The Use of Pronominal Case Information in Sentence Interpretation

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Introduction

Cross-linguistic research in the Competition Model framework (MacWhinney & Bates, 1989) has shown that sentence interpretation is driven by surface grammatical markers in accord with their relative cue strength. For example, word order is the strongest cue in English sentence processing, because it is also the most reliable and available cue in English corpora. On the other hand, word order is not a strong cue in Spanish and Japanese, because the reliability of this cue in those languages is comparatively low (Kail, 1989, Kilborn & Ito, 1989, Sasaki, 1991). Studies have repeatedly shown that subjects rely the most on cues that have high statistically validity in their language (McDonald, 1987).

Bates and MacWhinney (1989) have reported that word order is the strongest cue in English, and that subject-verb agreement and animacy are much weaker. However, prior research has not yet determined the relative strength of the case-marking cue for English, since case-marking is only available for pronouns in English. Given the high reliance on case-marking that is found in languages such as Hungarian and Japanese, evidence about eventual domination of case over word order in Dutch, and the high reliability of case-marking, we might expect that case-marking could dominate over word order in English. On the other hand, word order is much more generally available than pronominal case. If availability is a factor determining the relative strength of two reliable cues, then we might expect word order to dominate over case. To date, no study has examined this theoretically important issue in cue competition.

Method

Participants were 20 native English speakers who participated in the subject identification task. Sentences were presented on a computer screen and participants were asked to choose which nominal was the actor performing the action in each sentence. Sentences consisted of two nouns (N) that differed in gender and a simple verb (V). Three within-subjects factors were manipulated: word order (NVN, NNV, VNN), case of the first nominal (Noun, Nominative Pronoun, Accusative Pronoun), and case of the second nominal. For example, sentences like "the boy him chased" were presented, and participants were asked to choose either of "the boy" or "him" as agent. The percentage of first nominal choice as an agent was measured and analyzed by a three-way ANOVA.

Results and Discussion

The main effects of all three factors; word order, first nominal case, and second nominal case features were significant ($F_{(2, 19)}$ =98.381, $F_{(2, 19)}$ =40.794, $F_{(2, 19)}$ = 32.301, all at $p < .0001$). The results showed that word order was still the dominant cue in English, although we also found that the case-marking cue was involved in significant two- and three-way interactions, particularly in the non-canonical NNV and VNN word orders, where previous research has shown that native speakers typically prefer the second nominal as the agent. However, when accusative pronouns appear in the second nominal position, choice of the first noun as agent increased markedly, reflecting the impact of case-marking in these non-canonical orders. The detailed patterns of the higher-order interactions were closely predicted through the logic of cue summation proposed in the Competition Model.

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