Chapter 6
Meaning in the Age of Big Data

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ABSTRACT
The most fascinating semiotic applications of recent years came not from semioticians but from those who practice semiotics without knowing they do so (what the author calls the Monsieur Jourdain syndrome). Military and surveillance applications, genome sequencing, and the practice of phenotyping are immediate examples. The entire domain of digital computation, now settled in the big data paradigm, provides further proof of this state of affairs. After everything was turned into a matter of gamification, it is now an exercise in data acquisition (as much as possible) and processing at a scale never before imagined. The argument made in this chapter is that semiotic awareness could give to science and technology, in the forefront of human activity today, a sense of direction. Moreover, meaning, which is the subject matter of semiotics, would ground the impressive achievements we are experiencing within a context of checks-and-balances. In the absence of such a critical context, the promising can easily become the menacing. To help avoid digital dystopia, semiotics itself will have to change.

PRELIMINARIES
Language interaction is the most definitory activity of the self-constitution of the species homo sapiens. Self-constitution—i.e., the making of ourselves through the activity in which we are involved (Nadin, 1997)—takes place at all levels of life—in animals and even plants. However, the making and remaking of the human being under circumstances involving language associate the process of self-constitution with awareness. While it is true that a bacterium swimming upstream in a glucose gradient marks the beginning of goal-directed intentionality (Sowa, 2017), it is only through language that purposiveness—a particular expression of anticipation—becomes possible, and indeed necessary (Brentano, 1874; Margulis, 1995). Of course, language-based human interaction is only one among the many sign systems through which self-constitution takes place. It became the focus of inquiry (philosophical, scientific, aesthetic, social, etc.) since all other forms of expression (images, sounds, odors, etc.) are, so to say, more natural, that is, they appear as extensions of the senses. Language conjures the association with thinking, and as such it is present even in sign processes transcending language. The abstraction of mathematical or chemical
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formulae invites a language of explanations: what we would call decoding. Images, sounds, textures, rhythms, and whatever else are never language-free. Therefore, a re-examination of conceptions of language—the classic path from Aristotle to the computational theories of our days—is almost inevitable.

Today’s ontology engineering, i.e., translating language into computable specifications of everything (for example, “Siri, what’s the time?” new medical treatments, new materials, new forms of transactions) is nothing but the expression of how we can tame language so that machines (of today or of tomorrow) can “understand” what we want. Ideally, such machines would think the way we do. With this subject, we are moving from “What is X?” (any subject, such as what is matter, or sex, or justice) to how we make new entities, how we think, how we evaluate thinking.

Wittgenstein is laughing louder than ever (at least in spirit). In rejecting the name theory of language (associated with Socrates), he knew that words do not correspond to things. (By the way, Eco was a follower of Wittgenstein in this sense.) Although not a semiotician himself, Wittgenstein wrote in *Philosophical Investigations* (PI) what everyone active in semiotics should learn by heart: “Every sign by itself seems dead. What gives it life? In use, it lives” (Wittgenstein, 1953). In *On Interpretation*, Aristotle distinguished between sèmeion—natural sign, such as a symptom of disease—and symbolon—“casting together,” adopted by convention, shared. But he remained pretty much captive to the idea that signs—and, by extension, words—correspond to objects, “same for everyone, and so are the objects of which they are likeness” (Aristotle, 350 BCE; see also Dewart, 2016). With Wittgenstein, we experience a change in perspective: signs, and especially language, which was his focus, are associated with tools. This translates as: language is associated with activities. This is exactly what ontology engineering means in our days: specify an object or process, and program the computer to produce it or recognize it. Make it even actionable: when risk is identified, a process affected by risk can be avoided or triggered. In Wittgenstein’s words:

Think of the tools in a toolbox: there is a hammer, pliers, a saw, a screwdriver, a rule, a glue-pot, nails and screws. The functions of words are as diverse as the functions of these objects (PI, 11).

(Of course, the toolbox is now expressed virtually in one program or several, or in the ubiquitous apps.) It is no surprise then that Stuart Kauffmann (2011) adopts the screwdriver: his focus is on relational features (a subject I shall revisit in this study). He knows that no computer process can capture all functions of objects, as we use them, some according to their purpose, others according to purposes we make up. (Kauffman’s take on the screwdriver is actually about the limits of algorithmic computation.)

But let’s stay focused. What this study proclaims is the need to rethink the foundations of semiotics. In concrete terms: the sign as the knowledge domain of semiotics explains why semiotics entraps itself, as a discipline, in a dead-end street where all that can be expected from it are reflections in a house of mirrors, all showing the same image from many viewpoints, but none suggesting the path out of this self-delusional condition. Peirce—to whom we owe the modern foundation of semiotics—was aware of the danger of focusing on the sign. The interpretant, as part of the sign definition (uniting object, representamen, and interpretant) was meant to give a dynamic dimension to sign-based activities. But the notion of semiosis remained undefined; its nature as process was mostly ascertained, but not endorsed with an operational function. In a dictation for Schlick (December, 1932), Wittgenstein gave a convincing argument for the need, and indeed possibility, to transcend the sign as label, and word as name theory: “…if I were asked what knowledge is, I would enumerate instances of knowledge and add the words ‘and similar things’.” (Wittgenstein & Waisman, 2003). For describing the dynamics, how