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Authors

Revlin, Russell
Hegarty, Marty

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Resolving Anaphoric Reference: Reading as Enthymemic Reasoning

Russell Revlin and **Mary Hegarty**
Department of Psychology
University of California, Santa Barbara
Santa Barbara, CA 93105
(revlin, hegarty)@psych.ucsd.edu

This study employs reading time and eye-movement paradigms to test a model of how readers understand connected discourse by using signals to textual cohesion. The model (Singer, Revlin & Halldorson, 1990) views the computation of cohesion as a form of enthymemic reasoning in which the reader establishes Goals and Subgoals consistent with a syllogistic structure. In the present study, university students were timed as they read a pair of sentences, half of which were related by a signal to cohesion (e.g., *too*, as in *Juan is a shortstop. Maria is athletic too*). The model claims that in comprehending such sentence pairs, it is necessary for readers to compute bridging inferences (e.g., Singer, Halldorson, Lear, & Andrusiak, 1992) to provide missing information (e.g., "shortstops are athletic" and "Juan is athletic"). To generate such inferences, the sentence relations are represented in an enthymemic format as:

> Juan is a shortstop
>
> [missing premise]
>
> -------------------
>
> therefore: Juan is athletic

In contrast, such inferences are not necessary for comprehending non-anaphoric sentence-pairs. Bridging inferences should therefore contribute to reading time only in anaphoric pairs. Consistent with this model, we found that readers require an additional 846 msec to understand anaphoric pairs than non-anaphoric pairs--substantially more time than would be required to read the added adverbial, *too*.

The eye movements of students were tracked as they read the pairs of sentences. Students made significantly more backward gazes while reading anaphoric sentences than when reading unsignaled sentences. These increased gazes were directed primarily at the predicate of the first sentence (e.g., *shortstop*) reflecting a subgoal of drawing an inference linking the contextual information in the first sentence (i.e., *shortstop*) with the new information (e.g., *athletic*) in the second sentence--the hallmark of a bridging inference (Haviland & Clark, 1974).

Following each sentence pair, students answered a question that probed verbatim recall or inferences from the readings. Although these latter sentences are hypothesized to participate in the comprehension of only anaphoric pairs they are available from the reader's long term knowledge independent of the sentence-pair (e.g., *shortstops are athletic*). Verification accuracy was greater and verification latencies shorter when the probe sentences were consistent with proposed bridging inferences.

This pattern of data is consistent with a model of reading which proposes that readers generate bridging inferences to resolve anaphoric reference and that they do so in a manner consistent with solving a logical enthymeme.

References

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