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Infants inferences about insides reveal parallel causal representations

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Abstract

Work on the origin of causal thought has always proposed that there is one "original" causal representation, and over development this causal representation is applied to understanding different events. We propose that there are in fact multiple independent causal primitives, which must be integrated at some later point in development. In three experiments, we provide the first evidence that infants have multiple ways of representing cause and effect, that are fully dissociated from each other in the first year of life. At 10 months, infants represent "launching" events (Newtonian elastic collisions) as causal, in that they track which of two arbitrary objects is causing the other to move. They make inferences about whether objects have an internal source of motion based on entraining events (in which A collides with B and remains in contact with it as they moves together). Critically, each representation lacks the signatures of the other.