Explanatory Completeness: Evidence from Causal Chains

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Abstract: Explanations have no bound in principle, but in practice, people prefer explanations that are complete (Zemla et al., 2017), and the explanations that they generate are bounded (Miyake, 1986). We tested reasoners' ability to assess whether some explanations are incomplete. Participants in three experiments received explanations, i.e., chains of causal events, e.g., A causes B causes C. Their task was to choose questions relevant to links in the chain. Some explanations contained "breaks" in the chain, whereas others did not. Participants in three studies were able to detect the breaks, and preliminary data suggest that they assess explanations with breaks as less complete than those without breaks. Many participants also chose to ask questions about the initial event in a causal chain (e.g., A in the chain above), suggesting that such initial events are themselves seen as incomplete. The studies reveal a novel pattern in reasoners' ability to formulate explanations.