A counterfactual simulation model of causal judgment: A novel approach to understanding causal verbs

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How do we make causal judgments? And how do we choose from a variety of causal verbs the one that best describes what happened? I will present a computational framework for modeling causal explanations in terms of counterfactual contrasts defined over intuitive domain theories. Focusing on people's intuitive understanding of physics, I will present several lines of experiments testing this framework. The counterfactual simulation model (CSM) predicts people's causal judgments about a variety of physical scenes, including dynamic collision events, complex situations that involve multiple causes, omissions as causes, and causal responsibility for a system's stability. It also captures the cognitive processes underlying these judgments as revealed by spontaneous eye movements. I will discuss how the CSM helps us better understand the mapping between causal events in the world and the words we use to describe them.