Svetlana Mnogogreshnova

"You Don't Remember, I'll Never Forget": Does Negation Influence Memory Retention?

Negation is a universal phenomenon that is widely investigated in linguistics, psychology, and philosophy, and is assumed to be more difficult to process than affirmation. Previous research literature shows that a negator is not simply yet another word in a sentence: due to the fact that negation engages domain-general inhibition mechanisms (Beltrán et al., 2021; Vitale et al., 2025), it is argued to have profound consequences for our memory, although the findings in this area are somewhat controversial. For example, some studies speak of negation-induced forgetting, showing that negation makes it more difficult to remember the negated information (Mayo et al., 2014; Zang et al., 2023), whereas other studies focus on negation-related false memories, demonstrating that negated items can be falsely remembered as existing (Maciuszek & Polczyk, 2017). Moreover, how prone to suppression a concept is also might depend on the discourse factors or the type of the concept in question. (Giora et al., 2007)

We conducted two experiments to investigate memory retention for negative sentences in speakers of German and Spanish. The experiments consisted of a two-alternative picture selection task in which participants were presented with short stories – either visually (Experiment 1) or auditorily (Experiment 2) – that finished with an affirmative or a negative target sentence, e.g., "She already peels the pear." or "She doesn't peel the pear." After a 5-minute Flanker task that served as a distractor, participants performed a recognition task, in which they confirmed or rejected visually presented probes. The probes represented either actions that had been encountered in the picture selection task in an affirmative or a negative target sentence (e.g., "to peel a pear"), or filler probes representing actions that had not been mentioned before (e.g., "to throw a ball"). Participants had to determine whether the action had taken place in the stories in the picture selection task. The results showed that the negative condition (i.e., probes mentioned in negative sentences) caused significantly longer reaction times and higher error rates compared to both the affirmative and the filler conditions. Importantly, this pattern was not due to a general bias towards yes-responses, since the number of errors in the affirmative condition was significantly higher than in the filler condition. We conclude that negative utterances, although they were pragmatically licensed, are still more difficult to remember than their affirmative counterparts.

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