On Types, Intension and Compositionality

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Abstract. In this paper we demonstrate that a number of challenging problems in the semantics of natural language, namely the treatment of the so-called intensional verbs and the semantics of nominal compounds, can be adequately resolved in the framework of compositional semantics, if a strongly-typed ontological structure is assumed. In addition to suggesting a proper treatment of nominal compounds and intensional verbs within the framework of compositional semantics, we briefly discuss the nature of this ontological type system and how it may be constructed.

1   The Semantics of Nominal Compounds

The semantics of nominal compounds have received considerable attention by a number of authors, most notably (Kamp & Partee, 1995; Fodor & Lepore, 1996; Pustejovsky, 2001), and to our knowledge, the question of what is an appropriate semantics for nominal compounds has not yet been settled. In fact, it seems that the problem of nominal compounds has presented a major challenge to the general program of compositional semantics in the Montague (1973) tradition, where the meaning of a compound nominal such as $[N_1\ N_2]$ is generally given as follows:

$$(1)\qquad \|N_1\ N_2\| = F\left(\|N_1\|, \|N_2\|\right)$$

In the simplest of cases, the compositional function F is usually taken to be a conjunction (or intersection) of predicates (or sets). For example, assuming that `red(x)` and `apple(x)` represent the meanings of red and apple, respectively, then the meaning of a nominal such as red apple is usually given as

$$(2)\qquad \|\text{red apple}\| = \left\{x \mid red(x) \wedge apple(x)\right\}$$

What (2) says is that something is a `red apple` if it is `red` and `apple`. This simplistic model, while seems adequate in this case (and indeed in many other instances of