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Spatial Metaphor Priming in Humans and Language Models

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Abstract

English prepositions are highly polysemous, occurring in both concrete spatial and conventionalized metaphorical uses (e.g., *in love*, *on time*). Abstract uses of prepositions, according to Conceptual Metaphor Theory, are grounded in spatial source domains. In this work, we test whether these conceptual links are active during online processing of in- and on-metaphors. Through semantic priming experiments, we investigate whether access to grounded spatial meaning during metaphor processing depends on visual input, or whether linguistic descriptions of spatial relations can also activate similar representations. Further, we probe if the priming experiments can be replicated in artificial language models to test whether distributional patterns in text data are sufficient to give rise to the types of priming effects observed in humans.