

An Application of a Semantic Framework for the Analysis of Chinese Sentences

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Abstract. Analyzing the semantic representations of 10000 Chinese sentences and describing a new sentence analysis method that evaluates semantic preference knowledge, we create a model of semantic representation analysis based on the correspondence between lexical meanings and conceptual structures, and relations that underlie those lexical meanings. We also propose a semantical argument-head relation that combines ‘basic conceptual structure’ and ‘Head-Driven Principle’. With this framework which is different from Fillmore’s case theory (1968) and HPSG among other, we can successfully disambiguate some troublesome sentences, and minimize the redundancy in language knowledge description for natural language processing.

1 Introduction

To enable computer-based analysis of Chinese sentences in natural language texts we have developed a semantic framework, using the English language framework created by C. Fillmore et al. at UC Berkeley as a starting point. The theoretical framework developed in this paper is different from other syntactic and semantic frameworks (e.g. Case Grammar and HPSG). First, those syntactic and semantic frameworks in the literature are either purely syntactic or purely semantic. Our framework is largely a semantic one, but it has adopted some crucial principles of syntactic analysis in the semantic structure analysis. Secondly, some crucial semantic relationships as exemplified in (1) below are reasonably represented which are often neglected in Case Grammar and HPSP. Third, our proposal is based mainly on our own practical large scale analysis of Chinese data. We are planning to apply the same framework to analyze other languages. The overall goal is to offer for each natural sentence a representation of semantic relation labeling.

2 Semantic Relation Labeling

This workflow includes linking and manual labeling of each relation between direct semantic units in single sentences, which reflects different semantic representation of the potential realization patterns identified in the formula, and descriptions of the relations of each frame’s basic conceptual structure in terms of semantic actions. For