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Assessing the role of matching bias in reasoning with disjunctions

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Abstract

On mental models theories, reasoners create mental representations of information which they manipulate in order to derive new conclusions. These theories have been uniquely successful at explaining a class of attractive fallacies involving disjunctions. The original theories have appealed to low-level matching mechanisms (Walsh & Johnson-Laird, 2004; Koralus & Mascarenhas, 2013) to compare the models of the premises and the models of the conclusion and predict an answer. In three experiments, we show that the check for overlap in content involved in these accounts must take place at a high level of cognition in order to incorporate complex world knowledge. We introduce variants of illusory inferences from disjunction whose acceptance is accurately predicted by independant measures of confidence in causal connections. We conclude that the Revised Mental Model Theory of Khemlani et al. (2018) holds promise, but cannot account for our data out of the box.