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Successful Modal Reasoning Depends On WHAT Went WHERE

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Abstract

Quantifying over possibilities requires Modal Reasoning (e.g., categorizing events as necessary, possible, and impossible). This suite of abilities matures during the preschool years, but toddlers sometimes succeed at reasoning over possibilities and sometimes fail. Does this diversity of results reflect mere variability? We propose that these mixed findings reflect a deeper distinction: toddlers fail when tested about ambiguous locations of objects (WHERE) and succeed when tested about ambiguous identities of objects (WHAT). In Experiment 1, we directly compared these forms of ambiguity using matched tasks. Consistent with the hypothesis, toddlers succeeded at reasoning about ambiguous identities but failed when the ambiguity concerned location. Experiment 2 replicated this asymmetry in language comprehension as toddlers successfully comprehended modal terms like “can” and “have to” in an identity task but not in a location task. Thus, Modal Reasoning emerges earlier than suggested, and diversity in results reflects the contributions of distinct cognitive systems.