Chinese Syntactic Analysis Based on Complex Features: A Case Study of the Collocation of 很[hen](very) and a VP with a Quantitative Complement

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Abstract. Complex features are widely used for lexical description and syntactic analysis in linguistic practice, especially in computational linguistics. The introduction of complex features into Chinese grammar research will benefit both Chinese lexical description and syntactic analysis, consequently Chinese information processing. The paper does a case study of the collocation of 很[hen](very) and a VP with a quantitative complement, which is a topic of long-term concern in Chinese syntactic analysis, and finds a number of grammatical features with syntactic influence. It provides a reference for Chinese lexical description, Chinese syntactic analysis and the rule-based Chinese information processing.

Keywords: complex feature, syntactic analysis, lexical description, 很[hen](very), VP with a quantitative complement.

1 Introduction

Lexicalism is of great international influence in contemporary linguistic studies, especially in computational linguistic studies. Head-Driven Phrase Structure Grammar (HPSG), Lexical Functional Grammar (LFG) and French word grammar are all lexicalism practices, in which a large amount of syntactic and semantic information is described as complex features of words and the syntactic analysis is mainly done through the unification of complex features; therefore it can be said that complex features and their unification are the main means of lexicalism for syntactic description and analysis.

Early in the 1980s, linguists over the world (mainly computational linguists) began to describe words and analyze sentences with complex features. Today, complex features-based grammars such as HPSG, LFG, word grammar flourish in America, Europe and Japan. Take it for an example, HPSG’s description of English, German, Japanese and some other languages has reached a comparatively advanced stage. There is an HPSG international conference every year since 1994, and the coming one, the 20th, will be held in August this year (2013) in Berlin, Germany. In contrast, Chinese linguists, who have done similar works also very early in both theoretical and practical areas, have not moved very far. The complex features-based Chinese studies are mainly related to the translation with foreign languages, so that most features of Chinese words
found in these researches are based on the comparison of Chinese and foreign languages. To be more exact, only the features of Chinese words that could serve as the counterparts of foreign languages are possible to be found (Feng, 1990). These works have not the solid basis of deep research on Chinese grammar and therefore cannot help answer many questions in Chinese ontological research. For example, what are the syntactically influential features in Chinese? What are the similarities and differences between Chinese syntactic features and that in other languages? How to describe the complex features of each Chinese word? How to analyze each concrete Chinese phrase with complex features? Without satisfactory answers to these questions, it is difficult to promote the complex features analysis in Chinese ontological research. In Chinese ontological research, Zhu(1986) was the first to point out some semantic features with syntactic influence such as verb [+attachment] and verb [+displacement]. Since then, the semantic feature analysis has been used in Chinese ontological research for more than twenty years. But most studies focus only on single feature, rather than complex ones. It can be said that there is a huge gap between the sporadic exploration on semantic features with syntactic influence in Chinese ontological research and the great demand in Chinese computational linguistic research. The former is far from satisfying the latter. The comparatively mature technology and theory about complex features analysis in Chinese information processing and their relatively immature counterpart in Chinese ontological research show the insufficiency of the information exchange between the two academic circles.

In the current situation, we have work to do in two parts: first, to use the comparatively mature technology and theory about complex features analysis into Chinese ontological research, gradually improving Chinese syntactic analysis and lexical description; second, to do a large amount of bottom-up discoveries, namely, to do solid case studies on Chinese phrases one by one so as to accumulate valuable grammatical features. Only with a large number of accurate and effective grammatical features, is it possible to build a great system of Chinese grammatical features and has the complex features analysis its position in Chinese syntactic analysis.

In order to show the advantage of complex features analysis over the traditional analyzing methods, this paper does a case study of syntactic analysis and finds a number of semantic features with syntactic influence in Chinese. It does a little exploring work for both Chinese ontological research and Chinese information processing.

2 The Challenges Posed by the Phrase “很[hen](very) + VP with a Quantitative Complement” to Chinese Syntactic Analysis and Lexical Description

In modern Chinese, there is a kind of phrase composed of 很[hen](very) and a VP with a quantitative complement, such as:

[1]

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<table>
<thead>
<tr>
<th>hen</th>
<th>xia</th>
<th>le</th>
<th>ji</th>
<th>ci</th>
<th>yu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very</td>
<td>drop</td>
<td>le(particle)</td>
<td>several</td>
<td>time</td>
<td>rain</td>
</tr>
</tbody>
</table>
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(it has rained for many times)