Spatial Situation Models and Story Actions

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Introduction

Only under rather contrived experimental conditions have readers been shown to build spatial situation models. Reading normal texts, and given normal reading instructions, readers do not form spatial mental models of the described scene (Zwaan & van Oostendorp, 1993; Zwaan & van Oostendorp, 1994; Zwaan, Radvansky, Hilliard, & Curiel, in press).

Zwaan and van Oostendorp (1993, 1994) have suggested that when spatial information is related to one of the other dimensions of the situation described in the text, such as the causal or motivational dimensions, then it is more likely to be encoded in the situation model. This appears to be the case: Zwaan, van den Broek, Truitt, and Sundermeier (1996) looked at how the causal relatedness of spatial information affected the spatial situation model. They found that readers are more likely to encode spatial information in their situation models if this information is potentially causally relevant. A further reason that detailed spatial information might be encoded in a spatial situation model is that it is related to an action in the text. This is slightly different than being related to one of the other dimensions of a situation, because the action in the text that the spatial information is related to might not have any causal, motivational, or protagonist relevance, however it can still influence the likelihood that the information is encoded into a spatial situation model. For example, a piece of spatial information in a story such as the fact that the recycle bin was located next to the door might have no causal or motivational relevance. However, if it is mentioned in the story that a character threw a ball of paper across the room but it missed the recycle bin and landed on the other side of the door, then this spatial information suddenly becomes functionally meaningful, because of the action. The paper would not land on the other side of the door if the bin was not somewhat close to the door. The question addressed in this research was: how do actions in the text influence memory for spatial information?

Method

The experiment examined memory for spatial information related to actions in the text. Participants read two short (5 page) narrative texts. In these stories, spatial environments were briefly described as the scene in which a series of actions took place. Some versions of the stories contained only descriptive, scene-setting spatial information. Other versions of the stories contained spatial information specified within statements of actions and events taking place. Spatial information given as part of actions described in the story was either stated explicitly or had to be inferred. Several different kinds of actions were described, and were carried out by different characters in the texts. After reading both stories, participants were asked comprehension questions, including questions regarding specific actions. After answering the comprehension questions, participants drew top-down views of the environments described in the stories.

Results and Discussion

Results indicate that spatial information associated with actions in the text is generally better remembered. However, this is influenced by the type of action and also in part by which character (protagonist vs. other) carries out the action.

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