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Children consider the probability of random success when evaluating knowledge

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Abstract

To infer what others know, we must consider under what epistemic states their actions were both rational and probable. We test whether preschoolers can compare the probability of different actions (and outcomes) under different epistemic states—and use this to evaluate what others know. Specifically, four- to six-year-olds ($n=90$) were asked to help evaluate an agent's knowledge state by asking the agent to complete either an “undiagnostic” task (where success was assured), or a “diagnostic task” (where the probability of random success was low). By age six, children understood that the “diagnostic” task would more likely reveal the agent's knowledge state; four- and five-year-olds had no reliable preference, although children in all age groups understood that the “diagnostic” task was harder. These results suggest that, by the end of preschool, children understand how agents' epistemic states and environment jointly determine success—considering whether agents' actions imply knowledge, or just luck.