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Reflexive Sense Generation

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Concepts are generally viewed as stable representations in long-term memory. As such they are assumed to participate in 'higher' cognitive tasks such as linguistic comprehension. Language understanding is commonly taken to require accessing and combining the concepts associated with linguistic input. Within this framework, a concept typically consists of a set of 'features'. In the most classical (and dominant) interpretation of this last statement, the features of a concept define its boundaries in terms of *necessary* and *sufficient* conditions. In light of the problems entailed by such rigidity, the notion of prototypes has been proposed. In his recent work, Franks (1995) argues that *neither* of these approaches can adequately address the difficulties of assembling concepts. Instead, he puts forth a "quasi-classical" approach to concept combination. In his model, features of a concept each receive one value, but may be defeated or modified through contextual effects. His detailed formal approach focuses in particular on the treatment of "privative" combinations such as *stone lion*, *fake gun*, *apparent friend*, etc. Complex rules and structures are developed to address these problematic examples, which are too often ignored in existing symbolic or connectionist work. More precisely, Franks suggests distinguishing between the "lexical concept" (i.e., the stable information represented in the mental lexicon) and the "sense" of a linguistic unit in context. Most importantly, the sense is *derived* from the lexical concept. A theory of concept combining thus consists in specifying the rules of derivation of sense from lexicon, subject to contextual constraints.

It is our contention that Franks's work on concept combination highlights several facets of linguistic comprehension that existing conceptual theories, *including his own*, do not consider.

First, we remark that derivation should not be conflated with generation proper, that is, with the construction of sense. Existing theories generally do not *construct*, they only *derive*, more or less directly from lexicon. Whether through explicit symbolic rules or implicit statistical (e.g., connectionist) ones, most theories *fail* to acknowledge the *unpredictable* nature of linguistic usage in context, and thus the futility of a quest for an adequate training set or for definitive rules of understanding. In particular, we have explained elsewhere (Corriveau, 1995) that derivation cannot account for two fundamental characteristics of linguistic comprehension, namely, its diachronic nature, and the potential multiplicity of interpretations. Furthermore, derivation appears to preclude the learning of new senses, as well as of new

interpretative strategies. Instead, following Firth (1957), we suggest that every occurrence of a word be viewed a *hapax*. In other words, the interpretation of a linguistic unit is almost always constructed, not derived.

Second, Franks readily admits proposing a "competence-level theory" of concept combining. Doing so, and in particular, locking up concepts in long-term memory, he quickly disposes, like the majority of researchers, of performance issues. Conversely, acknowledging the real-time facet of linguistic comprehension, Shastri (1993) distinguishes between *reflexive* and *reflective* thinking. The former is extremely fast, automatic, unconscious, and pervasive to human cognition. The latter requires conscious deliberation. We emphasize that a theory of concept combining must be reflexive first. From this standpoint, we have developed elsewhere (Corriveau, 1995) a purely mechanistic time-constrained memory-based approach to comprehension. Put simply, we view interpretation as a race for sense.

Finally, any theory at the "competence-level" presents the disadvantage of not being grounded. More specifically, we consider that a "competence-level" theory of concept combining 1) is not rooted in any sort of mechanistic principles, 2) is self-validating, and 3) incorrectly assumes linguistic supervenience. Instead, following Nolan (1994), it is our contention that the conceptual level must be explained in terms of lower levels and of a learning strategy.

We are currently working on implementing Rastier's theory of semantic 'isotopes' (1991) in order to address these problems.

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