How Word-order Constraint Affects Noun Modifying Constructions in Japanese and Chinese

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1. Introduction

Japanese and Chinese differ in word order (Japanese is SOV; Chinese is SVO), but they both place modifying clauses prior to the head noun without a relative pronoun (Japanese: [[tabeta ‘ate’] ringo ‘apple’]; Chinese: [[Chide ‘ate’] pingguo ‘apple’] ‘the apple (which) (X) ate’). Several comparative studies on noun modifying constructions (NMCs, proposed by Matsumoto (1997)) in Japanese and Chinese have shown that the major difference between the two languages is that Chinese tends not to place modifying clauses before personal pronouns of proper nouns while Japanese does. Wang et al. (2009) further claimed that Chinese and Japanese NMCs have different ranges in function: Chinese NMCs are rarely used as constructions equivalent to “non-restrictive” relative clauses. In this paper we argue that what seems to be the functional difference between Japanese and Chinese NMCs is motivated by processing constraints such as “The Principle of End Weight” (PEW; Wasow 2002), which is sensitive to the difference in word order between the languages.

2. Wang et al. (2009) and its problems

Wang et al. (2009), adopting Croft’s (2001) radical construction grammar on complex sentences, claims that uses of Japanese NMCs extend from the basic “restricting function”, usually realized as relative clauses, to more peripheral functions -- “information adding” (for NMCs with pronouns/proper nouns as head noun) and “complementing” (equivalent to noun complement clauses in English); while Chinese NMCs are largely confined to the basic “restricting function”. However, our data (using Chinese-Japanese parallel corpora) show: (1) Chinese NMCs are observed to have equivalents in Japanese over a wide range of functions; (2) the adoption of Croft’s (2001) semantic maps on complex sentences is not sufficient to cover all the functions that Japanese NMCs present since they overlook a type of NMC that exists in both Chinese and Japanese but have no equivalent in English; and (3) there is no viable distinction observed between core and peripheral in functions of Chinese and Japanese NMCs.

3. “The Principle of End Weight” (PEW) and Constraint to Chinese NMCs

Wasow (1997) defines the “end weight” as “long, complex phrases tend to come at the end of clauses” and also generalizes “The Principle of End Weight” in English that “phrases are presented in order of increasing weight” (Wasow (2002:3)). He explains this PEW effect by incorporating the end weight effect into parsing models: “long, complex elements put an extra burden on the parser. If such elements occur sentence-medially, it can cause listeners to lose track of where they are in the processing of the sentence; but if they occur sentence finally, no such problem arises”. (Wasow (1997:94)) Wasow (1997, 2002) further explores the factors contributing to the grammatical weight. He suggests that weight effects should depend on the relative weight of two or more constituents rather than only on the absolute weight of any one (as in the sentence: a gun went off which I had cleaned).

We propose that PEW puts a constraint on the length and complexity of Chinese NMCs. Although Chinese NMCs exhibit the head-noun-final structure, since it has the same SVO word order as English, PEW requires that the long and complex constituent should be posed towards the end of sentences. However, unlike English that can have extraposition from the modified NP (see above example), Chinese cannot put the modifying clause after the head noun; hence, when the modifying part is too long and complex, Chinese tends to use non-NMCs such as adverbial and complementing clauses to make the whole sentence structurally balanced and stable. On the other hand, Japanese, as a SOV language, presents the opposite weight effects to that of English and Chinese. In other words, the left-branching structure allows Japanese NMCs to keep constituents as long as possible. Consequently, when a Japanese NMC contains long and complex modifying elements, it is difficult to be rendered into a corresponding Chinese NMC because Chinese NMCs have restrictions on length and complexity, which are largely affected by PEW, while Japanese NMCs do not. This further leads to the difference in frequency.

4. The comparative reanalysis on NMCs in Japanese and Chinese

Matsumoto’s (1997) classifies Japanese NMCs into three types: 1) CH type ([[tabeta ‘ate’] ringo ‘apple’] ‘the apple (which) (X) ate’), equivalent to relative clauses in English; 2) NH type ([[tabeta ‘ate’] hanasi ‘story’]’the story (that) (X) ate’), equivalent to noun complement clauses in English; 3) CNH type ([[tabeta ‘ate’] nokori ‘remainder’] ‘the remainder (from) (X’s eating)’), which lacks equivalence in English but is largely found in East Asian languages such as Japanese, Korean and Chinese (Cha (1997), Zhang (2008)). Following Matsumoto’s
In the contrary, short and simple NMCs such as "non-restrictive" RCs are perfectly acceptable in Chinese. Therefore, constraints are based on the word order rather than function; it is not that Chinese NMCs have limited functions compared to Japanese NMCs but that word order places more processing constraints on Chinese.

5. Corpus-based quantitative investigation

To further support our proposal, we use various corpora on this investigation, including 1) Leeds Chinese Corpus; 2) Chakoshi Corpus; 3) Chuanichi Taiyaku Coopasu (Chinese-Japanese parallel corpus); 4) Online Novels: novels translated from Japanese to Chinese (Yukiguni ‘Snow Country’ -- Xueguo ‘Snow Country’; Rashomon ‘Rashomon’ -- Luoshengmen ‘Rashomon’; Noruwei no Mori ‘Norwegian Wood’ -- Nuweii de Shenlin ‘Norwegian Wood’). First, we examine the average lengths of NMCs in Japanese and Chinese by extracting NMCs in their original texts from 1) Leeds Chinese corpus and 2) Chakoshi corpus, and the results indicate that the average length of Japanese NMCs (12 words) is much longer than Chinese NMCs (5 words), implying the discrepancy in distribution. Second, we examine whether PEW affects the NMCs with proper nouns and content taking nouns as head nouns from Chinese-Japanese parallel corpus, and the results show both high percentages (61.08% for the former & 81.82% for the latter) of NMCs are subject to PEW, indicating that even those NMCs that are predicted to be difficult to correspond to Chinese NMCs in Wang et al. (2009) are highly affected by PEW. Finally, we further examine whether PEW affects the correspondence of all types of NMCs in the three novels and their translations, and again there are 75.56% of NMCs showing that PEW serves as determining factor in the correspondence of NMCs in these two languages.

6. Conclusion

We propose that PEW contributes to the difficulty of processing long and complex NMCs in Chinese but not in Japanese, which has an opposite weight effect (Hawkins 1994). Our data show that even some NMCs of basic “restricting function” could be restricted from processing in Chinese when they are too long and complex; on the contrary, short and simple NMCs such as “non-restrictive” RCs are perfectly acceptable in Chinese. Therefore, constraints are based on the word order rather than function; it is not that Chinese NMCs have limited functions compared to Japanese NMCs but that word order places more processing constraints on Chinese.

References


List of technical Terms

Noun modifying construction (NMC): proposed by Matsumoto (1997) which claims that Japanese NMCs present a wider range of semantic relationships between the two constituents that those in what are conventionally called relative clause and noun complement clause constructions, as well as another structure which has not been received much attention so far but largely found in Asian languages.