Enhancing Effects of Causal Scaffolding on Preschoolers' Analogical Reasoning Abilities

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Abstract

Decades of work exploring the development of children's analogical reasoning illustrates that 3- and 4-year-old children struggle with reasoning by analogy (i.e. glove:hand::sock:___), almost always preferring superficially related "object matches" (:shoe) over "relational matches" (:foot). However, one recent study demonstrated preschoolers' ability to choose relational matches when a traditional relational-match-to-sample task is embedded in causal scaffolding, framing the target abstract relation as one between beginning and ending states of a causal transformation. Current work aims to discover which factors of causal framing facilitate this boost in early abstract reasoning. In Study 1, we replicate this effect while adapting the transformation to involve two objects, showing that preservation of identity is not necessary for analogical reasoning in a causal context. In Study 2, we explore the replicated effect in a case of non-agentive causation, finding that the causal boost, while still present, is significantly weaker when scaffolding involves a machine vs. an agent. These findings demonstrate that causal framing can be a powerful tool in bolstering children's early abstract reasoning capabilities and show that this enhancing effect is even stronger when an agent holds causal power.

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