

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Do Readers Make Predictive Inferences about Conversation?

Permalink

<https://escholarship.org/uc/item/0j0145f1>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 22(22)

Authors

Lea, R. Brooke
Kayser, Patrick A.
Mulligan, Elizabeth J.
et al.

Publication Date

2000

Peer reviewed

Do Readers Make Predictive Inferences about Conversations?

R. Brooke Lea (lea@macalester.edu)

Department of Psychology, Macalester College
1600 Grand Avenue, Saint Paul, MN 55105 USA

Patrick A. Kayser (pkayser@macalester.edu)

Department of Psychology; Macalester College
1600 Grand Avenue, Saint Paul, MN 55105 USA

Elizabeth J. Mulligan (mulligan@psych.colorado.edu)

Department of Psychology, University of Colorado, Boulder
Boulder, CO 80309 USA

Jerome L. Myers (jlmyers@psych.umass.edu)

Department of Psychology, University of Massachusetts, Amherst
Amherst, MA 01003 USA

Do readers make predictive inferences about what protagonists in a story are talking about? Lea, Mason, Albrecht, Birch, and Myers (1998) showed that when two protagonists part and then reunite, information associated with the protagonists is reactivated by their reunion via a low-level memory process (resonance). We used Lea et al.'s passages to test whether this reactivated information is then used to make predictive inferences about what the protagonists talk about after their reunion. In an example passage, Gloria tells her roommate Jane that she is going out and that they will meet later. In the intervening interval, Gloria has dinner with her cousin, while Jane makes dinner at home. Later in the passage, Gloria returns home (reunion), and they "chat for a while." Previous work has shown that the cousin is significantly more active after the reunion sentence than before it (the "reunion effect") — we wondered whether readers then use that activated information to infer what Gloria and Jane are chatting about.

In Experiment 1 we measured activation of COUSIN after two types of discussion sentences and compared them to a no-discussion control. A sentence like "They chatted for a while." was used in the Discussion condition (D); a sentence like "Just wait until you hear this." appeared in the Urgent-Discussion (UD) condition; and the No-Discussion (ND) control passage described a situation in which the protagonists reunited but no discussion was possible (e.g., because one of them was asleep). In all three conditions the target character (e.g., COUSIN) should be reactivated after the reunion, but if readers infer that the cousin is part of the discussion then its reactivation should be potentiated by the discussion sentences. We found that both discussion sentences lead to significantly faster recognition times than the control. The UD passages produced faster response times than the D passages, but the difference was not significant. Thus it appears that readers were making predictive inferences about the topic of the protagonists' discussion.

An alternative explanation for the results of Experiment 1 is that the activation difference reflects a difference in the reunion sentences, not a difference in the discussion sentences. All three versions contained reunion sentences in which both protagonists were mentioned, however, the no-discussion control passages required different reunion sentences in order to create a convincing no-discussion-possible situation. Resonance theory (e.g. Myers &

O'Brien, 1998) would not predict a difference between the two reunion types, but the possibility remains that a "linguistic" reunion like "Jane was asleep when Gloria returned home" does not reactive COUSIN to the same degree that a "physical" reunion such as "Jane was still awake when Gloria returned home" does. So in Experiment 2 we probed immediately after both types of reunion and used a before-reunion probe position control. If reunion-type makes a difference, then we should find a differential before-after reunion effect. However, we found that the target character was reactivated equally after both linguistic and physical reunions, thereby supporting the conclusion that Experiment 1's results are due to the discussion sentence manipulation and not to a difference between the reunions.

Experiment 3 was a paper-and-pencil experiment in which subjects were presented with printed versions of the passages that ended with the discussion sentence, and they were instructed to write a sentence or two about what they thought would be a likely continuation of the story. We conducted this off-line experiment to obtain converging evidence that readers were in fact making an inference that the target character was being discussed. As predicted, subjects were significantly more likely to mention the target character after the discussion sentences compared to the no-discussion control. Interestingly, the UD condition lead to significantly more mentions than the D condition, a difference that was only a trend in Experiment 1.

Together, the three experiments demonstrate how low-level, memory-based text processing can work in concert with more expectation-driven processing. In our passages, reintroducing a protagonist reactivated that target character with whom she was associated and, once reminded, the reader exploited the availability of that information to make a forward inference about the likely topic of the protagonists' conversation. Future work will explore further the collaboration between bottom-up processes like resonance, and more top-down reading processes such as predictive inference.

References

- Lea, R.B., Mason, R.A., Albrecht, J.E., Birch, S., & Myers, J.L. (1998). Who knows what about whom: What role does common ground play in accessing distant information? *Journal of Memory and Language*, 39, 70-84.
- Myers, J. L., & O'Brien, E. J. (1998). Accessing the discourse representation during reading. *Discourse Processes*, 26, 131-157.