The history of philosophy as semiotic process: A note on John Deely's monumental *Four ages of understanding*

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Abstract

The histories of philosophy and semiotics constitute a continuum, as the separate historical treatments of both disciplines show, whether explicitly or implicitly. The first attempt to forge a link between the two disciplines goes back to John Locke, who claimed that it would allow philosophers to understand the relation between signs and knowledge. With the publication of the Four ages of understanding, *a major treatise by the American philosopher John Deely, Locke's agenda for integrating the two modes of inquiry into one has finally received a workable theoretical framework. This essay takes a critical look at the framework. While some of the details of Deely's treatment may be discussible, it is difficult to argue against his overall case. Deely has, in effect, united philosophy and semiotics into one integrated approach to the study of human knowledge.*

Keywords: history of semiotics; sign theory; philosophy; psychology; Saussure; Peirce.

1.   Introduction

Many famous and celebrated histories of western philosophy have been written over the last one hundred years. With few exceptions (such as Langer 1948), the authors of the histories have tended to look at the origin and evolution of philosophical thought as products of social, intellectual, and technological movements and processes. Few of the prominent historical treatments have perceived a link between the history of semiotics and the history of philosophy, even though the first attempt to forge such a link goes back to John Locke, who anticipated in his 1690 *Essay concerning human understanding* that it would allow philosophers to understand the interconnection between representation and knowledge. But

the task Locke laid out has remained virtually unnoticed within both philosophy and semiotics as virtually no one since the British philosopher has ever envisioned a comprehensive ideological framework for relating the two modes of inquiry. This situation has finally changed once and for all, with the publication of a major treatise a few years ago that not only makes good on Locke's agenda, but takes it several steps further by integrating the two modes of inquiry into one. The treatise in question is the *Four ages of understanding*, written by the internationally renowned American semiotican-philosopher John Deely. This is Deely's ''magnum opus'' (to date), redrawing the intellectual map in philosophy and semiotics at the same time, thus setting the agenda in both fields for the foreseeable future. A number of philosophers since Locke have, of course, discussed the relation between sign theory and philosophical ideas and movements, but no one before Deely has — at least to the best of my knowledge — made this very relation an explicit and cohesive one.

The purpose of this essay is not to go over (in the style of a typical review) the contents of Deely's truly erudite and penetrating treatment of the four ''philosophical-semiotic ages,'' as he calls them — the age of the ancients, covering initial Greek thought, the Latin age, covering European civilization from St. Augustine in the fourth century to Poinsot in the seventeenth, the modern period, beginning with Galileo, Descartes, and Locke, and the postmodern period, beginning with Peirce and continuing to the present. Rather, my objective here is to revisit the history of philosophy through the lens of Deely's brilliantly carved semiotic argumentation. I cannot but agree wholeheartedly with Deely's overall contention that there is no discontinuity between philosophical thought and semiotics — defined simply as the science studying the production and use of signs. Whereas semiotics proper may have traditionally concerned itself with the investigation of how knowledge is encoded and philosophy with what it is, it becomes saliently obvious from Deely's treatment that in order to gain a truly meaningful grasp of the nature knowledge, both modes of inquiry will have to coalesce into a single integrated mode. After all, what is the study of understanding if not the study of how it is represented? While one might disagree with some of the minutiae of Deely's analysis of the issues, it is difficult to argue against his overall case. My goal here is, thus, to extract from Deely's *Four ages* an outline of philosophical history from the standpoint of sign theory, so as to emphasize the importance of Deely's objective of uniting philosophy and semiotics into one integrated approach to the study of understanding.

I should mention before starting that, in addition to being a thorough and extensive history of both philosophy and semiotics, the *Four ages*

contains a wealth of information about, and methodological insights into, both disciplines. This makes it, to my mind, a veritable "textbook" that can be used to introduce both fields to a broad audience, at the same time that it recharts the course of both for practitioners in the two fields. Deely's volume thus belongs to the same category of textbooks to which Euclid's *Elements* and Sapir's *Language*, for instance, belong — it both synthesizes and reshapes the subject matter of the discipline of which it treats.

2.   The first age: Constitution of the sign

Western philosophy began in ancient Greece as speculation about the underlying nature of the physical world. The first philosopher of historical record was Thales of Miletus, on the Ionian coast of Asia Minor, who lived around 580 BC. Thales was interested in astronomical, physical, and meteorological phenomena. He was the first of several important Ionian philosophers, who took the initial radical step away from mythological to scientific explanation of natural phenomena. Over the next few centuries the basic framework of western philosophical method was established by such philosophers as Pythagoras, Heraclitus, Zeno of Elea, Democritus, and the Sophists, as the fields of mathematics, musical theory, astronomy, atomic theory, logic, and metaphysics came into being.

Perhaps the greatest philosophical "personality" of the first age was Socrates. Born in 469 BC, Socrates believed that the philosopher's task was to provoke people into thinking for themselves. He stressed the need for the analytical examination of one's beliefs, clear definitions of basic concepts, and a rational and critical approach to ethical problems. His became the basic mode of western philosophizing, remaining so to this day. Socrates was, in effect, the first "innatist." He demonstrated that even an untutored slave could be led to grasp the Pythagorean theorem (the square on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the other two sides). This, he claimed, showed rather conspicuously that such knowledge was innate, rather than acquired from experience. But, as Deely suggests, Socrates seems not to have noticed that such knowledge varies according to the way it is represented. While there may be universals in understanding, the ways in which these are expressed and communicated influences how people (including philosophers) come to grasp them. Philosophy is thus born in the first age as an exercise in communication, shaped by the particular kinds of signs and sign systems employed in the process (language, symbologies, etc.).

Socrates' brilliant student Plato may have been the first to complete a study between the "forms" of knowledge and its "nature." The basis of his philosophical approach is called, appropriately, the Doctrine of Forms, which divides existence into two realms — an "intelligible realm" of perfect, eternal, and invisible Ideas, and a "sensible realm" of concrete, familiar objects. The latter that can be known through the senses as imperfect copies of the Ideas, which are innate. Thus, the principles of mathematics and philosophy, discovered by inner meditation of the Ideas, constitute the only true knowledge. But Plato was obviously not aware of the intrinsic connection between forms and objects in the semiotic sense, as Deely insinuates, even though he used it as the basis of the constitution of philosophy as a mode of understanding the connection itself.

Platonic philosophy rejected any system that claimed to explain knowledge on the basis of sensory experience. A circle, for instance, is a form that no one has ever seen. What people actually see are approximations of the ideal circle. When geometers define a circle as a series of points equidistant from a given point, they are referring, in effect, to logical ideas, not actual points. "Circularity" therefore is an innate mental notion that has greater reality than circular objects because it is a perfect model of them. An object existing in the physical world may be called a "circle" insofar as it resembles the form "circularity." But, then, what is a circle if not the sign used to represent it (a circular diagram on a page, for instance)? How is it possible to differentiate between the two? One constitutes the other. That is, in effect, the central tenet of semiotics. Any form X (a circle, a triangle, etc.) stands for an idea Y (circularity, triune-ness, etc.) by virtue of a "stands for" relation, *X stands for Y*, or simply, $X = Y$.

Aristotle, who began study at Plato's Academy in 367 BC, ranks among the most influential thinkers of the western world, not only because he defined the basic concepts and principles of many of the theoretical sciences, including logic, biology, physics, and psychology, and developed a set of rules for scientific investigation that are used to this day, but because (as Deely argues) he made the study of the $X = Y$ relation the basis of philosophical understanding, thus implicitly verifying another tenet of semiotics, namely that objects cannot be studied in isolation without this relation. The act of classification is a semiotic act, since it gives form (X) to an otherwise indefinite object (Y). A "tree" becomes a "tree" when we say it does, otherwise it remains an indistinct object in the domain of flora. Aware of this relation, it is thus little wonder then that the Greek philosophers in the first age of philosophy became obsessed with the study of forms and form systems; i.e., with symbols, languages, and all the other forms that the mind has made possible and which have come to constitute the domain of knowledge ever since.

As is well known, the first definition of the *sign* as a physical *symptom* comes from Hippocrates, the founder of Western medical science, who established *semeiotics* (from *semeion* "mark, sign") as a branch of medicine (Nöth 1990: 45; Sebeok and Danesi 2000: 12–14). The physician Galen of Pergamum further entrenched *semeiotics* into medical practice more than a century after Hippocrates, a tradition that continues to this day in various European countries. But, as Deely correctly asserts, the true awareness of the sign as a study of how "things (*X's*) stand for other things (*Y's*)" became the prerogative of philosophers around the time of Aristotle who argued that the $X = Y$ relation crystallized from observing the actual things that exemplified it in the world. In effect, Aristotle had discovered the "natural sign" as foundation of rudimentary knowledge. No wonder, then, that together with the Stoic philosophers, he took it upon himself to investigate the "stands for" phenomenon more closely, laying down a tripartite theory of the sign that has remained basic to this day. Accordingly, there is: (1) a physical part of the sign (e.g., the sounds that make up a word such as *red*); (2) a *referent* to which it calls attention (a certain category of color); and (3) the evocation of a *meaning* (what the referent entails psychologically and socially). Aristotle emphasized that these three dimensions were simultaneous in the $X = Y$ relation.

Because this first age of understanding involved a constitution of the sign as a relation, not a simple connection of form and object, Deely is thus able to explain in a radical new way why the "paradox debates," spearheaded by Zeno of Elea (fifth century BC), were actually semiotic debates. Although one can use logic to reason about the world, Zeno argued, the world cannot be contemplated with words and human ideas easily because it exists as a single, undifferentiated substance. With a series of brilliant arguments, which have come to be known appropriately enough as "Zeno's paradoxes," he sought to show how logical (Aristotelian) modes of inquiry can betray and mislead us. One of his famous paradoxes asserts that a runner cannot reach a finish-line because, as logical thinking would have it, the runner must first traverse half the distance to the line; then half of that distance; then half of that new distance; and so on ad infinitum. Because of the infinite number of bisections that exist in such linear paths, Zeno concluded that one could never travel any linear distance in a finite period of time (at least logically). But our sense of sight cannot be denied, since the runner does, in fact, traverse that line! With arguments such as this one, Zeno wanted to demonstrate the logical impossibility of motion. Shortly after, Democritus, joined the debate on "sign theory" by arguing that objects could, in fact, only be understood as sensory things, i.e., as things to which we can only react with our senses. Democritus formulated the first comprehensive statement of

deterministic materialism by which all aspects of existence can be reduced to the operation of physical laws. In contrast, the Sophists — a group of traveling teachers who became famous throughout Greece towards the end of the fifth century BC — denied the existence of objective knowledge. They were, in a certain sense, the forerunners of modern-day postmodernists.

3.   The second age: Awareness of the aign

Before reading Deely's work, I was convinced, as a historian of semiotics myself, that the theory of the sign started with Hippocrates. But Deely's arguments in the second section of his book have changed my mind and, I suspect, will change the mind of other semioticians. As Deely asserts, the first true theory of the sign is the one formulated by St. Augustine, since St. Augustine was the first great thinker in human history to raise awareness of the sign as a relational construct ($X = Y$), that is, as "something that stands for something other than itself." It is this "consciousness raising" that brought about the second great philosophical age — the so-called Latin age when an emerging and developing Christian theology became — thanks in great part to St. Augustine — the mainstream "force" in shaping western philosophical traditions. Before St. Augustine, Epicureanism, Stoicism, Skepticism, and Neoplatonism were the main ideological "forces" in western philosophy. The Epicureans believed the aim of human life to be the achievement of the maximum amount of pleasure. In contrast, the Stoics taught that one can achieve freedom and tranquillity only by becoming insensitive to material comforts and dedicating oneself to a life of reason and virtue. The Skeptics contended that humanity would never be able to attain knowledge or wisdom and that the only path to happiness lies in a complete suspension of judgment about the nature of reality. And the Neoplatonists, who were important rivals of the early Christian thinkers, argued that only by ridding themselves of their dependence on bodily comforts, becoming one with God, could people gain happiness.

By the third century AD, Christian scholars broke away from such paradigms, attempting to combine the religious teachings of the Gospels with the philosophical concepts of both the Greek and Roman schools of philosophy. St. Augustine was the first to reconcile the Greek emphasis on reason with Christian beliefs. Like Plato, he viewed the soul as a higher form of existence than the body and stressed the need to contemplate ideal forms. But it is his theory of the $X = Y$ relation that, as Deely cogently argues, laid the foundation for a new enlightened age of intellec-

tual understanding, not a ''dark age'' of philosophy, as it is so often and erroneously characterized.

The Latin translation of *semeion* as *signum* is probably what gave St. Augustine the idea that there is a distinction to be made between the natural signs (*signa naturalia*), as studied by the Greek physicians, and conventional signs (*signa data*), as invented by humans to grasp the world. Awareness of this distinction is, in Deely's assessment, the defining moment in the history of both semiotics and philosophy. A natural sign is one that is present in Nature (a color, a sound made by an animal, etc.); a conventional sign, on the other hand, is one invented by human ingenuity to make sense of things. St. Augustine also suggested that there was an interpretive component to the sign. This was consistent with the *hermeneutic* tradition established by Clement of Alexandria, the Greek theologian and early Father of the Church, who saw the meaning that a writer intended as being influenced by linguistic factors and relevant historical sources.

For St. Augustine, natural signs included anything that, by itself, has no ''intention'' of signifying anything — such as smoke, which signifies ''fire,'' and facial expressions, which manifest unseen emotions. Words, on the other hand, are conventional signs that are constructed on purpose to communicate something other than the sounds (or letters) that constitute them. And it is through these that humans come to understand the world of culture. The world of the spirit belongs to God and can only be sensed through the ''spiritual'' signs that God makes available, such as the miracles. St. Augustine also argued that nonverbal signs (nodding, gesturing, etc.) are really ''visible words,'' thus interconnecting the verbal and nonverbal dimensions of semiosis in a unitary way, even though the verbal one is the most productive one. What St. Augustine suggested — for the first time ever — was that the meanings captured within one system of signs (the verbal) are found in other systems (nonverbal ones) in parallel ways.

Most significantly, St. Augustine alluded specifically to the interconnection between signs and referents. He asks, with great acumen: ''But how is it that a word which is not yet formed in the vision of the thought? How will it be like the knowledge of which it is born, if it has not the form of that knowledge, and is only now called a word because it can have it?'' (cited in Perron and Danesi 2003: 32). He concludes that a sign is ''something in our mind,'' and that ultimately the two dimensions of representation — the form X and what it stands for Y — are linked because they are felt have an intrinsic *raison d'être*, so that ''in what manner each thing is known, in that manner also it is thought'' (cited in Perron and Danesi 2003: 33).

Plato viewed representation and especially language as separate from experiential processes — a viewpoint that the French philosopher René Descartes entrenched later into Western philosophy by claiming that non-verbal forms of thought proceeded without logic, and so could not be studied scientifically. But, as St. Augustine argued long before Descartes, even the most abstract forms of reasoning are tied to the content they encode.

St. Augustine's views lay largely unnoticed until the eleventh century, when interest in the nature of human representation was rekindled by Arab scholars who translated the works of Plato, Aristotle, and other Greek thinkers. The result was the movement known as Scholasticism. Using Greek classical ideas as their intellectual framework, the Scholastics wanted to show that the truth of religious beliefs existed independently of the signs used to represent them. Within this movement there were some — the nominalists — who argued that "truth" was a matter of subjective opinion and that signs captured, at best, only illusory and highly variable human versions of truth. The French theologian Peter Abelard proposed an interesting compromise to the debate, suggesting that the "truth" that a sign purportedly captured existed in a particular object as an observable property of the object itself, and outside it as an ideal concept within the mind. The "truth" of the matter, therefore, was somewhere in between the Scholastic and nominalist accounts.

No doubt the greatest intellectual figure of the latter part of the second philosophical age was St. Thomas Aquinas, who combined Aristotelian logic with Augustinian theology into a comprehensive system of understanding that came to be the acclaimed philosophical system of Roman Catholicism. In his *Summa theologica*, Aquinas constructed a theoretical structure that integrated classical logic with religious experience. For Aquinas, the truths of science and philosophy were discovered by reasoning from the facts of experience, whereas the tenets of religion were beyond rational comprehension and, therefore, had to be accepted on faith.

Awareness of the power of the sign in the second age of philosophy culminated with the views of John Duns Scotus and William of Ockham. Both were adamant non-rationalists. Duns Scotus argued that Divine will was prior to Divine intellect and created, rather than followed, the laws of nature and morality. William of Ockham acerbically denounced Scholastic universalism, stressing that abstract entities were merely the result of words referring to other words, rather than to actual things.

However, it was not such radical views of signification that endured. It was, on the contrary, the legacy of Classical rationalism that continued well into the fifteenth and sixteenth centuries when the revolutionary discovery of heliocentricity by Copernicus, the geographical explorations of

the unknown world, and the rise of commercial urban societies gave this persuasive form of philosophical thinking a more mechanistic and materialistic quality. The medieval view of the universe was supplanted by a picture of the world as a vast machine whose separate parts worked according to physical laws without purpose or will. In the new intellectual climate known as the Renaissance, reason and experience became the sole standards of truth, although God was still given a critical role as the grand designer and operator of the machine.

At first it was Plato's rationalistic philosophy that came to the forefront, primarily because of the efforts the Florentine intellectual, Marsilio Ficino, who translated Plato's writings into Latin. But the Renaissance also spawned and encouraged a new, freer mood of debate. Out of this fertile intellectual terrain came the first major break with Platonic-Aristotelian rationalism. It was the English philosopher and statesman, Francis Bacon, who persuasively criticized Aristotelian logic on the grounds that it was futile for the discovery of physical laws. He called for a scientific method based on inductive observation and experimentation. Paradoxically, both Bacon's and Galileo's emphasis on induction as a method of discovery led, by the late Renaissance, to the entrenchment of Aristotle's idea that a meaningful understanding of reality could be gained only by exact observation and logical thinking. By the seventeenth and eighteenth centuries that very idea was extended to the philosophy of mind. Philosophers such as Thomas Hobbes, René Descartes, Benedict Spinoza, Gottfried Wilhelm Leibniz, and David Hume assumed that the mind could, and should, be studied as objectively and as mechanistically as the objects of Nature. In contrast to Bacon and Galileo, they put philosophical and scientific inquiry back on a deductive course. Descartes, for instance, refused to accept any belief, even the belief in his own existence, unless he could "prove" it to be necessarily true. And it was Descartes who gave the Platonic mind-body problem its modern formulation, known as "dualism." Descartes was, however, unable to resolve the fact that two different entities, the mind and the body, can so affect each other. The English philosopher Thomas Hobbes provided his own solution to the mind-body problem by reducing the mind to the internal activities of the body. For Hobbes, sensation, reason, value, and justice could be explained simply in terms of matter and motion. The Dutch philosopher Benedict Spinoza also accepted Cartesian deductivism as the only meaningful form of inquiry. But, in contrast, he proclaimed the pantheistic view that the mind and the body were aspects of God, explaining them as parallel forms of the same substance. The British philosopher and historian David Hume went somewhat against this deductive grain. But, in other ways, he had an even greater impact on transforming the study of

mind into a mechanistic methodology by stressing the need to use mathematical techniques to investigate all forms of existence.

A notable exception to the emergence of "scientism" in philosophy (as it has come to be known) can be found in the *Ars logica* and *Tractatus de signis* of John of St. Thomas, or John Poinsot, who saw the study of signs as the only means of gaining a true understanding of the mind. His is the first true attempt after St. Augustine to make the study of *signum* as the pivot in philosophical inquiry. Poinsot argued that the essence of understanding lay in a triadic relation whereby one thing, X, represents something other than itself, Y, "to a cognitive power."

It was Deely himself, actually, who introduced Poinsot to the contemporary world of semiotics, making Poinsot's ideas better known to a large modern audience of semioticians (see Deely's 1985 edition of Poinsot's 1632 *Tractatus de Signis*). Poinsot divided what he called "cognitive power" into four categories. First, there is the *productive* form of cognition, which is "the power itself which elicits an act of knowledge" (Perron and Danesi 2003: 42). Second, there is the *objective* form, which literally inheres in any object "which stimulates or toward which a cognition tends, as when I see a stone or a man" (Perron and Danesi 2003: 42). Third, there is *formal* cognition, which "is the awareness itself whereby a power is rendered cognizant, as the sight itself of the stone or of the man" (Perron and Danesi 2003: 43). Fourth, there is *instrumental* cognition, which "is the means by which the object is represented to the power, as a picture of Caesar represents Caesar" (Perron and Danesi 2003: 43).

4.   The third age: The modern theory of the sign

As mentioned at the start of this essay, it was the British philosopher John Locke who wanted to introduce the formal study of signs into philosophy in his *Essay concerning human understanding*. Locke thus ushered in the modern era of sign theory, by claiming that representation ($X = Y$) and understanding cannot be studied separately. But the formal study of the sign had to await several centuries. It was, in fact, in the nineteenth century that such study was undertaken by the Swiss philologist Ferdinand de Saussure and the American philosopher Charles Sanders Peirce. Working independently of each other, the two scholars took it upon themselves to provide a scientific framework that made it possible to envision an autonomous field of inquiry centered on the sign. The subsequent development of semiotics in the twentieth century as a distinct scientific domain, with its own methodology, theoretical apparatus, and corpus of findings, is due to the efforts of Saussure and Peirce.

But their approach to the sign could not have crystallized without the debates on Cartesian dualism in the third age of philosophy — known as the modern age. Locke and the Irish philosopher George Berkeley attacked dualism, arguing that knowledge was not independent of experience. For Locke, all information about the physical world came through the senses and all thoughts could be traced to the sensory information on which they were based. Berkeley cast serious doubts on our ability to know the world outside the mind itself. He maintained that no evidence for such a world existed because the only observable things are sensations that are within the mind. But neither Berkeley nor Locke developed a "science of the sign" as such. Nevertheless, they laid down the foundation for the modern theory by arguing that the $X = Y$ relation was crucial to understanding the mind-body dilemma.

The debates in philosophy following Locke's and Berkeley's rejection of dualism revolved, in fact, around the nature of the $X = Y$ relation. Immanuel Kant, for instance, suggested that the mind imposed form and order on all sensory experience, and that this could be discovered by simple reflection. Georg Wilhelm Friedrich Hegel argued that reality was subject to mental (signifying) processes, although there existed a rational logic that governed them. Karl Marx developed Hegel's philosophy into the theory of dialectical materialism by which he claimed that matter, not the mind, was the ultimate reality. Friedrich Nietzsche led the Romantic revolt against reason and logically-planned social organization by stressing natural instinct, self-assertion, and passion. Charles Sanders Peirce can also be included initially in the debates, since it was he who formulated a theory of knowledge based on the sign. John Dewey developed Peircean theory further into a comprehensive system of thought that emphasized the biological and social basis of knowledge, as well as the instrumental character of ideas. Edmund Husserl stressed the phenomenological basis of all cognition. For Husserl, only that which was present to sensory consciousness was real. Phenomenology has, since Husserl, come to be a very powerful movement dedicated to describing the structures of experience as they present themselves to consciousness, without recourse to any theoretical or explanatory framework. Alfred North Whitehead revived the Platonic theory of forms to show the failure of mechanistic approaches to reality. Bertrand Russell applied the methods of logic, mathematics, and physics to the investigation of human understanding, ultimately abandoning his rationalistic stance due, in large part to Kurt Gödel's undecidability theorem which demonstrated, once and for all, that human logical systems were essentially "faulty" because some propositions on which any logical system is in part based are unprovable, given that it is possible, using the symbols of the system, to construct an

axiom that is neither provable nor disprovable within the same system (Gödel 1931). Finally, Martin Heidegger combined the phenomenological approach of Husserl with an emphasis on emotional experience into a modern form of Nietzschean nihilism.

The modern age of philosophy culminates with the establishment of scientific psychology by Wilhelm Wundt in 1879 in Leipzig, which coincided with the advent of Darwinian evolutionary theory (Darwin 1859) and especially with Darwin's contention (1871, 1872) that animal behavior constituted a valuable analogue for human mental functioning. In 1895, Conway Lloyd Morgan published the first true textbook summarizing the goals and methods of scientific psychology. It is somewhat humorous to reflect, in hindsight, on the practice of the early psychologists of wearing white lab coats, thus bestowing upon their craft the symbolic connotations associated with laboratory experimentation in the physical sciences. As Flanagan has aptly remarked, the perception was forged at the time that metaphysics and epistemology were to be viewed as no more than "harmless amusements of fundamentally unrealistic minds," while the new scientific psychology was to be seen as getting "on with studying the real thing" (1984: xi). The precise observation and measurement of mental behavior gave the fledgling enterprise of psychology its scientific personality. The practice of controlled experimentation, the use of randomization in subject selection to comply with the requirements of Gaussian statistical theory, and the utilization of artificial tasks for subjects to perform under laboratory-like conditions are the modern-day descendants of this enterprise. Psychology continues to have great importance in the Western word because of the propensity in that world to accept mathematically-reported observations as somehow more significant, or "real," than other kinds. It should, therefore, come as little surprise to find that since the 1950s the idea that conscious intelligence works according to procedures that can be quantified and simulated by computers has become part of the discourse and practice of psychology.

But, having said all this, it is also true that semiotics as a "science" of the sign could not have crystallized without the advent of psychology, as Saussure makes clear in his *Cours de linguistique générale* (1916), where he even makes sign theory a branch of psychology. This would explain why the aim of modern semiotics has since been to understand how signs encode or portray objects, ideas, and events, even though they may not be physically present for the senses to cognize or recognize. The displacement property of signs endows human beings to think about the world beyond the stimulus-response realm to which most other species are constrained, and thus to reflect upon it at any time and in any situation whatsoever.

5.   The fourth age: The way of signs

The fourth age is our current "postmodern age." As Deely cogently argues, it is characterized by a view of the sign as a as the dominant *structure* in human cognition that mirrors the innate structures in the sensory, emotional, and intellectual composition of the human body and the human psyche. In his *Cours*, a textbook put together after his death by two of his university students, Saussure used the term *semiology* to designate the field he proposed for studying these mental structures. Because of this he became, *ipso facto*, the founder of the modern-day science of signs. But while his term is still used somewhat today, the older term *semiotics* is now the preferred one. It is interesting, in fact, to note that Saussure was not apparently aware of the work of St. Augustine and John Locke before him or, at least, that he did not consider it as important for a systematic study of the sign.

Signs are not forged in a totally random fashion; nor do they refer to things in a haphazard way. They beget their forms and meanings in *structured* ways, Saussure claimed. What allows a speaker of English to determine the different meanings of, say, *sip* versus *zip*? It is, of course, the initial sounds of the two forms. This differentiation feature brings out the essence of Saussurean method, which aims to identify signs in terms of a binary opposition technique, whereby some minimal feature in a sign is thought to be sufficient to keep it differentiated from all other signs of the same kind. Binary structure is found in all human meaning systems. In music, for instance, a major and minor chord of the same key are perceivable as distinct on account of a half tone difference in the middle note of the chord; the left and right shoes of a pair of shoes are identifiable in terms of the orientation of the shoe; and so on.

Structuralism continues to be a force in semiotics, due mainly to the work and efforts of the late Thomas A. Sebeok, who adapted the pioneering works of biologist Jakob von Uexküll and the Estonian cultural semiotician Jurij Lotman to form a framework for studying semiosis across species, thus transforming structuralism into a more comprehensive mode of inquiry, based on Peirce's triadic view of semiosis (see, e.g., Sebeok 2001). It is beyond the present essay to go into any detailed discussion of Peirce's groundbreaking work. Suffice it to say that it is no coincidence, as Deely indicates, that Peirce was a philosopher and has become the most important figure in semiotics today. Peirce provided a fundamental typology of signs that is being applied across the world to the study of semiosis. According to Peirce, there is a "firstness," sensorial dimension to semiosis that allows humans to simulate the world as they experience it, leading to the forging of iconic signs. This interacts with a

"secondness" dimension — a tendency to relate referents to each other in spatiotemporal terms — and, thus, leading to the production and use of indexical signs. These two dimensions interact with a "thirdness" dimension, which is constituted by readily forged systems of signification, leading to the learning and use of symbolic signs. The triadic "interaction" is unique among species, making it possible for humans to refer not only to the world of "reality," but also to conjure up anything that comes to their fancy. As Eco argues (1976: 26), this ability is a powerful one indeed. When we use words such as *unicorn*, *mermaid*, and *elf*, for example, we are doing exactly this. As Prometheus stated in Aeschylus' great ancient drama *Prometheus bound*, the capacity for using signs has ensured that "rulers would conquer and control not by strength, nor by violence, but by cunning."

6.   Concluding remarks

As mentioned at the start of this essay, Deely's *Four ages* is comparable to the great textbooks of human intellectual history. In the same way that Euclid's *Elements* bestowed systematicity and unity upon the study and practice of geometry in antiquity through its coherent synthesis of geometrical concepts and techniques, so too does Deely's *Four ages* provide the basis upon which to build a single discipline from an amalgam of philosophical and semiotic concepts. Deely's textbook opens up a true possibility for realizing Locke's desideratum of a "semiotic" approach to all knowledge — a desideratum that is fomenting throughout the world of semiotics (as can be seen in the monumental collection of studies edited by Posner, Robering, and Sebeok 1997–1998).

   In a sense, semiotic analysis is comparable to solving a jigsaw puzzle. The goal of the puzzle-solver is to figure out how the pieces of the puzzle fit together to produce the hidden picture that they conceal as disconnected pieces. But solving the jigsaw puzzle tells the solver nothing about why he or she is fascinated by the puzzle in the first place, nor what relevance it may have to life. Analogously, the semiotician seeks to figure out how the bits and pieces (signs, concepts, etc.) cohere into larger patterns to produce the "broader picture." It is this sense of the "broader picture" that Deely's *Four ages* imparts to its reader. I have no doubt that philosophers will come away from this book with the singular verity — expressed so well by Charles Peirce (*CP* 1.538), and with which Deely himself (cf. 2001: 742) concludes his monumental treatise — that as a species we are inclined by our nature to "think only in signs."

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