of taking the term (*acceptationem explicare*) is to descend. Thus, if descent is negated, nothing reliable remains for the cognition of the truth of a proposition on the basis of supposition. ⁸

It is worth noting in this passage that, even with the addition of the fourth sort of descent, Pardo only distinguishes three modes of supposition, (p. 183) taking the conjunct descent to constitute just another case of merely confused supposition. It is also noteworthy that he takes these descents to be of vital importance in determining the truth-conditions of propositions on the basis of the supposition of their terms. In any case, with the explicit addition of a fourth mode we would clearly have a simple solution to the earlier-mentioned problem of the predicate term of O-propositions if we attributed to it conjunct, rather than distributive supposition. For with that addition we may illustrate the resulting complete system of descents and modes of supposition in the following way (adding the “anomalous” classification of the predicate term of O-propositions in brackets as case (b) under confused and distributive supposition):

Confused and Distributive Supposition

(a) Every *man* is an animal, therefore this man is an animal, and that man is an animal, and ... and so on for every man, and also conversely.

[(b) Some man is not an *animal*, therefore some man is not this animal and some man is not that animal ... and so on for every animal, *but not* conversely.]⁹

Conjunct Supposition (*Suppositio Copulativum*)

Some man is not an *animal*, therefore some man is not this animal and that animal and ... and so on for every animal, and also conversely.

Some man is not this animal and that animal and ... and so on for every animal, therefore some man is not an animal, and also conversely.¹⁰

But no conjunctive descent is possible.

Determinate Supposition

(a) Some man is an animal, therefore this man is an animal or that man is an animal or ..., and so on for every man, and also conversely.

(b) Some man is an animal, therefore some man is this animal, or some man is that animal, or ... and so on for every animal, and also conversely.

But no conjunctive or conjunct descent is possible.

(p. 184) Merely Confused Supposition

Every man is an animal, therefore every man is this animal or that animal or ... and so on for every animal, and also conversely, *but not*¹¹

Every man is an animal, therefore, every man is this animal, or every man is that animal or ... and so on for every animal.

To be sure, Buridan's classification of the supposition of the predicate of the O-proposition in this layout is still an anomaly, but that may be a problem of this layout. For when Buridan actually states what he takes to be the descent and ascent conditions for determinate supposition as opposed to any kind of confused supposition, he has the following to say:

So we have to note immediately that there are two conditions for the determinate supposition of some common term. The first is that from any suppositum of that term it is possible to infer the common term, the other parts of the proposition remaining unchanged. For example, since, in 'A man runs', the term 'man' supposits determinately, it follows that 'Socrates runs; therefore, a man runs', 'Plato runs; therefore, a man runs', and so on for any singular contained under the term 'man'. The second condition is that from a common term suppositing in this manner all singulars can be inferred disjunctively, by a disjunctive proposition. For example, 'A man runs; therefore, Socrates runs, or Plato runs or John runs ...' and so on for the rest. But in confused supposition of any sort one of these conditions is not met. If you ask: 'How do I know when the supposition is determinate?' I say firstly that you will be able to know, if you see that the two previously mentioned conditions are met; and, secondly, you will know, if you see that there is no basis for confusion; such bases for confusion are going to be discussed below. ¹²

So, the ascent condition for determinate supposition is not that the proposition with the common term that has determinate supposition can be inferred from the disjunction of propositions containing in its place its singulars, but rather that it can be inferred from one of these singular propositions. Therefore, 'Some man is not an animal' need not be inferred from the disjunction 'This man is not an animal or that man is not an animal, and so on', but from just any member of it. Thus, when applying these conditions, we first determine that 'man' has to have determinate supposition in this proposition, by descending to its singulars by a disjunction. We can then single out just any member of this disjunction to consider the supposition of **(p. 185)** the predicate term, say, 'This man is not an animal'. But with this singular proposition both the descent and ascent are valid. (Although in the text Buridan specifies only the descent condition for determining distributive supposition.) Why is this important?

The reason why the classification of the predicate of the O-proposition in the layout here is anomalous is that, in accordance with table 8.1, attributing distributive supposition to the predicate amounts to giving the universal quantification implied in the negation wider scope than the quantifier binding the subject term. Thus, 'Some man is not this animal and some man is not that animal and ... and so on' is in fact equivalent to 'every animal is such

that it is not (identical with) some man or another', which of course is not equivalent to 'Some man is not an animal'. However, if in descending under the predicate we make the descent with regard to some *fixed*, determinate individual under the subject, as Buridan's characterization seems to demand, then this will have the opposite effect, attributing wider scope to the quantifier of the subject, thus: 'Some man is not an animal; therefore, *that* man is not this animal and *he* is not that animal, and so on', which of course yields the correct, *equivalent* analysis of the original. In fact, at one point in the text, Buridan even carries out the descent under a proposition *fixing* in the same way an arbitrary, but determinate *suppositum* of the subject term suppositing determinately:

For example, if I say 'A horse is greater than every man', then it is necessary that that horse is greater than the smallest man, and then, assuming that that man is Socrates, it will be true that it is greater than Socrates or that it is greater than Plato, and so on for the others. ¹³

Apart from the peculiar problems of Buridan's treatment of comparatives, what is important here is that when he carries out the descent under 'man', he *fixes* the reference of the determinately suppositing 'horse' to one arbitrarily chosen suppositum by using 'that horse' and referring back to the *same* by the anaphoric 'it' in the subsequent singulars.

But this "reference-fixing" in these descents amounts precisely to the same as either demanding a "priority rule" (in fact suggested by some modern commentators) that requires that descent has to be made first under the determinately suppositing term and only afterwards after any confusedly suppositing term, or declaring that the predicate term of O-propositions has conjunct supposition, yielding the correct attribution of narrow scope to the universal quantification implied in the negation. In this way, therefore, if (p. 186) Buridan (and his predecessors) did in fact interpret determinate supposition in relation to distributive supposition caused by negating negation with the "reference-fixing" that gives the quantifier binding the determinately suppositing term wider scope, then the notorious problem of O-propositions goes away, because attributing distributive supposition to the predicate in this way (*with* the "reference fixing" descent under the determinately suppositing term) is equivalent to attributing conjunct supposition to the predicate while descending under the subject *without* "reference fixing."

8.4 Numerical Quantification and Numbers

But whatever the proper solution to this problem is, what is more interesting from *our* point of view is that the complete system of descents and ascents presented earlier is actually a powerful analytic tool that can be applied in the analysis of linguistic phenomena beyond the reach of standard quantification theory. In particular, as Gabriel Sandu and I have shown,¹⁴ the four types of descent described above (conjunctive, disjunctive, conjunct and disjunct) combined with the idea of the collective reading of nominal conjunctions (also present in medieval logic in general and in Buridan in particular) naturally lends itself to a game-theoretical interpretation, in which the various types of descents can be regarded as instructions for playing various semantic games with natural language sentences, determining their truth-values in different models. The different descents, then (corresponding to these different games) can be used to systematically distinguish all possible readings of multiply ambiguous sentences with numerical quantifiers often studied in the contemporary literature, such as ‘Two examiners marked six scripts’.

Indeed, Buridan’s conception, in addition to providing us with these clues in the realm of natural language semantics, may prove to be fruitful in the philosophy of mathematics. For if we interpret numerical quantifiers in the way suggested here, namely, as analyzable in terms of disjunctions of nominal conjunctions interpreted according to a collective reading, then we also have the basic idea of a nominalist theory of number, which is, in fact, in perfect agreement with Buridan’s hints in other contexts.¹⁵ For in keeping with this interpretation, numerals need not be treated as proper names of some “abstract entities,” namely, numbers, whatever these “abstract (p. 187) entities” are. Instead, numerals would have to be treated as common terms of concrete, equipollent collections. Thus, for example, the numeral ‘three’ is not the proper name of an abstract entity designated as 3, but, rather, it is just as much a common term as is, for example, ‘man’ or ‘animal’, with the only difference that the significata and consequently the personal supposita of ‘three’ are not directly the individual humans or animals that are the significata and personal supposita of the other two terms, but, rather, these individuals *as referred to in three-member conjunctions*, interpreted collectively. Accordingly, when, pointing to the wise men standing around the manger, I declare: ‘These men are three’, then the predicate term of this sentence should not be read as referring to a mysterious abstract entity, but, rather, it should be taken to supposit disjunctively to any triplets of individuals that can be referred to by three-

member conjunctions taken collectively. And so the copula of this sentence also can be read in the same way as that of any other “ordinary” claim, namely, as expressing identity: for on this interpretation it merely claims that ‘This man and that man and that man (pointing to each wise man standing around the manger) taken together are identical with these three things or those three things, and so on’ where of course the phrases ‘these three things’ and ‘those three things’ can again be interpreted as abbreviating three-member nominal conjunctions taken collectively. Along these lines, therefore, our game-theoretical treatment of suppositional descents can quite naturally be expanded to provide a working semantics for plurals and numerals, which then would certainly have further consequences in interpreting the language of arithmetic in general, with far-reaching implications concerning the philosophy of mathematics.

But these developments would already lead us too far away from Buridan, although they can definitely be regarded as natural offshoots of his work, just as were several developments in late medieval logic, which actually took up many of the issues that intrigue linguists and logicians today. In any case, even this sketch of Buridan’s theory of suppositional descents (and what it can be developed into) should provide sufficient evidence that it can achieve many of the things in natural language semantics that standard quantification theory can achieve in terms of the scope-relations of quantifiers. Indeed, it can also be shown that Buridan’s theory of descents combined with his theories of *appellation* and *ampliation* can achieve even more, namely, a unified theory of reference in extensional and intensional as well as in intentional contexts. ¹⁶

(p. 188) 8.5 Appellation: The Theory of Oblique Reference

Because we have already discussed ampliation in connection with Buridan’s conception of ontological commitment, we now need to deal with appellation. Buridan’s theory of appellation is his most original contribution to logical semantics, adequately handling issues of rigid and nonrigid reference in temporal and modal contexts, as well as logical puzzles of intentionality. Appellation is a property of terms, just as is supposition. However, if personal supposition can be characterized as *reference* in a propositional context to what a term signifies, then appellation can be characterized as *oblique reference* in a propositional context to what a connotative term connotes or, in intentional contexts, to what any term immediately signifies. A quick analysis of some simple examples will easily clarify this general description.

Take, for instance, the sentence ‘Socrates is wise’. On Buridan’s analysis, the subject term has the function of signifying and suppositing for Socrates. The predicate term, being a connotative term connoting the quality of wisdom, has the function of signifying things in relation to their actual or potential wisdom at any time (while, of course, it will not signify things that cannot have wisdom at all, such as a rock). The predicate term in this sentence also has supposition: it supposits for those individuals whose wisdom is actual (as opposed to merely potential) at the time connoted by the copula, which is the present time of the formation or interpretation of the proposition.

17 But then it is obvious that the supposition of this term is relative to its oblique reference to the singular wisdom of every individual that actually has wisdom, and it is this oblique reference that Buridan would call *appellation*. As he describes it:

... every term connoting something other than what it supposits for is called ‘appellative’, and appellates that which it connotes as pertaining to [*adjacens*] that which it supposits for, as when ‘white’ [*album*] appellates whiteness as pertaining to that which the term ‘white’ [*album*] is apt to supposit for. 18

Buridan explains the notion of “adjacency” or “pertaining” used here in the following manner in his *Sophismata*:

... a term appellates that which it appellates as somehow pertaining or somehow non-pertaining to the thing for which it supposits or (p. 189) for which it is apt to supposit. I say ‘as pertaining’ if it appellates it positively, and I say ‘as non-pertaining’ if it appellates it privatively; as ‘white [thing]’ appellates [a] whiteness positively, as inherent in the thing that is white, and ‘father’ [appellates] the past [act of] begetting as that by which he begot, and the other [person] as whom he begot; and ‘wealthy’ appellates the external goods as ones that he who is wealthy possesses. But ‘blind’ suppositing for an eye appellates sight privatively, as non-pertaining to the eye, and ‘poor’, appellates external goods as non-pertaining [to the poor person], namely, insofar as he is not possessing them. 19

This pertaining or nonpertaining of the appellata of a term has a prominent role in determining the supposition of appellative terms and, consequently, in determining the truth-conditions of categorical sentences formed with them. For an appellative term supposits only for those of its significata in

a proposition to which its appellata are adjacent (or nonadjacent, as the meaning of the term requires) relative to the time connoted by the copula of the proposition. But because, according to Buridan, an indefinite affirmative categorical is true only if its terms supposit for the same thing or things, the sentence: 'A man is sighted' is true only if both 'man' and 'sighted' supposit in it for the same thing or things. However, a thing can be a *suppositum* of the term 'sighted' in this proposition only if it actually possesses sight at the time connoted by the copula, namely the present time of the formation of the proposition. By contrast, in the sentence 'A man is blind' the term 'blind', appellationally sight privatively, supposits only for such things that do *not* have sight (though they could and ought to have it by nature). Therefore, the sentence is true only if some man does not have sight at the time of the formation of the proposition.

By contrast, in the sentence: 'A man *will be* sighted' the term 'sighted' supposits only for those things that will possess sight and in the sentence 'A man will be blind' the term 'blind' supposits only for such things that will *not* have sight at some future time relative to the present time of the formation of the proposition.

As Buridan notes, there is a substantial difference between the appellation of the subject and predicate terms of such a proposition. For although the predicate term appellates what it connotes strictly for the time connoted by the verb, or even for the time further determined by some explicit temporal adverb, the subject term always appellates "under disjunction to the (p. 190) present," and this is the underlying reason for the *ampliation* of the supposition of the subject term:

For the predicate appellates its thing only for the time of the verb, ²⁰ however much the time of the verb has been restricted; and if the mode of pertinence [*adiacentia*] of the appellated thing to the thing for which the term is apt to supposit does not correspond for that time [to the mode in which it is appellated], then it does not supposit for that thing, even if the mode of pertinence [*adiacentia*] did in fact correspond for the present time. For example, if I say: 'Socrates was white yesterday', then in this proposition the term 'white' does not supposit for Socrates, unless whiteness pertained to him yesterday, even though it pertains to him today and had pertained to him before [yesterday], and thus the proposition would be false. But the subject appellates its

thing indifferently, under a disjunction between the present time and the time of the verb, and this is also the case with supposition. Therefore, 'A white [thing] yesterday was black' is true if whiteness now pertains to the thing that yesterday was black, even if yesterday it did not pertain to it. And for this reason 'A white [thing] yesterday was black' is analyzed as: 'What is white or yesterday was white was black yesterday'. ²¹

As Buridan adds later, this difference between the mode of appellation of the subject and predicate does not mean that only one of them, namely the predicate, would have appellation in such a proposition. On the contrary, both terms have appellation, provided they are both appellative, but they have it in a different manner: the subject has it under disjunction to the present, while the predicate has it precisely for the time of the verb.

So, appellative terms always appellate the things in a proposition that they connote as being the determinations of the things they refer to, and consequently whether they refer to this thing or that thing in the given proposition depends on whether what they appellate as the determination of the thing in question does (or does not, as the meaning of the term requires) actually belong (in the appropriate manner) to the thing relative to the time connoted by the verb of the proposition.

The case is different, however, with absolute terms, which do not connote anything as a determination of the things they signify, but simply supposit for the things they signify, like substance-terms or abstract terms in the category of quality. Because the type of appellation discussed earlier is **(p. 191)** an oblique reference in a proposition to what a term connotes also outside a proposition, this kind of appellation can belong only to appellative terms, which do have connotation. ²²

Nevertheless, absolute terms also can have appellation, that is, oblique reference to what is not supposed for in a proposition. Obviously, this is the kind of reference they have as oblique parts of complex terms:

... a substantive term in an oblique case appellates what its nominative form would supposit for as pertaining to [*adjacens*] what the nominative term governing it supposits for. ²³

Thus, for example, in the proposition 'Buridan talks to a man', which of course has to be analyzed as 'Buridan is someone talking to a man', the term 'man' as a part of the complex predicate term 'someone talking to a

man' appellates human beings as "adjacent to" someone talking to them, that is, it obliquely refers to human beings as those to whom someone is talking, whence this term will supposit (in this proposition determinately, i.e., disjunctively) for someone or other who is talking to some man or other. But absolute terms (as well as connotative ones) also can have a peculiar type of appellation in the special context created by intentional verbs, that is, verbs Buridan aptly designates as verbs signifying the acts of the cognitive soul; namely, they have the kind of appellation that Buridan and his followers called *appellatio rationis*.

8.6 The Appellation of Concepts (*Appellatio Rationis*)

Despite its specific character, Buridan's *appellatio rationis* is justly called appellation, insofar as it is oblique reference to something in a proposition which is not supposed for in that proposition. However, what is so appellated is not something connoted by a connotative term, but something signified immediately by every spoken term, namely, the concept, the *ratio* or *intentio*, to which this spoken term is subordinated, due to which it is a meaningful term at all. Nevertheless, we may say that the *only* difference between a case of *appellatio rationis* and the *appellatio* of an oblique term in a complex term is that what the oblique term appellates is its *ultimate significatum*, whereas what a term having *appellatio rationis* appellates is its **(p. 192)** *immediate significatum*. This is precisely what explains Buridan's comparison (*not subsumption*) of the latter case to *material supposition*, when he talks about the grammatical direct objects of intentional verbs, which in Latin have to stand in the accusative case:

... these accusatives somehow appear to participate in material supposition; for they appellate their concepts, although they do not supposit for them ... ²⁴

Buridan's treatment of intentional contexts rests on his claim that intentional verbs, and other terms deriving from them which signify some mental act (such as thinking, knowing, believing, recognizing, wishing, wanting, etc.), force the terms following them to appellate the *rationes* according to which they were imposed to signify the things conceived by these *rationes*:

There is a great difference, with respect to appellation, between verbs that signify acts of the cognitive soul, such as 'recognize', 'understand', 'signify', 'supposit' and the like, and other verbs, such as 'cut', 'burn', 'move' and the like. For with respect to verbs that do not signify such acts of the soul terms

appellate only things that they signify or connote ultimately, but they do not appellate the concepts by means of which they signify. However, in relation to verbs that do signify such acts of the soul, if they follow these verbs and are construed with them as terminating their action, terms do appellate their own concepts by which they signify whatever they signify ... 25

He also provides a brief explanation for this peculiarity of these verbs in contradistinction to other, extensional verbs, giving the reason why the terms construed with these verbs *have to* appellate their concepts, whereas they do not have to do so when construed with others:

They appellate these concepts in this way because we think of things by means of those concepts, but it is not in this way, i.e., not by means of a concept, that fire heats water, or that a stone hits the ground. 26

Because a mental act concerns its object only through the concept by which the thing is conceived (as unless it were conceived by some concept it could not be an object of a mental act at all), it is no wonder that a verb signifying such a mental act makes the term signifying the object of this act appellate the concept by which the term signifies the object; and it is equally no wonder that other verbs that do not signify such mental acts do not force (p. 193) such an appellation. Indeed, as Buridan expounds in the *Sophismata*, this applies to a surprisingly wide range of verbs and their derivatives:

... we have to realize that the verbs 'understand', 'know', and their like, which will be discussed later, and the participles and nouns deriving from them, such as 'understanding', 'knowing', 'thought', 'knowledge', etc., cause in the terms with which they are construed certain special modes of appellation.... we should note that we impose names to signify by the mediation of the concepts whereby we understand things. Therefore, even the verb 'signify' produces such appellations, just as 'understand', or 'cognize' does, and so does the verb 'appear', and so do the verbs 'know', 'opine', 'believe', 'hold [the opinion that ...]', etc. Also, since our wishes arise in us by the mediation of cognition, it follows that the same sort of appellation is produced for us by the verbs 'want', 'wish', and 'desire'. Furthermore, since we make our promises and obligations in terms of certain concepts, it follows that

the verbs 'owe', 'promise', 'obligate', etc., and other terms deriving from them also produce such appellation. ²⁷

So, Buridan's theory can already be said to have scored a point over several others in that it is able to provide a plausible philosophical explanation for the peculiar behavior of these verbs and their derivatives in terms of identifying the common feature they share (namely, signifying some mental act that concerns its object only through the mediation of a concept) that directly accounts for their strange logical behavior.

However, the further question is whether Buridan's theory also works as an adequate *logical* theory, in that it is able to justify the intuitively acceptable, and invalidate the unacceptable logical relations between the problem-sentences these verbs generate and others, and to provide compelling arguments for accepting possible unintuitive results.

To see this, we first have to take a look at the issue of how this kind of appellation affects the truth-conditions of sentences in which it occurs. Buridan writes about this issue as follows:

... since I can know a thing under several concepts, and according to those several concepts I can impose several names on that thing to signify it, these verbs make the terms with which they are construed appellate the concepts according to which the names were imposed to signify, and not just the things known outside [the mind], as other verbs do. However, they do so differently [when these terms are] before and [when they are] after [the verb]. For [when they are] after [the verb] they appellate determinately and precisely their own concepts; but [when they are] before **(p. 194)** [the verb] they appellate them indifferently and under a disjunction with other concepts in terms of which the things signified can be signified and understood. For this reason, the proposition 'I know the one approaching' would not be true, properly speaking, unless I knew [that is, recognized] him in terms of the concept according to which he is said to be the one approaching, even if I knew him well under other concepts. And thus this is not valid: 'I know Socrates; and Socrates is the one approaching; therefore, I know the one approaching', for although I know him in terms of the concept according to which he is called Socrates, still, I do not know [i.e., recognize] him in terms of the concept according to which he is called *the*

one approaching. But on the side of the subject the following is valid: 'Socrates I know; and Socrates is the one approaching; therefore, the one approaching I know'. Therefore, this is similar to the way in which we say that sight judges and recognizes something white, but not something sweet, even when it is the same thing that is white and that is sweet; but it is still the case that something sweet it does judge and recognize, as is clear by the following expository syllogism: this white thing it judges; and it is sweet; therefore, something sweet it judges; nevertheless, this does not follow: 'The one approaching I know; therefore, I know the one approaching'; indeed, it is possible that I do not know the one approaching. But this does follow: 'I know the one approaching; therefore, the one approaching I know'... 28

Now because according to Buridan the "canonical form" of such problem-sentences as *Cognosco venientem* ['I know the one approaching'] or *Debeo tibi equum* ['I owe you a horse'] is obtained by analyzing their verbs into copula and participle, and the result is true if the terms so obtained supposit for the same thing or things, the question of the truth-conditions of such sentences reduces to the question of whether the terms *cognoscens venientem* ['someone knowing the one approaching'] or *debens tibi equum* ['someone owing you a horse'] supposit for me in the sentences *Ego sum cognoscens venientem* ['I am someone knowing the one approaching'] or *Ego sum debens tibi equum* ['I am someone owing you a horse']. But, in these terms, the intentional participle makes the oblique term following it appellate its own *ratio*, whether this term is appellative or not, and so these complex terms can supposit for me only if their participles supposit for me *in relation to* this *ratio* and, of course, their other connotata required by their signification.

Therefore, the question of the truth of *Cognosco venientem* and *Debeo tibi equum*, as I said, boils down to the question of whether I am one of the (p. 195) supposita of these terms. However, these supposita are functionally dependent on the *rationes appellatae* of the names following these verbs (that is to say, whether a thing is a suppositum of such a complex term or not is a function of what concept is appellated in it). So, changing the name may change the *ratio appellata* (unless the names are synonymous), and this may change the *supposita* of the terms in question, which, therefore, may change the truth of the corresponding propositions. This is why the passage from *Cognosco Socratem* ['I know Socrates'] to *Cognosco venientem*

['I know the one approaching'] does not preserve truth despite the identity of Socrates with the one approaching, whence the inference from the first to the second is not valid.

Thus, along these lines, Buridan's theory provides a neat explanation for the breakdown of the substitutivity of identicals in the context of intentional verbs: exchanging the accusative referring to the direct object of the intentional verb for a coreferential accusative is not truth-preserving, because these accusatives contribute to the determination of the *supposita* of the complex terms of which they are parts not only with their *ultimate significata*, but also with their *immediate significata*, namely, the concepts to which they are subordinated and that they are forced to appellate in such contexts. Indeed, Buridan's approach also provides a neat explanation for the fact that the substitution of synonyms for synonyms in such contexts *is* truth-preserving: 'I know my father; therefore, I know my male parent' *is* valid precisely because the terms 'father' and 'male parent' are synonymous, whence they appellate the *same* concept. Furthermore, because Buridan's approach involves *token* concepts, which may vary with the knowledge, linguistic competence, and so on of individual users even in the case of "objectively" synonymous terms (i.e., ones whose synonymy is well established in common usage), Buridan's theory can also explain *idiosyncrasies*, when a substitution of synonyms is not truth-preserving in the case of someone who is simply not aware of the relevant synonymy.

However, as Buridan remarked, these contexts are sensitive to the concept appellated by the relevant accusatives only if the accusatives in question *follow* the intentional verbs or participles with which they are construed, but not when they *precede* them. Thus, the different word order provides us with a "concept-neutral" way of describing someone's mental acts, that is, a way in which we are not committed to identifying the precise concept under which these acts concern their ultimate objects. In such a case, therefore, the substitution of identicals is truth-preserving. Indeed, it is (p. 196) quite intuitive to claim that I do not know the one approaching *qua* the one approaching, although he is Socrates whom I know *qua* Socrates,²⁹ and yet it is true that because Socrates, who is the person approaching, is someone I know, the person who is approaching is someone I know, even if I do not recognize him *qua* Socrates.

However, Buridan's further remark that in these cases, when the accusatives precede the intentional verbs, they still appellate their concepts, but in disjunction with other concepts (which is actually just another way of

saying that Buridan's analysis acknowledges that the mental acts signified by intentional verbs and their derivatives *always* concern those objects under *some* concept or another, which we may or may not be able to identify), leads to some further, apparently somewhat counterintuitive, claims. For given that a disjunction is implied by any of its members, it follows that a term suppositing for something under the appellation of a determinate concept will also supposit for the same thing under a disjunctive appellation. Thus, if a complex term containing an intentional verb supposits for something under the determinate appellation of the concept of the accusative following it, then it will also supposit for the same thing with the disjunctive appellation of other *rationes*, whence the sentences in which the accusative follows the verb will always entail the sentences in which they precede the verb, although not conversely.

Thus, *Cognosco venientem* implies *Venientem cognosco* and *Debeo tibi equum* implies *Equum tibi debeo*, but not conversely. For if I am one among the supposita of *cognoscens venientem* with the determinate appellation of the concept of *veniens*, then I also have to be among the supposita of *venientem cognoscens* with the appellation of *some* concept, one among these possible *appellata* being the concept of *veniens*, but not conversely (just as if I see Socrates, I see someone, but if I see someone, it does not follow that I see Socrates).

The trouble with this result is that in this way Buridan's analysis seems to license an inference that intuitively does not appear to be valid. For if I just owe you a horse, namely, just *any* horse, without owing you this or that particular horse, it does not seem to follow that therefore I owe you this horse or I owe you that horse, which apparently would precisely be the case if we allowed the inference 'I owe you a horse; therefore, a horse I owe you (i.e., some horse is such that I owe it to you.)'

To this Buridan may respond that 'I owe you a horse; therefore, I owe you this horse or I owe you that horse ... and so on' is invalid, because in (p. 197) each disjunct the appellated concept is changed from the universal concept of horse to the singular concept of this horse, whence all of these disjuncts may be false while the premise is true. However, he is still committed to the inference 'I owe you a horse; therefore, this horse I owe you or that horse I owe you and so on'. In fact, Buridan is quite prepared to accept this conclusion. Indeed, he does not even stop here. He makes a further, even more counterintuitive-sounding claim with respect to the implications of *Debeo tibi equum*. For he claims not only that *Debeo tibi*

equum implies *Equum tibi debeo* ['A horse I owe you'], but even further that *Equum tibi debeo* implies *Omnem equum tibi debeo* ['Every horse I owe you']. That is to say, if I owe you a horse, on the basis that my obligation concerns particular horses through the common concept of 'horse', which, in turn, concerns equally every horse, then my obligation, through the general concept of 'horse', concerns equally every horse. Thus, if it is true that I owe you a horse, then it is true equally of every horse that I owe it to you, that is, 'I owe you a horse; therefore, every horse I owe you' is valid according to Buridan. Indeed, besides the intuitive appeal to the indifferent consideration of all horses, it is easy to see how this follows from Buridan's semantic analysis. For if I am one of the supposita of *debens tibi equum* in *Ego sum debens tibi equum*, then this is because I am one of the actual ultimate significata of *debens* in relation to you, to the *ratio* of horses, and to a horse, for any choice of an individual horse; this is what is meant by just owing any horse. But then I also have to be one of the supposita of *equum tibi debens*, that is, one of the actual ultimate significata of *debens* in relation to you, to some *ratio* that can represent horses, and to a horse, for any choice of an individual horse. But if this is the case, I also have to be one of the supposita of *omnem equum tibi debens*, for this requires the same, namely, that I be one of the actual ultimate significata of *debens* in relation to you, to some *ratio* that can represent horses, and to a horse, for any choice of an individual horse. That is to say, *ego sum equum tibi debens* and *ego sum omnem equum tibi debens*, that is, 'a horse I owe you' and 'every horse I owe you' on this analysis have the same conditions of truth, that is, they are equivalent.

Buridan hastens to point out that this does not mean that I owe you every horse, for you can claim from me only what is signified by the term under which the obligation was made, and I did not oblige myself to give you every horse, only a horse. And in fact Buridan's analysis does not commit him to this absurd conclusion. The reason is that in 'I owe you every horse' the *ratio appellata* would be that corresponding to 'every horse' (namely, (p. 198) 'this horse and that horse and that ... and so on'), not only that corresponding to 'horse' (which, being a simple absolute concept is obviously different). Hence, because the change of *appellation* changes truth-conditions, the passage from 'I owe you a horse' to 'I owe you every horse' does not preserve truth, and so you cannot demand from me every horse on the basis that I promised you a horse.

So, for this reason, we certainly cannot derive from Buridan's account the patent absurdity that just because I promised you a horse in general, I owe

you every horse. But it still does follow that because I owe you a horse, a horse I owe you, and indeed, even further, that every horse is such that I owe it to you. It is at this point, therefore, that we need to examine the question of whether Buridan's theory is able to provide an acceptable justification for these apparently counterintuitive results, especially in contrast to competing, alternative accounts.

One such account was provided by the realist logician Walter Burley, who claimed that when I promise a horse in general, my promise cannot concern any particular horse and so my promise has to concern a universal horse, which, however, I can only deliver in an individual:

... when it is asked which kind of supposition it is according to which 'A horse is promised to you' is true, assuming that someone promises you a horse, [I reply that] in maintaining that there is some kind of unity outside the soul other than numerical unity, one would have to say that 'A horse is promised to you' is true insofar as the subject has simple absolute supposition. For I do not promise you this horse or that one, but rather simply a horse. And because a universal cannot exist by itself, and consequently cannot be delivered [in fulfillment of the promise] except in some singular, therefore he who promises you a horse is bound to deliver to you some horse. Otherwise he cannot deliver to you what was promised.

30

But this account is certainly unsatisfactory. Not only because of its apparent commitment to universal entities (although only in the way a *moderate* realist would be committed to them, as to some sort of quasi-entity, having less-than-numerical unity), but because in making the promise, I certainly did not promise a universal horse, but a particular one, although *any* particular one. Therefore, *even if* by some miracle I were able to deliver a universal horse *without* delivering a particular one, in doing so I would *not* fulfill my original promise. But even without considering what would (p. 199) fulfill the promise, it would clearly be absurd to claim that since I promised you a horse, therefore, I promised you a universal horse or even that therefore it is a universal horse that I promised you. Indeed, what shows the strength of *Buridan's analysis* is that the invalidity of these inferences is clearly "predicted" by Buridan's theory, given the difference of the concepts immediately signified by 'horse' and 'universal horse', whatever those

concepts are in their own nature (i.e., mental acts or thought-objects having some less-than-numerical unity).

By contrast, on Buridan's account the promise concerns an *individual* horse, as it should, indeed, *any* individual horse, as considered merely under the common concept of horses. But individual horses considered in this way are considered indifferently, so, whatever concerns one as such, concerns any other, indeed, *all*. But then, the crucial question concerning Buridan's treatment becomes whether we have to admit his first counterintuitive claim, namely, that on account of the fact that the determinate appellation of the accusative *following* the verb entails the disjunctive appellation of the same accusative *preceding* the verb, 'I owe you a horse' entails 'A horse I owe you'. For it may seem that if I only owe you any horse in general, then it is not true of *any* horse in particular that I owe *that* to you.

In fact, this is the intuition that seems to be behind Ockham's solution, ³¹ according to which in the analogous 'I promise you a horse', the term 'horse' stands merely confusedly, that is, equivalently to a nominal disjunction, from which, however, we cannot descend to the singulars by means of a disjunctive proposition. That is to say, 'I promise you a horse' is equivalent to 'I promise you this horse or that horse or that ... and so on', but from this we cannot conclude that 'therefore; I promise you this horse or I promise you that horse ... and so on', which would be equivalent to 'Some horse is such that I promise it to you'. So, Ockham's treatment seems to justify the intuition (although, contrary to Buridan's analysis, without providing any reason for it) that one cannot "quantify into" the argument place of an intentional verb from outside, a move that causes much headache to modern logicians, because in standard quantification theory we can have a quantifier *only outside* the argument place of a predicate. ³²

To compare the merits and demerits of Ockham's and Buridan's respective approaches, I would like to show here that, whereas Ockham's theory merely explicates a certain intuition in terms of supposition theory without providing any explanation for it, Buridan's theory, besides accounting for his own intuitions and some important epistemological considerations, is **(p. 200)** able, with a minimal modification of its starting assumptions, to account also for the intuitions backing Ockham's treatment of sentences with intentional verbs. To see this point, we only have to notice that Ockham's contrary claim (namely, that the proposition *Equum tibi promitto* ['A horse I promise you'] is not true in the posited case because the term *equum*, being preposited to the verb, supposits in it determinately) may be obtained in Buridan's theory

from the assumption that if the term is preposited to (the participle derived from) the intentional verb, then, instead of having a disjunctive appellation, it does not have *appellatio rationis* at all, but simply stands for some of its supposita. With this assumption, contrary to his own claim, Buridan's theory would predict that *Promitto tibi equum* ['I promise you a horse'] does not imply *Equum tibi promitto* ['A horse I promise you'].

For with this assumption, it may well be the case that although in the complex term *promittens tibi equum* ['someone promising you a horse'] the participle *promittens* signifies me in relation to the *ratio* of *equus*, and so the complex term supposits for me with the appellation of this *ratio* in *Ego sum promittens tibi equum*, in which case this sentence is true, still, *equum tibi promittens* ['someone a horse promising you'] does not supposit for me without any appellation of the *ratio* of *equus*, or of any other term in *Ego sum equum tibi promittens* ['I am someone a horse promising you'], in which case this sentence is false. For in that case I may be one among the supposita of *equum tibi promittens* only if I am signified by *promittens* in relation to this horse, or in relation to that horse, and so on, that is, if I promise you some horse determinately, which is not the case when only *Promitto tibi equum* is true.

So, Buridan's theory is able to account for the intuitions of those who feel uneasy about his actual solution: these intuitions dictate that we take *equus* as standing determinately and without any *appellatio rationis* in *Equus tibi promittitur* ['A horse is promised you'], in which sense this proposition is, of course, false if no determinate horse was promised you, but only a horse in general. So those who share their intuitions with Ockham, and claim that no horse is promised to you in such a situation, may at least respect Buridan's theory, even if they dislike his actual solution, given that it is this theory that accounts even for *their* intuitions.

Buridan specifically argues against this intuition on the grounds that if it is true that a promise made in general entails that nothing is promised and hence nothing is owed in particular, then we would have to swallow the preposterous legal arguments of anyone refusing to pay off their debt on such grounds. ³³

(p. 201) However, Buridan has some even more intriguing and philosophically weightier arguments up his sleeve for his treatment of propositions of this sort. In particular, he argues that if we were to follow Ockham's analysis, then it would follow that even if we could have knowledge of certain propositions about some things, this would not mean

that of those things themselves we would have any knowledge whatsoever. As he poignantly puts it in the discussion of the thirteenth *sophisma* of the chapter on appellation:

The whole difficulty of this sophism seems to consist in the question whether the following [inference] is valid: 'I know that every triangle has three etc.; therefore, of every triangle I have the knowledge that it has three etc.' Therefore, because of this difficulty, some people said that we have knowledge only of demonstrated conclusions, but not of other things, such as stones or animals. And others say that it is not that of every triangle I have knowledge, but that I have knowledge of every triangle, from which it does not follow that 'therefore; of an isosceles'—for the appellation is changed after [the verb]. But this response seems to be rather crude; for it would imply that of no triangle would I have knowledge, since on whatever basis I would [have knowledge] of one, on the same basis I would [have knowledge] of all; therefore, either of all or of none. And then, by parity of reasoning it would follow that although I would have knowledge of God, of the heaven, of animals, of health and illness, nevertheless, of God I would have no knowledge, or of the heaven, or of animals; nor of health and illness would a doctor have any knowledge. ³⁴

Clearly, these conclusions are unacceptable to anyone who, like Buridan, wants to preserve genuine knowledge *of things*, rather than just *of propositions about things*. As he continues:

And this seems to be tough to swallow, although this opinion has a certain appeal [*apparentia*], for from a composite modal [proposition] there does not appear to follow a divided [proposition]. For example, this is not valid: 'It is necessary that every donkey is an animal; therefore, every donkey is necessarily an animal', for Aristotle would concede the first, but would deny the second, for the reason that every donkey may not be, and, consequently, may not be an animal. Similarly, this is not valid: 'It is possible that every being is God; therefore, every being can be God', for the first is true—as this was the case before the creation of the world, and this would also be the case if God annihilated all creatures—, and the second is false—for it is not possible for a creature to be

God. Therefore, (p. 202) likewise, it seems that the following should not be valid: 'I know that every B is A; therefore, every B I know to be A', or even 'I know every triangle to have three etc.; therefore, every triangle I know to have three etc.' But one might say that the case is not the same with all kinds of modal propositions; for although it may not be valid in all cases, nothing prevents it from being valid in some. For example, this is valid: 'It is true that every B is an A; therefore, every B is truly an A'; therefore, it seems probable that this is valid: 'I know that every triangle has three etc.; therefore, of every triangle I know that it has three etc.', or even 'therefore, every triangle I know to have three etc.'³⁵

In view of these considerations, it should be clear that whoever would want to sacrifice Buridan's treatment of the case of 'I owe you a horse' for the sake of Ockham's intuition concerning 'I promise you a horse' would have to be prepared to account for the other, clearly related, but epistemologically important cases of 'I know a triangle' (*Cognosco triangulum*) and 'A triangle [is such that] I know [it]' (*Triangulum cognosco*) where it would indeed be tough to swallow (*valde durum*), to use Buridan's phrase, that we should accept 'No triangle [is such that] I know [it]' (*Nullum triangulum cognosco*), whereas we have very good reasons to accept 'Every triangle [is such that] I know [it]' (*Omne triangulum cognosco*).

Given these epistemological considerations, therefore, we had better accept the inference from the determinate appellation of a concept to the disjunctive one in these cases. But then, consistency requires that we do so also in the *Debeo tibi equum* case. Doing so allows us to treat this case in a way consistent with Buridan's nominalist principles, according to which the *rationes appellatae* are just individualized qualities of individual minds, while still making good sense of the idea that promises and debts in general need not concern general entities, but particular ones, conceived in a general manner. So, whatever particular misgivings one may have concerning his actual treatment of the case of *Debeo tibi equum*, one cannot but respect the consistency of Buridan's theory with his more general philosophical considerations.

Notes:

(1.) Cf.: "... the signification of the whole complex was commonly held to be of a compositional nature and to be determined by the signification

of its parts. As Pardo put it, only incomplex expressions have been given conventional meanings in a primary and immediate way; a propositional complex, such as *Homo est animal*, on the other hand, has been destined to signify its meaning only in a mediate, consequential and secondary manner, since its signification can be derived from the significations of the incomplex parts." Nuchelmans, G. *Late-Scholastic and Humanist Theories of the Proposition*, p. 45. Cf. Hieronymus Pardo. *Medulla Dialectices*, Paris, 1505, fol.1.V. An interesting contrast to this view is provided by the extreme conventionalism of Robert Fland, who would allow the arbitrary, noncompositional signification of complex expressions, such as a conjunctive proposition (with the result that a conjunction may not be implied by its conjuncts and vice versa). Fland is discussed in detail by Spade, P. V. *Thoughts, Words and Things: An Introduction to Late-Mediaeval Logic and Semantic Theory*, 1996, unpublished manuscript, available at http://www.pvspade.com/Logic/docs/thoughts1_1a.pdf, esp. pp. 90–93, *et passim*. However, it is important to note that this breach of compositionality requires a new imposition: thus, compositionality *on the mental level* is unaffected by Fland's considerations. Note also that by my criterion of syntactical simplicity vs. complexity, Fland's conjunction, despite appearances to the contrary, would not be a syntactically complex expression (indeed, not any more than 'polecat' is). Cf. the discussion of this issue in the section on *Simple vs. complex concepts* (section 4.2) earlier in this book.

(2.) Buridan, J. *Sophismata*, p. 849.

(3.) For Buridan's metaphysical account of time as an extramental entity (a *res successiva*, that is, one whose parts do not coexist, but only one after another), see Dekker, D.-J. "Buridan's Concept of Time. Time, Motion and the Soul in John Buridan's Questions on Aristotle's Physics," in *The Metaphysics and Natural Philosophy of John Buridan*, eds. J. M. Thijssen and J. Zupko, Leiden-Boston-Köln: Brill Academic, 2000, pp. 151–164. So, the verbal copula, on account of its connotation of some time *ad extra*, is not purely syncategorematic. This is because of its tense. But Buridan is also considering the possibility of forming a purely syncategorematic concept that would abstract from any time, and so it would merely effect the composition of subject and predicate. The term subordinated to such a concept would then be just as tenseless as the epsilon of set theory or the equal sign of modern arithmetic. See SD 4.3.4, where Buridan is speculating about the possibility that the souls of the blessed are forming mental propositions with such a tenseless copula.

(4.) It is important to realize here that the conjunction ending in an ellipsis is not a proposition, but rather a proposition schema indicating a number of different propositions of the same form, each of which is materially equivalent to the original in different situations, in which the number of individuals to which the descent is made is supposed to correspond to the number of conjuncts. Interpreting the ellipsis this way, we can avoid the usual charge that if these descents are supposed to provide “the contextual definitions of the quantifiers” then these definitions are circular, since in ‘every man is an animal iff this man is an animal and that man is an animal ... and so on for every animal’ the definiens repeats the definiendum, rendering the definition circular. However, in the first place, it is doubtful that these descents and ascents are supposed to provide definitions. And, in the second place, it is also clear that if we treat the ellipsis in the suggested manner, then no such circularity emerges. For a formal treatment of this idea in the framework of a model theoretical semantics, see Essay II of Klima, G. *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*.

(5.) Spade, P. V. “Why Don’t Mediaeval Logicians Ever Tell Us What They’re Doing? Or, What Is This, A Conspiracy?” available at <http://www.pvspade.com/Logic/docs/Conspiracy.pdf>. This is a very amusing, but deadly serious, little piece about some of the toughest interpretational problems of medieval logic. The point about descents and ascents is argued in greater detail in Spade, P. V. “The Logic of the Categorical: The Medieval Theory of Descent and Ascent,” in *Meaning and Inference in Medieval Philosophy*, ed. N. Kretzmann, Dordrecht: Kluwer Academic, 1988, pp. 187–224.

(6.) Cf. Geach, P. T. *Reference and Generality*, Ithaca, NY: Cornell, 1968, p. xii; Read, S. L. “Thomas of Cleves and Collective Supposition.”

^aFollowing the usage of Stephen Read in “Thomas of Cleves and Collective Supposition.”

(7.) SD 4.3.6. Concerning the remark on “the common mode of supposition” cf. 4.3.8.4, where Buridan explains that in the case of confused supposition caused by intentional verbs (*verba significantia actus animae*—verbs signifying the acts of the soul) the situation is different on account of the appellation of concepts (*appellatio rationis*). I am going to turn to this issue in the next section.

(8.) Hieronymus Pardo, *Medulla Dyalectices*, c. 10.

(9.) Concerning the development of the role of the converse ascents in supposition theory and, in general, the problems involved in the requirement to descend to an equivalent proposition, see the excellent discussion in Priest, G. and Read, S. L. “Merely Confused Supposition: A Theoretical Advance or a Mere Confusion?” *Franciscan Studies* 40(1980), pp. 265–297. For a good summary of the arguments against presenting supposition theory as a sort of quantification theory, giving the truth-conditions of quantified sentences in terms of descents, precisely on account of the failure of ascents see Adams, M. M. *William Ockham*, pp. 367–377. Adams’s alternative proposal is that “the divisions of common personal supposition are not the means to the end of giving a contextual definition of quantifiers nor for stating the truth conditions for propositions containing quantified general terms; rather the divisions of supposition generally were marshaled into service for the task of identifying fallacies” (*ibid.* , p. 382). To be sure, the development of supposition theory from its very origins was motivated by the need to detect fallacies, as it was convincingly shown by De Rijk, L. M. *Logica Modernorum*. Nevertheless, it may be argued that the need for fallacy detection developed also a relatively independent interest in the referring function of terms in general, which, during the development of supposition theory, led to, among other things, the explicit requirement of analyzing quantified sentences in terms of equivalent descended forms, as we can clearly see this in such later authors as, for example, Paul of Venice. Cf. Paul of Venice, *Logica Magna*, tr. 2, ed. A.R. Perreiah, St. Bonaventure, NY: Franciscan Institute, 1971.

(10.) We should note here that even in earlier authors there is an indication that they would be willing to consider something like this sort of descent to a conjunct term but not to a conjunctive proposition. For example, in the thirteenth-century *Summa Lamberti* we find the following: “When one says ‘Only every man is running,’ ‘man’ has strong but immobile confused supposition,” where “strong” indicates the possibility of conjunctive descent, and “immobile” the impossibility of a propositional descent, so it must indicate nominal conjunctive descent, namely, to ‘Only this man and that and ... and so on is running’. Lambert of Auxerre, *Logica (Summa Lamberti)*, ed. F. Alessio, Florence: La Nuova Italia, 1971, tr. VIII: *De suppositionibus et significationibus*. But whatever the author may have actually had in mind, clearly, in this case the conjunctive propositional descent would not be valid, whereas the ascent from the nominal conjunction is. Of course, we have much clearer examples in later authors. For those, see Read, S. L. “Thomas of Cleves and Collective Supposition.”

(11.) For the importance of this addition, see Read, S. L. "Thomas of Cleves and Collective Supposition," esp. pp. 52–53.

(12.) SD 4.3.5. Buridan discusses the "causes of confusion," that is, those syntactical elements that make a term with which they are construed have confused supposition, in chapter 7 of the same treatise.

(13.) SD 4.3.8.2.

(14.) Klima, G. and Sandu, G. "Numerical Quantifiers in Game-Theoretical Semantics," *Theoria* 56(1990), pp. 173–192. For a perhaps somewhat more accessible presentation of the informal ideas that led to this collaborative paper, see Klima, G. "Approaching Natural Language via Medieval Logic."

(15.) Cf. section 4.4.3, especially the text quoted at n. 112.

(16.) Intentional contexts are a specific case of intensional contexts, insofar as the former exhibit some peculiar features of their own besides the distinctive characteristics of intensional contexts distinguishing them from extensional contexts in general. Failure of substitutivity of identicals is distinctive of intensional contexts in general, whereas I take the presence of verbs and their derivatives signifying mental acts to be distinctive of intentional contexts in particular.

(17.) Buridan, focusing on spoken language, would usually take the time connoted by the present tense copula as the present time of the utterance of the proposition. However, in his more careful considerations concerning the time connoted by the copula of a proposition, he draws the fundamental distinction between the time *at which* [*in quo*] and the time *for which* [*pro quo*] a proposition is true, namely, the time of the formation and the time of the interpretation or evaluation of a proposition, which need not always coincide, indeed, sometimes *have to* differ. For an interesting discussion of the issue, see Perini-Santos, E. "John Buridan on the Bearer of Logical Relations," *Logica Universalis* 2(2008), pp. 59–70. For Buridan's own discussion, see *Sophismata*, c. 7. A reconstruction of Buridan's temporal semantics is provided by Øhrstrøm, P. "Buridan on Interval Semantics for Temporal Logic," *Logique et Analyse* 27(1984), pp. 211–215.

(18.) SD 4.5.1. Quite clearly, although he never explicitly says so, for Buridan, being appellative (connotative) or nonappellative are properties of terms independent of context, based on their signification, but appellation is a property of terms only in propositions. By contrast, we find explicit statement

of this in the work of his pupil, Marsilius of Inghen. See Marsilius of Inghen. *Treatises on the Properties of Terms*, ed. E. P. Bos, Dordrecht: D. Reidel, 1983, pp. 128–136. This is why we may say that although supposition is direct reference in a proposition to a term's *significata*, appellation is oblique reference in a proposition to a term's *connotata*.

(19.) *Sophismata*, SD 9, c. 4, pp. 879–880.

(20.) Although in many cases the phrase *tempus verbi* can be quite smoothly translated by 'tense', in this context, in which Buridan is going to talk about the restriction of the time connoted by the verb, I would rather refrain from this "smooth" but somewhat misleading translation.

(21.) SD 9, *Sophismata*, c. 4. Cf. "(1) An appellative term always appellates its form, whether it is placed on the side of the subject, i.e., before the verb, or on the side of the predicate, i.e., after the verb. (2) But sometimes it appellates [its form] differently before and after [the verb], for after [the verb] it appellates its form precisely for the tense of the verb, (3) but before the verb, if the verb is in the present tense and the predicate is not ampliative, then it appellates its form precisely for the present time; (4) however, if the verb is in another tense or if the predicate is ampliative, then the term occurring before the verb appellates its form indifferently, i.e., disjunctively, as it were, for the present time for the tense of the verb, or for the time for which the predicate ampliates, if it is ampliative." SD 4.5.2.

(22.) This is the type of appellation that Marsilius de Inghen calls *appellatio formalis significati*, which he sharply distinguishes from the other type of appellation, the *appellatio rationis*. From this doctrinal point of view, it is quite obvious that in the otherwise excellent edition (see n.18 above) of Marsilius' text, all occurrences of the phrase 'rationem suam' on pp. 150–152 should read as 'rem suam', the standard traditional expression for what he calls 'significatum formale'.

(23.) SD 4.5.4.

(24.) SD 4.3.8.4. Thus, I do not share the opinion of L. M. de Rijk, who wrote: "As a matter of fact, Buridan himself seems to feel quite uneasy about his 'debeo tibi equum' case (see Scott, pp. 141–142). It must be considered an intruder, indeed. The last case of appellation ('equus' in 'debeo tibi equum') is not a correct one, since it is just a case of supposition. Buridan's extending the 'venientem' case to the 'equum' case (i.e. the adjective noun cases to

the substantive noun cases) seems to be rather abortive.” De Rijk, L. M. “On Buridan’s Doctrine of Connotation,” in *The Logic of John Buridan*, Acts of the Third European Symposium on Medieval Logic and Semantics, ed. J. Pinborg, Copenhagen: Museum Tusulanum, 1976, pp. 91–100, on p. 100. For a more sympathetic evaluation of Buridan’s doctrine, see Maierù, A. “Significatio et connotatio chez Buridan,” in the same volume, pp. 101–114. Cf. also Biard, J. “Le cheval de Buridan: Logique et philosophie du langage dans l’analyse d’un verbe intentionnel,” in *Die Philosophie im 14. und 15. Jahrhundert*, ed. O. Pluta, Amsterdam: Bochumer Studien zur Philosophie, 1988, pp. 119–137.

(25.) SD 4.5.3.

(26.) SD 4.3.8.4.

(27.) Cf. “... sciendum est quod ista verba ‘intelligo’ cognosco’, ‘scio’ et huiusmodi de quibus post dicemus, et participia et nomina inde descendunt, ut ‘intelligens’, ‘cognoscens’, ‘intellectio’, ‘cognitio’, etc., faciunt in terminis cum quibus construuntur quosdam modos speciales appellationum.... Postea notandum est quod nomina imponimus ad significandum mediante rationibus quibus res intelligimus. Ideo etiam istud verbum ‘significo’ tales facit appellationes, sicut ‘intelligo’ vel ‘cognosco’, et ita etiam hoc verbum ‘apparet’, et haec verba ‘scio’, ‘opinor’, ‘puto’, ‘credo’, etc. Praeterea etiam quia appetitus nostri fiunt in nobis mediante cognitione, ideo sequitur quod similes appellationes faciunt nobis ista verba, scilicet ‘volo’, ‘appeto’, et ‘desidero’. Et adhuc etiam quia sub aliquibus conceptibus facimus nostras promissiones et obligationes, sequitur quod etiam ista verba ‘debeo’, ‘promitto’, ‘obligo’, etc. et alii termini ex ipsis descendentes faciant huiusmodi appellationes.” SD 9.4, pp. 895–6.

(28.) “Nam quia eandem rem possum cognoscere secundum multas diversas rationes, et isti rei secundum diversas rationes diversa nomina imponere ad significandum eam, ideo talia verba faciunt terminos cum quibus construuntur appellare rationes secundum quas imposita sunt nomina ad significandum, et non solum res cognitae ad extra, sicut faciunt alia verba. Aliter tamen a parte ante et a parte post. Nam a parte post, illi termini appellant determinate suas rationes proprias. Sed a parte ante appellant eas indifferenter sub disiunctione ad alias rationes quibus res significatae possunt significari et intelligi. Propter quod iste propositio non est vera ‘Cognosco venientem’, proprie loquendo, nisi cognoscam eam secundum eam rationem, secundum quam dicitur veniens, licet cognoscerem bene secundum alias rationes. Et sic non sequitur, cognosco Sortem, et sit veniens; ergo cognosco venientem. Quia licet cognoscam illum secundum

illam rationem secundum quam dicitur Sortes, non tamen cognosco illum secundum illam rationem secundum quam dicitur veniens. Sed a parte subiecti, bene sequitur, Sortem cognosco, et Sortes est veniens; ergo venientem cognosco.... Non ergo sequitur, venientem cognosco, ergo cognosco venientem. Immo est possibile quod ignoro venientem. Sed bene sequitur, cognosco venientem, ergo venientem cognosco; sicut in aliis appellationibus non sequebatur, album erit, ergo erit album, sed bene econverso, erit album, ergo album erit.” Ibid.

(29.) It is worth noting here that this qualifier in English may well be a remnant of educated discourse originally informed by Buridan’s theory. For what can explain that we have in English the ablative form of the Latin relative pronoun in the feminine gender? My guess is that it is simply the abbreviation of the Latin phrase ‘sub ratione qua’, as in ‘Intelligo triangulum sub ratione qua est triangulus, sed non sub ratione qua est isosceles’ [‘I understand a triangle, considered under the concept of triangle, but not under the concept of isosceles’], which I could say, for example, when I want to explain why a demonstration based on a diagram that happens to be an isosceles applies to all triangles. This speculation about the origin of the phrase in English may be absolutely wrong. It would be interesting, though, if it turned out to be right.

(30.) Burley, W. *On the Purity of the Art of Logic*, trans. P. V. Spade, New Haven, CT: Yale University Press, 2000, p. 90.

(31.) For Ockham’s treatment, see SL Part I. c.72, pp. 219–221. Cf. Part II. c. 7. Cf. also Guillelmi de Ockham. *Scriptum in librum primum Sententiarum Ordinatio*, St. Bonaventure, NY: Franciscan Institute, 1967–1979, d.2.q.4., pp. 145–148.

(32.) That is to say, ‘John seeks a unicorn’ does not entail ‘Some unicorn is such that John seeks it’. But the grammar of quantification theory allows only the formalization of the latter even with restricted variables: ‘ $(\exists x.Ux)(Sjx.)$ ’. So, the logical form of the former sentence is an open question for this theory. By contrast, in a logic with nominal disjunctions and conjunctions, and relevant provisions for the appellation of concepts and ampliation of terms caused by intentional verbs, we can clearly reconstruct both Buridan’s and Ockham’s treatment along the lines suggested here. Thus, for Buridan, ‘John seeks a unicorn’ would entail: ‘Something (indeed, everything) that is or was or will be or can be a unicorn John seeks’ (or more smoothly, switching to the passive voice: ‘Something/everything that is or was or will be or can be a unicorn is sought by John’), whereas, of course, this would not

further entail that John seeks every unicorn, nor that there is a unicorn such that John seeks it.

(33.) See SD 9.4, esp. p. 911, arguments P'.1 and P'.4. Buridan explicitly connects the 'debeo equum' case to his epistemological considerations in P'.3.

(34.) SD 9.4, *Thirteenth Sophism*, p. 899.

(35.) Ibid.



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The Semantics of Propositions

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Abstract and Keywords

This chapter provides a systematic discussion of Buridan's nominalist semantics of propositions and sentential nominalizations. The chapter argues that despite its incompleteness, Buridan's theory is still "nominalism's best shot" at a semantics of propositions without buying into a philosophically and theologically dubious ontology of dicta, enuntiabilia, complexe significabilia, real propositions, or states of affairs.

Keywords: semantics of propositions, sentential nominalizations, dicta, enuntiabilia, complexe significabilia, real propositions, states of affairs

9.1 The Significata of Propositions

Having surveyed Buridan's theories of the properties of terms, one would reasonably expect that, based on these considerations, his logic then provides a semantics for propositions, in particular, a theory of truth, determining the truth-conditions of various types of propositions in terms of the semantic values of their terms. This could then serve as the basis for the definition of logical validity, to be used as a necessary condition of the soundness of scientific demonstrations in the process of acquiring scientific knowledge.

In rough outline, this is indeed how Buridan's theory is built up. However, in its details, his construction of logical theory contains several rather surprising features. In the first place, given Buridan's "two-tiered" semantics, we have to distinguish between the interpretation of propositions *apud mentem* and

ad extra. Spoken and written propositions have a “fine-grained” semantics, insofar as they are mapped onto mental propositions. But they also have a “coarse-grained” semantics, insofar as their extramental signification will be regarded by Buridan as simply the sum total of the significata of their categorematic terms.

Accordingly, because their “intramental” signification (the mental proposition they denote in the mind) obviously does not provide the condition **(p. 204)** for their truth (since its presence is just the precondition of the sheer meaningfulness of the corresponding spoken proposition), ¹ and neither does their extramental signification (because contradictory propositions, having the same categorematic terms, always have the same extramental signification), the signification of propositions, despite possible expectations to the contrary, cannot serve to determine their truth-conditions. ²

Thus, Buridan will have a theory of truth-conditions quite apart from his theory of propositional signification, thereby making a radical break with the older tradition stemming from Aristotle, which would define truth in terms of the actuality or nonactuality of the total significatum of the proposition taken as a whole, referred to by earlier authors as the *enuntiabile* or *dictum*, and by authors after Adam Wodeham and Gregory of Rimini as *complexe significabile*. ³ These propositional significata, whatever they are in their own nature, are obviously required by a certain type of semantic construction. A semantic construction of this sort would first have to determine the significatum of each proposition in terms of the semantic values of its components, establishing the conditions for the actuality of this significatum in terms of the actuality or non-actuality of the semantic values of its terms. Once this is done, it can simply claim that any proposition is true just in case its significatum is actual. ⁴ But given this construction, these propositional significata clearly cannot be identified with really existing individuals: the truth, that is, the actuality of the significatum, of the proposition ‘Homer is blind’ clearly requires the existence of Homer and the nonexistence of his sight, and thus, it would be absurd to identify the significatum of the whole proposition, namely, the enuntiabile or complexe significabile *that Homer is blind*, either with Homer or his sight. ⁵

Buridan’s nominalist ontology, by contrast, is a world of really existing individuals: individual substances and their individualized qualities and quantities. ⁶ In this ontology, therefore, there is no place for another type of entities, the *complexe significabilia* for propositions to signify. Hence, besides arguing for the absurdity of positing such extra entities, or quasi-

entities, ⁷ Buridan only needs to show that there is no serious theoretical need for positing them. After that, grabbing Ockham's razor, he can happily excise them from his ontology. And he can clearly do so by assigning the truth conditions of propositions not in terms of the actuality of their significata, but rather in terms of the cosupposition (or noncosupposition) of their categorematic terms, determined by how the things in his ontology are.

(p. 205) However, we must not forget that Buridan's ontology also includes items of the languages in which the propositions whose truth-conditions need to be determined are formed: conventionally significative individual inscriptions and utterances, and naturally significative acts of thought (which, we should remember, are just certain naturally representing individualized qualities of thinking substances). Thus, given Buridan's nominalist, token-based conception of language and logic, in assigning semantic values to the items of these languages, he has to take into account not only how things other than items of a language are, but also how things that are items of the language under evaluation are.

In dealing with the semantic evaluation of propositions, therefore, Buridan has to heed two demands of his nominalist metaphysics: (1) propositional signification can only be provided in terms of individuals permitted by his ontology, and (2) special care needs to be taken of those propositions the semantic values of which depend not only on individuals that are other than items of the language under consideration but also on individuals that are items of the language in question. For example, the proposition written here: 'No proposition is negative', being itself a negative proposition, cannot be true in a situation in which it is actually formed. Still, it is an obviously possible scenario in which there are no negative propositions in the world. (Indeed, this was certainly the case before the first human being formed the first negative proposition in the history of the universe, assuming we are only talking about negative propositions formed by human beings and disregard the issue of nonhuman intelligences.) Therefore, this proposition is clearly true *of* that scenario, even if it cannot be true *in* that scenario. So, in evaluating this proposition (and especially its modal versions), Buridan clearly has to take into account the existence or nonexistence of this proposition itself in the situation in which its truth-value is assigned.

These theoretical demands are met by Buridan's two-tiered semantics for propositions, namely, the "fine-grained mapping" from spoken and written propositions to mental propositions and the "coarse-grained mapping" from mental propositions (and through their mediation from spoken and written

propositions) to things in the world, where the world itself contains also all items of the languages to which these propositions belong. As we saw in our discussion of complex concepts, the first mapping, from conventional spoken and written languages to mental language, maps token-sentences of conventional languages to corresponding mental propositions, where the corresponding mental propositions are those token-acts (p. 206) of singular minds that are compositionally dependent for their semantic values on the semantic values of those concepts that are signified in these minds by the syntactical parts of the conventionally signifying sentences.⁸ We must keep in mind, however, that this mapping is not one-to-one. In the case of synonymous sentences (say, in the case of strictly matching translations or sentences containing synonymous terms), it is many-to-one, whereas in the case of ambiguous sentences it is one-to-many.⁹ Still, this mapping is sufficiently fine-grained to provide the semantic distinctions one needs to make, where the difference between the appellated mental propositions can clearly account for the relevant semantic differences in intentional contexts. (For instance, according to Buridan, this is why it may be true that Aristotle believed that God is God without believing that God is triune, even if God is necessarily triune.)¹⁰

But when the mental propositions concern things other than items in a language, they cannot further be mapped onto some sort of propositional entities, given the demands of Buridan's nominalist ontology. So, because syncategorematic concepts do not represent anything in extramental reality, but only modify the representative function of categorematic concepts, the second mapping definitely *has to be* "coarser": a mental proposition concerning things in the world can only signify things that are signified by its categorematic terms (the terms flanking its copula), whence even nonsynonymous propositions that share the same terms will end up signifying the same things. It is for this reason that Buridan explicitly draws a number of apparently rather counterintuitive conclusions concerning the extramental (*ad extra*) signification of written and spoken propositions, as opposed to their intramental (*apud mentem*) signification, such as the result that although the written propositions 'God is God' and 'God is not God' signify different (indeed, contradictory) mental propositions, they signify the same *ad extra*, namely, God. But this result is counterintuitive *only* if extramental signification is thought to determine truth-conditions, namely, under the assumption that the truth of a proposition consists in the actual extramental existence of its *significatum*. However, for Buridan, their signification has no direct role in determining the truth of propositions (it is, rather, determined by the *supposition* of their terms), while their

synonymy-relations are adequately accounted for even in accordance with his parsimonious ontology. For although contradictory written and spoken propositions signify the same thing or things *ad extra*, they are not synonymous, given that they signify distinct mental propositions *apud mentem*. And the mental (p. 207) propositions, even if they also signify the same thing or things, are not synonymous either, for they signify the same thing, but not in the same way, on account of their different compositional structure (the one being negative and the other affirmative).¹¹ So the extramental *significata* of propositions can be identified without trouble with the *significata* of their categorematic terms, without any need for specific, extramental propositional *significata*, which Buridan, therefore, happily eliminates from his ontology.

9.2 The Semantics of Propositional Nominalizations (*Dicta*)

In accordance with this conception, then, propositional nominalizations, such as “that-clauses” or accusative with infinitive constructions, which by the supporters of special propositional entities (i.e., *dicta*, *enuntiabilia*, *real propositions*, or *complexe significabilia*)¹² were taken to name what the corresponding propositions signify, cannot have this function in Buridan’s semantics. Instead, Buridan explains their function with reference to his semantic theory of categorematic terms.

Categorematic terms are terms that can be the subject or predicate of a syntactically well-formed proposition, that is, terms that can suitably flank the copula of a proposition.¹³ Propositional nominalizations can obviously do so (as in ‘That a man walks is possible’ or ‘For a man to walk is possible’).¹⁴ Therefore, Buridan is clearly entitled to his move of treating these as complex common terms with the same type of semantic functions that ordinary complex common terms (such as ‘wise man’ or ‘braying donkey’) have, namely, signification and supposition, where one also has to distinguish material and personal supposition.

Applying his doctrine of the properties of terms to propositional nominalizations, Buridan claims that these also can be taken either materially or personally. Taken materially, they have the function of standing for the corresponding token-propositions, whether written, spoken, or mental. Thus, for example, in the proposition ‘That a man is wise is possible’, the nominal subject ‘that a man is wise’ functions as a common term suppositing materially for any token proposition of the same type as this: ‘A man is wise’, and the sentence is true, because such a proposition is

indeed possible (i.e., it can be true in a situation in which its terms personally supposit for the same individual, which in turn is a situation in which the absolute (p. 208) term 'man' and the connotative term 'wise' both supposit for him on account of the actuality of his wisdom, a singular quality of his mind).

Taken personally, however, such propositional nominalizations stand for those *significata* of the corresponding propositions of which the terms of these propositions are coverified, that is, for which these propositions are true. For example, in the proposition 'For Socrates to love God is good,' the subject term, taken personally, supposits for what the terms of the corresponding proposition 'Socrates loves God' cosupposit. Thus, if Socrates does in fact love God, then the terms of this proposition cosupposit for him, namely, Socrates loving God, and so the subject of the original proposition supposits for the same. By contrast, if Socrates does not in fact love God, then the terms of the proposition 'Socrates loves God,' that is, 'Socrates is a lover of God,' do not cosupposit, and so the corresponding sentential nominalization supposits for nothing, and then the original proposition is false. ¹⁵

Unfortunately, Buridan provides us only with these rudiments of a theory. In particular, he does not work out a compositional semantics for the personal supposition of all propositional types, such as negative or universal propositions, let alone hypothetical ones. So, concerning those we are reduced to guesswork. For example, one may wonder about (B) 'For Socrates not to love God is bad'. Because this is an affirmative proposition and it is true, its subject term must supposit for something. But it cannot be taken materially, because this proposition is certainly not true because, say, this proposition 'Socrates does not love God' is a bad proposition. Rather, it must be true because Socrates not loving God is bad. So the subject of (B) must be taken personally. And so, in keeping with the foregoing, Buridan might simply say that 'For Socrates not to love God' supposits for Socrates not loving God. However, we must not forget that for Buridan a negative proposition is true if its subject term is empty. Thus, accepting the sad fact that Santa does not exist, we must say that 'Santa Claus does not love God' is true; still we cannot say that therefore 'For Santa not to love God' taken in personal supposition in a nonampliative context should supposit for Santa not loving God, because there is simply no such thing. To be sure, one may stipulate that if the negative proposition is true on account of the "emptiness" of one of its terms, then the corresponding sentential nominalization supposits for nothing, and so 'For Santa not love God is bad'

is false, just as is 'For Santa to love God is bad'. At any rate, this would be one way to go. Likewise, in the case of universal propositions we might just stipulate (p. 209) for instance that a propositional nominalization supposits distributively or collectively for all those things for which the corresponding proposition is true, if it is true, and otherwise it supposits for nothing. So, 'For every man to love God is good' is true just in case every man loves God, whence the subject term supposits for every man loving God, who are indeed things that are good, but it is false when not every man loves God.¹⁶ Again, handling these cases in this way might go consistently with what Buridan says, but he simply does not tell us actually how he would work out these further details.

But the remarkable thing about his semantics is that contrary to the commitments of the older tradition, closely connecting the idea of truth to the (actual existence of the) significata of propositions, Buridan *does not have to* do so. In his "modular" semantics, the signification of propositions, and thus the supposition of propositional nominalizations, is quite independent from the theory of truth-conditions. In fact, even more surprisingly, true to this "modular" construction, even his theory of *logical validity*, the central notion of any logical theory, will turn out to be quite independent from whatever he has to say about *truth*.

Notes:

(1.) "First conclusion: I posit therefore the first conclusion, namely, that it is not necessary for a spoken proposition to be true if howsoever it signifies in the mind so is [anything it signifies] in the mind, for then it would follow that every spoken proposition would be true—for to every spoken proposition, whether true or false, there corresponds a similar one in the mind." *Sophismata*, SD 9.2.

(2.) As concluding his foregoing discussion about propositional signification, Buridan remarks: "... thus, it seems to me that in assigning the causes of truth or falsity of propositions it is not sufficient to deal with significations, but we have also to take into account the suppositions concerned." *Sophismata*, SD 9.2.

(3.) The best monographic survey of the history of medieval theories of propositional signification is still Nuchelmans, G. *Theories of the Proposition: Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, Amsterdam-London: North-Holland, 1973. The best source materials for

early medieval theories can be found in De Rijk, L. M. *Logica Modernorum*, in which one can find elaborate theories of the referring function of sentential nominalizations, called *appellationes dicti*, referring to *dicta*, understood as the total significata of propositions.

(4.) Buridan is of course quite aware of this sort of semantic construction in the Aristotelian tradition: "... a proposition is true on the basis that in whatever way it signifies, so are the things signified, and a proposition is said to be false on the basis that it is not the case that in whatever way it signifies so are the things signified. And this is generally conceded and is confirmed by the common manner of speaking. For when it seems to us that someone has said something true, we say that it is as he said; and if it seems to us that he said something false, then we say that it is not as he said. And this is why Aristotle in books 5 and 6 of the *Metaphysics* says that according to one signification of 'being' and 'non-being', 'being' signifies the same as 'true', and 'non-being' the same as 'false'." SD 9.2, *First Sophism*. However, he deals with this conception only to reject it, although quite characteristically he will retain its language, while filling it with entirely new theoretical content.

(5.) For a detailed comparative analysis of this traditional construction with Ockham's and Buridan's, see Klima, G. "The Changing Role of *Entia Rationis* in Medieval Philosophy: A Comparative Study with a Reconstruction." For Buridan's own discussion, see SD 9.2.

(6.) I should also add "and their modes" but those need not detain us in this context. For more on this aspect of Buridan's ontology, see Normore, C. "Buridan's Ontology," in *How Things Are*, eds. J. Bogen and J. E. McGuire, Dordrecht-Boston-Lancaster: D. Reidel Publishing Company, 1985, pp. 189–203; and Klima, G. "Buridan's Logic and the Ontology of Modes." And for the sake of completeness we should recall that Buridan's ontology also contains "successive things" (*res successivae*), such as time and motion. Cf. n. 3 of c. 8. But then again, these are not our present concern. The important thing is that Buridan does not recognize "states of affairs" signified by propositions as a distinct ontological category, and so he works out his semantics accordingly.

(7.) For Buridan's arguments against positing such quasi-entities, based primarily on the observation that they would not fit into any broad and jointly exhaustive ontological categories (for they cannot be substance or accident, or God or creature) see SD, pp. 829–831; QM, lb. 6, q. 8.

(8.) For the issue of compositionality in the mental-language tradition in general, see the excellent historical survey provided by Panaccio, C. *Le discours intérieur de Platon à Guillaume d'Ockham*, Paris: Éditions du Seuil, 1999. For Buridan's conception in particular, see my *Introduction to Buridan's Summulae*, esp. SD, pp. xxxvii–xliii.

(9.) To be sure, in his *Questiones Elencorum*, Buridan argues that ambiguous sentences need not be distinguished, for they express their different senses disjunctively. So, apparently, an ambiguous written or spoken proposition would then be mapped onto a single disjunctive mental proposition. But then the negation of such a proposition would have to be the conjunction of the disjuncts of the disjunctive proposition, which leads to rather counterintuitive results. For example, 'The food on your plate is not healthy' would have to be regarded as equivalent to 'The food on your plate is not in good health *and* it is not good for your health', which would have to be false if one eats a living thing that is in good health, even if it makes one sick, whereas in that case the first sentence would still have to be regarded as true. In any case, Buridan seems to have abandoned this strong position in his later works. See Buridan, J. *Questiones Elencorum*, edited with an introduction, notes and indices by R. van der Lecq and H.A.G. Braakhuis, Nijmegen: Ingenium Publishers, 1994, *Introduction*, section 3.2.

(10.) Cf. "... some people deny the above-mentioned appellation of concepts, which, however, is not to be denied, if Aristotle and others who speak after the common fashion say things which are true. For we would say that the First Principle Averroes did not believe to be triune, but he did believe the First Principle to be God. But, with the name before the verb, we have to concede: 'The triune Averroes believed to be God', which is clear by an expository syllogism: for the First Principle he believed to be God and that First Principle is triune; therefore the triune he believed to be God. And it is obvious that such an argument is invalid [when the term is placed] after the verb, thus; 'The First Principle he believed to be God and that God is triune; therefore the First Principle he believed to be triune'. It is obvious that this does not follow, for the premises are true and the conclusion is false, and nobody can explain why this turns out to be valid with the term before the verb but not when it follows it, except on grounds of calling attention to the appellation of the concept after, but not before, the verb." SD 4.5.3.

(11.) See SD, pp. 10–14, 232–234, 825–826, 841–843.

(12.) The word ‘dictum’ in the older framework that Buridan’s semantics challenges was sometimes used to refer to what a proposition as a whole signifies, a “propositional entity.” Accordingly, the propositional nominalizations taken to refer to such entities were sometimes referred to by older authors as ‘appellationes dicti’ (the names of a *dictum*). But many authors also used the word to refer to the linguistic item, the propositional nominalization itself. (Actually, the same goes for the term ‘enuntiabile’.) Because he rejects “propositional entities” (under the denomination ‘*complexe significabilia*’), Buridan uses the word ‘dictum’ exclusively to refer to propositional nominalizations.

(13.) There is more to the distinction, but the details need not detain us here. For more, see Klima, G. “Syncategoremata.” Buridan’s discussion of the distinction can be found in SD, pp. 232–234.

(14.) The corresponding constructions in Latin are actually more natural. In English, the corresponding ‘It is possible that a man walks’ or ‘It is possible for a man to walk’ are “smoother,” but syntactically more complicated.

(15.) Possible intuitions to the contrary, according to which the proposition ‘For Socrates to love God is good’ is true even if Socrates actually does not love God, might be accounted for by saying that these intuitions are based on the consideration that it *would be* good for Socrates to love God even if he does not; in this case, however, the proposition to be considered would have to be ‘For Socrates to love God *would be* good’, when not the actual, but possible cosupposition of terms is required for truth, because of the *ampliative* force of the subjunctive copula.

(16.) Concerning possible intuitions about the truth of this claim even if not every man loves God (because it *would be* good for every man to love God even if actually not everyone does) similar considerations apply here as in the previous footnote.



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Logical Validity in a Token-Based, Semantically Closed Logic

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Abstract and Keywords

This chapter provides a comprehensive survey of Buridan's conception of logical validity in a semantically closed token-based system, as he conceives of natural languages. The chapter argues first that Buridan has very good logical, as well as merely metaphysical, reasons to conceive of natural languages as compositional systems of significative token-symbols. Next, the chapter discusses the peculiar Buridianian conception truth and validity, according to which validity must not be based on truth, and truth need not always follow upon correspondence. These results are presented as the consequences of Buridan's pursuit of a consistently nominalist semantics for natural languages, able to handle the Liar Paradox and its kin involving reflective uses of language without the Tarskian distinction between object-language and meta-language, rejected for systematic reasons in the seventh chapter.

Keywords: logical validity, truth, correspondence, Liar Paradox

If we open any number of modern logic textbooks for a definition of valid inference, we find something like the following: an inference is valid if and only if it is impossible for the premises to be true while the conclusion is false. At any rate, this formula and its equivalents are usually provided as a first, intuitive introduction of the idea, which is then to be captured in more exact terms in a formal semantical or syntactical deductive system.

It may seem quite surprising, therefore, that in his *Treatise on Consequences*, when Buridan briefly considers an equivalent formulation of

the definition of a valid inference, provided in terms of the definition of the antecedent of a valid consequence, he rejects it. As he writes:

[The terms] ‘antecedent’ and ‘consequent’ are predicated correlatively; therefore, they need to be described in terms of each other. Many people say that of two propositions that one is the antecedent with respect to the other which cannot be true while the other is not true, and that one is the consequent with respect to the other which cannot be not true while the other is true, so that every proposition is antecedent with respect to any other proposition which cannot be true without that other being true. But this description is defective or incomplete, for the following is a valid consequence: ‘every man is running; therefore, some man is running’; ¹ still, it is possible for the first proposition to be true and for the second not to be true, indeed, for the second not to be. ²

(p. 211) This perceived defect of the description is clearly a consequence of Buridan’s conception of propositions as being singular, contingent, temporary occurrences, whether in writing, in speech, or in the mind. So, apparently, all that is needed to take care of this worry is to supplement the description with a clause stating the requirement of the actual formation of the propositions it concerns. As Buridan continues:

Therefore, some people say that this description needs to be supplemented as follows: that proposition is the antecedent with respect to another proposition which cannot be true while the other is not true, when they are formed together. ³

But even this will not do. As Buridan’s next argument points out, one cannot rely in this description on the notion of truth at all:

I still claim that this description is not valid, for the following is not a valid consequence: ‘no proposition is negative; therefore, no donkey is running’, but on the basis of the given description one should accept it as valid; therefore, etc. I prove the first premise. The opposite of the consequent does not entail the opposite of the antecedent; for this is not valid: ‘some donkey is running; therefore, some proposition is negative’. The second premise is clear. For the first proposition, which is designated to be the antecedent, cannot be true; therefore, it cannot be true while the other is not true. ⁴

Obviously, the *contrapositive* of the original consequence, namely, ‘some donkey is running; therefore, some proposition is negative’ is not valid, for in a possible situation a donkey may be running, while God has eliminated all negative propositions. Yet, according to the proposed definition, the original consequence should be deemed valid. For the antecedent ‘no proposition is negative’ cannot possibly be true, because whenever it is formed, its very existence, being itself a negative proposition, falsifies it. But then, if it cannot be true at all, it certainly cannot be true when its consequent is false; therefore, according to the proposed definition its consequent should follow from it validly. However, we have just seen that it does not. Indeed, it does not follow even in accordance with the proposed definition. For the denial of the consequent of the original consequence, namely, ‘some donkey is running’ may be true, whereas the denial of the antecedent, namely, ‘some proposition is negative’ is not true in the possible situation in which a donkey is running and God has eliminated all negative propositions. So, because the denial of its consequent does not follow from the denial of its (p. 212) antecedent, the original consequence is not valid, even according to the proposed definition.

Therefore, because the original consequence is clearly not valid, even according to the proposed definition of a valid consequence, whereas according to the same proposed definition it should be valid, that definition leads to inconsistency, and thus it cannot be correct. So, is there something fundamentally wrong with those modern logic text books to which I referred earlier?

Let us take a closer look at Buridan’s argument. Apparently, its conclusion is that according to the proposed definition of validity the consequence it considers is both valid and not valid. Hence, that definition cannot be correct. Of course, because the conclusion of Buridan’s argument does not rely on the proposed definition alone, but on a number of further assumptions, the rejection of the definition is only justified to the extent that those assumptions are justified. So let us see these assumptions. The argument may be spelled out in a somewhat more transparent form as follows:

1. A consequence is valid if and only if its antecedent cannot be true while its consequent is false, when they both exist
[assumed definition]
2. Any proposition whose existence falsifies it cannot be true
[self-evident]

3. The existence of the proposition 'no proposition is negative' falsifies it [self-evident]
4. The proposition 'no proposition is negative' ⁵ cannot be true [2, 3]
5. The antecedent of 'no proposition is negative; therefore, no donkey is running' cannot be true ⁶ [4]
6. The antecedent of 'no proposition is negative; therefore, no donkey is running' cannot be true while its consequent is false, when they both exist [5, $\sim Mp \rightarrow \sim M(p \ \& \ q)$]
7. The consequence 'no proposition is negative; therefore, no donkey is running' is valid [1, 6]
8. The proposition 'some donkey is running' can be true while the proposition 'some proposition is negative' is false, when they both exist [self-evident]
9. The consequence 'some donkey is running; therefore, some proposition is negative' is not valid [8,1]
- **(p. 213)**
 10. The consequence 'some donkey is running; therefore, some proposition is negative' is the contrapositive of the consequence 'no proposition is negative; therefore, no donkey is running' [self-evident]
 11. Whenever the contrapositive of a consequence is not valid, then the consequence is not valid [self-evident]
 12. The consequence 'no proposition is negative; therefore, no donkey is running' is not valid [9, 10, 11]
 13. The consequence 'no proposition is negative; therefore, no donkey is running' is valid and it is not valid [7, 12]

We have arrived at a neat contradiction, so we may start checking the auxiliary premises of Buridan's *reductio*. We should start with premise 2. In the succinct statement of his argument, Buridan only provides the equivalent of what is premise 3. Nevertheless, in the more extensive parallel discussion in his *Sophismata*, Buridan argues for the impossibility of 'No proposition is negative' thus:

... the other [proposition] is impossible, namely, 'No proposition is negative', for in no case can it be true. For whenever it is not, then it is neither true nor false, and whenever it is, then some proposition is negative, namely,

itself; therefore, it is false to say that no proposition is negative. ⁷

That is to say, if a proposition is true or false, it has to exist. But if the proposition 'No proposition is negative' exists, then at least one negative proposition exists, namely, itself, and so it is not true that no proposition is negative. This is precisely what is meant by the claim that the existence of this proposition falsifies it.

If one were to object that this example is a contrived, unique case, the occurrence of which by no means justifies the universal claim made in premise 2, then I can immediately provide an infinity of such self-falsifying propositions. Consider the proposition-scheme 'Every proposition contains n words'. Because substituting any numeral in place of n in this scheme yields a proposition of five words, we get a false proposition falsified by its own existence if we substitute any numeral in place of n other than 5.

Obviously, as I mentioned earlier, Buridan's worries connecting the truth-values of a proposition to its existence presuppose his conception that propositions are contingent, temporary occurrences. But do we have a similar situation (p. 214) if we take propositions to be the abstract, atemporal entities expressed by temporally occurring sentence-tokens, as many modern philosophers would take them to be?

If propositions are atemporal, they exist timelessly, that is, there is no time at which they do not exist. So, whenever a timeless proposition is expressed by a temporally occurring sentence-token, then the proposition expressed by that sentence-token exists. Therefore, whenever I form a token of the sentence 'No proposition is negative' the proposition that no proposition is negative expressed by this sentence-token exists. But its existence entails that some proposition is negative, so the proposition cannot be true. Therefore, the atemporal proposition is just as self-falsifying as is Buridan's occurrent temporary proposition or the sentence-token. Clearly, referring to atemporal propositions in the definition of a valid consequence does address Buridan's first problem with this definition, namely, the possible nonexistence of the proposition that figures as the consequent of an intuitively valid consequence. But the problem of consequences with self-falsifying antecedents is the same for both atemporal and temporal conceptions of propositions.

However, one also may object here to Buridan's procedure of trying to falsify what appears to be an intuitively clear and acceptable definition

of validity by challenging the alleged self-evident character of line 11 in the reconstruction. ⁸ For given Buridan's token-based conception of propositions, that intuitively clear definition immediately invalidates the rule of contraposition, because the existence of the propositions of a consequence is independent of the existence of their negations occurring in the contrapositive. So it is quite possible to have a valid consequence without having the corresponding valid contrapositive, and so the invalidity of the contrapositive of a consequence is not sufficient for the invalidity of the original consequence. But this is precisely what Buridan's argument assumes as self-evident in line 11 of the earlier reconstruction. Therefore, Buridan's argument fails, because assuming the proposed definition and the conception of propositions as contingently existing sentence-tokens, he can no longer assume contraposition (and so the corresponding line 11 in the reconstruction) as self-evident.

To this objection I reply in the first place that, although under these assumptions contraposition in general fails, nevertheless, assuming bivalence, and the existence of all four propositions involved in a contraposition, the invalidity of the contrapositive of a consequence is sufficient for **(p. 215)** the invalidity of the consequence, even according to the proposed definition of validity. In general, if in a possible situation:

(1) 'p' exists, and 'q' exists, and \sim 'p' exists, and \sim 'q' exists, and \sim 'q' is true, and \sim 'p' is false,

then, assuming bivalence, in that possible situation

(2) 'p' exists, and 'q' exists, and 'p' is true, and 'q' is false.

But (1) describes precisely the situation that invalidates \sim 'q'; therefore, \sim 'p' and (2) describes the situation that invalidates 'p'; therefore, 'q', according to the proposed definition.

Therefore, line 11 still holds under these assumptions.

However, there is still a serious problem with Buridan's move in the argument, namely, the application of line 11 to line 9 to get to the conclusion expressed by line 12. For consider again line 8:

8. The proposition 'some donkey is running' can be true while the proposition 'some proposition is negative' is false, when they both exist [self-evident]

This indeed invalidates the consequence 'some donkey is running; therefore, some proposition is negative' according to the proposed definition, as stated by line 9. But, in accordance with (1) and (2) above, from this we could move to the invalidation of the original 'no proposition is negative; therefore no donkey is running', only if we could assume in the situation described by line 8 the existence of its embedded propositions, in particular, its antecedent, 'no proposition is negative'. But that is not possible, for if 'no proposition is negative' exists, then 'some proposition is negative' (the consequent of the contrapositive of the original conditional) cannot be false, as described by line 8.

So in this particular case, the situation invalidating the contrapositive (described by line 8) cannot contain the antecedent of the original consequence, and so it cannot invalidate the original consequence *according to the proposed definition*.

But at this point Buridan may ask: why should the validity of the moves in an argument meant to disprove a proposed definition of validity be judged **(p. 216)** by the standard of the proposed (possibly flawed) definition? After all, we may take it to be a primitive fact about our intuitions of validity that whenever the contrapositive of a consequence is invalid, then the consequence is invalid, too, and if a proposed definition of validity does not conform to this primitive intuition, then so much the worse for that proposed definition. ⁹ Note also that according to Buridan's revised definition to be considered later (provided not in terms of truth, but in terms of things being the way they are signified to be) the move in question is valid, because according to that definition the possible situation described by line 8 need not contain the antecedent of the original consequence to invalidate that consequence. So, if the issue boils down to having to choose between whether we should keep the proposed definition and discard contraposition or we should emend the definition so that it accommodates our strong ("predefinitional") intuition about the validity of contraposition, then Buridan is at least not unreasonable in choosing the latter alternative.

But then, if we keep our intuition about contraposition (also validated later by Buridan's emended definition), consequences with self-falsifying antecedents provide a strong case for Buridan's claim that the definition of

validity in his closed, token-based semantics cannot consistently be provided in terms of truth.

10.1 Tarskian Semantics versus Buridan on the “Reciprocal Liar”

Given all the trouble that consequences with self-falsifying antecedents may cause, how come modern accounts of validity do not worry about them at all? The simple answer to this question seems to be that on the modern formal accounts inspired by Tarski’s approach to semantics, such consequences, or rather the self-falsifying propositions occurring in them, are inexpressible. Tarski’s approach gets rid of all sorts of *insolubilia*¹⁰ by simply banning self-reference from the object language and reserving all semantic discourse for its meta-language.¹¹ In this way, the definition of a valid inference for the object language can safely be provided in terms of the notion of truth defined in the meta-language, because paradoxes of self-referential expressions, there being no such expressions in the object language, simply cannot emerge. But even if Tarski’s approach works for artificial languages of artificially impoverished expressive powers, natural languages (p. 217) would simply not fit into its narrow mold. Natural languages obviously abound with self-referential expressions, indeed, with all sorts of indirect self-referential means that give rise to inferences that in principle ought to be able to be captured even by ordinary quantification theory. For example, the inference ‘I believe whatever you say; but you say Tarski is right; therefore, I believe Tarski is right’ seems to be a pretty straightforward case of universal instantiation in which the first premise quantifies over your *dicta*, whatever those are. But if we *can* make such references, as we obviously do all the time, then in natural language semantics we obviously have to be able to handle situations like the following version of the “Reciprocal Liar” already mentioned in connection with Buridan’s “token-based” conception of language and logic.

Consider the following situation:

- Plato says, “Socrates says something true.”
- Socrates says, “Plato says something false.”
- Robert says, “Plato says something false.”
- And they do not say anything else, while both Socrates and Robert think that Plato said something false, namely, that God does not exist.¹²

From these propositions and the given description of the situation, we can apparently derive the paradoxical conclusion that Socrates' proposition is both true and false by means of the following two arguments:

- **[Argument 1— to show that Socrates' and Plato's propositions are false and Robert's is true]** In this case, if Socrates' proposition is true, then Plato's proposition is false. But if Plato's proposition is false, that means that Socrates does not say something true, that is, Socrates' proposition, the only proposition he utters, is false. Therefore, if Socrates' proposition is true, then it is false; so, it cannot be true. However, if Robert's proposition is true, then it does not follow that it is false, indeed, its truth merely entails that Socrates' proposition is false, as has already been established.
- **[Argument 2— to show that Socrates' proposition is both true and false]** To be sure, one may believe that this assignment of truth values does not **(p. 218)** avoid paradox. For if Socrates' proposition that Plato says something false is false, then it is not the case what it signifies to be the case, namely, it is not the case that Plato says something false. But if it is not the case that Plato says something false, and he says something and says nothing else, then, observing the principle of bivalence, he says something true when he says that Socrates' proposition is true; whence Socrates' proposition is true. Therefore, from first to last, if Socrates' proposition is false, then it is true, and, from the previous reasoning, if it is true then it is false; so we have a contradiction.
- **[Buridan's Solution of Argument 2]** However, Buridan's theory of self-referential propositions can come to the rescue here. According to Buridan, a true proposition both *formally signifies* that what it asserts to be the case *is* the case and *virtually implies* its own truth. So, if a proposition 'p', named A, is true, then it formally signifies that it is the case that p and virtually implies that A is true. In general, the claim that the proposition 'p', named A, is true is equivalent to the claim that it is the case that p and A is true. Therefore, if 'p' is false, then it is false either because it is not the case that p or because A is not true. ¹³

Now in the case of Socrates' proposition, if we call it A, this means that if it is false, then it is either false because it is not the case that Plato says something false, or because A is not true. But on account of the first argument [Argument #1] we have seen that A is not true, because its truth entails its falsity. So Socrates' proposition is false not because what it *formally signifies* to be the case is not the case, but because what it *virtually implies* to be the case is not the case, namely, that it is true. Therefore, the falsity of Socrates' proposition does not entail the truth of Plato's proposition; it merely entails its own falsity. So, Socrates' proposition is false, and so is Plato's, whence Robert's is true, without any contradiction.

This solution, if it works, clearly presupposes a framework that is radically different from the familiar Tarskian approach to truth and validity; indeed, it radically differs from what used to be "the standard" medieval approach as well. So let us first see the details of this framework, after which we can return to Buridan's solution as well as to its broader logical and philosophical implications, in particular, those concerning the theory of truth.

(p. 219) 10.2 Truth without *Complexa Significabilia*

In question 9 of his question-commentary on book 6 of Aristotle's *Metaphysics*, Buridan raised the question whether every proposition is true because the thing/s signified by it is/are all the ways it signifies it/them to be.

In typical scholastic fashion, after arguing against the affirmative answer, he provides the main motivation for it in the following passage:

Many people commonly hold the opposite based on the authority of Aristotle, who in the *Categories* says that a proposition is true or false because the thing [signified by it] exists or does not exist. [...] And truth is also commonly described in this way, namely, that it is the adequation or conformity of the understanding and the things understood. But this sort of adequation or conformity cannot obtain except because things are in this way; therefore, etc. ¹⁴

As has been mentioned earlier, Buridan never really "bought into" the conception described here, even if he never abandoned this manner of

speaking either. The formula “a proposition is true or false because the thing [signified by it] exists or does not exist” clearly expresses a semantic conception radically different from his own, and, indeed, a radically different way of constructing semantic theory in general. Therefore, Buridan could only keep it by filling it with radically different content, making it eventually in principle entirely eliminable.

The sort of logical semantics required by the older conception, even if historically it may have never been spelled out in this way, should proceed as follows. It should first provide the significations of simple terms, both categorematic and syncategorematic. Next, it should describe a compositional semantics for the *significata* of complex terms and propositions based on the significations of simple terms, specifying the rules of how the actuality of the *significata* of the complex expressions depends on the actuality or non-actuality of the *significata* of their components (for example, a simple rule could specify that if the *significatum* of a proposition is actual, then the *significatum* of its negation is non-actual, or that for the actuality of the *significatum* of a conjunction the actuality of the *significata* of all of its members is required, etc.). On this basis, it could provide a simple criterion (p. 220) for truth for all kinds of propositions in terms of the actuality of their *significata*, just as Aristotle’s formula requires. Finally, with this criterion of truth in hand, logical validity could be defined as truth for all possible interpretations, that is, for all possible assignments of *significata* as specified by these rules.¹⁵

Buridan’s conception is radically different. In the first place, he does not have rules to specify the unique, extramental *significata* of whole propositions as a function of the semantic values of their components. In fact, as we have seen, he denies that propositions extramentally signify anything as a whole over and above what their categorematic terms signify. But then, extramental propositional signification as Buridan conceives of it is unable to distinguish even contradictories, so it obviously cannot serve for specifying their truth-conditions. Therefore, the truth-conditions of propositions are to be specified on the basis of the supposition of their terms, determined by the logical form of the type of proposition in which these terms occur (affirmative, negative, universal, particular, indefinite, past-tense, future-tense, modal, categorical, hypothetical, etc.), which is in turn determined by the syncategorematic structure of the proposition in question. And so, because the truth-conditions of these different types of propositions have to be specified differently for each type, the Aristotelian formula can at best

serve as an abbreviation, a quick reference to the specification of these different types of truth-conditions.

This is precisely how Buridan proceeds in his most mature treatment of the issues of truth and validity, in his *Sophismata*. In the first place, he declares that (on the basis of his theory of propositional signification), propositional signification cannot provide a criterion of truth:

... every true affirmative proposition about actuality [*de inesse*] and about the present [*de praesenti*] is not true on the ground that whatever and howsoever it signifies as being, so it is, for [...] whatever and howsoever is signified as being by the two propositions 'A man is a man' and 'A donkey is a donkey', that also is signified as being in the same way by the proposition 'A man is a donkey', as is clear from what has been said. But the latter is false, and the former two were true. And thus, it seems to me that in assigning the causes of truth or falsity of propositions it is not sufficient to deal with significations, but we have also to take into account the suppositions concerned.

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Buridan then proceeds in his subsequent "conclusions" (conclusions 9–14) ¹⁷ to specify the truth-conditions of various types of propositions in terms (p. 221) of the supposition of their terms in the various types of contexts provided by the syncategorematic terms of these propositions. Significantly, however, after recapitulating these truth-conditions at the end of this discussion, he adds the following remark:

But in the end we should note—since we can use names by convention [*ad placitum*], and many people commonly use this way of putting the matter—that with respect to every true proposition we say: 'It is so', and with respect to every false one we say: 'It is not so', and I do not intend to eliminate this way of speaking. But for the sake of brevity I may use it often intending by it not what it signifies on account of its primary imposition, but the diverse causes of truth and falsity assigned above for diverse propositions, as has been said. ¹⁸

So, for Buridan, the Aristotelian formula becomes just a moniker, an inappropriate expression which is now taken to express what Buridan *really* means when he uses it.

10.3 Logic without Truth

But, as it turns out in Buridan's subsequent discussion, the formula with its changed, Buridanian meaning has a deeper significance for Buridan's logic. In the context of c. 2 of the *Sophismata*, it may appear that Buridan is after all providing the clauses of a complex definition of truth (which he will then just inappropriately indicate by means of the Aristotelian formula) in order to use it for the definition of logical validity. However, in the context of his discussion of logical validity, in c. 8, parallel to the discussion in his *Treatise on Consequences* analyzed earlier,¹⁹ he argues that validity cannot properly be defined in terms of truth. The gist of the argument is that an obviously invalid consequence with a self-falsifying antecedent according to a definition of validity provided in terms of truth would turn out to be trivially valid, whence such a definition cannot be correct. For example, take the consequence: 'No proposition is negative; therefore there is a stick in the corner'.²⁰ This consequence is obviously invalid, for it is a quite possible situation in which there are no negative propositions and no stick in the corner either, as was certainly actually the case before the first negative proposition was formed by a human being (and when that stick—probably Buridan's walking stick left in the corner of his classroom—did not yet (p. 222) exist). But on the proposed definition of validity, according to which a consequence is valid if and only if it is impossible for its antecedent to be true and its consequent not to be true when they are both formed together, this consequence would have to be valid, because the antecedent, being a negative proposition, always falsifies itself whenever it is formed; thus it cannot be true, and so it is indeed trivially impossible for it to be true while the consequent is not true.

In fact, Buridan might have come up with a further, unrelated reason to reject the definition of validity in terms of truth. For as he sees it, truth is a property of propositions; but the clauses of a consequence are not propositions (because on Buridan's conception a proposition is something that is asserted on its own, whereas the clauses of a hypothetical are not asserted). So, one could not strictly speaking talk about the truth or falsity of the antecedent and the consequent, but at most about the truth or falsity of equiform proposition tokens formed in all possible situations in which their truth values need to be checked to check the validity of the consequence formed in the actual situation. But Buridan obviously does not want to go into these complications, and allows the improper way of talking about the clauses of a consequence as propositions. However, strictly speaking, with a definition of validity based on truth, he would have to consider the existence

of equiform propositions in possible situations, and not just the clauses of the consequence formed in the actual situation. ²¹

In any case, for the reasons given earlier, Buridan proposes a different definition of validity, not in terms of truth, but in terms of the Aristotelian formula, as he interpreted it in c. 2. As he writes:

The fifth conclusion is that for the validity of a consequence it does not suffice for it to be impossible for the antecedent to be true without the consequent if they are formed together, as has been correctly argued above about the stick in the corner. And this is also obvious from another example, for this is not valid: 'No proposition is negative; therefore, no proposition is affirmative'. And this is clear because the opposite of the consequent does not entail the opposite of the antecedent. Yet, the first cannot be true without the truth of the second, for it cannot be true. Therefore, something more is required, namely, that things cannot be as the antecedent signifies without being as the consequent signifies. But in connection with this it has been determined that this is not the proper expression of the point, but we use it in the sense given there, for we cannot generally express in a single expression covering all true propositions (p. 223) a reason why they are true, nor concerning all false propositions a reason why they are false, as has been said elsewhere. ²²

So, as it turns out, Buridan's logic as such has simply no use for a theory of truth. What it really needs is just the set of "correspondence-conditions" briefly indicated by the Aristotelian formula. Indeed, as this argument shows, the notion of truth is not only unnecessary, but it leads to paradoxical results if used in the definition of validity; therefore, it had better be abandoned in considerations concerning the validity of inferences.

But why does this situation arise, and what does Buridan gain by this further move? The situation obviously arises from the semantic closure of the languages for which Buridan devises his theory. Under conditions of semantic closure, self-falsifying propositions can naturally occur. But in their case we have examples of propositions that cannot be true, despite the fact that they describe situations that are obviously possible, or using the Aristotelian formula, things can be the way they signify them to be, even if they can never be true. So such propositions provide the primary examples of *the possibility of a divergence between correspondence and truth under the*

conditions of semantic closure: they can obviously correspond to a possible situation, in which, however, they cannot be true, for if they are formed in that situation, then their existence immediately falsifies them in the same situation.

What Buridan gains, therefore, by returning to the (reinterpreted) Aristotelian formula is a way of expressing the satisfaction of the correspondence conditions of a proposition in a given situation independently from its truth, indeed, independently from its existence in that situation. This is most obvious in Buridan's discussion leading to his final definition of logical validity. The issue is whether the consequence 'No proposition is negative; therefore, some proposition is negative' is valid (or as Buridan says, 'true', but he makes clear that he means the same by a 'true' consequence and by a 'valid' or even a 'good' consequence).

Buridan here directly argues against even his improved definition of validity, provided in terms of the (reinterpreted) Aristotelian formula:

Again, it is not possible for things to be as the first [proposition, i.e., the antecedent] signifies without their being as the second [the consequent] signifies; therefore, the consequence is valid. The consequence seems to be manifest from what we said a valid consequence was in the previous sophism, and you cannot otherwise express the reason why a consequence **(p. 224)** is said to be valid. But I prove the antecedent: for it follows that if things are as it signifies, then it signifies; and it follows that if it signifies, then it is; and, if it is, then things are as is signified by the second. ²³

In his reply to this objection, Buridan draws a very important distinction between two possible ways of understanding his improved definition of validity:

To the second, which seems to be troublesome, I reply that a consequence is never true or false unless it is; and thus the validity or truth of a consequence requires that its antecedent and consequent exist. And then, with this assumption, we give the rule that a consequence is valid if it is impossible for things to be as the antecedent signifies without their being as the consequent signifies. And this rule can be understood in two ways: first, that it is one proposition about impossibility in the composite sense, in the way that this is commonly

used, and its sense then is that this is impossible: 'When it is formed, things are as the antecedent signifies and not as the consequent signifies'. And taken in this way the rule is not valid, for according to this rule it follows that the sophism is true. And it is according to this false rule that the argument proceeded. Taken in the other way, the rule is understood as a proposition about impossibility in the divided sense, so that its sense is: a consequence is valid if in whatever way the antecedent signifies [things to be], it is impossible for things to be in that way without their being in the way the consequent signifies [them to be]. And it is clear that this rule would not prove the sophism true, for in whatever way the proposition 'No proposition is negative' signifies, it is possible for things to be in that way, and yet for them not to be in the way in which the other signifies; for this would be that case if, while the affirmatives stayed in existence, all negatives were annihilated, and this is possible. ²⁴

So, the final definition of validity understood in the divided sense provides a clear criterion for judging the validity of a consequence, regardless of the existence of the antecedent and consequent in the possible situations in which the satisfaction of their correspondence conditions needs to be checked in order to determine the validity of the consequence in which they actually occur. Thus, by means of the reinterpreted Aristotelian formula, as summarizing the correspondence conditions of propositions Buridan laid out in terms of the supposition of their terms, he finds a way of identifying a "possible state of affairs," the way things are as signified by a proposition in a possible situation, regardless of whether the proposition in question (**p. 225**) exists in that situation. Yet, spelling out "the ways things are" signified by a proposition in terms of the conditions concerning the supposition of its terms, he can do so without reifying that "state of affairs" in the form of some ontologically suspect entity, a *complexe significabile*, distinct from the ordinary things admitted in his nominalist ontology.

10.4 Correspondence without Truth

But then, understanding the issue of validity in this way, as definable without any reference to the truth-values of the antecedent and consequent which they can only have in those situations in which they exist, Buridan has a logic without truth, a logical theory that works for determining the validity of inferences, and yet one that can do so without checking the truth-values

of propositions in any situation. Thus, Buridan's logic *does not have* and *does not need* a definition of truth. Therefore, the *only* thing Buridan's logic needs to do with truth is to eliminate the Liar-type puzzles that are bound to crop up under the conditions of semantic closure. But this is exactly what he does in the remainder of c. 8 of the *Sophismata*, already in possession of the logical devices he needs for doing so, in particular the logical devices needed to handle the earlier-mentioned *possibility of divergence between correspondence and truth*.

As we saw in connection with 'No proposition is negative', under the conditions of semantic closure it is quite possible that the correspondence conditions of a proposition are satisfied in a possible situation, even if the proposition cannot be true in that situation, for its very existence in that situation would falsify it. In the case of Liar-type propositions, the situation is quite similar. Given the fact that they are false, their correspondence conditions are satisfied. But because the satisfaction of their correspondence conditions means precisely that they fall under the term 'false', given bivalence, they cannot be true.

However, Buridan has already shown that the satisfaction of correspondence conditions need not be sufficient for the truth of a proposition. In the case of 'No proposition is negative', the existence of the proposition in a possible situation would falsify it in that situation, although, if it does not exist in that situation, its correspondence-conditions may be satisfied in the same situation. In the case of a Liar-type proposition, the existence of the proposition in the actual situation is assumed, and the problem is assigning its truth-value in that situation. Because the assumption of its truth entails **(p. 226)** its falsity, that is, given bivalence, it entails its own contradictory, it cannot be true. But that is precisely what it says. So, its correspondence conditions are satisfied: its subject supposits for the proposition itself, which falls under the term 'false'; hence, its terms cosupposit. But given the possibility of divergence between the satisfaction of correspondence conditions and truth, it should come as no surprise in this context that the proposition is not true, despite the satisfaction of its correspondence-conditions. Therefore, Buridan merely has to specify that further condition the failure of which prevents the proposition from being called "true," that is, he has to specify what would constitute the sufficient conditions for a proposition to be called true. He finds this further condition in the trivial "virtual entailment principle": any proposition "virtually" entails another proposition that claims the original proposition to be true (where the point of "virtuality" seems to be that the relevant consequence need not actually

be formed). So, how does this “virtual entailment principle” help him avoid paradox? Indeed, how does it help him avoid paradox *and* having a “theory of truth”?

10.5 Truth without Paradox

The Liar Paradox emerges for Buridan as a natural consequence of his conception of logical theory, treating logic as primarily a (practical) science of inferential relations among token-sentences of human languages (*propositiones*—propositions), whether spoken, written, or mental. Accordingly, the languages to which his theory applies are semantically closed: they contain semantic predicates and means of referring to items they contain. Therefore, in these languages, any proposition claiming its own falsity is well formed, and given Buridan’s unrestricted endorsement of the principle of bivalence, must be either true or false. However, apparently, such a proposition would have to be both true and not true. For if it is true, then, given that it (truly) claims itself to be false, it is false. So, if it is true, then it is false; therefore it is false. By contrast, if it is false, then things are the way it says they are; therefore, it is true. But then, if it is true, then it is false, and if it is false, then it is true, whence it is true if and only if it is false, which, given bivalence, leads to the explicit contradiction that it is true and it is not true.

As has been discussed in a number of papers ²⁵ and indicated earlier, Buridan’s solution to the paradox accepts the proof of the falsity of Liar-sentences, but blocks the reverse implication from their falsity to their (p. 227) truth. The fundamental point of the solution, namely, blocking the reverse implication, which Buridan shares with Thomas Bradwardine, Albert of Saxony and other medieval philosophers, is the claim that things being the way a Liar-sentence claims they are is not sufficient for its truth. So, given that its truth entails its falsity, it is false, but its falsity will not entail its truth, for even if things are the way it claims them to be (for it claims itself to be false and it is indeed false), this much is not sufficient for its truth. For its truth some further condition would have to be met, which the Liar-sentence fails to meet.

That further condition in Bradwardine’s solution, as well as in Buridan’s early “Bradwardinian” solution, was formulated in terms of the signification of the Liar-sentence. Buridan, however, in his later works changed his mind about the viability of stating this further condition in terms of the signification of propositions, and formulated it with reference to the terms

of a “virtually implied” proposition. This is a fundamental departure from both Bradwardine’s and Buridan’s “Bradwardinian” solution, which finds its explanation in Buridan’s nominalist theory of propositional signification discussed earlier.

In a crucial passage in his *Sophismata*, discussing the problem-sentence (*sophisma*) ‘Every proposition is false’, and positing the case that all true propositions are eliminated, ²⁶ Buridan first briefly recapitulates his earlier “Bradwardinian” solution as follows:

For some people have said, and so it seemed to me elsewhere, ²⁷ that although this proposition does not signify or assert anything according to the signification of its terms other than that every proposition is false, nevertheless, every proposition by its form signifies or asserts itself to be true. Therefore, every proposition asserting itself to be false, either directly or implicitly, is false, for although things are as it signifies, insofar as it signifies itself to be false, nevertheless, things are not as it signifies insofar as it signifies itself to be true. Therefore, it is false and not true, since for its truth it is required not only that things be as it signifies but also that they be in whatever way it signifies [them to be]. But this response does not seem to me to be valid, in the strict sense. ²⁸

The solution is clear enough, and seems to be pretty much in line with Bradwardine’s solution, as presented by Read. ²⁹ But it is important to note here that Buridan employs in this “Bradwardinian” solution the crucial thesis that *every proposition* signifies itself to be true, which Bradwardine’s (p. 228) original solution restricts to *propositions that signify themselves to be false*. The importance of this point is that since Buridan bases his rejection of this “Bradwardinian” solution on the rejection of his own unrestricted claim, the argument he employs for this rejection may not affect Bradwardine’s own solution. ³⁰ The argument is presented in the following passage:

... I [am going to] show that it is not true that every proposition signifies or asserts itself to be true. For you take the expression ‘itself to be true’ either materially or significatively. If materially, then the proposition ‘A man is an animal’ does not signify or assert itself to be true, for then the sense [of your claim] would be that it would signify the proposition “The proposition ‘A man is an animal’ is true,” and this is false, for this second proposition is already of second intentions, and

the first, since it was purely of first intentions, did not signify second intentions. ³¹ But if you say that 'itself to be true' is taken significatively, then the proposition 'A man is a donkey' does not signify itself to be true, for just as *that a man is a donkey* is nothing, because a man cannot be a donkey, so also *that the proposition 'A man is a donkey' is true* is nothing, nor can it be anything, for it [namely, the proposition 'A man is a donkey'] cannot be true. ³² But it is not true to say of that which is nothing, nor can be anything, that it is signified or understood or asserted, as was sufficiently discussed elsewhere. ³³ For if you say that *that the proposition 'A man is a donkey' is true* is signified or asserted or understood, then you say something false, for this proposition is affirmative and its subject supposits for nothing. ³⁴ And the case is similar here, for the proposition 'Every proposition is false' cannot be true; therefore, *that it is true* is not, nor can it possibly be; hence, it is neither signified nor understood, and so it does not signify itself to be true. ³⁵

The point of the argument is that the fundamental claim of Buridan's "Bradwardinian" solution, namely, that every proposition signifies itself to be true, cannot be true. For if we analyze this claim, we can see that whether we take the sentential nominalization, that is, the infinitive construction, in it in material or in personal supposition, the universal claim cannot be true.

To see this in more detail, consider the universal proposition 'Every proposition signifies itself to be true'. From this, by eliminating the infinitive construction in favor of the more transparent corresponding "that-clause," we get 'Every proposition signifies that it is true', in which 'it' is ranging over token-propositions (written, spoken, or mental). Now consider the sentential nominalization in this sentence: 'that it is true'. According to **(p. 229)** Buridan's theory, this can be taken either materially or personally. Taken materially, it is a common term suppositing for propositions of the form 'it is true', in which 'it' refers to some proposition. However, in that case, an instance of the original universal proposition would be 'The proposition 'a man is a donkey' signifies the proposition "the proposition 'a man is a donkey' is true.'" But any proposition of the form 'a man is a donkey' signifies men and donkeys, and not propositions. Therefore, this instance of the universal proposition is false, and so the universal proposition is false.

Indeed, it would be false for any proposition whose terms are terms of first intention, as opposed to terms of second intention, just as Buridan claims. For if 'S' and 'P' can be replaced by terms of first intention, then a proposition of the form 'S is P' signifies all the things signified by 'S' and all the things signified by 'P'. But because 'S' and 'P' are terms of first intention, their *significata* are things that are not items of any language, and so they are things that are not propositions, whence they cannot be true or false. Accordingly, 'The proposition 'S is P' signifies the proposition 'the proposition 'S is P' is true"' will always be false for all such terms, because 'S is P' will never signify any proposition, let alone a proposition of the form 'the proposition 'S is P' is true'".

By contrast, if we take the "that-clause" in personal supposition, then it would have to supposit for everything of which the terms of the corresponding proposition are jointly true. But in this case, an instance of the universal proposition would be "The proposition 'a man is a donkey' signifies everything that is both the proposition 'a man is a donkey' and is true." But because any proposition of the form 'a man is a donkey' is impossible, nothing can be both a proposition of this form and true. So, the original universal proposition is false on this interpretation as well.

Therefore, given Buridan's own theory of propositional signification and sentential nominalizations (or, rather, the few principles he lays down of a would-be theory), he is compelled to reject his own "Bradwardinian" solution, given the fact that he has to reject the universal proposition that every proposition signifies itself to be true, which is the foundation of that solution. However, because he has already established the possibility of divergence between the satisfaction of correspondence conditions and truth, Buridan merely has to specify what further condition a proposition needs to meet in a certain situation in order to be called 'true'. This further condition is the trivial "virtual entailment principle": any proposition "virtually" entails another proposition that claims the original proposition to **(p. 230)** be true (where the "virtuality" of the implication secures its validity even when the proposition in question is not actually formed).

With this principle at hand, Buridan can claim an easy victory over the paradox. The Liar-sentence is simply false, for despite the fact that it corresponds to the actual, real situation (namely, to the situation that it is false), its correspondence to that real situation need not entail that it is true. Indeed, that correspondence is insufficient for its truth, for it fails to meet another, trivially required condition, namely, the correspondence

of the virtually implied proposition to the same situation. But isn't this victory *too easy*? Isn't this "virtual implication" just an *ad hoc* device to avoid paradox? Furthermore, doesn't this device render Buridan's very *notion of truth circular*? And even if this device works in avoiding paradox, and even if Buridan does not need a "theory of truth" for his *logic* to work, does this mean he thinks there is seriously nothing else to be told about *truth* in general, which otherwise seems to be such a central concern of philosophers? Or is Buridan simply not interested in *truth*?

As for the charge of ad hocery, one can say that the trivial requirement of Buridan's "virtual implication" for claiming a proposition true is no more *ad hoc* than the general, trivial requirement that a proposition can only be true if all propositions it validly entails are true as well, as required by *modus ponens*. And this trivial requirement will not render Buridan's "theory of truth" nonsensical, for as I claimed earlier, he does not have a theory of truth, and does not need one. As far as checking validity is concerned, all his logic needs to do is check whether the correspondence conditions laid out in c. 2 of the *Sophismata* that are satisfied by the antecedent in any possible situation will also be satisfied by the consequent in the same situation. For this, he will only have to invoke the supposition of terms in those situations, occasionally including, of course, the supposition of the terms 'true' and 'false' as well. But on seeing that the terms of an affirmative proposition can cosupposit in a possible situation without placing the proposition itself among the supposita of the term 'false', he can be sure that the proposition in that situation is true, provided it exists in that situation. By contrast, if the cosupposition of its terms places the proposition itself among the supposita of the term 'false', Buridan can be sure that the virtually implied proposition cannot be true, and hence the original proposition cannot be true either. This procedure is entirely effective, without any circularity, that is, without requiring us to see first whether the proposition is true so we can know whether it is true. ³⁶ But (p. 231) then, if the paradox is effectively dispelled without any need for a general theory of truth, Buridan can apparently rest satisfied. He did all that he could reasonably be asked to do with his logic. To be sure, this does not have to mean that this is all there is to *knowing* the truth, which is what most philosophers are chiefly concerned about. However, that is a further issue to be dealt with separately. But before dealing with that issue, we need to address one apparently "lethal" objection to Buridan's solution to the Liar Paradox.

10.6 An Objection to Buridan's Solution

As we have seen, a fundamental claim of Buridan's solution is that every proposition virtually implies another proposition claiming that the original proposition is true. If the terms of the implied proposition do not cosupposit in a given situation, I will say that the "virtual implication condition" (VIC) of the original proposition is not satisfied in that situation. Another fundamental claim of his solution is that an affirmative Liar-sentence is false, and so, because its subject refers to the proposition itself and its predicate is the term 'false', its terms cosupposit. In general, I will say that when the terms of an affirmative proposition cosupposit (and, correspondingly, if the terms of a negative proposition do not cosupposit), then its "cosupposition condition" (CSC) is satisfied.

Next, we should recall that Buridan defined the validity of a consequence in terms of howsoever the antecedent and the consequent signify things to be, and he reminded us that this "Aristotelian formula" should be understood as an abbreviation of the "conclusions" he gave us in c. 2 of the *Sophismata*. In discussing the issue of validity, I somewhat loosely referred to the satisfaction of the conditions specified by those "conclusions" as the satisfaction of the "correspondence-conditions" of the relevant kinds of proposition. But now we should more specifically ask whether those "correspondence-conditions" include both the VIC and the CSC or only the latter (other possibilities being naturally excluded)?

If only the latter, then, despite Buridan's claim, the virtual implication of a Liar-sentence cannot be valid by his own criterion of validity. If both, then, despite Buridan's claim, the consequence 'No proposition is negative; therefore, some proposition is negative' will turn out to be valid. So, either way, Buridan cannot maintain all his claims together; his theory is inconsistent.

(p. 232) To see this in more detail, consider first the Liar-sentence:

(A) (A) is false

This, allegedly, virtually implies a sentence claiming (A) to be true:

(B) (A) is true

Suppose that the “correspondence-conditions” involve only CSC. In that case, since the subject and the predicate of (A) cosupposit for (A), the CSC of (A) is satisfied. But then the CSC of (B) cannot be satisfied. Therefore, (A) cannot entail (B), on his own account of validity, despite what Buridan says to the contrary. ³⁷

Now suppose the “correspondence-conditions” involve both the CSC and the VIC. In that case, because the VIC of (A) is not satisfied, (A) may validly entail (B), although, of course, in that case both (A) and (B) are false and their correspondence conditions are not satisfied (for although the CSC of (A) is satisfied, its VIC is not, because the CSC of (B) is not satisfied). But in this case, if their VIC is supposed to be among the correspondence-conditions of all propositions, then Buridan’s solution will not work for ‘No proposition is negative; therefore, some proposition is negative’. The reason is that if the VIC is supposed to be part of the correspondence-conditions of all propositions, then, on Buridan’s final definition of validity, this consequence will be valid if the VIC of its antecedent cannot be satisfied. But this is precisely the case here. The VIC of that antecedent could only be satisfied in a possible situation in which that antecedent is true, and so it exists. But if it exists in that situation, then the situation contains a negative proposition, whence that antecedent (stating that no proposition is negative) cannot correspond to that situation (because its obvious supposition-condition, namely, that its terms *do not* cosupposit, would have to fail). Therefore, the correspondence-conditions of the antecedent cannot be satisfied, and hence the correspondence-conditions of the antecedent cannot be satisfied without the satisfaction of the correspondence-conditions of the consequent; whence the consequence must be deemed valid on Buridan’s definition, despite what he says. *Ergo*, Buridan’s solution fails within the context of his own logical theory, for his theory in the end is rendered inconsistent by this solution.

(p. 233) 10.7 The Solution Vindicated

However, it appears to me that there is an entirely plausible way to save the consistency of Buridan’s theory. For concerning his “virtual implication” Buridan may plausibly claim that it is not a *formally*, but merely *materially* valid consequence, depending for its validity not on the logical form of the propositions involved, but on the meaning of their terms. ³⁸ Thus, the argument (namely, that if the correspondence conditions of a proposition included only its CSC, then the “virtual implication” of its truth would not be a formally valid consequence by Buridan’s own criterion of formal validity)

would simply miss the mark: on this understanding of Buridan's "virtual implication", it is not even supposed to be formally valid; it is just valid on account of the meaning of the terms of the propositions involved, in particular, the meaning of the term 'true'.

This defense may actually work, for on this interpretation Buridan may claim without inconsistency that the "correspondence-conditions" of propositions are nothing but their CSC, and so his treatment of Liar-sentences is satisfactory, given that even if their CSC is satisfied (because they are false) their VIC, which would be required for their truth, cannot be satisfied precisely for this reason. Still, the validity of the virtual implication involved in the VIC need not be judged in terms of Buridan's criterion for formal validity, because this implication is not supposed to be formally valid in the first place.

To be sure, Buridan justifies his "virtual implication" with reference to the meaning of the copula, which he takes to be "the formal part" of any categorical proposition; so, its copula is part of the "logical form", rather than the "matter", of a proposition. Still, it is precisely this "formal part" of the antecedent of the "virtual implication" that is supposed to justify the application of the predicate 'true' in its consequent, given the meaning of 'true'. Indeed, perhaps this is *all* Buridan has to say about the meaning of 'true', by way of a (strongly deflationist) "theory of truth."

However, Buridan's "deflationism" about the *theory of truth* does not mean that he has no concern for *knowing the truth*. On the contrary, as we could see in the beginning, he conceives of his entire logic as the "art of arts and science of sciences" that can best be trusted to lead us to scientific knowledge of truth about reality.

Notes:

(1.) Obviously, this consequence is only valid on the medieval analysis of universal affirmatives, attributing "existential import" to them. Modern readers who still do not like this analysis may substitute their favorite example of a valid consequence here; Buridan's point remains the same.

(2.) Buridan, J. *Tractatus de Consequentibus*, Philosophes Médiévaux, vol. 16, ed. H. Hubien, Louvain-Paris: Publications Universitaires, 1976 (henceforth: TC), c. 3, pp. 21-22.

(3.) Ibid.

(4.) Ibid.

(5.) Given Buridan's token-based conception of propositions, the phrase 'the proposition "p"' does not always manage to single out a single proposition-token (although in some contexts, when the uniqueness of reference is secured by the context itself, it can). But for brevity and naturalness of expression, when no confusion arises, we can still use this phrase as an abbreviation of the expression 'any proposition of the form "p".'

(6.) We should also note here that propositional components of a hypothetical proposition strictly speaking are not propositions according to Buridan. Cf. Klima, G. "John Buridan and the Force-Content Distinction." However, we may disregard this complication for the moment, and understand the claim that the antecedent is a negative proposition as a mere abbreviation of the more complicated formulation that what is the antecedent, *if it were formed in itself*, would be a negative proposition, as in fact Buridan himself wants us to understand such claims.

(7.) SD 9.8, p. 953.

(8.) I owe the gist of this objection to David Kaplan.

(9.) I owe this point to Elizabeth Karger.

(10.) This term was used in medieval logic to refer to problem-sentences involving self-reference leading to paradox, such as the Liar Paradox (if I am uttering 'I am saying something false,' am I saying something true or false?), as well as to the entire medieval genre of treatises dealing with such paradoxical sentences.

(11.) We have already seen the *philosophical importance* of *not* having this distinction in Buridan's logic, in connection with his conception of ontological commitment. In this chapter we are going to see its *logical* importance.

(12.) See SD 9.8, *Eighth Sophism*, pp. 971–974. I have modified Buridan's sophism, because his treatment of it relies on a somewhat dubious "parity of reasoning"-style argument attempting to establish the equivalence of 'Plato says something false' and 'Socrates says something false' uttered by Socrates and Plato respectively. I believe the modified version serves to illustrate the points I want it to illustrate without having to rely on this type of reasoning.

(13.) Throughout this discussion, the propositional variable is supposed to be read “substitutionally,” as a mere shorthand for a string of words constituting a token-sentence.

(14.) QM, lb. 6, q. 10: *Utrum omnis propositio ex eo est vera quia qualitercumque significat ita est in re significata vel in rebus significatis.*

(15.) A full-fledged model theoretical semantics constructed along these lines can be found in essay V of my *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern.*

(16.) SD, p. 854.

(17.) SD, pp. 854–859.

(18.) SD, p. 859.

(19.) See TC, pp. 21–22.

(20.) Buridan’s actual example in c. 8 with the stick had ‘no proposition is affirmative’ as its antecedent, and the reason why that consequence has to be deemed valid on the proposed definition is that the affirmative consequent, formed together with the antecedent, always falsifies the antecedent. But this version, presenting a consequence with a self-falsifying antecedent, which will also be featured in the next example, will better serve our present purposes.

(21.) For more on this issue, see Pérez-Illarbe, P. “Complexio, enunciatio, assensus: the role of propositions in knowledge according to John Buridan” in *Medieval Theories On Assertive and Non-Assertive Language*, Acts of the 14th European Symposium on Medieval Logic and Semantics, eds. A. Maierú and L. Valente, Rome: Olschki, 2004, pp. 401–414 and Klima, G. “John Buridan and the Force-Content Distinction.”

(22.) SD, pp. 955–956.

(23.) SD, pp. 956–957.

(24.) SD, pp. 957–958.

(25.) See Read, S. L. “The Liar Paradox from John Buridan back to Thomas Bradwardine,” *Vivarium* 40(2002), pp. 189–218; Klima, G. “Consequences of a

Closed, Token-Based Semantics: The Case of John Buridan”; and the “classic” treatments provided by Spade, Hughes, Scott, Moody, and Prior referred to in these papers.

(26.) SD, *Sophismata*, c. 8, *Seventh Sophism*, pp. 965–971.

(27.) Buridan, J. *Quaestiones in primum librum Analyticorum Posteriorum*, unpublished edition of H. Hubien, q. 10.

(28.) See SD, p. 968.

(29.) In Read, S. L. “The Liar Paradox from John Buridan back to Thomas Bradwardine.”

(30.) This is because the rejection of a more universal claim does not in and of itself entail the rejection of a more restricted, less universal claim. For example, rejecting the claim ‘All intelligent beings are material beings’ does not commit one to rejecting the claim ‘All human beings are material beings’, provided one accepts that all human beings are intelligent beings and not *vice versa*. But then, of course, it may turn out that the reason for rejecting the more universal claim is also compelling against the less universal one, but that is a separate question.

(31.) Second intentions are concepts by means of which we conceive of concepts (or other signs) insofar as they are concepts (or signs). For example, the concept to which the term ‘species’ is subordinated is a second intention. First intentions are concepts by means of which we conceive of things other than concepts (or other signs), or perhaps concepts, but not insofar as they are concepts (or signs). Such is, for example, the concept to which the term ‘man’ is subordinated, by which we conceive of human beings, who are not concepts, or the concept to which the term ‘being’ is subordinated, by which we conceive of both things that are not concepts and things that are concepts; however, by this concept we conceive of the latter not insofar as they are concepts but insofar as they are entities, regardless of their representative function. See Albert of Saxony, *Perutilis Logica*, f. 4, va.

(32.) This is because the sentential nominalization “that the proposition ‘A man is a donkey’ is true” should refer to things of which the terms of the corresponding proposition (namely, “The proposition ‘A man is a donkey’ is true”) are jointly true. But the subject of this proposition refers to any proposition of the form ‘A man is a donkey’, which is necessarily false;

therefore, the predicate 'true' cannot be true of any of these, whence the two terms cannot be jointly true of anything, and so the corresponding nominalization cannot refer to anything.

(33.) *Sophismata*, c. 1, *Fourth Sophism*, conclusion 5.

(34.) Namely, "that the proposition 'A man is a donkey' is true", which is the subject of the proposition "That the proposition 'A man is a donkey' is true is signified", supposits for nothing.

(35.) The notes referenced inside this passage come from my translation of Buridan's *Summulae*. See SD, pp. 968–969.

(36.) For this charge, see especially Read, S. L. "The Liar Paradox from John Buridan back to Thomas Bradwardine," p. 201.

(37.) Note that this argument is based on the assumption that the point of Buridan's talking about a *virtual* implication is to assure that he can invoke this requirement even if the consequence expressing this implication is not actually formed. But in all cases when the question is whether a Liar-sentence satisfies the VIC it is assumed that the Liar-sentence itself exists, and that it, or rather a proposition equiform to it, would figure in the antecedent of the consequence expressing the "virtual implication" if it were formed. So, a defense requiring for the implication not only (A), but both (A) and a proposition '(A) exists' would probably not work.

(38.) For Buridan's distinction, see TC, lb. 1, c. 4, pp. 22–23; English translation: Peter King, *Jean Buridan's Logic: The Treatise on Supposition and the Treatise on Consequences*.



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The Possibility of Scientific Knowledge

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Abstract and Keywords

This chapter provides a brief survey of Buridan's reliabilist epistemology, contrasting it with skeptical challenges of his time, and comparing it with modern responses to similar skeptical challenges in modern philosophy, arguably stemming from the controversies of Buridan's time. In particular, the chapter argues that the sort of "Demon-skepticism" modern readers are familiar with from Descartes was made conceptually possible precisely by the emergence of late-medieval nominalist semantics, and that the modern strategies responding to the skeptical challenge, exemplified by the works of Thomas Reid and most recently John Greco, originate in the epistemic principles of Buridan.

Keywords: reliabilism, Demon-skepticism, Thomas Reid, John Greco

Scientific knowledge of extramental reality, at least in the strict, traditional, Aristotelian sense, has to be based on necessary, universal generalizations. Such generalizations, in turn, are impossible without universal, substantial concepts of extramental objects. For if none of our concepts represents substantial characteristics of extramental objects, then our concepts can only represent contingent features of their objects, and so they cannot provide us with universal, necessary knowledge of these objects. It is therefore crucial for any epistemology upholding the possibility of scientific knowledge in this sense to account for the human mind's ability to acquire substantial concepts of things in extramental reality. ¹

Such an account, however, is particularly problematic for empiricists, who can broadly be characterized as philosophers holding that the human mind begins its existence in this life without any definite mental contents about extramental reality, in short, without any categorematic concepts, ² and has to acquire its concepts in a natural process from experience.

This is a somewhat broad characterization, which will turn out to comprise philosophers whom we would usually not subsume under the label 'empiricist' without reservation. ³ Nevertheless, this characterization certainly distinguishes a number of medieval Aristotelians from Platonists, Augustinians, and Cartesians, who would hold that the human mind begins its existence in this life in possession of at least some categorematic (p. 235) concepts, which therefore it does not acquire from experience in this life. Consequently, for these philosophers the acquisition of these concepts in this life is not a problem at all. They rather have trouble with accounting for the apparent lack of these concepts in children and mentally impaired adults, as well as the apparently mysterious match between these prenatal or innate concepts and the objects of empirical reality, and, in general, the supernatural dependency of what appears to be a natural operation of the human mind, namely, understanding. ⁴

By contrast, the acquisition of substantial concepts in this life is a problem for empiricists, for they have to be able to show that these concepts can somehow be derived from sensory experience, the natural input the mind receives in this life. However, sensory experience apparently can only provide the mind with information about the sensible qualities of objects of experience, which are all accidental, nonsubstantial features of these objects. If substantial concepts can be derived as some sorts of combinations of the concepts of these sensible qualities, then the problem may seem to be solved, in the way proposed by the British empiricists, Locke, Berkeley, and Hume. However, as Buridan's argumentation in q. 4 of bk. 1 of his *Questions on Aristotle's Physics* analyzed earlier ⁵ had shown centuries before the British empiricist approach emerged, such a derivation is impossible. In fact, as we have seen, Buridan's discussion in this question amounts to a principled refutation of the British empiricists' conception of our substantial concepts as "collections of simple ideas of sensible qualities." ⁶

The principles that allowed this refutation, namely, the principles I dubbed "the principle of the activity of the intellect" and "the principle of substantial content of sensory information," respectively, serve as the underpinnings of

Buridan's essentialism in his epistemology, which, in turn, is the foundation of his theory of induction or valid scientific generalization.

The systematic significance of these principles in Buridan's philosophy is that they enable him to endorse a credible empiricist account of valid scientific generalizations, consistent with his nominalist ontology and semantics.

⁷ For, in the first place, on the basis of *the principle of the activity of the intellect*, he can claim that the intellect is capable of extracting content from sensory information carried by the senses that the senses themselves are unable to extract from this information (just like a spectrometer is capable of extracting content from the optical information carried by a telescope that is not extractible from this information by the telescope on its own). On the basis of *the principle of substantial content* of sensory information, (p. 236) however, Buridan is able to claim that the sensory information carried by the senses *does* contain content about substances, even if the senses *per se* can only perceive their sensible qualities. Thus, because the senses do carry this substantial content, and the intellect is able to extract it in the form of its substantial concepts, the terms subordinated to these concepts will be true essential predicates of the substances that these concepts naturally represent. But once we have essential predicates, we do have valid generalizations, for such terms *necessarily* apply to *all* individuals that fall under them as long as these individuals exist.

As can be seen, this account is provided in purely empiricist and nominalistic terms, without any need to invoke either any sort of "extrasensory" input (whether in the form of prenatal, innate, or infused ideas, or some form of divine illumination) or any sort of universal entities or quasi-entities objectively existing in our minds as the direct, immediate objects of our intellectual acts. These principles, therefore, allow at least the *general possibility* of valid scientific generalizations, and thereby reliable scientific knowledge, *within* a broadly empiricist, nominalist framework. But they do not provide us with any *specific grounds for the reliability* of any *particular* scientific generalization, which is to be based on *reliable empirical sources*. This is the task of two further principles of Buridan's epistemology.

What may be referred to as "the principle of the primacy and multiplicity of scientific principles" advances the idea that scientific demonstrations rely on principles that are themselves indemonstrable, and that, because in any demonstration the premises outnumber the conclusions, there are at least as many such principles as there are conclusions. Indeed, because there are

infinitely many scientific conclusions, from this Buridan can conclude that there have to be infinitely many scientific principles as well:

(1) There is, however, no one single first and indemonstrable principle, but there are several. (2) Indeed, there are not many more demonstrable conclusions than there are indemonstrable principles. (3) Therefore, there are infinitely many such principles, for there are infinitely many demonstrable conclusions. ⁸

But how can we be certain about these principles, if they are not demonstrable? If they are self-evident, does this mean that their denial would be contradictory? This is certainly not the case for Buridan. The principle that may be dubbed “the principle of gradation of the certainty of scientific principles” stipulates that the infinity of scientific principles needed for (p. 237) scientific demonstrations come in various degrees of certainty, depending on their subject matter, generality, and confirmation in our experience. As Buridan states:

(1) ... the evident cognition of principles is neither innate to us (2) nor is it acquired by teaching in the strict sense, (3) but it is acquired by the intellect’s natural inclination to assent to them, along with the previous assistance of the senses, memory, or experience. (4) For some principles become evident to our intellect by the nature of the intellect only on the basis of previous sensation, but some on the basis of previous sensation and memory without experience, and some on the basis of memory and experience. (5) And some of these principles are singular propositions, some common; and of the ones that are common, some are particular or indefinite, and some are universal. (6) And the singular ones are manifest from experience by example, the particular or indefinite ones by the abstraction of a common concept from the singular concept, and the universal ones by induction. ⁹

Thus, when Buridan explicitly discusses the various degrees of certainty we can have for our various sorts of first principles, he lists without hesitation among the first principles of scientific demonstration ordinary judgments of perception, such as ‘This piece of coal is hot’ or ‘This donkey is eating’. ¹⁰

11.1 The Common Epistemic Principles of Buridan, Reid, and Greco

To appreciate just how “modern” these epistemological ideas of Buridan’s are, I believe at this point it will be instructive to observe a certain “family resemblance” between these principles of Buridan’s epistemology and the principles approvingly identified by the contemporary epistemologist John Greco in David Hume’s “common sense opponent,” Thomas Reid. (We’ll see the historical and theoretical importance of this resemblance a little bit later). As Greco writes:

Reid’s theory of evidence may be described as a moderate and broad foundationalism. The theory is “moderate” in the sense that Reid does not require infallibility for knowledge. Neither does he require indefeasibility or irrevisability, or some other high-powered epistemic property. It is “broad” in the sense that Reid allows a wide variety of sources of both foundational and nonfoundational knowledge. For Reid, introspective (p. 238) consciousness, perception, memory, testimony, deductive reasoning, and inductive reasoning are all sources of evidence and knowledge. ¹¹

In particular, this means that, just like Buridan, Reid explicitly denies that there could be just one first principle, say, the principle of noncontradiction, and that he is operating with the idea that different principles come with different degrees of certainty, along with the unabashed affirmation of the *natural reliability* of the cognitive sources from which these principles derive.

Thus, in his first move against the Humean skeptic, Reid consistently points to the variety and natural reliability of our cognitive resources, as opposed to the skeptic’s narrow conception of evidence, demanding a proof of everything. As he remarks (quoted by Greco):

Reason, says the sceptic, is the only judge of truth, and you ought to throw off every opinion and every belief that is not grounded on reason. Why, Sir, should I believe the faculty of reason more than that of perception; they came both out of the same shop, and were made by the same artist; and if he puts one piece of false ware into my hands, what should hinder him from putting another? (IHM VI.xx: 169) ¹²

In the second place, Reid would point to the different degrees of certainty one can obtain from these different sources. Again, as Reid put it with regard to the different sorts of evidence stemming from these different sources (quoted by Greco):

They seem to me to agree only in this, that they are all fitted by Nature to produce belief in the human mind, some of them in the highest degree, which we call certainty, others in various degrees according to circumstances. (EIP II.xx: 229) ¹³

Thus, on John Greco's analysis, Reid's epistemic principles can be characterized as amounting to a:

...“proper function” faculty reliabilism. According to Reid, our cognitive faculties give us knowledge so long as they are part of our natural constitution and “not fallacious”. Put another way, knowledge arises from the proper functioning of our natural, nonfallacious (i.e., reliable) cognitive faculties. ¹⁴

John Greco finds similar ideas at work in G. E. Moore's famous “proof of an external world,” ¹⁵ which Greco also happily embraces in his book, characteristically titled *Putting Sceptics in Their Place*. ¹⁶

(p. 239) 11.2 Putting Sceptics in Their Place

So, how is the procedure of “putting skeptics in their place” supposed to work on the basis of these reliabilist principles in general? And how are they supposed to work for Buridan in particular?

The skeptical doubts these authors are all addressing primarily concern the possibility of our knowledge of an external reality. Their respective skeptical opponents have no doubts about the certainty of self-awareness. Nor do they doubt the validity of the principle of noncontradiction, or anything directly reducible to that principle. Their basis for doubts about external reality is *the impossibility of a valid inference* from known facts of self-awareness to the existence of any corresponding external object. John Greco reconstructs the corresponding skeptical argument, which he dubs the “No Good Inference” (NGI) argument, in the following way:

1. All knowledge is either immediate (not inferred from evidence) or mediate (inferred from immediate knowledge that serves as its evidence).
2. All immediate knowledge is about our ideas or sensations.

Therefore,

3. If we are to have knowledge of external objects, it must be by means of an adequate inference from knowledge of our ideas and sensations. (1,2)
4. But there is no adequate inference from knowledge of our ideas and sensations to our beliefs about external objects.

Therefore,

We can have no knowledge of external objects. ¹⁷

The importance of this argument, as Greco correctly observes, is that it does not depend on the representationalism of the theory of ideas that Reid attacks (which is the reason for the *disjunctive formulation* of premise 2 in terms of “ideas or sensation”). For regardless of whether we take ideas to be our cognitive acts themselves or their direct objects, a distinction Reid carefully draws at one point, ¹⁸ the “No Good Inference” argument applies. Therefore, despite popular belief to the contrary, which may well have originated with Reid, ¹⁹ skepticism concerning the knowability of external reality is *not* necessarily tied to the contrast between “representationalism” and “direct realism”. ²⁰

(p. 240) In fact, when George Berkeley presents the argument, he makes a point of formulating it in such a way that renders it independent from the particular theory of ideas he advocates:

But, though it were possible that solid, figured, movable substances may exist without the mind, corresponding to the ideas we have of bodies, yet how is it possible for us to know this? Either we must know it by sense or by reason. As for our senses, by them *we have the knowledge only of our sensations, ideas, or those things that are immediately perceived by sense, call them what you will* [note the disjunctive formulation again!—GK]: but they do not inform

us that things exist without the mind, or unperceived, like to those which are perceived. This the materialists themselves acknowledge. It remains therefore that if we have any knowledge at all of external things, it must be by reason, inferring their existence from what is immediately perceived by sense. But what reason can induce us to believe the existence of bodies without the mind, from what we perceive, since the very patrons of Matter themselves do not pretend there is any necessary connexion betwixt them and our ideas? I say it is granted on all hands (and what happens in dreams, phrensies, and the like, puts it beyond dispute) that *it is possible we might be affected with all the ideas we have now, though there were no bodies existing without resembling them*. Hence, it is evident the supposition of external bodies is not necessary for the producing [of] our ideas; since it is granted they are produced sometimes, and might possibly be produced always in the same order we see them in at present without their concurrence. ²¹

So, from the point of view of this argument, it does not matter at all whether its “background theory” assumes any putative intermediaries between our cognitive acts and their (ultimate) objects: what matters simply is that the relationship between these acts (or their necessary immediate objects) and their (ultimate) objects is logically contingent, for that is precisely what renders the inference from the existence of the act to the existence of the (ultimate) object invalid.

Indeed, this point had already been brought out most clearly by Nicholas of Autrecourt’s version of the argument in his famous (or infamous, if you will) *First Letter to Bernard of Arezzo*:

... in a certain report of the lectures that you have delivered in the school of the Friars Minor and released as authentic to whomever wished to have it, I read the following propositions. The first (which is set forth by you in your commentary on the first Book of the Sentences, dist. 3, q. 4) **(p. 241)** is this: (1) Clear intuitive cognition is that by which we judge a thing to be, whether it is or is not. Your second proposition (which is laid down in the place mentioned above) runs as follows: (2) The inference ‘The object is not; therefore it is not seen’ is not valid, nor does this hold ‘This is seen; therefore it is’. What

is more, there is a fallacy in either of them, just as in these inferences 'Caesar is thought of; therefore Caesar is', 'Caesar is not: therefore Caesar is not thought of'. The third proposition (put forward in the same place) is this: (3) Intuitive cognition does not necessarily require something existent. ²²

From the invalidity of this inference, based on the possibility of the existence of an intuitive act of cognition without the corresponding ultimate object, Nicholas does not hesitate to draw the final skeptical conclusion concerning the knowability of external reality:

From these propositions I infer a fourth one saying (4) Every impression we have of the existence of objects outside our minds can be false, since, according to you, it can exist, whether or not the object is. And still another proposition, which is the fifth one and runs as follows: (5) In the natural light we cannot be certain *when* our awareness of the existence of external objects is true or false, because, as you say, no matter whether a thing is or is not, it represents it as being in one and the same manner. And, thus, since anyone who posits the antecedent must also posit the consequent that, by formal implication, is inferred from that antecedent, it follows that because you do not have evidential certitude as to the existence of external objects, you must also concede anything that follows therefrom. That you do not have evident certitude of the existence of sensorial objects is clear, because no one has certitude of any consequent through an inference in which manifestly a fallacy is committed. Now, such is the case here, for, according to you, there is a fallacy here: 'Whiteness is seen; therefore there is whiteness'. ²³

Now, given that the force of the argument hinges on the invalidity of this inference, one would expect that a critic of the argument would try to establish its validity at least for certain cases. But this is precisely the kind of reply that Nicholas deftly demolishes in his subsequent remark:

But perhaps you want to say, as it seems to me you wished to suggest in a certain disputation at the Black Friars', that although from the act of seeing it cannot be inferred that the object seen exists when the seeing has been produced or is conserved by a supernatural cause, even so, when it has been produced by causes that are purely natural, with <only>

(p. 242) the general influence of the First Agent concurring,— then it can be inferred.

But to the contrary: When from some antecedent, if produced by some agent, a certain consequent could not be inferred by a formal and evident implication, then from that antecedent, no matter by what other <agent> it be produced, that consequent could not be inferred either [...] because the antecedent as such does not vary according as the respective agents vary, nor does the state of affairs signified by the antecedent. ²⁴

Indeed, Nicholas's contention here perfectly squares with Buridan's in his *Sophismata*, in which Buridan correctly establishes that the invalidity of a certain inference is not affected by any additional circumstances we may stipulate, if they are not stated in the antecedent. ²⁵ But what if we do state them in the antecedent? Nicholas has his answer:

Since from that antecedent it cannot be inferred evidently by way of intuitive cognition 'therefore there is whiteness', one must add, then, something to the antecedent, namely what you suggested above, viz. that the whiteness has not been produced or conserved supernaturally. But from this it is clear that I have proved my point. For: When somebody is certain of some consequent only in virtue of some antecedent of which he is not evidently certain whether or not the case is such as <the antecedent> states <it to be>—because that antecedent is not known by the meaning of its terms, nor by experience, nor deduced from such knowledge, but is only believed—, such a person is not evidently certain of the consequent. <Now>;, this is the case, if that antecedent is considered together with its modification, as is clear to everybody. Therefore etc. ²⁶

So, Nicholas correctly concedes that even if from the original premise in and of itself the conclusion does not follow by means of a formally valid inference, the same conclusion can validly follow by means of the addition of another premise. In fact, just any invalid inference can be turned into a valid instance of *modus ponens* by adding a conditional whose antecedent is the original premise and whose consequent is the intended conclusion. But then the evidentness of the conclusion will hinge on the evidentness of the

conditional, which, Nicholas contends, lacks evidentness just as well as the original invalid consequence.

And Buridan would certainly agree. As he writes in his *Treatise on Demonstrations*:

... in the demonstrations of these conclusions, not only are two first principles required, namely, the two premises, but also several others, (p. 243) for a demonstration requires not only the evidentness of the premises but also the evidentness of the consequence. But that consequence is a proposition, albeit a hypothetical one. And so, if the consequence is evident in itself, then it is an indemonstrable principle; and if it is not evident in itself, then it needs to be demonstrated by evident principles. ²⁷

But what if we simply *cannot* have a self-evident conditional premise that is self-evident by reduction to the first principle—as seems to be precisely the case when the antecedent claims the existence of an effect, and the consequent claims the existence of its natural cause, while the effect can be produced supernaturally, without the existence of the natural cause?

It is at this point that Buridan's principle of the gradation of the certainty of scientific principles kicks in. In what might be regarded as a direct response to Nicholas' argument, he says the following:

[...] these objections are solved on the basis of bk. 2 of the *Metaphysics*. For there Aristotle says: "mathematical exactitude is not to be demanded in all cases, but only in the case of those things that do not have matter; for this reason this is not the method of natural science". And consequently the Commentator remarks on this passage that one need not demand the kind of belief in natural demonstrations as in mathematics. We shall therefore declare that there are many diverse kinds of certainty and evidentness. ²⁸

Accordingly, in the subsequent discussion in which he distinguishes the different degrees of certainty appropriate to different fields, Buridan simply declares that the skeptic demanding the evidentness and certitude of the principle of noncontradiction in all fields is simply demanding something impossible. Indeed, it is the skeptical argument itself that shows why the skeptic is demanding the impossible. As Buridan remarks:

... one sort of certainty is that which pertains to a proposition so firmly true that it, or one similar it, can by no power be falsified. And in this way we should certainly concede, as they have argued, that it is impossible for us to have such certainty about an assertoric categorical affirmative proposition, unless it consists of terms suppositing for God, or, perhaps, if we admit natural supposition [...] But this sort of certainty is not required for natural sciences or metaphysics, nor even in the arts or morality [*prudentialia*]. Another sort of human certainty on the part of the proposition, however, is that of a true proposition that cannot be falsified by any natural power and by any manner of natural operation, although it can be falsified by a supernatural power and in a miraculous way. And such (p. 244) certainty suffices for natural sciences. And thus I truly know by natural knowledge that the heavens are moved and that the sun is bright. 29

So Buridan does not hesitate to concede the possibility of divine deception, and thus the less-than-absolute evidentness and certainty of the crucial consequence (from being perceived to existing) that our knowledge of an external world demands. But, he contends, this is *all* we can have, and this is *all* we need:

Accordingly, it seems to me to be possible to conclude as a corollary that supernaturally it is possible for my [act of] knowledge, while it remains the same, to be converted into non-knowledge. For as long as the sun and the sky are moving in accordance with all their natural ways, the assent by which I firmly and with certainty assent to the proposition 'The sun is bright' is true, evident, and certain natural knowledge [*scientia*], endowed with the evidentness and certainty appropriate to natural science [*scientia*]. I posit, then, that if this [act of] assent, which is knowledge at the present time, remains in me for the whole day, and at nine o'clock God removes light from the sun without my knowing this, then that [act of] assent of mine will no longer be knowledge after nine o'clock, for it will no longer be true, nor will it have a true proposition as its object.

An analogous distinction can be made concerning evidentness as well as concerning certainty. For some human evidentness

is such that in accordance with it the cognitive power is compelled either by its own nature or by some evident argument to assent to a truth or a true proposition that cannot be falsified by any power; but this is not required for natural science. Another [type of evidentness] is such that in accordance with it the cognitive power is compelled either by its own nature [or by some evident argument] to assent to a truth or a true proposition that cannot be falsified naturally, although it could be falsified supernaturally. And this is what is required for natural science. ³⁰

Thus, Buridan's application of the principle of gradation of certainty "puts the skeptic in his place," by pointing out the unreasonably high demand for certainty the skeptic places on ordinary or scientific knowledge claims about external reality. Precisely because the skeptic's argument shows that our cognitive faculties are not absolutely infallible concerning external reality, yet reliable enough, provided things behave in accordance with the common course of nature without supernatural intervention, we have an absolutely good reason to accept this diminished, conditional certainty, to which the demands of absolute certainty do not apply. In a parallel passage in the (p. 245) *Questions on the Metaphysics* Buridan also alludes to the even weaker requirement of moral or legal certainty, reasonably applied in courts of law, where, dealing with singular events of the past, even the scientific certainty of natural science cannot be demanded. ³¹ But then, one may certainly argue against the skeptic that, if in matters of life and death we reasonably allow less than absolute certainty, why should we demand absolute certainty in theoretical matters, in which our cognitive faculties are more reliable, but are demonstrably not infallible?

Indeed, the unreasonable character of the skeptic's demand is brought out by Buridan also with reference to ordinary ways of speaking, according to which it would be preposterous to claim ignorance on account of the possibility of divine intervention. As he says:

But then you would ask whether, when I clearly see Socrates running, I know that Socrates is running or whether I merely opine this. And I reply that then I do not opine this, but I know. For everybody speaks in this way: 'I know that this iron is hot, for I clearly feel that it is hot', and 'I certainly know that Socrates was running yesterday, for I saw him running'. ³²

It seems that Buridan is absolutely right. Certainly, nobody, including the skeptic, would claim ignorance about the heat of a piece of red hot iron, were he to hold it in his hand, arguing that all this might be just an elaborate illusion created by an omnipotent deceiver. Indeed, the skeptic would, rather, immediately get off his epistemic high horse and would provide screaming testimony to his knowledge of what is happening to him, despite the remote possibility that he might be deceived. So, it seems that Buridan's down-to-earth epistemology achieves precisely what John Greco wanted: to put the skeptic in his place.

11.3 Putting the Skeptic in His Place versus Stopping Him in his Tracks

But will the skeptic stay there? Recovering from his burns, could not he claim that despite all the intensity of the experience, it might have been absolutely unreal? After all, Buridan himself does not deny this possibility. And if Buridan concedes this much concerning this experience, shouldn't he concede the same concerning all experiences?

(p. 246) Well, in fact, Buridan does make this concession, but at the same time he claims that, at least generally, such experiences are reliable, and it is only the slim chance of some omnipotent intervention that makes him allow this possibility; thus, this should not prevent anyone from saying that the skeptic *knew* what happened, even if he *could not infallibly know* it.

But then, does not Buridan, along with the modern advocates of this "epistemology of lowered expectations," merely take here the stance of someone who is simply willing to call something "knowledge" that may not *really be knowledge*, and "reality" that may not be *reality* at all? No matter how reasonable Buridan's position may sound in practical terms, isn't he just taking the position of Cypher, the traitor of *The Matrix*, who would give up the true reality of Zion for the virtual pleasures of a merely apparent juicy steak in the Matrix? Isn't Buridan's optimistic confidence in the natural reliability of our cognitive faculties just a covert way of giving up on the demand of finding *genuine* certainty about the nature of *true reality*, settling for what is just a "good enough" certainty about what may be a merely *phenomenal* quasi-reality?

In order to put Buridan's strategy in what I take to be its proper theoretical context, instead of trying to handle these questions from the standpoint of Buridan and that of "his modern ilk," I would prefer briefly to compare and

contrast Buridan's strategy with another, medieval way of handling the type of skepticism Buridan and his ilk are grappling with, a way which does not give rise to these questions, because it simply does not allow this type of skepticism to emerge in the first place.

I take it that this other approach can be found in Aquinas (at least on my strong interpretation of his doctrine), or in any author who would endorse the same strong interpretation of the Aristotelian claim that our cognitive faculties are not deceived regarding their proper objects, *based on the doctrine of the formal unity of the knower and the known*.

We should recall here that the crucial point of the skeptical argument was the claim that it is invalid to *infer* from the existence of a cognitive act the existence of a corresponding external object. It is this claim, then, that allows the further move to the possibility of in principle undetectable perfect deception, that is, the possibility of having precisely the same cognitive acts in a cognitive subject, regardless of whether there are any external objects corresponding to these acts, that is to say, regardless of whether any of these cognitive acts is veridical or not. In other words, the basis of the skeptical claim is the assumption that the relationship between cognitive **(p. 247)** act and external object is merely contingent, and so, that *the veridicality of all cognitive acts is merely accidental*.

But on the basis of Aquinas' account of cognition, this would be impossible. For on his account a simple cognitive act is the form of the object received in the cognitive subject according to the nature and capacity of the subject, in a mode of being different from the mode of being of the object. Accordingly, the cognitive act itself, as such, is formally the same as the object, although it is distinct from it in its being. But those that are formally the same are essentially related, by essential similarity. *If these things exist, then they necessarily are of the same kind, by logical necessity.*³³ Therefore, simple acts of sensory or intellectual apprehension *must* be instances of the same form as their proper objects; so, it is not possible to have an act of vision of some whiteness that is not a vision of something that *really is* a whiteness or a memory of a whiteness that is not a memory of something that *really was* a whiteness, and it is not possible to have the concept of donkeys that is not a concept of *real* donkeys.³⁴

But this is precisely the kind of impossibility that the skeptical argument assumes to be possible. For whether we look at Berkeley's version or Nicholas of Autrecourt's, or for that matter, Descartes' or Putnam's, or the version suggested by the visual imagery of *The Matrix*, we can see that the

argument assumes the possibility of having exactly the same cognitive acts whether they are produced by their adequate object, that is, their formally identical, proper object, or by something else, say, God, an evil demon, a mad scientist, or some rebellious machines using humans as batteries. However, if this were possible, then it would be possible to have an act of sight of some whiteness that is not a vision of something that *really is* some whiteness but, rather, is just, say, a piece of computer code generating this act of sight in the brain of the human battery. Likewise, a donkey-concept of such a human battery, deriving not from real experiences with real donkeys, but from virtual experiences generated by computer code, would have to be a concept not of donkeys, but of *virtual donkeys*, which are *not donkeys*, whatever they are (whether the pieces of computer code generating these virtual experiences or the virtual experiences themselves). But if Aquinas is right, then this sort of imagination is no more possible than the imagination of a prime number than which no greater can be found. For even if we can imagine that counting upward we can arrive at a prime number beyond which no number we ever count will be a prime, Euclid's proof conclusively shows that this imagination is impossible. In the same way, (p. 248) we can say that if Aquinas' Aristotelian account of cognition is right, then the entire Matrix Trilogy, and, for that matter, much of modern epistemology, is simply based on false imagination.³⁵ Thus, this premodern strategy, by not allowing this possibility, instead of merely putting skeptics in their place, would rather stop them in their tracks, *before* their argument could even take off the ground.

In virtue of these considerations, what I take to constitute the main divide between the "modern" antiskeptical strategy of "putting skeptics in their place" and the "premodern" one of "stopping them in their tracks" is a sort of strong externalism about mental acts in the premodern tradition, rooted in the doctrine of formal unity of the knower and the known, which was abandoned by "the moderns," including Buridan. Therefore, I think I should elaborate here on the idea of the sort of externalism I am attributing to Aquinas, and denying to Buridan and his ilk.³⁶ This sort of externalism is characterized by the idea that the *reality* of the objects of our simple cognitive acts along with their *genealogy* is part and parcel of their identity conditions. The "reality" in question means present existence in the case of acts of perception, past existence in the case of memory and abstracted concepts (deriving from perception, memory, and experience), or just conformity with God's creative ideas in the case of divinely infused concepts. The "genealogy" in question is the causal history of the formation of a

cognitive act, through sensation, memorization, abstraction, construction (yielding our complex concepts), or even divine infusion.

Now can Buridan and his ilk be regarded as externalists in this sense? I do not think so. To be sure, Buridan does exhibit a sort of “naturalistic externalism” as does Ockham (in fact, I would argue that Buridan’s “naturalist externalism,” endorsing “the thesis of the *natural* invariance of mental representation,” is in a way than stronger Ockham’s),³⁷ because they would both count the genealogy of concepts among their conditions of identity under normal, nonsupernatural circumstances. Yet, they would both fail to pass the test in the supernatural case for the sort of strong, “formal externalism” that I described earlier. The reason is that the point of the Demon-hypothesis is precisely to deny that the causal chain from perception to memory to experience to abstract concepts uniquely determines the identity of these concepts. For on this “modern” conception, God could provide us with fake-perceptions indistinguishable from, indeed, essentially identical with veridical perceptions, on the basis of which we are supposedly able to form fake-concepts that are indistinguishable from, indeed, are essentially (p. 249) identical with genuine, veridical concepts. However, the strong “premodern” externalism I am talking about excludes this possibility by claiming that fake-perceptions can only yield fake-concepts, which are specifically different from genuine concepts, given that the fake-concepts are not formally identical with any genuine objects, because the transfer of information from genuine object to concept is interrupted at the very beginning by divine (or “demonic”) intervention.

At least, this is what one can say concerning concepts abstracted in genuine reality vs. the “virtual reality” produced by omnipotent deception. But what is the difference, if any, in the case of infused concepts? Infused concepts have a different genealogy from abstracted concepts, which, however, is not unrelated to the genealogy of abstracted concepts, at least in pre-Ockhamist exemplarism. In this framework, experience is not the absolute starting point of the encoding of information in abstract concepts. For, the information originates in the universal divine exemplar, the divine idea (of which Ockham had a radically different conception),³⁸ which then becomes encoded in the essences of creatures, and then, through experience and the activity of the agent intellect, gets reencoded in human concepts. Now what if *this* process is supernaturally interrupted by direct divine infusion of some intellectual concept? Does an act of divine infusion result in a fake concept? No, as long as it is *the same information* that is encoded in the abstracted or in the infused concept, both being modeled after the same divine idea. But for this

sort of account we need the idea of formal identity, that is, the sameness of information in different encoders, which is precisely what nominalists deny.

11.4 Epistemology versus Metaphysics (or Semantics)?

But is this “premodern” account right? Indeed, can it possibly be right? After all, aside from the obscurity of the doctrine of formal unity in general, it seems to carry enormous ontological commitment to at least two radically different types of entities (things and their concepts) whose formal unity with their objects is even less understandable than that of ordinary entities of the same type.

In the context of this discussion, I cannot even properly raise these issues, let alone properly address them. So, let me merely indicate here some of the (p. 250) ways in which I think one can handle them on Aquinas’ behalf, and point to the directions contemporary research should take exploring this Thomistic, or in general pre-Buridanian approach to antiscepticism, in contrast to the Buridanian approach that informed, and I would say still informs, much of the modern discussions.

In the first place, as far as ontological commitment is concerned, the charges Ockham leveled against his predecessors on this account are simply unjustified.³⁹ It is true that the *semantic conception* of the “moderni” Ockham criticizes demands a potentially rich domain of semantic values, but the identification of these semantic values, substantially reducing the ontological commitment of their theory, is absolutely open to Ockham’s opponents. Indeed, reconstructing this semantic theory itself, *without* the metaphysical baggage with which it comes in some authors, immediately eliminates much of the obscurity of the talk about the “obscure entities” this *semantic* theory is allegedly committed to. For in the semantic theory we are simply systematically mapping items of our language onto a domain of semantic values, enabling us to keep track in any discourse of whatever we are talking about. But then, the determination of the exact nature and metaphysical relations of these items can be the business of a well-regulated metaphysical discussion, *without* any of the “obscurities” of some hard-to-understand, “alien” metaphysical conception.⁴⁰ Indeed, more concretely, in such a reconstruction Aristotelian forms at once cease to be “obscure entities” as soon as we construe them as the *significata* of predicates of things, that is, those individualized features of things, whatever they are, the actuality of which renders these predicates true of these things.⁴¹ Thus, in this framework, the formal unity of these *significata* simply lies in their

pertaining to the range of *significata* of the same nonequivocal predicate. But then, if we can say, for instance, that what the term 'song' signifies is whatever it is on account of which both a modulation of certain vibrations of airwaves and the pattern of tiny pits on the surface of a CD can be called a song (as when we say that the singer's hit song she sang in the studio last year is recorded on track number 1 on her CD), then the different modes of existence of a form in what it informs and in what represents the thing it informs will no longer be obscure or mysterious. In general, construed along these lines, the intentional existence of a form of an object in a cognitive faculty will be no more mysterious than the "mysterious" existence of sounds in the sound tracks of a music CD. ⁴² And then, finally, if in this framework the notion of formal unity between the acts of cognition and (p. 251) their objects is credibly restituted, establishing a logically necessary relation between the two, then the demonic deceivers, evil scientists and rebellious robots plaguing Buridan and his ilk cannot even emerge, for the skeptics who conjured them up could no longer plausibly appeal to their possibility. So, this move would indeed effectively stop these skeptics in their tracks.

But this is definitely not Buridan's way. So let us now return to the issue of how *he* handles "Demon-skepticism" and what general conclusions we can draw from his approach concerning the relationships among his "reliabilist" epistemology, cognitive psychology, nominalist logic and essentialist metaphysics.

Notes:

(1.) Our ability to acquire such concepts will still not guarantee that we know *which* of our concepts are the essential ones. That is the task of empirical research to find out. But we can know *a priori* that if we *cannot* have such concepts, then we *cannot* have scientific knowledge in the specified sense. For more on this issue, see Klima, G.: "Contemporary 'Essentialism' vs. Aristotelian Essentialism."

(2.) Obviously, syncategorematic concepts, such as the concepts of the Boolean operations of negation, conjunction, and so on, may consistently be treated even by empiricists as innate operations of the mind, not carrying any information about extramental reality, but simply operating on categorematic concepts that do carry such information.

(3.) For an excellent discussion of the issue of 'empiricism' in late medieval philosophy, see Zupko, J. "What Is the Science of the Soul? A Case Study in

the Evolution of Late Medieval Natural Philosophy,” *Synthese* 110(1997), pp. 297–334.

(4.) As Matthew of Aquasparta remarks in connection with the doctrine of divine illumination: “... if that light were the *entire* and *sole* reason for cognition, then the cognition of things in the Word would not differ from their cognition in their proper kind, neither would the cognition of reason differ from the cognition of revelation, nor philosophical cognition from prophetic cognition, nor cognition by nature from cognition by grace.”—“... si lux illa esset ratio cognoscendi *tota* et *sola*, non differret cognitio rerum in Verbo a cognitione in proprio genere, nec cognitio rationis a cognitione revelationis, nec cognitio philosophica a cognitione prophetica, nec cognitio per naturam a cognitione per gratiam.” Matthew of Aquasparta, *Quaestiones Disputatae*, in Bonaventure, et al., *De Humanae Cognitionis Ratione: Anecdota quaedam Seraphici Doctoris Sancti Bonaventurae et nonnulorum eius discipulorum*, St. Bonaventure: Ad Claras Aquas (Quaracchi), 1883, pp. 94–96.

(5.) See the section “Common concepts and the problem of universals” earlier.

(6.) “I say, our specific ideas of substances are nothing else but a collection of a certain number of simple ideas, considered as united in one thing. These ideas of substances, though they are commonly simple apprehensions, and the names of them simple terms, yet in effect are complex and compounded. Thus the idea which an Englishman signifies by the name swan, is white colour, long neck, red beak, black legs, and whole feet, and all these of a certain size, with a power of swimming in the water, and making a certain kind of noise, and perhaps, to a man who has long observed this kind of birds, some other properties: which all terminate in sensible simple ideas, all united in one common subject.” Locke, J. *An Essay Concerning Human Understanding*, bk. II, c. 23, para. 14.

(7.) Although, as I will argue later, the abstractionism required by this account in Buridan’s cognitive psychology is committed to attributing a representative function to substantial concepts that he denies to them in his semantics.

(8.) SD, 8.5.2, p. 712.

(9.) SD 8.5.4, p. 720.

(10.) SD, p. 723, p. 719.

(11.) Greco, J. "Reid's Reply to the Skeptic," in *The Cambridge Companion to Reid*, eds. T. Cuneo and R. van Woudenberg, Cambridge: Cambridge University Press, 2004, pp. 134-155, p. 148.

(12.) Ibid. , p. 149.

(13.) Ibid. , p. 150.

(14.) Ibid. , p. 150.

(15.) Greco, J. "How to Reid Moore," *Philosophical Quarterly*, 52,209(2002), pp. 544-563, reprinted in *The Philosophy of Thomas Reid*, eds. J. Haldane and S. Read, Oxford: Blackwell, 2003, pp. 131-150.

(16.) Greco, J. *Putting Skeptics in Their Place: The Nature of Skeptical Arguments and Their Role in Philosophical Inquiry*, Cambridge: Cambridge University Press, 2000.

(17.) Greco, J. "Reid's Reply to the Skeptic," p. 143.

(18.) "To prevent mistakes, the reader must again be reminded, that if by ideas are meant only the acts or operations of our minds in perceiving, remembering, or imagining objects, I am far from calling in question the existence of those acts; we are conscious of them every day and every hour of our life.... The ideas, of whose existence I require the proof, are not the operations of any mind, but the supposed objects of those operations. They are not perception, remembrance, or conception, but things that are said to be perceived, or remembered, or imagined." (EIP II.xiv: 171), quoted in Greco, "Reid's Reply to the Skeptic," pp. 138-139.

(19.) John Greco very carefully points out that Reid quite mistakenly believed that the theory of ideas was both a necessary and a sufficient condition for the emergence of this type of skepticism, and thus incorrectly believed that getting rid of this theory at once eliminates skepticism. Greco, J. "Reid's Reply to the Skeptic," p. 142.

(20.) See the exchange that I had with Robert Pasnau on Aquinas' doctrine of "the identity of the knower and the known" at the 1996 APA convention in Chicago, available at <http://www.fordham.edu/gsas/phil/klima/APAPasnau.htm>; <http://www.fordham.edu/gsas/phil/klima/APA.htm> (Pasnau's

original piece is also included with slight modifications as “Appendix A” in his *Theories of Cognition in the Later Middle Ages*, Cambridge University Press: Cambridge, 1997, pp. 295–305.) See also Klima, G. “Intentional Transfer in Averroes, Indifference of Nature in Avicenna, and the Representationalism of Aquinas,” *Proceedings of the Society for Medieval Logic and Metaphysics* 5(2005), pp. 33–37, available at <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM5/PSMLM5.pdf>.

(21.) Berkeley, G. *A Treatise Concerning the Principles of Human Knowledge*, part 1, n. 18, pp. 30–31.

(22.) Nicholas of Autrecourt, *His Correspondence with Master Giles and Bernard of Arezzo*, a critical edition from the two Parisian manuscripts with an introduction, English translation, explanatory notes, and indexes by L. M. De Rijk, Leiden-New York-Köln: E.J. Brill, 1994, p. 47. Cf. also Karger, E. “Ockham and Wodeham on Divine Deception as a Skeptical Hypothesis,” *Vivarium* 42(2004), pp. 225–236.

(23.) *Ibid.* , p. 47.

(24.) *Ibid.* , p. 49. Angle brackets in original translation.

(25.) “... you can say, assert, or propound at will any proposition you please, and yet a necessary consequence will never become not necessary (or conversely), as a result of such an action of yours; therefore, the sophism posited in this way is false. Because of the arguments, however, we should know that in one way a proposition can be posited or conceded or stated absolutely, as a proposition taken in itself, and then the truth or falsity of other propositions or consequences is irrelevant to it. In another way we posit a proposition as the antecedent or part of an antecedent so as to infer another, and then it is indeed necessary to see whether the proposed conclusion follows from it with the addition of others. For example, if in this case you posit absolutely that every man is a donkey, then, because of this, the consequence posited in the sophism will become neither more nor less valid. But if you posit that every man is a donkey as an antecedent to infer some conclusion, I would immediately say that it does indeed follow that ‘therefore, some man is a donkey’. And if you posited this proposition as a part of an antecedent with ‘Every man runs’ as the other part, then I say that it does indeed follow that ‘therefore, a donkey runs’. And this is how the arguments proceeded.”—“tu potes dicere vel asserere vel ponere quamcumque propositionem placet et numquam propter talem actum tuum consequentia necessaria fiet non necessaria

vel e converso; ideo sophisma sic positum est falsum. Sed tamen propter argumenta sciendum est quod aliqua propositio potest poni vel concedi vel dici simpliciter tamquam una propositio per se sumpta, et tunc nihil est ad propositum de aliis propositionibus vel consequentiis an sint verae vel falsae. Alio modo solemus ponere propositionem tamquam antecedens vel partem antecedentis ad aliud inferendum, et tunc oportet bene videre utrum sequatur conclusio proposita ex illo posito cum aliis appositis vel non. Verbi gratia, in proposito si tu ponis simpliciter quod omnis homo est asinus, non propter hoc fit melior vel peior consequentia illa quae ponebatur in sophismate. Sed si tu ponas per modum antecedentis ad inferendum aliquam conclusionem quod omnis homo est asinus, statim dicam quod bene sequitur 'ergo aliquis homo est asinus'. Et si tu dictam propositionem ponas per modum partis antecedentis cum ista alia parte antecedentis 'omnis homo currit', tunc dico quod bene sequitur 'ergo asinus currit'. Et sic procedunt rationes." SD, *Sophismata*, c. 8, *Third Sophism*, p. 959.

(26.) Nicholas of Autrecourt, *His Correspondence with Master Giles and Bernard of Arezzo*, p. 50. Angle brackets in original.

(27.) SD 8.5.2. pp. 714–715.

(28.) QM, lb. 2, q. 1.

(29.) SD 8.4.4, p. 709.

(30.) *Ibid.*, pp. 709–710.

(31.) "... there is still another, weaker type of evidentness, which suffices for acting morally well; for when all circumstances have been considered and inquired into which a man can inquire into with diligence in judging according to the exigencies of this kind of circumstance, the judgment will be evident with evidence sufficient for acting morally well, even though the judgment should be false because of the invincible ignorance of some circumstance. For instance, it is possible that a magistrate should act well and meritoriously in hanging a saintly man because through witnesses and other documents in accordance with the law it appeared sufficiently to him that the good man was guilty of homicide. Hence the conclusion is reached that some people, wishing to destroy the natural and moral sciences, very wrongly [reading *valde male dicunt* for *valde mali dicunt*] proclaim that in many of the principles and conclusions of these sciences there is no simple evidentness, for they can be falsified through cases supernaturally possible. However, absolute evidentness is not required for

such sciences; the previously mentioned relative evidentness or evidentness on assumption suffices. Hence Aristotle says it well in Book II of this work that mathematical exactitude is not to be sought in all sciences. And since it has appeared that in all the aforesaid ways firmness of truth and firmness of assent are possible to us, the question should be answered that the comprehension of truth with certitude is possible for us." QM, lb. 2, q. 1.

(32.) "Sed tu quaereres, si ego manifeste video Socratem currere, an ego scio quod Socrates currit vel quod ego solum hoc opinor. Et ego respondeo quod tunc hoc non opinor sed scio. Omnes enim sic loquuntur 'scio quod hoc ferrum est calidum, quia manifeste sentio ipsum esse calidum', et 'scio firmiter quod Socrates heri currebat, quia vidi eum currere'." SD 8.4.4, p. 710.

(33.) And, to be sure, there is nothing impossible in there being logically necessary relations between contingent beings, as the case of, say, logically equivalent sentence-tokens illustrates. The reason is that their logical relation is founded on their information content, and not on their logically independent, contingent existence.

(34.) Cf. "I answer that just as a thing has being by its proper form, so the knowing faculty has knowledge by the likeness of the thing known. Hence, as natural things cannot fall short of the being that belongs to them by their form, but may fall short of accidental or consequent qualities, even as a man may fail to possess two feet, but not fail to be a man; so the faculty of knowing cannot fail in knowledge of the thing with the likeness of which it is informed; but may fail with regard to something consequent upon that form, or accidental to it." (Dominican translation, slightly emended.) Aquinas, T. *Summa Theologiae* I^a q. 17, a. 3 co.

(35.) Of course, one may still question here *exactly how* Aquinas' conception would help against the "No Good Inference" argument. The answer simply is that on the basis of formal unity we can accept the formal validity of the consequence: 'if a sighting of this whiteness exists, then this whiteness exists', for on this account something is a sighting of this whiteness if and only if it is this actually existing whiteness received in the eye of the beholder; from which we get 'if this actually existing whiteness received in the eye of the beholder exists, then this whiteness exists', which is of course formally valid. But then how would we explain the appearance of some whiteness generated by electrodes in the optical nerve? Isn't that a sighting of whiteness without there being a whiteness in reality? Well, no. That appearance is just that: an appearance generated by the electrodes

that is easy to mistake for the sighting of a whiteness, but is not a sighting of a whiteness, just as virtual donkeys are mere appearances that are easy to mistake for donkeys, but are not donkeys.

(36.) I am grateful to Giorgio Pini for an intriguing discussion of this issue.

(37.) Cf. n.10 in c. 3, earlier.

(38.) Cf. Klima, G. "The Medieval Problem of Universals," n. 5.

(39.) Cf. Klima, G. "The Changing Role of *Entia Rationis* in Medieval Philosophy: A Comparative Study with a Reconstruction"; Klima, G. "Ockham's Semantics and Ontology of the Categories."

(40.) Cf. Klima, G. "The Semantic Principles Underlying Saint Thomas Aquinas's Metaphysics of Being," *Medieval Philosophy and Theology* 5(1996), pp. 87–141; Klima, G. "Contemporary 'Essentialism' vs. Aristotelian Essentialism"; Klima, G. "Aquinas' Theory of the Copula and the Analogy of Being," *Logical Analysis and History of Philosophy* 5(2002), pp. 159–176.

(41.) As St. Thomas wrote: "... that on account of which something is denominated does not always have to be a *form* according to the nature of the thing, but it is enough if it signifies as a form, grammatically speaking. For a man is denominated on account of his action or clothing, which are not forms in reality." *De Potentia* q. 7, a. 10, ad 8. Cf. also, for example, Cajetan: "Don't be mistaken when you hear that a denominative is derived from the denominating form, and believe on account of the word 'form' that the denominating feature has to be the form of what is denominated; you should know that by the name 'form' in this context we understand anything on account of which something is called such, whether it be in reality an accident, or a substance, or matter or form." Cajetan, T. *Scripta Philosophica: Commentaria in Praedicamenta Aristotelis*, p. 18.

(42.) A more detailed discussion of this idea can be found in section 7 of Klima, G. "The Medieval Problem of Universals," and in Klima, G. "Tradition and Innovation in Medieval Theories of Mental Representation," *Proceedings of the Society for Medieval Logic and Metaphysics*, 4(2004), pp. 4–11, <<http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM4/PSMLM4.pdf>>.



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Buridan's Antiskepticism

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Abstract and Keywords

This chapter compares the modern reliabilist strategies, including Buridan's antiskepticism, considered in the previous chapter with a premodern form of antiskepticism, exemplified by Aquinas's doctrine of "the formal unity of the knower and the known", which, as the chapter argues, simply does not allow the emergence of "Demon-skepticism." In fact, the chapter further argues that the emergence of "Demon-skepticism" in its most extreme form, allowing an impossibility to appear as a possibility, indicates a serious flaw in the nominalist conception of mental representation. Nevertheless, the chapter further argues that this flaw is easily masked by the apparent success of Buridan's reliabilist strategy, not requiring the elimination of Demon-skepticism, but rather presenting reasonable ways for us to learn to live with it.

Keywords: antiskepticism, reliabilism, mental representation, Demon-skepticism

In his *Summulae de Dialectica*, Buridan provided the following, striking description of the line of reasoning that later came to be famous in Descartes' "Demon-argument":

... some people, wanting to do theology, denied that we could have knowledge about natural and moral [phenomena]. For example, we could not know that the sky is moving, that the sun is bright and that fire is hot, because these are not evident. For God could annihilate all these, and it is not evident to you whether He wills to annihilate them or not; and thus it is

not evident to you whether they exist. Or God could even put the sky to rest or remove light from the sun or heat from fire. And finally they say that it is not evident to you concerning the stone you see as white that it is in fact white, for even without the whiteness and the stone God can create in your eye an image [*species*] entirely similar to the one you have now from the object; and thus you would judge the same as you do now, namely, that there is a white stone here. And the judgment would be false, whence it would not be certain and evident; and, consequently, it would not be evident even now, for it is not evident to you whether God wills it so or not. ¹

Although nominalists were often charged with skepticism, it is important to note here that Buridan is referring to this line of reasoning to *refute* its skeptical conclusion. It is equally important, however, to notice Buridan's (p. 253) strategy in fending off the skeptical argument in his subsequent discussion. He acknowledges the possibility of divine deception as a mere *logical* possibility, but he rejects it as a *natural* possibility.

In what follows, I am going to argue that in these reasonings Buridan is primarily relying on the implicit principle that I have dubbed "the principle of natural invariance of mental representation." As I will show, strict adherence to this principle is what fundamentally distinguishes Buridan's account of mental representation from Ockham's *within* the nominalist conception. Both accounts are distinguished, however, from the earlier-discussed (moderate) realist conception that endorses a much stronger invariance principle in the "thesis of the formal unity of the knower and the known," which is excluded by the principles of fourteenth-century nominalism.

To see the connections between the issues of Demon-skepticism and the identity conditions of mental representations, we first have to spell out exactly what (at least a relevant version of) Demon-skepticism is, exactly what it is that is at stake in Demon-skepticism, and what conception of mental representation it involves. Therefore, I begin this discussion with the exposition of a certain version of the Demon-argument, which I take to be the most obviously relevant to the subsequent considerations concerning concept-identity.

12.1 The Demon-Argument

We may assume as our background story the philosophical tale of a brain kept alive in a vat by a mad scientist, or Descartes' possibly disembodied

res cogitans manipulated by an omnipotent demon, or anything else we might take to be the *locus* of consciousness of a cognitive subject capable of human thought. It really does not matter from our point of view whether the cognitive subject in question is assumed to be a disembodied spirit, an isolated brain, or Neo, the protagonist of the *Matrix Trilogy*. All these philosophical fables are provided merely to give credence to the possibility of complete, in principle undetectable cognitive isolation, that is to say, the possibility of there being a cognitive subject with a human “consciousness-as-we-know-it,” fed with cognitive input that in its own nature is radically different from what it appears to be to the cognitive subject in question. In the subsequent reconstruction of the skeptical argument, therefore, I will refer to this hypothetical cognitive subject as a BIV, with reference to the brain-in-a-vat story, but with the understanding that really nothing depends on (p. 254) the particulars of that story: the only thing that matters is that it assumes the possibility of a cognitive subject that has only nonveridical cognitive contents concerning an external reality, and yet whose consciousness is phenomenally absolutely indistinguishable from ours (while I assume we are not in the same deplorable situation).

So, let us stipulate the following definitions: a BIV is a thinking subject having no veridical concepts; and a veridical concept is one that represents what it appears to represent, whereas a nonveridical concept is one that represents something different from what it appears to represent. (For example, a veridical concept that appears to represent donkeys does represent donkeys, whereas a nonveridical concept that appears to represent donkeys does not represent donkeys, but something else, say, electronic impulses generating a virtual reality containing virtual donkeys.)

With these definitions in place, the skeptical challenge posed by the BIV story and its cognates can be summarized in the following argument:

- (I)
1. 1. A BIV can have exactly the same concepts as a non-BIV
2. 2. A thinking subject *s* can distinguish its concepts from those of a BIV only if *s* cannot have exactly the same concepts as a BIV
3. 3. But then a thinking subject *s* cannot distinguish its concepts from those of a BIV

4. 4. A thinking subject *s* can know whether it is a BIV only if it can distinguish its concepts from those of a BIV
5. 5. So a thinking subject *s* cannot know whether *s* is a BIV
6. 6. Thus, being a thinking subject, for all I know I might be a BIV.

Obviously, the most perplexing thing about this argument is the conclusion that I may be absolutely, radically, mistaken about virtually anything and everything. Whatever I thought I knew before is now in serious doubt by virtue of this reasoning. But that is not the only thing that should worry us about this argument. For even if the possibility of being mistaken even about our most fundamental beliefs is bad enough, some of the assumptions of the argument may actually be worse. In the first place, is it really true (p. 255) that, given the definition of a BIV and that of a veridical concept, a BIV can have exactly the same concepts as a non-BIV? Or, equivalently, is it true that I or any other cognitive subject could have exactly the same concepts whether they are all nonveridical or not? Why should we simply swallow the possibility of complete cognitive isolation, and hence the possibility of perfect, in principle undetectable deception on the basis of the common philosophical fables referred to earlier?

Buridan's version of the argument quoted above provides divine omnipotence as the ultimate rationale for accepting this possibility, as does later on Descartes' version in his *Meditations*. But, as we know, for medieval philosophers and theologians divine omnipotence is coextensive with logical possibility; so the rationale provided here is simply the claim that it is at least logically possible, that is, a contradiction-free assumption, that a BIV has exactly the same concepts as a non-BIV. But is this really a logical possibility, or is it just a *de facto* self-contradictory thought merely supported by our false imagination? After all, we may often think that an assumption is logically possible just because we can *imagine* the situation in which it is true, just like the assumption that there is a greatest prime number, and yet, on closer scrutiny, we learn that the assumption is logically impossible, entailing an explicit contradiction.

The following argument, taking its cue from Hilary Putnam, ² is devised to show that with the "Demon-assumption" this is precisely the case, namely, that despite what the philosophical fables about the possibility of perfect deception suggest to our imagination, no thinking substance can be a BIV,

because the concept of a thinking substance with no veridical concepts at all is contradictory:

(II)

The argument begins with the following self-evident claims.

1. 1. A thought meant to express an actual state of affairs, whoever forms it, can be true only if it contains no nonveridical concepts
2. 2. A thought meant to express an actual state of affairs, whoever forms it, is true if and only if it expresses an actual state of affairs
3. 3. A BIV has no veridical concepts

(p. 256)

Now suppose:

4. *s* is a BIV
5. Then, the thought that *s* is a BIV, whoever forms it, is true (by 2, as it expresses the actual state of affairs stated in our hypothesis)
6. So, the thought that *s* is a BIV, formed by *s*, is true (a direct consequence of 5 by universal instantiation)

However:

7. The thought that *s* is a BIV, formed by *s*, contains no veridical concepts (since *s* has no veridical concepts by our hypothesis and by 3)
8. So the thought that *s* is a BIV, formed by *s*, is not true (by 1 and 7)

But line 8 contradicts line 6, and because all the other premises are necessarily true, we can blame this contradiction only on our hypothesis, whence it has to be false, for any arbitrarily chosen ***s***. Therefore, nothing can be a BIV.

Thus, this argument shows that the concept of a thinking subject having no veridical concepts at all is contradictory, whatever we think about what concepts are. However, by showing this, the argument also shows that if on account of some particular conception of what concepts are it seems plausible to accept the possibility of there being BIVs, then there must be something wrong with that conception.

So, what exactly is wrong in Buridan's conception, if it in fact allows the possibility of Demon-skepticism? From Buridan's own response to the skeptical challenge, it is clear in the first place that his conception does allow the possibility of Demon-skepticism. As we have seen, Buridan's response to the skeptical argument is not a rejection of its conclusion but, rather, its "absorption" into a wider epistemological framework with "lowered expectations" as to what is humanly knowable and how. And Buridan's talk in this context about the *supernatural possibility* (compatible with the *natural impossibility*) of the same act of knowledge becoming false opinion is certainly indicative of what I call Buridan's "principle of the natural invariance of mental representation," namely, an invariance principle that has only *natural*, but not *logical* necessity. But then, if Buridan does indeed subscribe (p. 257) to such an invariance principle, then what is wrong with this conception of mental representation is precisely the fact that it clearly allows the first premise of the Demon-argument as expressing a *logical possibility*, which is not excluded by the mere *natural necessity* of Buridan's invariance principle. Therefore, it allows the logical possibility of perfect deception in its conclusion, which, however, is in fact *not* a logical possibility, provided that the previous, Putnam-inspired argument is correct.

12.2 Exorcizing the Demon versus Learning to Live with It

Consider the following argument, exorcising the Demon once and for all:

(III)

1. 1. Necessarily, concepts differ specifically iff their objects differ specifically
2. 2. Necessarily, veridical concepts have specifically different objects from nonveridical concepts (a virtual-donkey-impulse being specifically different from a donkey)
3. 3. So, necessarily, veridical concepts differ specifically from nonveridical concepts

4. 4. Therefore, a BIV cannot have exactly the same concepts as a non-BIV

The conclusion of this argument is the contradictory of the Demon-assumption of the first argument, provided their modal verbs express the same type of modality, that is, *logical possibility versus impossibility*. For Ockham, who would apparently see no problem in the contingency of the relation between concepts and objects, the first premise of this argument would simply be false (although he would certainly accept an assertoric version of the claim). For Buridan, by contrast, it would be true *only if* it expressed natural necessity. But the “exorcism” provided by this sort of argument *can* work for those thinkers who, on the basis of their conception of mental representation, would subscribe to this premise as expressing *logical* necessity. Such thinkers would be precisely those medieval *moderate (p. 258) realists* who were opposed by Ockham’s and his followers’ innovative conception of the relationships between mind language and reality. The reason is that for these moderate realists the relationship between concepts and their objects is that of a *formal identity*. But this is precisely the kind of relationship that makes the identity of their objects part of the identity conditions of concepts, by *logical necessity*. But Ockhamist nominalism is definable in part *precisely* in terms of the rejection of the notion of formal identity as understood by moderate realists. Thus, it is no wonder that the *possibility* of Demon-skepticism emerged with the emergence of Ockhamism, forcing a nonskeptical Ockhamist like Buridan (as well as Ockham himself) to try to find ways of somehow learning to live with it.

Notes:

(1.) SD 8.4.4, pp. 706-711. f. Buridan, J. *Quaestiones in Duos Aristotilis Libros Posteriorum Analyticorum*, unpublished edition of H. Hubien, lb. 1, q. 2, esp. objections 6-10; also QM, lb. 2, q. 1.

(2.) Cf. Putnam, H. *Reason, Truth, and History*, Cambridge: Cambridge University Press, 1982, chapter 1, pp. 1-21. However, the argument I am presenting here is significantly different from Putnam’s.



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Buridan's Essentialist Nominalism

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Abstract and Keywords

The final chapter provides a summary account of Buridan's essentialist nominalism, showing how Buridan can successfully claim to be both a nominalist denying the existence of real shared essences and an essentialist endorsing the possibility of discovering truly essential attributes of things, which allows valid scientific generalizations. The concluding critical part of the chapter, however, points out a fundamental conflict between Buridan's abstractionist cognitive psychology of absolute concepts and his logical semantics of the corresponding absolute terms that grounds his nominalist essentialism.

Keywords: essentialist nominalism, scientific generalizations, cognitive psychology, logical semantics, absolute concepts, absolute terms

So how can Buridan be both an antiskeptical *essentialist* and a *nominalist*? To many contemporary philosophers, the phrase "essentialist nominalism" may appear to be an oxymoron. After all, essentialism is the doctrine that things come in natural kinds characterized by their essential properties, on account of some common nature or essence they share. But nominalism is precisely the denial of the existence, indeed, the very possibility of such shared essences. Nevertheless, despite the intuitions of such contemporary philosophers, ¹ John Buridan was not only a thoroughgoing nominalist, as is well known, but also a staunch defender of a strong essentialist doctrine against certain skeptics of his time. But then the question inevitably arises: could he consistently maintain such a doctrine?

13.1 “Predicate Essentialism” without “Realist Essentialism”

If we want to maintain that Buridan was both an essentialist and a nominalist, as we certainly should, then we have to do what we normally do when we ascribe two apparently incompatible attributes to the same thing. We have to provide such explanations of the intended meanings of the attributes in question that show them to be in fact compatible, but, at the (p. 260) same time, we should also be able to show that these intended meanings are not just *ad hoc*, twisted interpretations, but are genuinely in line with common, proper usage.

So what do we mean, precisely, when we say that Buridan was an essentialist? When we call someone an essentialist, we usually mean at least one of two things: (1) the person we call an essentialist is committed to attributing *essential predicates* to things, or (2) the person is committed to attributing some common, *shared essences* to things. Let me call the first version of essentialism *predicate essentialism*, and the second *realist essentialism*. With this distinction in hand, we should be able to provide a coherent interpretation of calling someone a “nominalist essentialist,” in the sense that the person in question is a *predicate essentialist*, while he is not a *realist essentialist*, because his nominalism consists in the denial of there being shared essences but not in the denial of there being essential predicates.

However, obviously, this simple “word magic” can do the job only if we are able to show that what I call here *predicate essentialism* is compatible with the denial of *realist essentialism*. In any case, as we have seen, this is precisely what Buridan is trying to pull off: one of the basic aims of his metaphysics and philosophy of language is to show that he can be a staunch nominalist in denying real essences to things in the way realists conceive of them,² while, at the same time, he can attribute scientifically knowable essential predicates to things.

To see exactly how Buridan attempts to achieve this, we have to take a closer look again at his semantic conception, in particular, his theory of predication.

Buridan does not feel the need to argue for a distinction between essential and nonessential predicates. As he sees it, that distinction is part and parcel of Porphyry’s traditional distinctions of the five predicables. As Buridan writes:

... since something is called a predicable because it is apt to be predicated of many things, it is reasonable to distinguish the species or modes contained under the term 'predicable' according to the different modes of predication. Therefore, everything that is predicated of something is either predicated essentially, so that neither term adds some extraneous connotation to the signification of the other; or it is predicated denominatively, so that one term does add some extrinsic connotation to the signification of the other. This division is clearly exhaustive, for it is given in terms of opposites. ³

(p. 261) Obviously, the important thing here is not that Buridan draws the distinction at all, but *how* he draws it. To have a precise understanding of his characterization of essential predication as that in which the terms do not add extraneous connotation over the signification of each other, we should quickly review the relevant parts of Buridan's semantics of terms and propositions.

As we have seen, for Buridan, the simplest form of proposition is a categorical proposition, consisting of a subject and a predicate joined by a copula. To be sure, this need not mean that the terms of such a proposition should be simple; indeed, they may be of any complexity, as long as they can suitably flank the copula to form a proposition. Accordingly, in the Buridanian "canonical form" of a categorical proposition, both terms are regarded as noun phrases, and so verbal predicates are always to be analyzed into a copula and the corresponding participle. For example, 'Socrates walks on the beach with Plato' is to be analyzed as 'Socrates is walking on the beach with Plato'; or, indeed, to bring out the nominal character of the predicate term, it should even be analyzed as 'Socrates is someone walking on the beach with Plato'.

Accordingly, for Buridan the copula is a sign of identity: for him, an affirmative categorical proposition is true only if its terms supposit for the same thing or things at the time connoted by its copula, as required by the quantity of the proposition. Therefore, the truth of a predication depends on the supposition of the terms of the predication. Buridan's notion of supposition, in turn, presupposes his notion of signification, insofar as a term in personal supposition supposits for things it ultimately signifies. Now, with respect to their signification, Buridan classifies categorematic terms into two kinds: *absolute* or *connotative*. ⁴ An absolute term is one that signifies whatever it signifies absolutely, that is, not in relation to anything.

A connotative term is one that signifies something in relation to something or some things, called the *connotatum* or *connotata* of the term. Accordingly, the *personal supposita* of an absolute term in the context of a proposition are those of its *significata* that are actual with respect to the time connoted by the copula. The *supposita* of a connotative term, by contrast, are those of its *significata* that are actual with respect to the time connoted by the copula and are also actually related to the *connotata* of the term in the way the term signifies them to be related.

A quick example (actually, Buridan's own) may again be helpful here. If I say 'Socrates is wealthy', then this proposition is true according to Buridan, (p. 262) if and only if its terms both supposit for the same thing, namely Socrates. However, the term 'wealthy' is obviously a connotative term, because it signifies human beings in relation to their wealth, namely, as the possessors of wealth. So this term only supposits for human beings who possess wealth. Therefore, this term will supposit for Socrates only if he actually possesses wealth at the time connoted by the copula. ⁵

In fact, this example also illustrates two further important points. The first is that even if all explicitly relative terms are connotative, not all connotative terms are explicitly relative, although they do have to involve some relative concept in their definition. ⁶ The second point is that a connotative term can become false of something that it actually supposits for while the thing continues to exist, simply on account of the term's *connotata* ceasing to be related to its *supposita* in the way required by the signification of the term. If Socrates loses his wealth, he ceases to be supposited for by the term 'wealthy'. Perhaps I should note here that this holds for every connotative term, unless it connotes something intrinsic to its *supposita* without which these *supposita* cannot exist (an example might be the term 'animate', suppositing for an ensouled, living body, and connoting its soul), or if the term expresses the very condition of the thing's existence as an undivided unit, as do the terms 'one' and 'identical with itself' discussed in section 4.5 (especially note 155). But in all other cases, namely, when their *connotata* are extrinsic to their *significata*, connotative terms can cease to supposit for their actual *significata*, that is, they may become false of their actual *significata* without the destruction of these *significata*, which is precisely the idea expressed in the Porphyrian definition of accident. For example, if Socrates actually has wealth, then he is one of the actual *significata* of the term 'wealthy'. Accordingly, in the proposition 'Socrates is wealthy' the term supposits for Socrates, whence the proposition is true. But if he loses his wealth, he ceases to be one of the actual *significata* of this term, whence it

will no longer supposit for him, even if he stays in existence. Therefore, it is no wonder that for Buridan all such connotative terms are non-essential, accidental predicates of their *significata*.

By contrast, absolute terms are essential predicates of their *significata*. For example, if we take 'man' to be an absolute term, as Buridan certainly does, then the only way this term can cease to supposit for Socrates in the proposition 'Socrates is a man' is if Socrates ceases to exist. For the term signifies everything that the concept to which it is subordinated represents, that is, every past, present, future, and possible human being indifferently. **(p. 263)** But the actual *significata* of this term are only actual human beings, who are therefore also the *supposita* of the term 'man' in a present tense proposition. So, the only way the term 'man' in 'Socrates is a man' can cease to supposit for Socrates is if he ceases to be a human being, that is, if he ceases to exist. ⁷

In this way, therefore, it may seem that Buridan can maintain a credible essentialist stance without ever having even to mention shared essences, as long as he can establish that at least some of our common terms are in fact absolute terms, in particular, absolute terms that are essential predicates of things falling into the category of substance.

Now, as we have seen, whether a term is absolute or connotative depends on the term's signification. But a term's signification depends on the sort of concept to which it is subordinated. Consequently, the differences between the significations and types of signification of different terms are dependent on what types of concepts they are subordinated to. But then, the difference between absolute and connotative terms, which grounds the difference between essential and nonessential predicates of substances, reduces to the difference between the kinds of concepts they are subordinated to. Absolute terms are those subordinated to absolute concepts—that is, concepts whereby we conceive of things absolutely, not in relation to anything, whereas connotative terms are those subordinated to connotative concepts, whereby we conceive of things in relation to something. Therefore, the distinction between essential and nonessential predicates of substances boils down to the distinction between absolute and connotative concepts of substances, and thus Buridan's essentialism ultimately hinges on the claim that we are actually able to form such absolute concepts of substances.

13.2 Buridan's Essentialism versus Skepticism

But this claim faces some serious challenges. In the first place, we have seen in the example of 'wealthy' that just because a term is grammatically a one-place predicate it does not follow that it is absolute. What determines whether a term is absolute or not is whether it is subordinated to an absolute or to a connotative concept, which can be found out by looking at the term's nominal definition. If the term is definable by a complex phrase which contains relative terms, then the term is certainly subordinated to a complex (p. 264) connotative concept, the "structure" of which is explicated by the syntactic structure of this complex phrase. But then it may seem that all simple terms in the category of substance should also be definable in terms of such complex phrases. For how can we possibly form simple absolute concepts of substance, if we are supposed to form our concepts on the basis of the natural input of sensory experience (that is to say, we are not willing to subscribe to the mysteries of innate, prenatal, or divinely infused ideas), and all we are given in sense experience are the sensible qualities of things, which can only give rise to connotative concepts (of substances)?⁸ After all, whatever we see, hear, touch, and so on is conceived as something having the relevant sensible qualities, that is, it is conceived in relation to these sensible qualities, by means of the corresponding connotative concepts. As Buridan himself (or someone reporting his views, if the text is not authentic) remarked:

... we do not perceive substances under substantial concepts, but we do perceive them under accidental and connotative ones, and not under purely absolute ones.⁹

Therefore, it might seem that, despite appearances to the contrary, terms in the category of substance may in fact not be absolute terms, because they may, after all, be subordinated to some combinations of connotative concepts obtainable from sense experience.

As I have already pointed out,¹⁰ Buridan's response to the skeptical challenge involved in this claim relies on his acceptance of a version of Aristotelian abstractionism. According to his argument, our sense perception carries information not only about the *per se* sensible qualities of substances, but also about the substances themselves to which these qualities belong, even if our senses are not able to extract this information on their own. But our agent intellect, using a multiplicity of experiences stored in sensory memory, is able to extract this information by its natural

activity of abstraction. This is what enables the intellect to form simple, genuine substantial concepts in a natural process, without constructing some combination of simpler concepts of sensory qualities. But then these genuine substantial concepts will have to represent the substances absolutely, indifferently and universally within their natural kinds. Therefore, the terms subordinated to these concepts will be genuine essential predicates of substances, which can then suitably serve as the basis for valid scientific generalizations. So, Buridan seems to have found a viable solution to the problem involved in constructing a philosophy of essentialist nominalism: he has a (p. 265) strictly nominalist ontology with no reference to shared essences (including individualized, inherent essences of a “less-than-numerical unity”), combined with an essentialist logic that is capable of providing the basis for valid scientific generalizations.

13.3 The Conflict between Buridan’s Semantics and Abstractionism

However, even if this solution may work, at this point one can still raise the question of whether Buridan is really “entitled” to it, in the face of his semantic considerations concerning absolute terms. After all, the gist of Buridan’s solution is that we are able to acquire genuine simple substantial concepts from experience by abstraction, and thus we can impose on them terms that will be truly essential, scientifically knowable predicates of things. But it is questionable whether this account of the acquisition of simple substantial concepts is compatible with his semantic considerations concerning absolute concepts and terms.

For let us recall that an absolute term is one that signifies whatever it signifies not in relation to anything, because it is subordinated to an absolute concept, namely, one which represents things not in relation to, that is, *not in respect of*, anything. But the point in abstraction is precisely that by means of an abstract concept several things are represented *in respect of* what they resemble each other, disregarding what distinguishes them. Indeed, as we have seen in our discussion of universal concepts, it is crucial for abstraction to work, that is, for it to provide us with truly universal concepts, that the concepts acquired by abstraction represent the things observed in the process *in that respect* in which they do not differ from unobserved things of the same kind. For a concept acquired from the observed things can *only* represent the unobserved things because the latter do not differ from the former *in that respect* in which the concept represents them indifferently. And we also have seen that Buridan explicitly

commits himself to this conception of the abstraction of universal concepts.
11 However, Buridan's absolute concepts are supposed to represent things absolutely, not in relation to something, that is, *not in any respect*. Therefore, it seems that they cannot really be obtained by abstraction in the way Buridan described, or if they *are* obtained in this way, then their representative function is not quite correctly described by him in his semantics.

(p. 266) 13.4 Conclusion: Empiricism, Nominalism, and Essentialism in Semantics, Metaphysics, and Epistemology

All in all, it seems that Buridan is successful in providing a purely nominalist ontology combined with an essentialist logic on the basis of his doctrine of essential predicates of substances as being those common terms that are subordinated to absolute, substantial concepts. However, this combination seems to be in conflict with his account of how we acquire these substantial concepts. For although that account successfully meets skeptical challenges while still staying on a firm empiricist ground, it seems to go against the representative function Buridan ascribes to absolute concepts in his semantics.

In fact, from this case-study of Buridan's essentialism, I think we can generalize the following conclusions. If one is trying to avoid the inconsistencies of naïve ontological realism, 12 one has to deny the existence of universal entities. Yet, if one is unwilling to accept the apparent skeptical consequences of this denial, and wants to stay a scientific realist, one has to opt for some form of logical essentialism. But logical essentialism is predicated on a plausible account of our ability to acquire substantial concepts grounding our semantics of essential predicates. However, this account, to avoid the epistemological mysticism of innate or infused ideas, has to show how these concepts can be acquired from our limited experience. But if the previous objection to Buridan's account is right, then it seems that this can only be done by recourse to some form of "moderate realism" in one's semantics, namely, one that accounts for our substantial common terms and concepts as representing particulars in respect of their essential similarities, while abstracting from their accidental dissimilarities.

Indeed, rather similar considerations may have motivated the syncretic efforts of later medieval philosophers, such as Domingo Soto (1494–1560), who wholeheartedly embraced Buridan's nominalist ontology, and many elements of his astute nominalist logic, yet who did not subscribe

to his semantics of absolute terms, but described these terms' semantic functions in a way that was characteristic of the older way of doing logic and metaphysics, the so-called *via antiqua*.

Soto, who most notably described himself as someone "born among nominalists and raised by realists,"¹³ retained the nominalist distinction between (p. 267) absolute and connotative terms, but in a revised form, which did not prevent absolute terms and concepts from representing their possible *supposita*, or as he calls them, *material significata*, in respect of something, which he refers to as their *formal significata*.¹⁴ For Soto, the difference between absolute and connotative terms boils down to the question whether their *formal significata* are intrinsic ("nonadjacent", indeed, possibly identical) or extrinsic ("adjacent") to their *material significata*. Furthermore, he insists that just because we have to make the logical distinction between a term's *formal* and *material significata*, it does not mean that these two sorts of *significata* have to be distinct in reality, for in some, indeed, in many cases they coincide. Therefore, Soto can have an ontology that is item by item the same as Buridan's, and also an essentialist logic, which, however, is somewhat different in its semantics from Buridan's. By tweaking the distinction of absolute and connotative terms, Soto ends up with an account that is clearly compatible with Aristotelian abstractionism, and which, however, even if not in its ontology, but in its semantics, namely, in the notion of *formal significata*, contains something strongly reminiscent of the real, inherent universals of the *moderate realism* of the *via antiqua*.

Whether this is the best compromise is open to further debate. In any case, emerging in an age when scholasticism was on its way to extinction, Soto's solution did not have a chance of receiving general acceptance or even sustained attention. The mostly ideological concerns of the new intelligentsia of a new era simply pushed it into oblivion along with most of the sophisticated scholastic academic output. But now that we have sufficient historical distance from those ideological concerns, and yet we have philosophical concerns that are sometimes strikingly similar to those of the scholastics, we may calmly reconsider the unduly forgotten, intriguing theoretical alternatives provided by the scholastic thinkers. (p. 268)

Notes:

(1.) Cf. "... Buridan was a committed Nominalist. He was, in other words, on the philosophically wrong side of the major metaphysical controversy of the Middle Ages. Like Ockham, he believed there were no universals: strictly

speaking, no colours, only coloured things; no virtue, only virtuous people; no circularity, only individual circles. The rest was all just hot air (*flatus vocis*). The Nominalists ended up poisoning the well of sound philosophy with scepticism, relativism, agnosticism and even atheism. Fortunately, Realism was not sent to rout and has many exponents in present-day analytic philosophy.” Oderberg, D. S. “Review of John Buridan: *Summulae de Dialectica*,” *Times Literary Supplement*, June 6, 2003, p. 9.

(2.) Note that Buridan’s opposition to what I call “realism” here also covers various forms of what is more properly called “moderate realism,” that is, the view endorsing individualized essences, inherent in, yet distinct from, particular substances. For an excellent discussion of Buridan’s rejection of universal entities, see King, P. “John Buridan’s Solution to the Problem of Universals.”

(3.) SD 2.1.3, p. 106. Cf. “We call the predication of a term of another ‘essential’ if neither of these two terms adds some extrinsic connotation to the things they supposit for. Therefore, although the term ‘animal’ signifies more [things] than the term ‘man’, nevertheless, it does not appellate over and above the signification of the term ‘man’ anything having to do with man, i.e., as something pertaining to man [*per modum adiacentis homini*—cf. SD. 4.5.]. A predication is called ‘non-essential’, or ‘denominative’, if one term of it adds some extrinsic connotation over the signification of the other, as for example ‘white’ supposits for a man and appellates whiteness as pertaining to him.” SD 2.5.2, pp. 126–128.

(4.) The distinction drawn in these terms was introduced by Ockham. Buridan usually makes the distinction in terms of talking about absolute vs. appellative terms. But because in Buridan’s interpretation appellation is just oblique reference to a term’s connotation, his distinction amounts to the same as Ockham’s. Cf. SD, pp. xlix–l, 291–294, 880, 890. Furthermore, Buridan is also talking about connotative terms, contrasting them with absolute terms in the same way as Ockham did. Cf. SD, pp. 147, 639, 642, 644–646, 729, 735.

(5.) Cf. SD, p. 880.

(6.) Or at least they should involve an “unsaturated” syncategorematic concept with at least two “arguments,” as, for example, the concept to which the preposition ‘of’ is subordinated in the construction ‘a donkey of a man’. See the discussion of this issue in section 4.5.

(156.) Ibid.

(7.) Note that miraculous transformations of Socrates, say, into a rock or some brute animal, while staying in existence, are excluded by the structure of the Porphyrian Tree as Buridan conceives of it. Because by that structure overlaps between non-subaltern species and genera are not allowed (cf. SD 3.1.7, p. 150.), if Socrates is once among the *significata* of 'man', then he cannot be driven over into the range of *significata* of 'pig' even by Circe's wand. Therefore, Socrates cannot cease to be one of the *significata* of 'man', although he can cease to be one of its *actual significata*, and hence one of its *supposita*, by ceasing to exist (since being a man, he is not a necessary being). It also may be interesting to note here that if we were to construct an artificial language with a modal or temporal semantics along these lines (as I did on a handout when I presented this material at UCLA), making it into a *Begriffsschrift* of a Buridianian mental language, then all one-place predicates of that language would have to be "rigid designators" of the individuals within their extension, yielding an inherently essentialist logic without any shared essences. The simple technical trick needed for such a logic is assigning the extensions of predicates and the domains of possible situations from the power set of the same basic domain of individuals, and treating the *actual* extension (*actual* "range of *significata*") of a predicate in a given situation as the intersection of the extension of the predicate and the domain of that situation.

(8.) Of course, they also can give rise to absolute concepts of sensible qualities. But our present concern here is the origin of absolute concepts of substances.

(9.) QDA, lb. 1, q. 5, p. 207.

(10.) See the discussion in section 4.4.4 of c. 4.

(11.) See QDA3 q. 8, quoted at n. 114 of c. 4.

(12.) By "naïve realism", I mean the version of Plato's theory of Forms found to be inconsistent already by Plato himself in his *Parmenides*, as well as the theory of universals found to be inconsistent by Boethius in his second commentary on Porphyry's *Isagoge*.

(13.) "... inter nominales nati sumus, interque reales nutriti." Soto, D. *In Porphyrii Isagogen, Aristotelis Categorias, librosque de Demonstratione*,

Commentaria, Venice: Ex officina Dominici Guarraei, et Io. Baptistae, fratrum, 1587; reprint, Frankfurt: Minerva, 1967, p. 28H.

(14.) Soto, D. *Summulae, Svmmvlarvm aeditio secunda*, lb. 1, c. 7, ff. 10-13; lb. 2, c. 10, esp. ff. 34-35; lb. 2, c. 14, ff. 48-52, esp. f. 48r; *In Porphyrii Isagogen, etc.*(see n. 13) pp. 35-37, 129-137.



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Notes:

(1.) Our ability to acquire such concepts will still not guarantee that we know *which* of our concepts are the essential ones. That is the task of empirical research to find out. But we can know *a priori* that if we *cannot* have such concepts, then we *cannot* have scientific knowledge in the specified sense. For more on this issue, see Klima, G.: "Contemporary 'Essentialism' vs. Aristotelian Essentialism."

(15.) For Abelard's solution, see Abaelard, *Dialectica*, pp. 175-177. Cf. Kneale, W. and Kneale, M. *The Development of Logic*, pp. 210-211

(10.) "We should note that concerning action and passion and the four other remaining categories I do not intend to follow the doctrine of the author of *The Book of Six Principles*. For I think that he was mistaken, since he believed that no terms that pertain to diverse categories can supposit for the same thing, and so he maintained that action is one form and passion is another, and that passion would hence be an effect of action; this is totally false, and thus his doctrine made many people err." SD 3.6.1, p. 193. *Anonymi Fragmentum vulgo vocatum 'Liber Sex Principiorum'*, in *Aristoteles Latinus*, ed. L. Minio-Paluello, Bruges/Paris, 1966, I 6-7, p. 41, l. 8.

(3.) For Buridan's metaphysical account of time as an extramental entity (a *res successiva*, that is, one whose parts do not coexist, but only one after another), see Dekker, D.-J. "Buridan's Concept of Time. Time, Motion and the Soul in John Buridan's Questions on Aristotle's Physics," in *The Metaphysics*

and Natural Philosophy of John Buridan, eds. J. M. Thijssen and J. Zupko, Leiden-Boston-Köln: Brill Academic, 2000, pp. 151–164. So, the verbal copula, on account of its connotation of some time *ad extra*, is not purely syncategorematic. This is because of its tense. But Buridan is also considering the possibility of forming a purely syncategorematic concept that would abstract from any time, and so it would merely effect the composition of subject and predicate. The term subordinated to such a concept would then be just as tenseless as the epsilon of set theory or the equal sign of modern arithmetic. See SD 4.3.4, where Buridan is speculating about the possibility that the souls of the blessed are forming mental propositions with such a tenseless copula.

(28.) “Nam quia eandem rem possum cognoscere secundum multas diversas rationes, et isti rei secundum diversas rationes diversa nomina imponere ad significandum eam, ideo talia verba faciunt terminos cum quibus construuntur appellare rationes secundum quas imposita sunt nomina ad significandum, et non solum res cognitae ad extra, sicut faciunt alia verba. Aliter tamen a parte ante et a parte post. Nam a parte post, illi termini appellant determinate suas rationes proprias. Sed a parte ante appellant eas indifferenter sub disiunctione ad alias rationes quibus res significatae possunt significari et intelligi. Propter quod iste propositio non est vera ‘Cognosco venientem’, proprie loquendo, nisi cognoscam eam secundum eam rationem, secundum quam dicitur veniens, licet cognoscerem bene secundum alias rationes. Et sic non sequitur, cognosco Sortem, et sit veniens; ergo cognosco venientem. Quia licet cognoscam illum secundum illam rationem secundum quam dicitur Sortes, non tamen cognosco illum secundum illam rationem secundum quam dicitur veniens. Sed a parte subiecti, bene sequitur, Sortem cognosco, et Sortes est veniens; ergo venientem cognosco.... Non ergo sequitur, venientem cognosco, ergo cognosco venientem. Immo est possibile quod ignoro venientem. Sed bene sequitur, cognosco venientem, ergo venientem cognosco; sicut in aliis appellationibus non sequebatur, album erit, ergo erit album, sed bene e converso, erit album, ergo album erit.” Ibid.

(8.) Spade, P. V. “Synonymy and Equivocation in Ockham’s Mental Language,” *Journal of the History of Philosophy* 18(1980), pp. 9–22, p. 21. Cf. Spade, P. V. “Ockham’s Rule of Supposition: Two Conflicts in His Theory,” *Vivarium* 12(1974), pp. 63–73, and Adams, M. M. *William Ockham*, Notre Dame, IN: University of Notre Dame Press, 1987, vol. 1, p. 351.

(26.) For Buridan's discussion of these divisions of categorical propositions, see SD 1.3.4–1.3.7. In this discussion, Buridan only deals with these "classical quantities" and the other "classical quantities" of singular and indefinite propositions (which are indicated by the lack of a sign of quantity in front of a singular or a common subject term respectively), but his theory is clearly applicable to the theoretically intriguing cases of 'dual', 'pleonotetic' or 'numerical' determiners illustrated by the remaining examples. It also should be noted here that because Buridan attributes the same sort of semantic function to predicates as to subjects, namely, referring to (i.e., suppositing for) individuals, he also would endorse the quantification of predicate terms. However, he regards those quantifiers as parts of the predicate terms, which is why they did not have to be marked separately in this schema. See Buridan's intriguing discussion of the issue in SD 4.2.2. It is also in this discussion that Buridan takes care of the apparently, at least from the point of view of his theory, "anomalous" cases of adjectival predicates, which do not seem to supposit and cannot be quantified. For example, 'Every man is some wise' is ungrammatical (as is the corresponding Latin), although 'Every man is some wise thing' is grammatical, as is 'Every man is wise' (and the same goes for the corresponding Latin sentences). In brief, Buridan's solution is that the adjectival predicate term does not have to supposit in and of itself, but it picks up the supposita of the subject. Thus, on this parsing 'Every man is wise' amounts to the same as 'Every man is some wise man' or perhaps more naturally, and probably better expressing the underlying "mental syntax," 'Every man is a wise one'. I owe thanks to Terence Parsons for raising the issue, and for coming up with the latter paraphrase in correspondence.

(7.) Cf. Albert of Saxony, *Perutilis Logica*, Hildesheim-New York: Georg Olms Verlag, 1974 (reprint of Venice, 1518), Tr. 2, c. 2, f. 11.

(16.) This might be taken to be a fundamental postulate concerning the identity-conditions of concepts, not requiring further justification. However, it also may be regarded as a consequence of more general Aristotelian metaphysical considerations concerning the individuation of accidents. For if two concepts of the same mind representing different objects or the same objects differently at the same time were merely numerically different, but not different in kind, then they would be merely numerically distinct accidents of the same subject at the same time. However, this is impossible, just as it is impossible for a thing to have, say, two shapes or two colors all over. By contrast, the thing certainly can have both a shape and a color, because these are two numerically distinct accidents that are also distinct in

kind. Cf. Albert of Saxony, *Albert of Saxony's Twenty-five Disputed Questions on Logic* (ed. M. J. Fitzgerald), Brill: Leiden, 2002, 79.1, p. 100, and Albert of Saxony, *Quaestiones in Artem Veterem* (ed. A. Muñoz-García), pp. 484–486, 731. See also Aristotle, *Metaphysics*, IV, c. 6, 1015b32s.

(10.) Cf.: “Some propositions are affirmative, others are negative. An affirmative proposition is one in which its formal part is left affirmative, while a negative proposition is one in which its formal part is negated, and by the formal part of a categorical proposition I mean its verbal copula.” Albert of Saxony: *Perutilis Logica*, fol. 17.vc.

(30.) QDI, pp.12–14. Cf.: “All verbs, even in the present tense, which of their very nature can concern future, past and possible things as well as present ones such as ‘think’, ‘know’, ‘mean’ and the like amplify their terms to all times, future, past and present. And what accounts for this is that a thing can be thought of without any difference of time, namely, abstracted from any place and time. And so, when a thing is thought of in this way, then a thing which was, or will be, or can be may be thought of as well as a thing which [actually] is. Therefore, if I have the common concept from which we take this name ‘man’, then I can think indifferently of all men, past, present and future. And this is why these verbs can concern past or future things as well as present ones.” Albert of Saxony. *Perutilis Logica*, Tr. 2, c. 10, 8a regula. For an earlier example of the same explanation of ampliation see the selection from Lambert of Auxerre, *Logica Lamberti*, in *The Cambridge Translations of Medieval Philosophical Texts*, eds. N. Kretzmann and E. Stump, Cambridge: Cambridge University Press, 1988, pp. 104–163, esp. pp. 116–118.

(31.) Second intentions are concepts by means of which we conceive of concepts (or other signs) insofar as they are concepts (or signs). For example, the concept to which the term ‘species’ is subordinated is a second intention. First intentions are concepts by means of which we conceive of things other than concepts (or other signs), or perhaps concepts, but not insofar as they are concepts (or signs). Such is, for example, the concept to which the term ‘man’ is subordinated, by which we conceive of human beings, who are not concepts, or the concept to which the term ‘being’ is subordinated, by which we conceive of both things that are not concepts and things that are concepts; however, by this concept we conceive of the latter not insofar as they are concepts but insofar as they are entities, regardless of their representative function. See Albert of Saxony, *Perutilis Logica*, f. 4, va.

(5.) 'Empty', in the case of *natural supposition* and of other *intensional contexts*, created by tenses, modalities, and what medieval logicians would call *ampliative verbs* and their participles, will have to be interpreted more strongly than 'actually not true of anything'. As we shall see, A-propositions with empty subject terms in such contexts do not have 'existential import' properly speaking (i.e., 'Every S is/was/will/can/could be P' does not imply 'Something *is* an S' in these cases), still, the relation of subalternation, i.e., $A \Rightarrow I$, is valid even with such propositions. But here I am going to use the phrases 'empty' and 'existential import' in their usual extensional senses, that is, according to which the subject term of an A-proposition is *empty* iff it is not actually true of anything and the proposition has *existential import* iff its truth implies that its subject is not empty.

(21.) SD 9, *Sophismata*, c. 4. Cf. "(1) An appellative term always appellates its form, whether it is placed on the side of the subject, i.e., before the verb, or on the side of the predicate, i.e., after the verb. (2) But sometimes it appellates [its form] differently before and after [the verb], for after [the verb] it appellates its form precisely for the tense of the verb, (3) but before the verb, if the verb is in the present tense and the predicate is not ampliative, then it appellates its form precisely for the present time; (4) however, if the verb is in another tense or if the predicate is ampliative, then the term occurring before the verb appellates its form indifferently, i.e., disjunctively, as it were, for the present time for the tense of the verb, or for the time for which the predicate ampliates, if it is ampliative." SD 4.5.2.

(32.) That is to say, 'John seeks a unicorn' does not entail 'Some unicorn is such that John seeks it'. But the grammar of quantification theory allows only the formalization of the latter even with restricted variables: ' $(\exists x.Ux)(Sjx.)$ '. So, the logical form of the former sentence is an open question for this theory. By contrast, in a logic with nominal disjunctions and conjunctions, and relevant provisions for the appellation of concepts and ampliation of terms caused by intentional verbs, we can clearly reconstruct both Buridan's and Ockham's treatment along the lines suggested here. Thus, for Buridan, 'John seeks a unicorn' would entail: 'Something (indeed, everything) that is or was or will be or can be a unicorn John seeks' (or more smoothly, switching to the passive voice: 'Something/everything that is or was or will be or can be a unicorn is sought by John'), whereas, of course, this would not further entail that John seeks every unicorn, nor that there is a unicorn such that John seeks it.

(24.) Note in this analysis the disjunctive subject term. The present-tense disjunct is required to take care of cases like ‘A white thing was black’. This proposition certainly cannot be analyzed as ‘A thing that was white was black’, for in a possible situation (*in casu possibili*, as Buridan would put it) the one may be true and the other false; namely, if everything in the world that is now white has never been white before, but some of them were black earlier. For more on this, see Buridan’s *Sophismata*, cc. 4–5. It is also worth mentioning here that medieval logicians, like Ockham, who rejected the theory of ampliation also recognized reference to nonactual, past, future, or even merely possible entities. Their rejection was not based on any qualms about this issue but on their analysis of such propositions as being systematically ambiguous. Accordingly, they distinguished between two senses of such propositions, one in which the subject is taken to refer to what it actually applies to, and another in which it is taken to refer *only* to what it did/will/can apply, as the context requires. Cf. Priest, G. and Read, S. “Ockham’s Rejection of Ampliation,” *Mind* 90(1981), pp. 274–279. Cf. also William of Ockham. SL, P. I. c. 72, pp. 215–216.

(16.) “Attributively speaking”, that is, in the same manner as ‘healthy’ applies to a urine sample by the *analogy of attribution* [*analogia attributionis*], because it is a sign of the health of an animal. The basis of this type of analogy in general is that if a term T is properly predicable of a (kind of) thing A, then T can be predicated in an analogous, secondary sense also of another (kind of) thing B which is somehow related to A. Therefore, in the case in question, C would be called a proposition only because it would signify a mental proposition, not because it would have any of the inherent attributes of a spoken proposition. That is to say, C would not be called a proposition because it is a spoken expression that signifies some truth or falsehood, for it is not an expression in the first place, given the fact that an expression should be an utterance that has separately significative parts, which does not hold for C.

(10.) Cf. “... some people deny the above-mentioned appellation of concepts, which, however, is not to be denied, if Aristotle and others who speak after the common fashion say things which are true. For we would say that the First Principle Averroes did not believe to be triune, but he did believe the First Principle to be God. But, with the name before the verb, we have to concede: ‘The triune Averroes believed to be God’, which is clear by an expository syllogism: for the First Principle he believed to be God and that First Principle is triune; therefore the triune he believed to be God. And it is obvious that such an argument is invalid [when the term is placed] after the

verb, thus; ‘The First Principle he believed to be God and that God is triune; therefore the First Principle he believed to be triune’. It is obvious that this does not follow, for the premises are true and the conclusion is false, and nobody can explain why this turns out to be valid with the term before the verb but not when it follows it, except on grounds of calling attention to the appellation of the concept after, but not before, the verb.” SD 4.5.3.

(3.) The best monographic survey of the history of medieval theories of propositional signification is still Nuchelmans, G. *Theories of the Proposition: Ancient and Medieval Conceptions of the Bearers of Truth and Falsity*, Amsterdam-London: North-Holland, 1973. The best source materials for early medieval theories can be found in De Rijk, L. M. *Logica Modernorum*, in which one can find elaborate theories of the referring function of sentential nominalizations, called *appellationes dicti*, referring to *dicta*, understood as the total significata of propositions.

(93.) Therefore, when Scotus says “a single action of a sense has an object that is one in virtue of some real unity; but not numerical unity” [cf. n. 67], this may well be interpreted that *what* is cognized is a singular, but it is not cognized *qua* singular, that is, not in its singularity. That is to say, the *formal object* of the act of sensory cognition is not the singular object itself without further ado. But with this it is compatible that its *material object* is the singular object. However, this seems to be just another way of saying that the singular is not cognized in its singularity. What Scotus insists on is merely that this *formal object* of sensory cognition is something having some real, but nonnumerical, unity (for the formal object as such is a form, a sensible quality). But this, again, is compatible with the further claim that this formal object is cognized by the senses in concretion with the singular, as it is individualized in the singular (though its individuating principle itself is not cognized), whereas it is cognized by the intellect in abstraction from the singular, and it is only then that the formal object itself is cognized *qua* universal, and the material object of intellection, the singular itself, is cognized in a universal manner. Thus, despite the fact that Scotus employs the argument from indifference, he would not make the further move of identifying indifferent singular cognition without an actual causal link to the object with universal cognition in the way Ockham does. Hence the same argument has a radically different systematic role in his thought.

(6.) The first thorough discussion of Buridan’s solution in the modern literature was provided by Ebbesen, S. “The *Summulae*, Tractatus VII,

De Fallaciis,” in *The Logic of John Buridan*. Acts of the Third European Symposium on Medieval Logic and Semantics, ed. J. Pinborg, Copenhagen: Museum Tusulanum, 1976, pp. 121–160. A very useful comparative analysis of Ockham’s, Buridan’s, and Albert of Saxony’s treatment of the problem is provided by Berger, H. “Simple Supposition in William of Ockham, John Buridan, and Albert of Saxony,” in *Itinéraires d’Albert de Saxe: Paris-Vienne au XIVe siècle*, ed. J. Biard, Paris: Vrin, 1991, pp. 31–43. Cf. also Ashworth, E. J. “*Nulla propositio est distinguenda*: La notion d’*equivocatio* chez Albert de Saxe,” in the same volume, pp. 149–160, and Ebbesen, S. “Can Equivocation Be Eliminated?” *Studia Mediewistyczne* 18(1977), pp. 103–124.

(79.) “Buridan adds a very important clause to his discussion at this point. He remarks that I can treat ‘Aristotle’ as a singular term because I believe that the name was imposed or given its signification by a person who did have the appropriate singular concept. This move allows him to avoid the awkward consequence that whether ‘Aristotle’ is a proper name or not depends entirely on the experience of the speakers, and not at all on the linguistic practices of the community. If I have never known Aristotle, but am speaking with someone who did know him, we can both be taken to be using a proper name when we utter the word ‘Aristotle’. Buridan’s remarks can be expanded in at least two closely related ways. On the one hand, given his references to an original baptism or name-giving ceremony, we can regard Buridan as offering an early hint of the historical chain theory of proper names. On the other hand, given his apparent recognition of the speaker’s intention to refer to the person who was baptized as related to the social practices of the community, and to a body of information which, accurate or not, is causally connected with the man baptized ‘Aristotle’, perhaps Buridan is nearer to Gareth Evans than to Kripke (to mention just two names).” Ashworth, E. J. “Singular Terms and Singular Concepts,” in *John Buridan and Beyond: Topics in the Language Sciences 1300–1700*, ed. R. L. Friedmann and S. Ebbesen, Copenhagen: The Royal Danish Academy of Sciences and Letters, 2004, pp. 121–151, esp. 137–138. Cf. Schwartz, S. P., ed. *Naming, Necessity and Natural Kinds*, Ithaca, NY: Cornell University Press, 1977, pp. 13–41.

(2.) But not by all of them, as is clear from Ebbesen, S. “‘The Present King of France Wears Hypothetical Shoes with Categorical Laces’: Twelfth Century Writers on Well-Formedness,” *Medioevo* 7(1981), pp. 91–113. But the authors mentioned here represent the exception, rather than the rule, especially if we consider what was the norm in late medieval logic, and especially in nominalist logic. Cf. Ashworth, E. J. “Existential Assumptions in

Late Medieval Logic," *American Philosophical Quarterly* 10(1973), pp. 141-147.

(20.) See the exchange that I had with Robert Pasnau on Aquinas' doctrine of "the identity of the knower and the known" at the 1996 APA convention in Chicago, available at <http://www.fordham.edu/gsas/phil/klima/APAPasnau.htm>; <http://www.fordham.edu/gsas/phil/klima/APA.htm> (Pasnau's original piece is also included with slight modifications as "Appendix A" in his *Theories of Cognition in the Later Middle Ages*, Cambridge University Press: Cambridge, 1997, pp. 295-305.) See also Klima, G. "Intentional Transfer in Averroes, Indifference of Nature in Avicenna, and the Representationalism of Aquinas," *Proceedings of the Society for Medieval Logic and Metaphysics* 5(2005), pp. 33-37, available at <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM5/PSMLM5.pdf>.

(29.) For the proof, if "most" is understood as "more than half the," see Barwise, J. and Cooper, R. "Generalized Quantifiers and Natural Language," *Linguistics and Philosophy* 4(1981), pp. 159-219, pp. 214-215; section (C13).

(4.) Buridan is of course quite aware of this sort of semantic construction in the Aristotelian tradition: "... a proposition is true on the basis that in whatever way it signifies, so are the things signified, and a proposition is said to be false on the basis that it is not the case that in whatever way it signifies so are the things signified. And this is generally conceded and is confirmed by the common manner of speaking. For when it seems to us that someone has said something true, we say that it is as he said; and if it seems to us that he said something false, then we say that it is not as he said. And this is why Aristotle in books 5 and 6 of the *Metaphysics* says that according to one signification of 'being' and 'non-being', 'being' signifies the same as 'true', and 'non-being' the same as 'false'." SD 9.2, *First Sophism*. However, he deals with this conception only to reject it, although quite characteristically he will retain its language, while filling it with entirely new theoretical content.

(9.) Cf. Berger, H. "Simple Supposition in William of Ockham, John Buridan, and Albert of Saxony," p. 34. More recently, Claude Panaccio and Ernesto Perini-Santos have argued along similar lines for the consistency of Ockham's position in "Guillaume d'Ockham et la *suppositio materialis*," *Vivarium* 42(2004), pp. 202-224. Note that I am not challenging Ockham's consistency; I am merely contrasting his handling of the issue with Buridan's

with regard to their different implications concerning their conception of the conditions of concept-identity.

(119.) See Locke, J. *An Essay Concerning Human Understanding*, New York: Dover Publications, 1959, bk. II. cc. 22–23; bk. III. cc. 5–6; Berkeley, G. *A Treatise Concerning the Principles of Human Knowledge*, Hackett: Indianapolis, 1982, nn. 1, 24, 54; Hume, D. *A Treatise of Human Nature*, Oxford: Clarendon Press, 1978, Bk. I, sec. VI.

(127.) Buridan, J. *Le traité de l'âme de Jean Buridan (De Prima Lectura): Édition, Étude Critique et Doctrinale*, ed. B. Patar, Louvain-la-Neuve: Éditions de l'Institut Supérieur de Philosophie, 1991, *Quaestiones in De Anima* (henceforth: QDA), lb. 1, q. 5. This passage is in perfect agreement with the doctrine of known authentic texts of Buridan. Cf. QiP, lb. I, q. 7, ff. 7vb–10ra; QDA3 q. 8, pp. 64–89, esp. pp. 74–75, pp. 79–80; QM, lib. VII, qq. 15–20, ff. 50rb–54va; QiPI, pp. 111–195, esp. pp. 172–173. Because of this doctrinal agreement, I take this passage to be a reliable report of Buridan's ideas (whether by himself or someone else), despite serious doubts concerning the text's authenticity. For contrast, see “Hence it is plain we do not see a man—if by man is meant that which lives, moves, perceives, and thinks as we do—but only such a certain collection of ideas as directs us to think there is a distinct principle of thought and motion, like to ourselves, accompanying and represented by it.” Berkeley, G. *A Treatise Concerning the Principles of Human Knowledge*, Part I, n. 148, p. 88.

(21.) Berkeley, G. *A Treatise Concerning the Principles of Human Knowledge*, part 1, n. 18, pp. 30–31.

(64.) For excellent surveys of the medieval problem in general, which is not of the concern of the present discussion, see Bérubé, C. *La connaissance de l'individuel au Moyen Âge*, Montréal: Presses Universitaires de France, 1964, Boler, J. “Intuitive and Abstractive Cognition” in *The Cambridge History of Later Medieval Philosophy*, ed. N. Kretzmann et al., Cambridge: Cambridge University Press, 1982, pp. 460–478, and Pasnau, R. *Theories of Cognition in the Later Middle Ages*, Cambridge: Cambridge University Press, 1997, pp. 295–305.

(113.) Cf. Read, S. L. “Thomas of Cleves and Collective Supposition,” *Vivarium* 29(1991), pp. 50–84; Read, S. L. “Descensus Copulativum: Albert of Saxony vs. Thomas Maulfelt,” in *Itinéraires d'Albert de Saxe: Paris-Vienne au XIVe*, ed. J. Biard, Paris, 1991, pp. 71–85.

(24.) SD 4.3.8.4. Thus, I do not share the opinion of L. M. de Rijk, who wrote: “As a matter of fact, Buridan himself seems to feel quite uneasy about his ‘debeo tibi equum’ case (see Scott, pp. 141–142). It must be considered an intruder, indeed. The last case of appellation (‘equus’ in ‘debeo tibi equum’) is not a correct one, since it is just a case of supposition. Buridan’s extending the ‘venientem’ case to the ‘equum’ case (i.e. the adjective noun cases to the substantive noun cases) seems to be rather abortive.” De Rijk, L. M. “On Buridan’s Doctrine of Connotation,” in *The Logic of John Buridan*, Acts of the Third European Symposium on Medieval Logic and Semantics, ed. J. Pinborg, Copenhagen: Museum Tusulanum, 1976, pp. 91–100, on p. 100. For a more sympathetic evaluation of Buridan’s doctrine, see Maierù, A. “Significatio et connotatio chez Buridan,” in the same volume, pp. 101–114. Cf. also Biard, J. “Le cheval de Buridan: Logique et philosophie du langage dans l’analyse d’un verbe intentionnel,” in *Die Philosophie im 14. und 15. Jahrhundert*, ed. O. Pluta, Amsterdam: Bochumer Studien zur Philosophie, 1988, pp. 119–137.

(23.) ‘Bilatrix’ is one of the several standard examples of a meaningless utterance (along with ‘bu’, ‘ba’, ‘baf’, ‘buba’, etc.), which one can find in medieval commentaries on Aristotle’s relevant passage at the beginning of his *On Interpretation* and in the corresponding sections of medieval logical treatises.

(12.) It should be noted here that in addition to the obvious complexities obtained by genitives, relative clauses, adjectival constructions, and adverbial constructions, the “Boolean” operations (i.e., term-negation/ conjunction/ disjunction), and those caused by participles of transitive verbs, according to Buridan even a determiner possibly added to the predicate term is a part of that term (whereas that added to the subject is a functor operating on the whole proposition). Cf. SD 1.3.3. This is why in the scheme mentioned earlier I did not have to add an optional occurrence of another determiner constructed with the predicate term.

(2.) Obviously, syncategorematic concepts, such as the concepts of the Boolean operations of negation, conjunction, and so on, may consistently be treated even by empiricists as innate operations of the mind, not carrying any information about extramental reality, but simply operating on categorematic concepts that do carry such information.

(25.) See Read, S. L. “The Liar Paradox from John Buridan back to Thomas Bradwardine,” *Vivarium* 40(2002), pp. 189–218; Klima, G. “Consequences of a

Closed, Token-Based Semantics: The Case of John Buridan”; and the “classic” treatments provided by Spade, Hughes, Scott, Moody, and Prior referred to in these papers.

(3.) For further reasons why we cannot afford to ignore the medievals’ treatment of empty terms, see Broadie, A. *Introduction to Medieval Logic*, Oxford: Clarendon Press, 1987, p. 120.

(43.) For an excellent summary account of various medieval theories of relations, see Henninger, M., S.J. *Relations: Medieval Theories 1250–1325*, Clarendon Press: Oxford, 1989. For a more recent treatment, see Brower, J. “Medieval Theories of Relations,” in *The Stanford Encyclopedia of Philosophy* (fall 2005 edition), ed. E. N. Zalta; <http://plato.stanford.edu/archives/fall2005/entries/relations-medieval/>.

(160.) I am grateful to Julie Brumberg-Chaumont for calling my attention to the significance of this passage in her excellent presentation at the *Montreal Workshop on Late-Medieval Nominalism* organized by Claude Panaccio in May 2006.

(30.) Burley, W. *On the Purity of the Art of Logic*, trans. P. V. Spade, New Haven, CT: Yale University Press, 2000, p. 90.

(24.) SD 5.1.3, p. 309. Buridan here makes it entirely clear that as far his theory is concerned synonymous expressions of spoken or written languages are not distinguished in mental language—a point that is still controversial in the secondary literature concerning Ockham’s theory. See Spade, P. V. “Synonymy and Equivocation in Ockham’s Mental Language”; Panaccio, C. “Connotative Terms in Ockham’s Mental Language”, *Cahiers d’épistémologie* 9016(1990), pp. 1–22. For more recent treatments of the issue see Chalmers, D. “Is There Synonymy in Ockham’s Mental Language?” in *The Cambridge Companion to Ockham*, ed. P. V. Spade, Cambridge: Cambridge University Press, 1999, pp. 76–99; and Panaccio, C. “Semantics and Mental Language,” in the same volume, pp. 53–75. For a more recent account of the issue, see Spade, P. V., “William of Ockham,” in *The Stanford Encyclopedia of Philosophy* (fall 2006 edition), ed. Edward N. Zalta; <http://plato.stanford.edu/archives/fall2006/entries/ockham/>.

(18.) In medieval logic, the term ‘proposition’ is used in a sense in which modern logicians would talk about “sentence-tokens”. The modern philosophical understanding of “proposition” as referring to some “abstract

entity” expressed by a sentence would be closest to some medieval philosophers’ understanding of what they would call an *enuntiabile*, and what others, especially after Gregory of Rimini, would call a *complexe significabile*. For the history of these terms and the related conceptions, see Nuchelmans, G. *Late-Scholastic and Humanist Theories of the Proposition*, Amsterdam: North Holland, 1980. I will take up the issue of *complexe significabilia* in discussing Buridan’s theory of propositions. Throughout this book, however, I am going to use the term ‘proposition’ in the way Buridan uses *propositio*, as referring to single sentence-tokens of concrete spoken or written languages (or even of “mental language,” that is, single acts of judgment of human thought denoted by the corresponding spoken or written sentences).

(10.) “Composition”, “compounding”, or “putting together” [*componere*] in this context mean the combination of two categorematic terms into a proposition by means of an affirmative copula, whereas “division”, “dividing”, or “separating” [*dividere*] mean their combination into a negative proposition by means of a negative copula.

(1.) Cf.: “... the signification of the whole complex was commonly held to be of a compositional nature and to be determined by the signification of its parts. As Pardo put it, only incomplex expressions have been given conventional meanings in a primary and immediate way; a propositional complex, such as *Homo est animal*, on the other hand, has been destined to signify its meaning only in a mediate, consequential and secondary manner, since its signification can be derived from the significations of the incomplex parts.” Nuchelmans, G. *Late-Scholastic and Humanist Theories of the Proposition*, p. 45. Cf. Hieronymus Pardo. *Medulla Dialectices*, Paris, 1505, fol.1.V. An interesting contrast to this view is provided by the extreme conventionalism of Robert Fland, who would allow the arbitrary, noncompositional signification of complex expressions, such as a conjunctive proposition (with the result that a conjunction may not be implied by its conjuncts and vice versa). Fland is discussed in detail by Spade, P. V. *Thoughts, Words and Things: An Introduction to Late-Mediaeval Logic and Semantic Theory*, 1996, unpublished manuscript, available at http://www.pvspade.com/Logic/docs/thoughts1_1a.pdf, esp. pp. 90–93, *et passim*. However, it is important to note that this breach of compositionality requires a new imposition: thus, compositionality *on the mental level* is unaffected by Fland’s considerations. Note also that by my criterion of syntactical simplicity vs. complexity, Fland’s conjunction, despite appearances to the contrary, would not be a syntactically complex expression (indeed, not any more

than 'polecat' is). Cf. the discussion of this issue in the section on *Simple vs. complex concepts* (section 4.2) earlier in this book.

(3.) We should note here in passing that Buridan also distinguishes mixed utterances (and hence the corresponding mixed concepts), namely, ones that besides operating on categorematic concepts signify something outside the mind too. Cf. SD 4.2.3, pp. 232–233. Indeed, according to Buridan, the proposition-forming concept of the copula, insofar as it also connotes some time, is such a mixed concept, but by abstracting from this connotation we may be able to form in our minds a purely syncategorematic concept of the copula as well. Cf. SD 4.3.4, pp. 261–262. I will return to this issue in connection with Buridan's analysis of propositional composition and the function of the copula.

(5.) Indeed, in general, Buridan would identify the different ways of signifying that syncategorematic terms have with the syncategorematic concepts themselves. As he says: "... the copulas 'is' and 'is not' signify different ways of combining mental terms in order to form mental propositions, and these different ways [of combining] are in their turn complexive concepts pertaining to the second operation of the intellect, insofar as this goes beyond the first operation." SD 4.2.4, p. 234. With regard to the "first" and "second operation of the intellect", see n. 9 below.

(31.) As far as I can tell, Buridan does not discuss the origin of simple syncategorematic concepts. But we may safely assume that he would take them to be innate operations of the human mind. In any case, this would still be compatible with the Aristotelian conception of the native mind as *tabula rasa*, insofar as it still does not possess any categorematic content, which can only be acquired from the input of the senses.

(3.) For an excellent discussion of the issue of 'empiricism' in late medieval philosophy, see Zupko, J. "What Is the Science of the Soul? A Case Study in the Evolution of Late Medieval Natural Philosophy," *Synthese* 110(1997), pp. 297–334.

(6.) Or at least they should involve an "unsaturated" syncategorematic concept with at least two "arguments," as, for example, the concept to which the preposition 'of' is subordinated in the construction 'a donkey of a man'. See the discussion of this issue in section 4.5.

(148.) In fact, I am using the continuous tense here to indicate that this sort of experience is not to be regarded like a static "snapshot," but, rather,

as the active, indeed, *interactive* processing of information continuously *streaming* through the external senses, resulting from the active “scanning” of the object directed by subconscious *reflex mechanisms* as well as the ever changing *attention* of the perceiver. These are further details of the process of perception that need not detain us here, although they are very important to keep in mind.

(38.) For Buridan’s distinction, see TC, lb. 1, c. 4, pp. 22–23; English translation: Peter King, *Jean Buridan’s Logic: The Treatise on Supposition and the Treatise on Consequences*.

(19.) The verb-coinage ‘supposit for’ is the nowadays widespread rendering of the medieval Latin technical term *supponit pro*, indicating the semantic function of a term in a proposition of standing for what the proposition is about. The medieval theory of *supposition* was designed precisely to describe the various ways terms can be used in this function in various propositional contexts. Among the many refined distinctions provided by this theory (which will be discussed later in detail), the most fundamental one exploited by Buridan here is that between *personal* and *material* supposition. In Buridan’s interpretation, a term is suppositing personally when it stands for what it signifies, whereas it supposits materially when stands for itself or any other token term of the same type.

(21.) Although Peter of Spain, for example, regards natural supposition as the kind of supposition a term has absolutely [*per se*], apparently even outside of the context of a proposition. See Peter of Spain, *Tractatus*, p. 81.

(22.) This is actually Buridan’s very useful characterization of what we call intentional contexts.

(16.) Intentional contexts are a specific case of intensional contexts, insofar as the former exhibit some peculiar features of their own besides the distinctive characteristics of intensional contexts distinguishing them from extensional contexts in general. Failure of substitutivity of identicals is distinctive of intensional contexts in general, whereas I take the presence of verbs and their derivatives signifying mental acts to be distinctive of intentional contexts in particular.

(18.) SD 4.5.1. Quite clearly, although he never explicitly says so, for Buridan, being appellative (connotative) or nonappellative are properties of terms independent of context, based on their signification, but appellation is a property of terms only in propositions. By contrast, we find explicit statement

of this in the work of his pupil, Marsilius of Inghen. See Marsilius of Inghen. *Treatises on the Properties of Terms*, ed. E. P. Bos, Dordrecht: D. Reidel, 1983, pp. 128–136. This is why we may say that although supposition is direct reference in a proposition to a term's *significata*, appellation is oblique reference in a proposition to a term's *connotata*.

(15.) In fact, in accordance with the doctrine of *conversio ad phantasmata*, according to which our intellectual concepts constantly need to be reinforced by the mind's "turning to the phantasms" or else they "fade out" from the mind, it is quite natural for us to lose our concepts for want of such reinforcement.

(21.) Simple concepts of the soul are combined into complex concepts by means of *complexive* concepts. For example, in the case of the spoken sentence 'God is God', the simple concept by which we conceive of God is combined with itself by means of the *complexive* concept of the present tense affirmative copula designated in English by the utterance 'is' (and in Latin by the utterance *est*) into the complex mental proposition which is designated in English by this sentence (and in Latin by the sentence *Deus est Deus*).

(5.) These qualifications are obviously needed because if the original verb is in another tense or modality, then the copula has to be of the same sort; for example, 'Socrates could run' (taken to express a past-tense modal proposition) has to be analyzed with a past-tense modal copula, as in 'Socrates was-able-to-be running'.

(17.) Buridan, focusing on spoken language, would usually take the time connoted by the present tense copula as the present time of the utterance of the proposition. However, in his more careful considerations concerning the time connoted by the copula of a proposition, he draws the fundamental distinction between the time *at which* [*in quo*] and the time *for which* [*pro quo*] a proposition is true, namely, the time of the formation and the time of the interpretation or evaluation of a proposition, which need not always coincide, indeed, sometimes *have to* differ. For an interesting discussion of the issue, see Perini-Santos, E. "John Buridan on the Bearer of Logical Relations," *Logica Universalis* 2(2008), pp. 59–70. For Buridan's own discussion, see *Sophismata*, c. 7. A reconstruction of Buridan's temporal semantics is provided by Øhrstrøm, P. "Buridan on Interval Semantics for Temporal Logic," *Logique et Analyse* 27(1984), pp. 211–215.

(28.) Well, perhaps, Duns Scotus' conception of possibility provides an interesting medieval counterinstance to what I say here. But of course his *theological* reasons for this conception were (possible, as well as actual) worlds apart from the modern secular belief in the sanctity of existential quantification. Cf.: *Ordinatio* I. d. 36, n. 1. As in many other matters, Henry of Ghent seems to have had some influence on Scotus' thought also on this point. For a thorough discussion of the issue and the possible impact of the medieval discussions on Descartes' conception of eternal truths, see Cronin, T. J. *Objective Being in Descartes and in Suarez*, New York/London: Garland Publishing, 1987, esp. Appendix II and III, pp. 167–207. Buridan's modal logic in itself, as well as in relation to other medieval modal systems, has been amply covered in the following excellent monographs: Knuuttila, S. *Modalities in Medieval Philosophy*, London: Routledge, 1993; Lagerlund, H. *Modal Syllogistics in the Middle Ages*, Leiden: Brill, 2000; Thom, P. *Medieval Modal Systems: Problems and Concepts*, Aldershot: Ashgate, 2003. This is the main reason I will not discuss it in this work—only to the extent it is relevant to its main focus: the relationships among language, thought and reality.

(2.) Who exactly Peter of Spain was is still an open question. See: D'Ors, A. "Petrus Hispanus O.P. Auctor Summularum," *Vivarium*, 35(1997), pp. 21–71; d'Ors, Angel, 2001. Petrus Hispanus O.P, Auctor Summularum(II): Further documents and problems. *Vivarium*, 39: 209–254; d'Ors, Angel, 2003. Petrus Hispanus O.P, Auctor Summularum(III): "Petrus Alfonsi" or "Petrus Ferrandi?" *Vivarium*, 41: 249–303; Spruyt, Joke, "Peter of Spain," *The Stanford Encyclopedia of Philosophy* (winter 2007 edition), ed. Edward N. Zalta, URL = <http://plato.stanford.edu/archives/win2007/entries/peter-spain/>.

(47.) Note that strictly speaking, despite existing translational traditions to the contrary, *quid nominis* is not to be rendered as 'nominal definition', for the latter is *definitio exprimens quid nominis*, that is, 'definition expressing the *quid nominis*, therefore, because the phrase *quid nominis* alone is usually expounded as *quid significatur per nomen*, that is, what is signified by the name, *quid nominis* may justifiably be rendered as 'the meaning of the name'. Accordingly, Buridan's point here is that significative utterances subordinated to simple concepts do not have nominal definitions, that is, definitions precisely expressing their *quid nominis*, but of course they do have *quid nominis*, that is, they do have meaning or signification, given that they are meaningful in virtue of being subordinated to a concept in the first place. Nevertheless, for the sake of simplicity, in its subsequent

occurrences I will translate the whole phrase *definitio exprimens quid nominis* not as ‘definition expressing the meaning of the name’ but simply as ‘nominal definition’. Furthermore, as even Buridan himself occasionally uses the shorter phrase *quid nominis* to refer to a nominal definition, on such occasions I will also translate *quid nominis* as ‘nominal definition’.

(54.) The critical text has here the following: *Cum ergo definitio pure quidditativa debeat indicare praecise quid est, necesse est, si ille terminus ‘album’ habeat definitionem quidditativam, quod illa, si sit illius termini ‘lapis’, vel <sit> eius quidditativa definitio, [V101va] vel quod sit oratio constituta praecise ex terminis substantialibus*—“Since, therefore, a purely quidditative definition should precisely indicate what a thing is, it is necessary that if the term ‘white [thing]’ [*album*] has a quidditative definition, then that, if it is that of the term ‘stone’, should either be its quidditative definition, or that it should be an expression consisting exclusively of substantial terms.” However, on the basis of the apparatus this can be amended as follows (providing the reading consonant with the Hubien-text, which I translated in the main text): *Cum ergo definitio pure quidditativa debeat indicare praecise quid est, necesse est, si ille terminus ‘album’ habeat definitionem quidditativam, quod illa sit iste terminus ‘lapis’, vel quod <sit> eius quidditativa definitio, [V101va] vel [omnino—Hubien] quod sit oratio constituta praecise ex terminis substantialibus*.

(3.) SD 2.1.3, p. 106. Cf. “We call the predication of a term of another ‘essential’ if neither of these two terms adds some extrinsic connotation to the things they supposit for. Therefore, although the term ‘animal’ signifies more [things] than the term ‘man’, nevertheless, it does not appellate over and above the signification of the term ‘man’ anything having to do with man, i.e., as something pertaining to man [*per modum adiacentis homini*—cf. SD. 4.5.]. A predication is called ‘non-essential’, or ‘denominative’, if one term of it adds some extrinsic connotation over the signification of the other, as for example ‘white’ supposits for a man and appellates whiteness as pertaining to him.” SD 2.5.2, pp. 126–128.

(3.) For several medieval versions of the famous dictum, apparently deriving from St. Augustine’s *De Ordine*, II.13, see De Rijk, L. M. *Logica Modernorum. A Contribution to the History of Early Terminist Logic*, Assen: Van Gorcum, 1967, II-1, pp. 32–33, 412, 418, 428, 431, 435, 436; II-2, pp. 357, 379, 417; Peter of Spain, *Tractatus, called afterwards Summa logicales*, ed. L. M. de Rijk, Assen: Van Gorcum, 1972, p. 1. According to the critical apparatus of this edition, the phrases *ars artium* [‘art of arts’] and *scientia scientiarum*

['science of sciences'] occur only in some variants of the text, in accordance with Buridan's remarks later. The phrase derives ultimately from Aristotle, *Topics*, I, 2, 101b3-101b4.

(8.) Cf. De Rijk, L. M. *Logica Modernorum*, I, pp. 13-23. For detailed accounts of the recovery of the entire Aristotelian corpus by, and its influence on, the Latin West, see Dod, B. G. "Aristoteles latinus," and Lohr, C. H. "The medieval interpretation of Aristotle," in *The Cambridge History of Later Medieval Philosophy*, eds. N. Kretzmann, A. Kenny, and J. Pinborg, Cambridge: Cambridge University Press, 1982, pp. 45-98.

(6.) Cf., for example, L. M. de Rijk's *Introduction* to his edition of Abaelard. *Dialectica*, Assen: Van Gorcum, 1956, pp. 37-38; Henry, D. P. *Medieval Logic and Metaphysics*, London: Hutchinson, 1972, pp. 55-56; Geach, P. T. "Nominalism," in *God and the Soul*, London: Routledge & Kegan Paul, 1969.

(19.) De Rijk, L. M. "The Development of *Suppositio Naturalis* in Mediaeval Logic," *Vivarium* 9(1971), pp. 71-107.

(9.) Concerning the development of the role of the converse ascents in supposition theory and, in general, the problems involved in the requirement to descend to an equivalent proposition, see the excellent discussion in Priest, G. and Read, S. L. "Merely Confused Supposition: A Theoretical Advance or a Mere Confusion?" *Franciscan Studies* 40(1980), pp. 265-297. For a good summary of the arguments against presenting supposition theory as a sort of quantification theory, giving the truth-conditions of quantified sentences in terms of descents, precisely on account of the failure of ascents see Adams, M. M. *William Ockham*, pp. 367-377. Adams's alternative proposal is that "the divisions of common personal supposition are not the means to the end of giving a contextual definition of quantifiers nor for stating the truth conditions for propositions containing quantified general terms; rather the divisions of supposition generally were marshaled into service for the task of identifying fallacies" (*ibid.* , p. 382). To be sure, the development of supposition theory from its very origins was motivated by the need to detect fallacies, as it was convincingly shown by De Rijk, L. M. *Logica Modernorum*. Nevertheless, it may be argued that the need for fallacy detection developed also a relatively independent interest in the referring function of terms in general, which, during the development of supposition theory, led to, among other things, the explicit requirement of analyzing quantified sentences in terms of equivalent descended forms, as we can clearly see this in such later authors as, for example, Paul of Venice.

Cf. Paul of Venice, *Logica Magna*, tr. 2, ed. A.R. Perreiah, St. Bonaventure, NY: Franciscan Institute, 1971.

(12.) The word 'dictum' in the older framework that Buridan's semantics challenges was sometimes used to refer to what a proposition as a whole signifies, a "propositional entity." Accordingly, the propositional nominalizations taken to refer to such entities were sometimes referred to by older authors as 'appellationes dicti' (the names of a *dictum*). But many authors also used the word to refer to the linguistic item, the propositional nominalization itself. (Actually, the same goes for the term 'enuntiabile'.) Because he rejects "propositional entities" (under the denomination 'complexe significabilia'), Buridan uses the word 'dictum' exclusively to refer to propositional nominalizations.

(45.) Klima, G. "Ontological Alternatives vs. Alternative Semantics in Medieval Philosophy." As I have argued in my papers referred to in n. 42, the nominalists' interpretation of the role of nominal definitions as expositions or interpretations in this strict sense was one of their important innovations in semantic theory. Almost two centuries later, Domingo Soto still expresses astonishment at the nominalist conception of nominal definitions: "Furthermore, a nominal definition is what explicates the quiddity of a name, and the quiddity of a name is its signification: that definition, therefore, which explicates what a name signifies, is the nominal definition. And this, as Aristotle says in bk. 1 of his *Posterior Analytics*, is presupposed from the beginning of each science. For example, if we set out to deal with the science about man, we have to presuppose what the name 'man' signifies. And the phrase that explains what it signifies is the nominal definition, even if it would not explain the nature of man at all, as if you were to say, 'man signifies the animal than which none is more excellent'. And so I do not know from where recent authors [*iuniores*] took it that an absolute name cannot be defined by a nominal definition, for what is signified by an absolute name, such as 'elephant', is just as well explained, as [what is signified by] the name 'white'." Soto, D. *Summulae, Svmmlarvm aeditio secunda*, Salmanticae: Excudebat Andreas a Portonariis, 1554; reprint Hildesheim, New York: Georg Olms Verlag, 1980, f. 22c.

(13.) "... inter nominales nati sumus, interque reales nutriti." Soto, D. *In Porphyrii Isagogen, Aristotelis Categorias, librosque de Demonstratione, Commentaria*, Venice: Ex officina Dominici Guarraei, et Io. Baptistae, fratrum, 1587; reprint, Frankfurt: Minerva, 1967, p. 28H.

(146.) Dorp, J. *Compendium*, sig. e 1 va–yb, quoted in Ashworth (for ref. see n. 79), p. 135. n. 58. See also Dorp’s sig. e 2 ra.

(21.) For details and bibliographical references to alternative approaches, which nevertheless rely on basically the same intuitive ideas, see Klima, G. “Approaching Natural Language via Mediaeval Logic,” in *Zeichen, Denken, Praxis*, eds. J. Bernard and J. Kelemen, Vienna: Institut für Sozio-Semiotische Studien, 1990, pp. 249–267, available at <http://www.fordham.edu/gsas/phil/klima/TiffedPapers/ApproachingNL.pdf>. More recent challenges to the “Frege/Russell orthodoxy” along pretty much the same intuitive lines can be found in the works of Terence Parsons, Alex Orenstein, George Englebretsen, and Hanoch Ben-Yami.

(80.) It is especially the italicized claim that indicates the conception I am expounding below. In other places, namely, in QDA3 q. 8, Buridan seems simply to settle for the claim that such proper names are not properly and strictly singular to us, who have never met their bearers, since to us these names are merely abbreviations of some semantically common descriptions: “... ‘Socrates’, ‘Plato’, and ‘Aristotle’, were strictly speaking singulars having singular concepts corresponding to them absolutely, because they were imposed for signifying things conceived in the manner of something existing in the prospect of the people imposing them, because they said that this boy is called by the proper name ‘Socrates’. But to others who have not seen them, those names are not now singular, nor do they have absolutely singular concepts corresponding to them, but as Porphyry indicates, they are called singulars by them by a description ‘on the basis of properties the collection of which never was, nor will be, the same in anything other than it’: for example, by the name ‘Aristotle’, we understand a man generated, most wise, a student of Plato, etc., for this description is thus called singular because it fits but one man alone. But it is not singular, because it is naturally suited to agree with others, for it would not have been impossible for another to have been of the same sort. But when I say ‘this man’, it is impossible that some other man is this man.” However, see also this passage: “Concerning the terms ‘Socrates and ‘Plato’ I say that they are truly and properly individual terms, because the name ‘Socrates’ was imposed on this man through an act of pointing, for example, by saying that let this man or this boy be called by a proper name ‘Socrates’. For a name imposed in this way cannot apply to any other except by means of a new imposition, which would yield equivocation. And thus it appears to me that it is not impossible for the same utterance or a similar one to signify several

things individually, through several impositions and equivocally.” QiPI, q. 9, p. 162.

(1.) The best modern discussions of the (rather sparse) sources we have on Buridan’s life are Faral, E. *Jean Buridan: Maître és arts de l’Université de Paris*, Extrait de l’Histoire littéraire de la France, Tome XXXVIII, 2e partie, Paris: Imprimerie Nationale, 1950, and Michael, B. *Johannes Buridan: Studien zu seinem Leben, seinen Werken und zu Rezeption seiner Theorien im Europa des späten Mittelalters*, vols. 1–2, Doctoral Dissertation, University of Berlin, 1985. A more detailed account of Buridan’s life in English can be found in Zupko, J. *John Buridan: Portrait of a 14th-Century Arts Master*. In general, Zupko’s more historically oriented approach provides a very useful complement to the more “analytic” approach I take in this study.

(5.) Faral, E. *Jean Buridan: Maître és arts de l’Université de Paris*, p. 15. In the English translation, I have punctuated Buridan’s answer to match the doctrinal point that he often makes concerning the relevance of word order for making such distinctions.

(34.) *Ungesättigt* in Frege’s usage indicates the incompleteness of a function-sign taken by itself, such as a square symbol ‘()²’ without a number or variable serving as its argument. Clearly, such a symbol does not pick out a number until it is completed with an argument.

(25.) For the important consequences of this view in Buridan’s treatment of the “Fregean” force-content distinction and propositional composition in general, see Klima, G. “John Buridan and the Force-Content Distinction,” in *Medieval Theories On Assertive and Non-Assertive Language*, Acts of the 14th European Symposium on Medieval Logic and Semantics, eds. A. Maierú and L. Valente, Rome: Olschki, 2004, pp. 415–427.

(39.) I am grateful to Calvin Normore for alerting me to this point. A very similar motivation for a token-based semantics was presented by a contemporary logician: Gaifman, H. “Pointers to Propositions,” in *Circularity, Definition, and Truth*, eds. A. Chappuis and A. Gupta, New Delhi/Atascadero, CA: Indian Council of Philosophical Research/Ridgeview, 2000, pp. 79–121.

(14.) Klima, G. and Sandu, G. “Numerical Quantifiers in Game-Theoretical Semantics,” *Theoria* 56(1990), pp. 173–192. For a perhaps somewhat more accessible presentation of the informal ideas that led to this collaborative paper, see Klima, G. “Approaching Natural Language via Medieval Logic.”

(6.) Cf. Geach, P. T. *Reference and Generality*, Ithaca, NY: Cornell, 1968, p. xii; Read, S. L. "Thomas of Cleves and Collective Supposition."

(92.) Perhaps it is important to note here that this miracle is fundamentally different from the miracle Ockham considered, namely, the alleged possibility of God sustaining an act of intuitive cognition without its corresponding adequate object. Given his doctrine of the formal unity of the cognizer and the cognized thing, Aquinas may not have regarded Ockham's miracle possible (or *ought* not to have, anyway), but he definitely argues for the miraculous possibility of overlapping bodies, on account of scriptural authority, such as the risen Christ entering the room of the apostles through closed doors. Cf. Klima, G. "The Demonic Temptations of Medieval Nominalism: Mental Representation and 'Demon Skepticism'," *Proceedings of the Society for Medieval Logic and Metaphysics* 4(2004), pp. 37-44, <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM4/PSMLM4.pdf>.

(15.) Possible intuitions to the contrary, according to which the proposition 'For Socrates to love God is good' is true even if Socrates actually does not love

God, might be accounted for by saying that these intuitions are based on the consideration that it *would be* good for Socrates to love God even if he does not; in this case, however, the proposition to be considered would have to be 'For Socrates to love God *would be* good', when not the actual, but possible cosupposition of terms is required for truth, because of the *ampliative* force of the subjunctive copula.

(11.) Greco, J. "Reid's Reply to the Skeptic," in *The Cambridge Companion to Reid*, eds. T. Cuneo and R. van Woudenberg, Cambridge: Cambridge University Press, 2004, pp. 134-155, p. 148.

(111.) Cutting up poor old Socrates in various ways was in vogue in medieval mereological considerations in general. The authoritative survey of this is provided by D. P. Henry in *Medieval Mereology*, Bochumer Studien zur Philosophie, vol. 16, Amsterdam-Philadelphia: B. R. Gruner, 1991.

(17.) Cf.: "it is in two ways that something can be said of something: in the first way absolutely, and for the truth of this the connection of the terms suffices; and in this way 'animal' can be said of man although of no men, just as when no rose exists 'substance' is said of rose [absolutely], though of no roses; and this is what Porphyry's authority concludes to, nor Aristotle thought its contrary. But in the second way something is said of something according to real existence. And I call saying something of something

according to real existence, when the predicate inheres in the subject that exists in the nature of things.” Cajetan, T. *Scripta Philosophica: Commentaria in Praedicamenta Aristotelis*, ed. M. H. Laurent, Rome: Angelicum, 1939, pp. 50–51. Cf. also William of Sherwood: “When I say ‘Every man is an animal’, here an habitual ‘is’ is predicated. And insofar as it is necessary, this proposition is equivalent to the following conditional ‘If it is a man, then it is an animal’.” William of Sherwood. *Introductiones in Logicam*, ed. M. Grabmann, *Sitzungsberichte der Bayerischen Akademie der Wissenschaften*, 10(1937), p. 83. For a text to the same effect from Garland the Computist (eleventh century), see Henry, D. P. *That Most Subtle Question*, Manchester: Manchester University Press, 1984, pp. 85–86. Cf. also De Rijk, L. M. *Logica Modernorum*, II-2, p. 730.

(8.) Hieronymus Pardo, *Medulla Dialectices*, c. 10.

(1.) In the medieval technical jargon, ‘intention’ [*intentio*] is another word for ‘concept’ [*conceptus*]. This notion of intention is of course not the same as the notion of what is intended by a voluntary agent, but it is not unrelated to it either. After all a voluntary agent wants, that is, intends by his or her will, what he or she conceives as the end of his or her action. And in the particular activity of communication, the agent, that is, the speaker *intends* to express what he or she conceives. That is precisely what the speaker intends or means to say, that is, that is his or her *intention* or *meaning*.

(8.) I owe the gist of this objection to David Kaplan.

(9.) I owe this point to Elizabeth Karger.

(22.) Nicholas of Autrecourt, *His Correspondence with Master Giles and Bernard of Arezzo*, a critical edition from the two Parisian manuscripts with an introduction, English translation, explanatory notes, and indexes by L. M. De Rijk, Leiden-New York-Köln: E.J. Brill, 1994, p. 47. Cf. also Karger, E. “Ockham and Wodeham on Divine Deception as a Skeptical Hypothesis,” *Vivarium* 42(2004), pp. 225–236.

(4.) King, P. *Jean Buridan’s Logic: The Treatise on Supposition and the Treatise on Consequences*, Dordrecht: D. Reidel, 1985, p. 4.

(132.) King, P. “John Buridan’s Solution to the Problem of Universals,” in *The Metaphysics and Natural Philosophy of John Buridan*, eds. J. M. M. H. Thijssen and J. Zupko, Leiden: Brill Publishers, 2001, pp. 1–27.

(135.) This issue recently has been the subject of some exchange between Claude Panaccio, Peter King and myself. In his excellent study (Panaccio, C. *Ockham on Concepts*, esp. pp. 133–136), Panaccio provided a careful reconstruction of Ockham’s theory of concept-acquisition, which attempted to avoid an objection to Ockham’s account I had raised in an earlier discussion with Peter King over the same issue. I have presented my reservations that remained even after Panaccio’s elaboration of Ockham’s theory in an unpublished note, Klima, G. “Is Ockham off the Hook?” which is available on my Web site along with King, P. “The Failure of Ockham’s Nominalism”, (the unpublished piece that had originally prompted Panaccio’s reply in his book), and my response, Klima, G. “Comments on Peter King: ‘The Failure of Ockham’s Nominalism.’” For all these items, see <http://www.fordham.edu/gsas/phil/klima/index.htm>. See also Normore, C., 2003, “Burge, Descartes, and Us,” in *Reflections and Replies. Essays on the Philosophy of Tyler Burge*, ed. M. Hahn and B. Ramberg, Cambridge, MA: MIT Press, 2003, pp. 1–14; Panaccio, C. “Ockham’s Externalism,” in *Intentionality, Cognition and Mental Representation in Medieval Philosophy*, ed. G. Klima, Fordham University Press, forthcoming.

(2.) Note that Buridan’s opposition to what I call “realism” here also covers various forms of what is more properly called “moderate realism,” that is, the view endorsing individualized essences, inherent in, yet distinct from, particular substances. For an excellent discussion of Buridan’s rejection of universal entities, see King, P. “John Buridan’s Solution to the Problem of Universals.”

(1.) Perhaps the most authoritative account of this interpretation is found in Kneale, W., and Kneale, M. *The Development of Logic*, Oxford: Clarendon Press, 1962, II, 5, pp. 54–67.

(105.) The notion of “rigidity” of reference was introduced into modern philosophy by Saul Kripke. Kripke, S. *Naming and Necessity*, Boston: Harvard University Press, 1982. The idea simply is that a “rigid designator” refers to the same thing (or things) it actually refers to in any possible situation in which that thing exists (or any of those things exist), as opposed to a non-rigid designator, which may change its reference across possible situations. For example, the description “the president of the US” now refers to George Bush, but earlier it referred to Bill Clinton, whereas their proper names refer rigidly to the same persons respectively under any possible circumstances, unless we use their names equivocally (intending to pick out, say, another person, who also happens to be named ‘Bill Clinton’). For a discussion of the

modern “possible-worlds-essentialism” stemming from Kripke’s approach (as applied to common terms) in comparison to medieval essentialism, see Klima, G. “Contemporary ‘Essentialism’ vs. Aristotelian Essentialism,” in *Mind, Metaphysics, and Value in the Thomistic and Analytic Traditions*, ed. J. Haldane, South Bend, IN: University of Notre Dame Press, 2002, pp. 175–194. A discussion of Buridan’s own special brand of nominalist essentialism in relation to the idea of “rigid designation” will follow later in this chapter.

(2.) Interestingly, this phrase is something almost everybody knows in connection with Buridan, yet apparently nobody knows its precise meaning or origin. For more discussion and a plausible interpretation, as providing a test-case for voluntary agency (concerning Buridan’s actual example of a dog starving to death between equal piles of food in his *Questions on Aristotle’s De Coelo*), see Lagerlund, H. “John Buridan’s Theory of Free Choice and Its Influence,” in *Emotions and Choice from Boethius to Descartes*, ed. H. Lagerlund and M. Yrjönsuuri, Dordrecht: Kluwer, 2002, pp. 173–203.

(67.) As Giorgio Pini has kindly pointed out to me, this argument is not original with Ockham, but can be found in Scotus, in the following passage: “... a single action of a sense has an object that is one in virtue of some real unity; but not numerical unity. Therefore, there is some real unity other than numerical unity. Proof of the minor premiss: a power that cognizes an object in this way (namely, insofar as it is one by *this* unity), cognizes it as distinct from anything else that is not one [with this object] by *this* unity. However, a sense does not cognize its object insofar as it is distinct from anything that is not one [with it] by numerical unity. And this is clear, because a sense does not distinguish *this* ray of sunlight to be numerically different from *that* other ray of sunlight, although they are diverse on account of the movement of the sun. If all common sensibles were to be excluded [from our consideration], such as the diversity of location or position, and if we assumed two quantities to exist in the same place by divine power, which however were altogether similar and equal in whiteness, then sight would not discern that there are two white things there; however, if it cognized one of them insofar as it is numerically one, then it would cognize it insofar as it is a unit that is distinct [from the other] by numerical unity.” *Ordinatio* II, d. 3, p. 1, q. 1, nn. 20–21 (ed. Vat. VII, pp. 399–400). For an intriguing discussion of a closely related argument in a contemporary philosophical context, see Sainsbury, R. M., *Reference without Referents*, Oxford: Oxford University Press, 2005, pp. 246–254, in which the author also provides further important references. But I cannot pursue the comparison with the contemporary discussion here. For detailed discussions of the medieval problem and an account somewhat

different from the one presented here (especially, concerning the position of Buridan relative to those of Aquinas and Ockham), see Lagerlund, H. "What Is Singular Thought? Ockham and Buridan on Singular Terms in the Language of Thought," in *Mind and Modality: Studies in the History of Philosophy in Honour of Simo Knuuttila*, ed. V. Hirvonen, T. Holopainen and M. Tuominen, Leiden: Brill, 2006; "Making Aristotle Modern: John Buridan on Psychology and Language," in *Mind, Perception, and Cognition: The commentary Tradition on Aristotle's De anima*, ed. J. M. M. H. Thijssen and P. J. J. M. Bakker, Aldershot: Ashgate, 2008; "Singular Terms and Vague Concepts in Late Medieval Mental Language Theory or the Decline and Fall of Mental Language," in *Intentionality, Cognition and Mental Representation in Medieval Philosophy*, ed. G. Klima, New York: Fordham University Press, forthcoming.

(10.) We should note here that even in earlier authors there is an indication that they would be willing to consider something like this sort of descent to a conjunct term but not to a conjunctive proposition. For example, in the thirteenth-century *Summa Lamberti* we find the following: "When one says 'Only every man is running,' 'man' has strong but immobile confused supposition," where "strong" indicates the possibility of conjunctive descent, and "immobile" the impossibility of a propositional descent, so it must indicate nominal conjunctive descent, namely, to 'Only this man and that and ... and so on is running'. Lambert of Auxerre, *Logica (Summa Lamberti)*, ed. F. Alessio, Florence: La Nuova Italia, 1971, tr. VIII: *De suppositionibus et significationibus*. But whatever the author may have actually had in mind, clearly, in this case the conjunctive propositional descent would not be valid, whereas the ascent from the nominal conjunction is. Of course, we have much clearer examples in later authors. For those, see Read, S. L. "Thomas of Cleves and Collective Supposition."

(26.) On this point, see Lambert, K. *Meinong and the Principle of Independence*, Cambridge: Cambridge University Press, 1984, pp. 110–112.

(1.) Lambert, K. "Comments," in *New Essays in Free Logic*, eds. A. Hieke and E. Morscher, Dordrecht: Kluwer Academic Publishers, 2001, pp. 239–252, esp. p. 243. My original discussion was presented in the paper from which the present chapter derives: Klima, G. "Existence and Reference in Medieval Logic."

(18.) Cf. Tarski, A. "The Semantic Conception of Truth," *Philosophy and Phenomenological Research* 4(1944), pp. 342–375. The gist of the idea of semantic closure is that a language that contains its own truth-predicates

and has the means of referring to its own sentences is semantically closed, which is quite obviously the case with natural languages. According to Tarski, in a semantically closed language, Liar-type paradoxes ('This sentence is false'—is this true or false?) are bound to arise. For a more recent, generalized version of Tarski's argument, see Priest, G. "Semantic Closure," *Studia Logica* 43(1984), pp. 117-129.

(10.) This term was used in medieval logic to refer to problem-sentences involving self-reference leading to paradox, such as the Liar Paradox (if I am uttering 'I am saying something false,' am I saying something true or false?), as well as to the entire medieval genre of treatises dealing with such paradoxical sentences.

(37.) Note that this argument is based on the assumption that the point of Buridan's talking about a *virtual* implication is to assure that he can invoke this requirement even if the consequence expressing this implication is not actually formed. But in all cases when the question is whether a Liar-sentence satisfies the VIC it is assumed that the Liar-sentence itself exists, and that it, or rather a proposition equiform to it, would figure in the antecedent of the consequence expressing the "virtual implication" if it were formed. So, a defense requiring for the implication not only (A), but both (A) and a proposition '(A) exists' would probably not work.

(6.) "I say, our specific ideas of substances are nothing else but a collection of a certain number of simple ideas, considered as united in one thing. These ideas of substances, though they are commonly simple apprehensions, and the names of them simple terms, yet in effect are complex and compounded. Thus the idea which an Englishman signifies by the name swan, is white colour, long neck, red beak, black legs, and whole feet, and all these of a certain size, with a power of swimming in the water, and making a certain kind of noise, and perhaps, to a man who has long observed this kind of birds, some other properties: which all terminate in sensible simple ideas, all united in one common subject." Locke, J. *An Essay Concerning Human Understanding*, bk. II, c. 23, para. 14.

(27.) Lycan, W. "The Trouble with Possible Worlds," in *The Essential Readings in Modern Semantics*, eds. J. L. Garfield and M. Kiteley, New York: Paragon Issues in Philosophy, Paragon House, 1991, pp. 503-539, esp. p. 511.

(22.) This is the type of appellation that Marsilius de Inghen calls *appellatio formalis significati*, which he sharply distinguishes from the other type of appellation, the *appellatio rationis*. From this doctrinal point of view, it is

quite obvious that in the otherwise excellent edition (see n.18 above) of Marsilius' text, all occurrences of the phrase 'rationem suam' on pp. 150–152 should read as 'rem suam', the standard traditional expression for what he calls 'significatum formale'.

(4.) As Matthew of Aquasparta remarks in connection with the doctrine of divine illumination: "... if that light were the *entire* and *sole* reason for cognition, then the cognition of things in the Word would not differ from their cognition in their proper kind, neither would the cognition of reason differ from the cognition of revelation, nor philosophical cognition from prophetic cognition, nor cognition by nature from cognition by grace."—"... si lux illa esset ratio cognoscendi *tota* et *sola*, non differret cognitio rerum in Verbo a cognitione in proprio genere, nec cognitio rationis a cognitione revelationis, nec cognitio philosophica a cognitione prophetica, nec cognitio per naturam a cognitione per gratiam." Matthew of Aquasparta, *Quaestiones Disputatae*, in Bonaventure, et al., *De Humanae Cognitionis Ratione: Anecdota quaedam Seraphici Doctoris Sancti Bonaventurae et nonnulorum eius discipulorum*, St. Bonaventure: Ad Claras Aquas (Quaracchi), 1883, pp. 94–96.

(1.) Again, we should not forget that the idea of "sameness" involved here is compatible with the numerical distinctness of individual mental acts of different people, as well as with the individual and social variations of different peoples' conceptual apparatuses. The "sameness" of mental language for all people can only mean that if at any given time person A has a concept C (a singular mental act of A), then person B at any given time has the natural capacity to form a concept C' (a singular mental act of B) such that B conceives by C' the same things in the same way as A does by C (barring any natural defects or limitations on B's part). Of course, this does not mean that A and B always have the same (type of) concepts, or even that the same person should have the same concepts throughout his or her life. But if they *do* have at least some of their concepts in common in this sense, then by those concepts they will understand the same things in the same way, and so by using those concepts, they will understand each other.

(32.) I am providing here the "stronger," but "more intuitive" formalization of this sentence. Cf. Merrill, D. "On De Morgan's Argument," *Notre Dame Journal of Formal Logic* 18 (1977), pp. 133–139.

(19.) Cf. Montague, R. "The Proper Treatment of Quantification in Ordinary English," in *Approaches to Natural Language*, eds. J. Hintikka, J. Moravcsik and P. Suppes, Dordrecht: Reidel, 1973; Montague, R. "English as a Formal

Language,” in *Formal Philosophy*, ed. R. Thomason, New Haven, CT: Yale University Press, 1974.

(6.) For a detailed historical discussion of the late-medieval contrast between *via antiqua* and *via moderna*, see Moore, W. L. “Via Moderna,” in *Dictionary of Middle Ages*, ed. J. R. Strayer, New York: Scribner, 1989, vol. 12, pp. 406–409.

(31.) “... there is still another, weaker type of evidentness, which suffices for acting morally well; for when all circumstances have been considered and inquired into which a man can inquire into with diligence in judging according to the exigencies of this kind of circumstance, the judgment will be evident with evidence sufficient for acting morally well, even though the judgment should be false because of the invincible ignorance of some circumstance. For instance, it is possible that a magistrate should act well and meritoriously in hanging a saintly man because through witnesses and other documents in accordance with the law it appeared sufficiently to him that the good man was guilty of homicide. Hence the conclusion is reached that some people, wishing to destroy the natural and moral sciences, very wrongly [reading *valde male dicunt* for *valde mali dicunt*] proclaim that in many of the principles and conclusions of these sciences there is no simple evidentness, for they can be falsified through cases supernaturally possible. However, absolute evidentness is not required for such sciences; the previously mentioned relative evidentness or evidentness on assumption suffices. Hence Aristotle says it well in Book II of this work that mathematical exactitude is not to be sought in all sciences. And since it has appeared that in all the aforesaid ways firmness of truth and firmness of assent are possible to us, the question should be answered that the comprehension of truth with certitude is possible for us.” QM, lb. 2, q. 1.

(70.) Nicholas Oresme, *Expositio et Quaestiones in Aristotelis De anima*, III, q. 14, p. 421.

(144.) Nicholas Oresme, *Quaestiones in Aristotelis De anima*, III, q. 14., as quoted and translated by Henrik Lagerlund, “Vague Concepts and Singular Terms in a Buridianian Language of Thought Tradition,” *Proceedings of the Society for Medieval Logic and Metaphysics* 4(2004), pp. 25–36, esp. pp. 29–30. (I have slightly revised the translation.)

(115.) In his “John Buridan and Nicholas of Autrecourt on Causality and Induction,” in *Traditio* 43(1987), pp. 237–255, Hans Thijssen has plausibly

argued that since some of the theses and arguments Buridan opposes here do not reflect Nicholas of Autrecourt's doctrine as we know it, despite reasonable expectations to the contrary, Buridan may well have had other opponents in mind. However, because the theses and arguments in question are at least not incompatible with Autrecourt's known doctrines, it is still possible that Buridan had in mind some further works or even just oral presentations of Autrecourt's that we simply do not know of from other sources. Indeed, this latter alternative has the advantage of explaining the phenomena *per pauciora*. In any case, the identity of Buridan's actual target of criticism in this question is irrelevant to the subsequent discussion.

(26.) Nicholas of Autrecourt, *His Correspondence with Master Giles and Bernard of Arezzo*, p. 50. Angle brackets in original.

(35.) Of course, one may still question here *exactly how* Aquinas' conception would help against the "No Good Inference" argument. The answer simply is that on the basis of formal unity we can accept the formal validity of the consequence: 'if a sighting of this whiteness exists, then this whiteness exists', for on this account something is a sighting of this whiteness if and only if it is this actually existing whiteness received in the eye of the beholder; from which we get 'if this actually existing whiteness received in the eye of the beholder exists, then this whiteness exists', which is of course formally valid. But then how would we explain the appearance of some whiteness generated by electrodes in the optical nerve? Isn't that a sighting of whiteness without there being a whiteness in reality? Well, no. That appearance is just that: an appearance generated by the electrodes that is easy to mistake for the sighting of a whiteness, but is not a sighting of a whiteness, just as virtual donkeys are mere appearances that are easy to mistake for donkeys, but are not donkeys.

(3.) *Nominalism* is usually taken to be the doctrine that denies the existence of universal entities in reality, as opposed Platonist *realism*, which affirms their existence. However, we should keep in mind that medieval *moderate realists*, that is, practically *everybody* after Abelard or maybe even after Boethius, also denied the existence of Platonic Forms (supposed to exist separately from any mind conceiving of particular entities in a universal manner). Medieval nominalists after Ockham would therefore distinguish themselves from moderate realists by denying the existence of inherent common natures distinct from their particulars posited by moderate realists (such as Aquinas or especially Scotus), as well as by reducing the number of distinct ontological categories to two, namely, substance and quality

(Ockham and his followers) or three, namely, substance, quantity, and quality (Buridan and his followers). However, quite interestingly, the same sort of ontology was also accessible in the older *semantic* framework, and was in fact proposed by later moderate realists, such as the fifteenth-century Dominican, Domingo Soto. So the fundamental difference between medieval nominalists and moderate realists lies not so much in their respective ontologies but, rather, in their different *semantics*, in the different ways in which they explain the relationships among language, thought, and reality. For further details of this sort of comparison, see Klima, G. "Nominalism," in: *Elsevier's Encyclopedia of Language and Linguistics*, 2nd ed., ed. Keith Brown, Oxford: Elsevier, 2006, vol. 8, pp. 648–652. For a general survey of the issues involved, see Klima, G. "The Medieval Problem of Universals," *The Stanford Encyclopedia of Philosophy* (winter 2004 edition), ed. Edward N. Zalta, <http://plato.stanford.edu/archives/win2004/entries/universals-medieval/>.

(27.) This question was raised to me by Calvin Normore (on behalf of contemporary philosophers in general).

(6.) I should also add "and their modes" but those need not detain us in this context. For more on this aspect of Buridan's ontology, see Normore, C. "Buridan's Ontology," in *How Things Are*, eds. J. Bogen and J. E. McGuire, Dordrecht-Boston-Lancaster: D. Reidel Publishing Company, 1985, pp. 189–203; and Klima, G. "Buridan's Logic and the Ontology of Modes." And for the sake of completeness we should recall that Buridan's ontology also contains "successive things" (*res successivae*), such as time and motion. Cf. n. 3 of c. 8. But then again, these are not our present concern. The important thing is that Buridan does not recognize "states of affairs" signified by propositions as a distinct ontological category, and so he works out his semantics accordingly.

(35.) For later complications in the history of the distinction, see Nuchelmans, G. *Late-Scholastic and Humanist Theories of the Proposition*. 3.2, pp. 31–36.

(3.) In the example, the concept of 'animal' occurs as the predicate in both cases, as required by the principal question, namely, whether the same genus can be predicated of several species. But of course it also could occur as a subject in another proposition. In any case, despite Buridan's somewhat strange formulation here (which in fact may be the result of scribal error), his theoretical point is clear: unlike written or spoken terms, it is numerically

the same concept that can occur in several mental propositions of the same mind.

(13.) The passage quoted in n. 4 above suggests that, in the same mind, numerically the same token-concept is activated and reactivated on each occasion of its use. Therefore, once the concept is acquired it stays there numerically the same even when it is not active (when it does not enter into the formation of a thought, and so we are not actually thinking about the thing(s) conceived by means of this concept). However, this seems to be in conflict with Buridan's insistence in his psychology that a mental act and the corresponding habit are not the same. Cf. QDA3, q. 15, esp. pp. 163–164. But Buridan's position may simply be that in logic, token-concepts are counted to be the permanent, reusable intellectual habits, and not their fleeting counterparts, the acts of thought, for even if one token-act may not be numerically the same as the next, if it corresponds to numerically the same habit, then it carries the same content. Therefore, even though two token-utterances of the same type may be subordinated to two distinct volatile, occurrent acts of thought, they may still be said to be subordinated to numerically the same concept, namely, the same habit giving rise to the two acts. Indeed, even if these habits themselves are mere capacities relative to the occurrent acts, they are *acts* in comparison to the initially “blank” intellect activated by the sensory information of phantasms. Therefore, it is appropriate to refer to them as “acts” in logic, where their distinction from occurrent acts of thought is irrelevant because of their sameness in content. However, this solution may only apply to simple concepts, which are certainly permanent intellectual habits, but not to complex concepts formed “on the spot,” say, on the occasion of a conversation.

(43.) Obligational disputations were a highly regulated formal exercise in dialectical sparring at the medieval university. For more on this topic, see Yrjönsuuri, M. *Obligationes 14th Century Logic of Disputational Duties*, Acta Philosophica Fennica 55, Helsinki: University of Helsinki, 1994; Yrjönsuuri, M., ed. *Medieval Formal Logic: Consequences, obligations and insolubles*, New Synthese Historical Library 49, Dordrecht: Kluwer, 2001; Keffer, H. *De obligationibus: Rekonstruktion einer spätmittelalterlichen Disputationstheorie*, Leiden: Brill, 2001.

(1.) SD 8.4.4, pp. 706–711. f. Buridan, J. *Quaestiones in Duos Aristotilis Libros Posteriorum Analyticorum*, unpublished edition of H. Hubien, lb. 1, q. 2, esp. objections 6–10; also QM, lb. 2, q. 1.

(34.) For a similar analysis with the same results, see Orenstein, A. "The Logical Form of Categorical Sentences," *Australasian Journal of Philosophy* 78(2000), pp. 517–533. For a detailed discussion of the neat syntactical match between restricted quantification and natural language sentences, see Essay III of Klima, G. *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*, pp. 44–84.

(75.) Cf. Panaccio, C., *Ockham on Concepts*, Aldershot: Ashgate, 2004, esp. pp. 9–11 and c. 7.

(133.) Note how different this is from Ockham's "indifference-account", which immediately yields an "abstractive cognition", that is, a universal concept, as soon as the actual causal link with the object is cut off. Thus, it is no wonder that Ockham explicitly claims that one can gain a species concept from a single experience of an individual of a species. Cf. Panaccio, C. *Ockham on Concepts*, pp. 9–11.

(137.) Cf. n. 24 in this chapter; Panaccio's most recent summary account of the debate can be found in his *Ockham on Concepts*.

(139.) Because Ockham explicitly commits himself to the claim that *all* connotative terms have nominal definitions, Panaccio's "real Ockham," contrary to Buridan, does not endorse the claim that all nominal definitions have to be *strictly* synonymous with their *definita*, being subordinated to the same complex concept. I am grateful to Claude Panaccio for calling my attention to this point in connection with the simpler, but sloppier, formulation of an earlier draft.

(8.) For the issue of compositionality in the mental-language tradition in general, see the excellent historical survey provided by Panaccio, C. *Le discours intérieur de Platon à Guillaume d'Ockham*, Paris: Éditions du Seuil, 1999. For Buridan's conception in particular, see my *Introduction to Buridan's Summulae*, esp. SD, pp. xxxvii–xlili.

(84.) For the phenomenon I dubbed "parasitic reference" (as opposed to "constitutive reference") and its significance in understanding the problems with Anselm's ontological argument, see Klima, G. "Saint Anselm's Proof: A Problem of Reference, Intentional Identity and Mutual Understanding" in *Medieval Philosophy and Modern Times*, ed. G. Hintikka, Dordrecht: Kluwer Academic, 2000, pp. 69–88, Proceedings of "Medieval and Modern Philosophy of Religion," Boston University, August 25–27, 1992; Klima, G. "Conceptual Closure in Anselm's Proof: Reply to Tony Roark," *History and Philosophy*

of Logic 24(2003), pp. 131–134. If my reconstruction of Buridan’s theory of proper names above is correct, then he is committed to the view that “parasitic reference” is a ubiquitous, essential feature of all “secondary” uses of proper names. As I learned *after* writing the above-mentioned papers, the phrase “parasitic reference” was originally introduced (in a similar, but perhaps slightly different sense) by John R. Searle in *Speech Acts: An Essay in the Philosophy of Language*, Cambridge: Cambridge University Press, 1969, p. 89.

(96.) See Klima, G. “Aquinas’ Proofs of the Immateriality of the Intellect from the Universality of Thought,” *Proceedings of the Society for Medieval Logic and Metaphysics*, 1(2001), pp. 19–28, <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM1.pdf>. (See also Bob Pasnau’s comments and my rejoinder in the same volume, pp. 29–36 and pp. 37–44, respectively.)

(21.) To be sure, even though there was general agreement on the point that logic primarily concerns itself with argumentation, there was controversy among medieval authors over exactly what sorts of entities would constitute this subject matter. See, for example, Pini, G., *Categories and Logic in Duns Scotus: an Interpretation of Aristotle’s “Categories” in the Late Thirteenth Century*, Studien und Texte zur Geistesgeschichte des Mittelalters, Bd. 77. Leiden: Brill, 2002, pp. 32–36.

(36.) I am grateful to Giorgio Pini for an intriguing discussion of this issue.

(2.) ‘Subject’ and ‘predicate’ are defined by Buridan as follows: “A subject is that of which something is said; a predicate is that which is said of something else, namely, of the subject.” SD 1.3.3.

(59.) SD 2.1.3; cf.: “Now, that these predications are essential is obvious, for a relative concept is not only a concept of something, but also a concept of something [with respect] to something; therefore a relative term, in virtue of its proper signification and imposition connotes something [with respect] to something, whence the addition ‘[with respect] to something’, construed with a relative term, amounts only to the explication of the connotation of that term, but it does not add some connotation extrinsic to that term, and so the predication is essential.” SD 3.4.1.

(30.) Indeed, we would call him neither married nor unmarried, neither just nor unjust, neither courageous nor cowardly, and so on, just as we would call a rock neither sighted nor blind, simply because it cannot be either. Cf. SD

3.8.4 for the common medieval doctrine that privative opposites can only apply to a subject that is capable of receiving either of both.

(20.) The problems of representing anaphoric pronouns with bound variables of quantification theory generated a whole new field of research in the eighties, primarily inspired by Peter Geach's reflections on "donkey-sentences," coming from medieval logic, and especially from Buridan. For a summary account of those developments and their comparison to Buridan's ideas, see Essay III of Klima, G. *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*.

(3.) The text Buridan is commenting on is the following: "(1) Some propositions are categorical, while others are hypothetical. (2) A categorical proposition is one that has a subject and a predicate as its principal parts, (3) as for example 'A man runs'; for in this proposition the name 'man' is the subject, 'runs' is the predicate, and what joins the one to the other is the copula. And this is clear by the following analysis: 'A man runs', that is, 'A man is running'; for here 'man' is the subject, and 'running' is predicated, and the verb 'is' joins the one to the other." SD 1.3.2.

(2.) Cf. Putnam, H. *Reason, Truth, and History*, Cambridge: Cambridge University Press, 1982, chapter 1, pp. 1–21. However, the argument I am presenting here is significantly different from Putnam's.

(29.) It is worth noting here that this qualifier in English may well be a remnant of educated discourse originally informed by Buridan's theory. For what can explain that we have in English the ablative form of the Latin relative pronoun in the feminine gender? My guess is that it is simply the abbreviation of the Latin phrase 'sub ratione qua', as in 'Intelligo triangulum sub ratione qua est triangulus, sed non sub ratione qua est isosceles' ['I understand a triangle, considered under the concept of triangle, but not under the concept of isosceles'], which I could say, for example, when I want to explain why a demonstration based on a diagram that happens to be an isosceles applies to all triangles. This speculation about the origin of the phrase in English may be absolutely wrong. It would be interesting, though, if it turned out to be right.

(4.) It is important to realize here that the conjunction ending in an ellipsis is not a proposition, but rather a proposition schema indicating a number of different propositions of the same form, each of which is materially equivalent to the original in different situations, in which the number of

individuals to which the descent is made is supposed to correspond to the number of conjuncts. Interpreting the ellipsis this way, we can avoid the usual charge that if these descents are supposed to provide “the contextual definitions of the quantifiers” then these definitions are circular, since in ‘every man is an animal iff this man is an animal and that man is an animal ... and so on for every animal’ the definiens repeats the definiendum, rendering the definition circular. However, in the first place, it is doubtful that these descents and ascents are supposed to provide definitions. And, in the second place, it is also clear that if we treat the ellipsis in the suggested manner, then no such circularity emerges. For a formal treatment of this idea in the framework of a model theoretical semantics, see Essay II of Klima, G. *Ars Artium: Essays in Philosophical Semantics, Medieval and Modern*.

(30.) For good surveys of the booming research on generalized quantifiers in the mid-1980s, see Van Benthem, J. and Ter Meulen, A., eds. *Generalized Quantifiers in Natural Language*, Dordrecht: Foris Publications, 1985, and Van Benthem, J. *Essays in Logical Semantics*, Dordrecht: Reidel, 1986. For a recent survey of later developments, see Westerståhl, D. “Generalized Quantifiers,” in *The Stanford Encyclopedia of Philosophy* (Winter 2005 Edition), ed. E. N. Zalta, <http://plato.stanford.edu/archives/win2005/entries/generalized-quantifiers/>.

(107.) Readers familiar with Quine’s philosophy (especially, his *Word and Object*) will certainly notice some points of contact between Buridan’s problems here and Quine’s with “gavagai”, but I will not pursue this issue here.

(2.) Quine, W. V. O. “On What There Is,” in W.V.O. Quine, *From a Logical Point of View*, 2nd rev. ed., Cambridge, MA: Harvard University Press, 1980, pp. 1-19.

(29.) In Read, S. L. “The Liar Paradox from John Buridan back to Thomas Bradwardine.”

(36.) For this charge, see especially Read, S. L. “The Liar Paradox from John Buridan back to Thomas Bradwardine,” p. 201.

(33.) To simplify formulae with restricted variables, the matrix of a restricted variable may be omitted after its first occurrence.

(7.) Buridan, J. *Sophisms on Meaning and Truth*, trans. T. K. Scott, New York: Appleton-Century-Crofts, 1966, p. 13.

(42.) For detailed discussions of the issues touched on here, see Klima, G. "The Changing Role of *Entia Rationis* in Medieval Philosophy: A Comparative Study with a Reconstruction", *Synthese* 96(1993), pp. 25–59; Klima, G. "Ockham's Semantics and Ontology of the Categories," in *The Cambridge Companion to Ockham*, ed. P. V. Spade, Cambridge: Cambridge University Press, 1999, pp. 118–142; Klima, G. "Buridan's Logic and the Ontology of Modes," in *Medieval Analyses in Language and Cognition*, eds. S. Ebbesen and R. L. Friedman, Copenhagen: The Royal Danish Academy of Sciences and Letters, 1999, pp. 473–495.

(5.) Spade, P. V. "Why Don't Mediaeval Logicians Ever Tell Us What They're Doing? Or, What Is This, A Conspiracy?" available at <http://www.pvspade.com/Logic/docs/Conspiracy.pdf>. This is a very amusing, but deadly serious, little piece about some of the toughest interpretational problems of medieval logic. The point about descents and ascents is argued in greater detail in Spade, P. V. "The Logic of the Categorical: The Medieval Theory of Descent and Ascent," in *Meaning and Inference in Medieval Philosophy*, ed. N. Kretzmann, Dordrecht: Kluwer Academic, 1988, pp. 187–224.

(7.) For a discussion of these genres and further references, see Sweeney, E. "Literary Forms of Medieval Philosophy," in *The Stanford Encyclopedia of Philosophy* (winter 2002 edition), ed. E. N. Zalta, <http://plato.stanford.edu/archives/win2002/entries/medieval-literary/>.

(65.) For excellent analyses of Ockham's notion of intuitive, as opposed to abstractive, cognition, see Karger, E. "Ockham's Misunderstood Doctrine of Intuitive and Abstractive Cognition" in *The Cambridge Companion to William of Ockham*, ed. P. Spade, Cambridge: Cambridge University Press, 1999, 204–226, and Tachau, K. *Vision and Certitude in the Age of Ockham: Optics, Epistemology and the Foundations of Semantics 1250–1345*, *Studien und Texte zur Geistesgeschichte des Mittelalters*, vol. 22, Leiden: E. J. Brill, 1988. As we shall see, however, Buridan is not particularly fond of Ockham's notion or terminology.

(20.) Although in many cases the phrase *tempus verbi* can be quite smoothly translated by 'tense', in this context, in which Buridan is going to talk about the restriction of the time connoted by the verb, I would rather refrain from this "smooth" but somewhat misleading translation.

(39.) Note that, here and in the subsequent discussion, I am using the phrase “*via antiqua* account/framework” *not* in any historically precise sense but merely as a designation of a characteristic way of constructing medieval semantic theory. For a summary account of this semantic framework as contrasted with the “*via moderna* framework,” see Klima, G. “The Nominalist Semantics of Ockham and Buridan: A Rational Reconstruction,” *Handbook of the History of Logic*, ed. D. Gabbay and J. Woods, Amsterdam: North Holland, 2008, pp. 389–431. I should also point out that even among authors who could otherwise reasonably be regarded as all working within the “*via antiqua* framework,” one would have to note significant differences concerning the issue of primary vs. secondary signification of concrete accidental terms. See the relevant essays in Kretzmann, N., *Meaning and Inference in Medieval Philosophy*, Dordrecht: Kluwer Academic, 1989.

(4.) The distinction drawn in these terms was introduced by Ockham. Buridan usually makes the distinction in terms of talking about absolute vs. appellative terms. But because in Buridan’s interpretation appellation is just oblique reference to a term’s connotation, his distinction amounts to the same as Ockham’s. Cf. SD, pp. xlix–l, 291–294, 880, 890. Furthermore, Buridan is also talking about connotative terms, contrasting them with absolute terms in the same way as Ockham did. Cf. SD, pp. 147, 639, 642, 644–646, 729, 735.

(2.) Cf. “if a term is called categorematic with reference to signification, then terms are called categorematic as being significative in themselves, and syncategorematic as being significative not in themselves, but with something else; for [‘syncategorematic’] derives from ‘syn’ in Greek, which is the same as ‘*cum*’ [‘with’] in Latin, [and so, ‘syncategorematic’ is interpreted] as ‘significative with something else.’” SD 4.2.3, p. 233. I should note here that Buridan draws this distinction between various utterances on two grounds, namely with respect to predication (syntactically) and with respect to signification (semantically). However, here I am only concerned with signification, which spoken utterances have by virtue of being subordinated to different kinds of concepts. For a general account of the medieval distinction between categorematic and syncategorematic terms, discussing both the various syntactic and semantic criteria of the distinction, see Klima, G. “Syncategoremata”, *Encyclopedia of Language and Linguistics*, 2nd ed., ed. Keith Brown, Oxford: Elsevier, 2006, vol. 12, pp. 353–356.

(98.) That is to say, when talking about ‘individuals’ in this context, we should use the names of individuals not as standing for the individuals they name, but rather as standing for themselves or other tokens of the same type. Thus, perhaps paradoxically, when I say: “[Any term] ‘Socrates’ is a singular term”, the subject of this sentence, insofar as the sentence is true, is functioning as a *common term*, standing for itself and for any other token term of the same type. However, the sentence is true precisely because any of those token terms *by their signification* is a singular term, because all these terms (themselves are, if they are mental terms, or) are subordinated to singular concepts whereby we conceive of this singular thing, namely, Socrates. But the subject term of the earlier-quoted sentence is not subordinated to such a singular concept but to a common concept whereby we indifferently conceive of any of these singular concepts and the singular terms subordinated to them.

(32.) ‘Connotation’, as a technical term of nominalist logic, indicates the secondary signification of terms that signify their primary significata in relation to their secondary significata. For instance, the connotative term ‘teacher’ primarily signifies persons who teach in relation to their students, whom it signifies secondarily.

(82.) In fact, Buridan himself quite clearly states this argument in the following passage, in which he again clearly commits himself to the view that proper names are genuinely, that is, semantically, singular referring phrases: “But you might say: how can I conceive of Aristotle in a singular manner, given that he has never been in my sight? And I reply that properly speaking this is not possible for you, since you do not conceive of him differently from other people, except through some description, as for example that he was the best philosopher, the teacher of Alexander, and a student of Plato’s, and who wrote the philosophy books which, or the likes of which, we read, etc. Although this description actually applies only to him, it is not properly a singular term, as neither is the term ‘God’, although it applies only to God, for on account of its mode of signification or imposition it could apply to many and supposit for many. For if there were another, similar God, the name ‘God’ would apply to him and would supposit for him without a new imposition. In the same way, if there had been someone, who was the best philosopher, Alexander’s teacher, and Plato’s student, etc., the description would have applied to him, and would have supposed for him. But this is not the case with an absolutely and properly singular term. For if I call this individual pointed out in my sight ‘Socrates’ by a proper name, not because he is such and such, but because [he is the one in my sight, then] the name

‘Socrates’ would apply to him and never to any other no matter how similar individual, except through another imposition, if it were imposed to signify that other, and then equivocally. But if another, similar individual were presented to me, then I would believe that he is Socrates, although he is not Socrates, and then I would be deceived.” QiP I, 7, f. ix ra. The bracketed insertion reflects my *ad sensum* emendation of what appears to be a lacuna in the text.

(71.) Aquinas, T. *Sentencia de Anima*, lib. 2, l. 12 n. 5. The quotations from Aquinas here and below are taken from the texts published on the *Corpus Thomisticum* website by Enrique Alarcón, <http://www.corpusthomisticum.org> —the translations are mine.

(72.) Aquinas, T. *Sentencia de Anima*, lib. 2, l. 12 n. 6. Cf. QDA3 lb. 3, q. 8, p. 64 (Zupko’s translation, p. 288): “And since apart from our soul, that is to say, outside it, there is no universal horse distinct from a singular horse or singular horses, nor a universal stone apart from singular stones, and likewise for other things (as we suppose on the basis of *Metaphysics VII*), the proposed question must be properly worded: whether the intellect understands the same things or the same thing universally, that is, according to a common concept, before it understands singularly, that is, according to a singular concept, or vice versa.”

(94.) Aquinas, T. *Sentencia De anima*, lib. 2 l. 13 n. 12.

(41.) As St. Thomas wrote: “... that on account of which something is denominated does not always have to be a *form* according to the nature of the thing, but it is enough if it signifies as a form, grammatically speaking. For a man is denominated on account of his action or clothing, which are not forms in reality.” *De Potentia* q. 7, a. 10, ad 8. Cf. also, for example, Cajetan: “Don’t be mistaken when you hear that a denominative is derived from the denominating form, and believe on account of the word ‘form’ that the denominating feature has to be the form of what is denominated; you should know that by the name ‘form’ in this context we understand anything on account of which something is called such, whether it be in reality an accident, or a substance, or matter or form.” Cajetan, T. *Scripta Philosophica: Commentaria in Praedicamenta Aristotelis*, p. 18.

(9.) The “second operation of the intellect” is the second of three operations of the intellect commonly distinguished in scholastic philosophy (based on Aristotle’s relevant considerations). These are: (1) the formation of simple concepts (*indivisiibilium intelligentia*); (2) the formation of judgments (or

other complex concepts) by combining the concepts produced by the first operation (*compositio et divisio*); (3) reasoning (*ratiocinatio*), which uses the propositions formed by the second operation to arrive at the cognition of unknown truths based on known truths.

(10.) Cf. Klima, G. "Consequences of a Closed, Token-Based Semantics: The Case of John Buridan," *History and Philosophy of Logic* 25(2004), pp. 95–110.

(1.) Although, prompted by a suggestion of Ria van der Lecq, I noted in the *Introduction* to my translation of Buridan's *Summulae* (in n. 23) that Buridan in the text never uses the Latin equivalent of 'represent' to refer to the relation of natural signification between concept and object, this happens to hold *only* for the *Summulae*. In QDA3, q. 8, Buridan consistently uses the language of 'representation/representative/etc.' to refer to the relationship between concepts and their objects. (Perhaps, he simply found this usage more appropriate in psychology than in logic.) Therefore, the usage of the *Summulae* certainly does not carry the theoretical weight Michael Fitzgerald attributes to it in his *Introduction* to his edition of *Albert of Saxony's Twenty-five Disputed Questions on Logic*, p. 17.

(9.) To be sure, in his *Questiones Elencorum*, Buridan argues that ambiguous sentences need not be distinguished, for they express their different senses disjunctively. So, apparently, an ambiguous written or spoken proposition would then be mapped onto a single disjunctive mental proposition. But then the negation of such a proposition would have to be the conjunction of the disjuncts of the disjunctive proposition, which leads to rather counterintuitive results. For example, 'The food on your plate is not healthy' would have to be regarded

as equivalent to 'The food on your plate is not in good health *and* it is not good for your health', which would have to be false if one eats a living thing that is in good health, even if it makes one sick, whereas in that case the first sentence would still have to be regarded as true. In any case, Buridan seems to have abandoned this strong position in his later works. See Buridan, J. *Questiones Elencorum*, edited with an introduction, notes and indices by R. van der Lecq and H.A.G. Braakhuis, Nijmegen: Ingenium Publishers, 1994, *Introduction*, section 3.2.

(166.) As we shall see in more detail, this foundational issue lies at the bottom of the separation of the *via moderna*, the new, nominalist way of doing logic and all theoretical subjects, from the *via antiqua*, the old, realist way. Therefore, this issue is absolutely important, both historically and philosophically. However, from the point of view of the question of the mere

viability of a nominalist system of logic, we may disregard this historical-philosophical issue here. But we are going to *have to* return to it in the last chapter, evaluating Buridan's essentialist nominalism in general.

(40.) William of Ockham, *Summa logicae*, in *Opera Philosophica I*, eds. G. Gál and S. Brown, New York: St. Bonaventure, 1974, part 1, c. 51, p.169 (henceforth "SL").

(66.) See William of Ockham. *Quodlibeta septem*, in *Opera Theologica IX*, ed. J.C. Wey, New York: St. Bonaventure, 1980 I, q. 13, p. 74 (henceforth "QDL"). Translation: William of Ockham. *Quodlibetal Questions*, vols. I and II, trans. A. J. Freddoso and F. E. Kelly, New Haven, CT: Yale University Press, 1991, p. 65.

(18.) William of Ockham. SL, pp. 263–264. (See also the whole chapter.)

(31.) For Ockham's treatment, see SL Part I. c.72, pp. 219–221. Cf. Part II. c. 7. Cf. also Guillelmi de Ockham. *Scriptum in librum primum Sententiarum Ordinatio*, St. Bonaventure, NY: Franciscan Institute, 1967–1979, d.2.q.4., pp. 145–148.

(1.) Zupko, J. "John Buridan," in *The Stanford Encyclopedia of Philosophy* (fall 2002 edition), ed. E. N. Zalta, <http://plato.stanford.edu/archives/fall2002/entries/buridan/>.

(95.) For a detailed analysis of and textual references to Buridan's argumentation see Zupko, J. "John Buridan on the Immateriality of the Intellect," *Proceedings of the Society for Medieval Logic and Metaphysics*, 1(2001), pp. 4–18, <http://www.fordham.edu/gsas/phil/klima/SMLM/PSMLM1.pdf>.

