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Learning a novel rule-based conceptual system

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Abstract

Humans have developed complex rule-based systems to explain and exploit the world around them. When a learner has already mastered a system's core dynamics identifying its primitives and their interrelations further learning can be effectively modeled as discovering useful compositions of these primitives. It nevertheless remains unclear how the dynamics themselves might initially be acquired. Composing primitives is no longer a viable strategy, as the primitives themselves are what must be explained. To explore this problem, we introduce and assess a novel concept learning paradigm in which participants use a two-alternative forced-choice task to learn an unfamiliar rule-based conceptual system: the MUI system (Hofstadter, 1980). We show that participants reliably learn this system given a few dozen examples of the systems rules, leaving open the mechanism by which novel conceptual systems are acquired but providing a useful paradigm for further study.