Chapter VII

A Theory of Semantics Based on Old Arabic

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Abstract

In this chapter, we show how we derived a universal theory of semantics. Then we discuss the discovery’s impact on automated learning and text analysis. Using induction, we derive general principles from some observations on word meanings in Old Arabic passages called muhkam, which means that the meaning is made perfectly clear. We find that the 32 sounds of Arabic are signs that refer to abstract objects generated from two symmetry pairs and a three-element set. We show that word roots are structured signs referring to structured abstract objects. Arabic roots and their interpretations and reinterpretations form an abstract set of concepts that can be used as cognitive tools over which any language can render reality. We realized this in a software system we called Readware, which performs automated text exploration and analysis in English, German, and French on and off the Internet.
Introduction

The term *computational semiotics* intuitively suggests that we use a science of meaning to create useful and intelligent computer programs. We will examine some foundations of semantics and semiotics, two fields that deal with meaning, and introduce our new approach to both. We will derive a new formal theory of meaning by induction, i.e., generalization from small observations. Then we will show how our theory is, in fact, a theory of learning, knowledge acquisition, and knowledge analysis. We will briefly discuss how we implemented our theory in software called Readware, which realizes standards from our theory for knowledge representation (ConceptBase) and cognitive modeling (cognitive frames) that are used to perform ontology development (cultures) and automated text exploration and analysis in English, German, and French.

The Adi Theory of Semantics basically states that human languages offer signs that enjoy relations of symmetry. Symmetry is found in all natural laws; we propose a theory that explains why the signs of language are the way they are, and we treat this theory as a natural law.

Background

Semiotics is the study of signs. A sign is something that refers to an object and can be interpreted (CP 2.171, CP 2.274). The effect of interpreting a sign on the interpreter’s mind is called *meaning*. Semantics is the study of meaning.

The possible signs of human language consist of words and *phonemes*, which are parts of words such as *s-, tr-, -im* and *-ist* that can be treated as units of sound. Many linguists adopt the view of Ferdinand de Saussure (1916) that words—as signs—are assigned arbitrarily to the objects to which they refer and that phonemes are not signs at all. But a number of linguists—called phonosemanticists—believe that phonemes are signs in some sense. They include Roman Jakobson (1937), Richard Rhodes and John Lawler (1981), and Margaret Magnus (2001). Magnus, for example, suggests that phonemes are signs that refer to some properties of the object to which a word refers, not the object itself (Magnus, 2001, p. 34). Her experience is that “the more concrete and unambiguous the referent for the word, the less salient is its phonosemantics” (Magnus, 2001, p. 76). At the level of single consonants, Magnus finds the “most fundamental and least salient type” of phonosemantics, the level at which “*form and content are one*” (Magnus, 2001, p. 1). She calls this “truly iconic” (i.e., sound really resembles meaning) at this level (Magnus, 2001, p. 50).

It seems that the quest for finding a direct resemblance between sound and meaning dooms phonosemantics to vagueness or even insignificance. Although Magnus’ doctoral supervisors—who included M. Chvany of MIT and G. Carlson of Rochester—applaud her exploration of “the nature of human language by using the experimental ‘scientific method,’” they do not see her research as something useful for exact sciences and technology (Department of Linguistics, Norwegian University of Science and Technology, 2001, p. 1). They think that she “provides grist for the philologist” in the consideration of “allophonic variation and