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Exploring the Richness of Human Causal Reasoning with Think Aloud Data

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Abstract

The paper aims to examine participants' open-text 'think aloud' explanations of their reasoning while making a judgement about an ambiguous scenario. It aims to consider this data in light of frameworks such as causal modelling, intuitive theories, coherence and the story model. Consistent with these frameworks, we find that participants bring in a large amount of world knowledge to connect ambiguous evidence to unobserved, inferred variables and, via these, to the target judgement. We attempt to represent these chains of inferences using causal diagrams and find that participants' interpretations of the scenario can be lumped into one of two distinct causal models, each presenting an internally coherent 'image' of the ambiguous scenario. Furthermore, participants' judgement predicts which of those two models they adhere to. We discuss the limitations and merits of this methodological approach for investigating these types of frameworks.