Grounded Linguistic Symbols and WordNet Ontologies

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Abstract

The notion of symbols and concepts has always created confusion in cognitive science and artificial intelligence. How are the symbols related to concepts? Can we consider the words in a language to be symbols? The above two questions relates to symbol grounding problem as proposed by Harnard (1990). The words in a language can be considered as linguistic symbols where an intelligent agent adds a label or name to it to refer to one of its concepts. A concept is a cognitive unit of meaning – an abstract idea or mental symbol. Linguistic symbols acquire meaning in large part from their relationships with other linguistic symbols. The relationships between linguistic symbols may be, 'part-of' (leaves and branches are part of trees), 'kind-of' (banyan and palm are kind of trees), to mention a few.
In this paper, we have addressed (1) To specify the relation or mapping between sensorimotor data and linguistic symbols and (2) To construct real-world knowledge about what roles linguistic symbols have and what relations they have with others. Our proposed model is an extension of Harnard model for grounding of linguistic symbols, augmented with Wordnet ontology-representing real-world knowledge.