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Patterns of Causal Judgements Diverge from Patterns of Recall: a Test of the Outcome Density Effect

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Abstract

An outstanding issue in cognitive science is whether the computational principles that apply to causal reasoning also guide the way that participants encode the relations among events in memory. The outcome density effect is a behavioral pattern in causal reasoning in which participants' causal ratings linearly decrease as the base rate of the effect also decreases, even while contingency remains 0. It is key evidence for Bayesian models of causal reasoning as it reflects decreasing uncertainty. We queried whether it may also, separately, affect memory for events. We measured both recall and causal ratings in a causal learning task to test whether the outcome density manipulation affects causal judgment, recall, or both. We replicated the outcome density effect on causal judgment, lending support to Bayesian models, but found that memory instead exhibited a U-shaped relationship with base rate, and therefore, causal judgment and memory had divergent signatures.