Is Presentation Order a Confound for Modifier-noun Combinations?

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Import of the Modifier

Interpretation of a conceptual combination (CC) in a relation-based approach involves establishing the thematic relation that links two concepts (e.g., the Competition Among Relations in Nominals [CARIN] model of Gagné & Shoben, 1997). Examples of relations include *noun* 'uses' *modifier* and *modifier* 'causes'. Gagné and Shoben found that modifier-noun CCs whose modifiers were frequent thematically were comprehended more quickly than CCs whose modifiers were infrequent thematically. For example, *wood shavings* would be comprehended faster than *vapor drops* because *wood* is frequently the thing of which something is made, whereas *vapor* is not. It is important to note that in CCs whose modifiers were highly frequent thematically, there was no difference in comprehension times whether the head nouns were highly frequent thematically or not (i.e., high modifier-low head noun [HL] or high modifier-high head noun [HH]). Thus, Gagné and Shoben demonstrated that thematic frequency of the modifier, not the head noun, was related to comprehension times.

Wisniewski and Murphy (2005) have recently argued that Gagné and Shoben's (1997) stimuli were confounded because HH combinations were also more familiar and plausible than LH combinations. Thus, RT data are not due to thematic frequency per se. Another concern for the CARIN model and the claim that modifiers are more important to comprehension time than head nouns is word order. In English, the modifier almost always is antecedent to the noun to which it refers and, thus, the import of the modifier may be due to its antecedent position. Two recent studies (Maguire & Cater, 2004; Storms & Wisniewski, in press) have supported the import of the modifier in languages whose word order is the opposite of English – French and Indonesian. However, modifiers and head nouns were always presented simultaneously and no study has addressed the issue in English.

Method

Eighty-eight (N = 88) undergraduates participated in one of two studies. Participants made Sense/Non-sense judgments to HH, HL, LH, and Non-sense words from Gagné and Shoben (1997). The present study follows their work but uses a novel procedure that addresses the concern over the placement and presentation of the modifier in English CCs. This procedure was designed to expose participants to either the modifier or head noun of a CC as lexically alone, but not devoid of a relational context. For example, rather than being presented 'sled' on a computer screen and then 'dog sled', participants saw '***** sled' and then 'dog sled'. By exposing participants to the head noun in the actual position it will occupy in a CC before the whole CC is presented, the participants' frequent thematic relation for the head noun should be activated first. This activation should potentially influence the interpretation of the whole modifier-noun CC. That is, the modifier's frequent thematic relation would not be processed first because it would be yet to be presented.

Results and Discussion

Results indicate that, indeed, participants take longer to comprehend a phrase when the thematic frequency of the modifier is low, $F(1, 33) = 8.15$, $p = .0035$, $z = 0.50$. Additional analyses revealed significantly slower judgments when exposed to the head noun than when exposed the whole phrase at once, HH, $F(1, 30) = 8.03$, $p = .004$, $z = 0.51$ and LH, $F(1, 30) = 3.670$, $p = .0325$, $z = 0.34$, indicating that the exposed noun is being processed. It seems that the lower the thematic frequency of the modifier, the longer the comprehension time of the CC, irrespective of the modifier's antecedent position. The present experiments do not speak to Wisniewski and Murphy's (2005) analysis of Gagné and Shoben's (1997) study directly, but analyses hold even when incorrect judgments potentially due to implausibility and unfamiliarity were eliminated.

References

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