Incremental Fluid Construction Grammar

Stephen L. Reed
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Abstract
A cognitively-plausible implementation of Fluid Construction Grammar (FCG) is described in which the grammar rules are adopted from Double R Grammar (DRG). FCG provides a bi-directional rule application engine in which the working memory is a coupled semantic and syntactic feature structure. FCG itself does not commit to any particular lexical categories, nor does it commit to any particular organization of construction rules. DRG, previously implemented in the ACT-R cognitive architecture, is a linguistic theory of the grammatical encoding and integration of referential and relational meaning in English. Its referential and relational constructions facilitate the composition of logical forms. In this work, a set of bi-directional FCG rules are developed that comply with DRG. Results demonstrate both the lexically incremental parse of an utterance to precise, discourse-referential, logical form, and the semantically incremental production of the original utterance, given as input the discourse-grounded logical form.