The Use of Heuristic Strategies in the Interpretation of Pronouns

Rosalind A. Crawley,¹ ² Rosemary J. Stevenson,¹ and David Kleinman¹

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The aim of the two experiments reported here was to distinguish between two heuristic strategies that have been proposed to account for the assignment of pronouns: the subject assignment strategy and the parallel function strategy. According to the subject assignment strategy, a pronoun is assigned to a preceding subject noun phrase, whereas according to the parallel function strategy, a pronoun is assigned to a previous noun phrase in the same grammatical position as the pronoun. These two strategies were tested by examining the interpretation of single object pronouns, first in a reading task and second in an assignment task. In both experiments, there was a strong preference for assigning an object pronoun to the preceding subject noun phrase, thus supporting the subject assignment strategy. However, this was only the case for pronouns that were linguistically ambiguous. When assignment was constrained by gender, there was no effect of either strategy. It is suggested that heuristic strategies are only used in the absence of other strong cues to assignment.

There are many factors that influence the comprehension of pronouns in text. These include linguistic factors such as syntactic constraints (Chomsky, 1981) and semantic cues such as gender (Ehrlich, 1980), and nonlinguistic factors such as general knowledge (e.g., Hirst & Brill, 1980) and knowledge of textual structure (e.g., Kieras, 1979). Another nonlinguistic factor which has been said to affect pronoun comprehension is the use of heuristic strategies. These are relatively mechanical rules of thumb which tell us to whom or what to assign a pronoun. They are similar to the strategies that have been proposed to account for the syntactic processing of sentences (e.g., Bever, 1970; Fodor & Frazier,
This study investigates the influence of heuristic strategies on a skilled reader’s understanding of pronouns which are either constrained or unconstrained by gender.

A number of heuristic strategies have been proposed. For example, Sanford and Garrod (1981) suggested the following strategies: Assign a pronoun to the current topic, assign a pronoun to a nearer rather than a more distant expression, and assign a pronoun to a frequently mentioned item. Similar strategies have been incorporated into computer models for understanding natural language (e.g., Winograd, 1972; Norman, Rumelhart, & LNR, 1975).

This study examines the relative importance of two strategies which have been proposed to account for the assignment of pronouns within a sentence. These are the subject assignment strategy and the parallel function strategy. According to the subject assignment strategy, a pronoun (in any grammatical position) is assigned to a preceding noun phrase in subject position. So in the following sentences, for example, the subject pronoun in sentence 1 and the object pronoun in sentence 2 would both be assigned to the subject of the first clause (John):

1. John hit Bill and he ran away.
2. John hit Bill and Mary kicked him.

According to the parallel function strategy, a pronoun is assigned to a preceding noun phrase in the same grammatical position as the pronoun. Thus, a subject pronoun would be assigned to a preceding subject noun phrase and an object pronoun would be assigned to a preceding object noun phrase. This strategy therefore predicts the same antecedent as the subject assignment strategy in sentence 1, that is, John, but a different antecedent in sentence 2, namely, Bill. Thus, these two strategies are incompatible. However, there has not yet been a satisfactory test of these two competing strategies. The aim of this study is to provide such a test.

The impetus behind the claim for a subject assignment strategy comes from the evidence which suggests that pronouns frequently refer to a preceding subject noun phrase (e.g., Broadbent, 1973; Clancy, 1980; Hobbs, 1976). Hobbs examined the antecedents of pronouns in a number of naturally occurring texts and dialogues and found a very high proportion of subject antecedents in both (90% in texts, 75% in dialogues). Similarly, Clancy found that pronouns were frequently used to refer to a preceding subject noun phrase in spoken narratives. And Frederiksen (1981) found that readers (especially less-skilled readers) produced faster reading times for sentences in which a sentence-initial pronoun referred to a noun phrase that was the subject of a previous sentence than for sentences in which the referent was the object of a previous sentence.