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Knowing the Shape of the Solution: Causal Structure Constrains Evaluation of Possible Causes.

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Abstract

We investigate whether reasoners are sensitive to the underlying causal structure of an event when evaluating its likely causes. Participants read stories in which two unknown causes led to an outcome in either a converging or linear structure. They were then asked to select two of three possible causes to complete the story. Two candidates were semantically-related, direct causes of the outcome. The third was an unrelated, indirect cause of the outcome that was conditional on a directly-related event. Differences in abstract structure, and not association, guided people's evaluations of the most likely causes (e.g., 'breeze blowing' was judged an unlikely direct cause of a noisy room compared to 'alarm ringing' or 'door slamming', but a likely indirect cause, conditional on the door slamming). Results demonstrate that people consider abstract information about the structure of an event when evaluating causes. Knowledge of causal structure may therefore guide hypothesis evaluation.