



Linguistic complexity and information structure in Korean: Evidence from eye-tracking during reading [☆]

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Abstract

The nature of the memory processes that support language comprehension and the manner in which information packaging influences online sentence processing were investigated in three experiments that used eye-tracking during reading to measure the ease of understanding complex sentences in Korean. All three experiments examined reading of embedded complement sentences; the third experiment additionally examined reading of sentences with object-modifying, object-extracted relative clauses. In Korean, both of these structures place two NPs with nominative case marking early in the sentence, with the embedded and matrix verbs following later. The type (pronoun, name or description) of these two critical NPs was varied in the experiments. When the initial NPs were of the same type, comprehension was slowed after participants had read the sentence-final verbs, a finding that supports the view that working memory in language comprehension is constrained by similarity-based interference during the retrieval of information necessary to determine the syntactic or semantic relations between noun phrases and verb phrases. Ease of comprehension was also influenced by the association between type of NP and syntactic position, with the best performance being observed when

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more definite NPs (pronouns and names) were in a prominent syntactic position (e.g., matrix subject) and less definite NPs (descriptions) were in a non-prominent syntactic position (embedded subject). This pattern provides evidence that the interpretation of sentences is facilitated by consistent packaging of information in different linguistic elements.

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1. Introduction

An important question in the investigation of human sentence processing is whether, when, and to what extent sentence comprehension can be influenced by structural and nonstructural factors. Sentences with restrictive relative clauses (RCs) are a type of complex structure that has proven very useful for exploring this issue. This is particularly so for subject-extracted and object-extracted RCs, as illustrated below.

- (1) The lawyer that irritated the banker filed a hefty lawsuit.
- (2) The lawyer that the banker irritated filed a hefty lawsuit.

In a subject-extracted RC, like (1), the extracted element (e.g., lawyer) serves as the unexpressed logical subject of the verb in the embedded clause (i.e., irritated). In an object-extracted RC, like (2), the extracted element is understood to function as the unexpressed logical object of the verb in the relative clause. Research using a variety of methods has shown that sentences with object-extracted RCs are harder to understand than those with subject-extracted RCs (e.g., Ford, 1983; King & Just, 1991; King & Kutas, 1995), with this difference typically being attributed to the greater demands on working memory imposed by object-extracted as compared to subject-extracted RCs. Object-extracted RCs impose these memory demands because two NPs are stacked at the beginning of the sentence before any verbs are encountered; thus, these structures create a milder version of the extreme memory demands that are seen in English for doubly center-embedded sentences, where three NPs are stacked at the beginning of a sentence. Research on the comprehension of these types of structures has played a very important role in the development of theories of human sentence processing (e.g., Caplan & Waters, 1999; Gibson, 1998; Just & Carpenter, 1992; Lewis, 1996; Miller & Chomsky, 1963).

Although object-extracted RCs are generally harder to comprehend than subject-extracted RCs, there are cases where this difference in difficulty is significantly reduced. Bever (1974) noted that doubly-center embedded sentences [e.g., (3)], which are usually nearly impossible to understand, appear to become much more intelligible when they have a mixture of different types of NPs [e.g., (4)].

- (3) The reporter the politician the commentator met trusts said the president won't resign.
- (4) The reporter everyone I met trusts said the president won't resign.

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