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Rethinking Inference: A Multidimensional Model of Inference for Human and Nonhuman Animals

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Abstract

Traditional conceptions of inference emphasize explicit following of logical rules, often tied to the possession of natural language, thereby implying that non-human animals cannot make inferences. However, comparative research shows extensive evidence of the success of several species of non-human animals in nonverbal reasoning tasks, putting pressure on the traditional view. We deny two traditional assumptions about inference: the lingualism of thought, and the requirement of explicit rule following. We suggest instead a multidimensional model of inference illustrated through several case studies. Thereby, we categorize informational transfers across three dimensions by marking the degree of context-independence, the format of representation, and the type of perspectivity involved. By allowing for a more nuanced interpretation of empirical data than the traditional view, our framework is able to accommodate inferential behaviors of both linguistic and non-linguistic agents, and shed light on varied manifestations of inference across species and developmental stages.