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Paths to Learning in Traditional Artificial Classification Tasks

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Abstract

There's increasing evidence from studies of human performance in artificial classification learning tasks that a plurality of mechanisms or strategies are available to learners. A recent investigation from our lab group found that a linearly-separable category structure was harder to learn than a comparable non-linearly separable structure; and furthermore, that there were qualitative individual differences reflecting different paths to learning. In the present experiment, we take a deeper dive into performance on the LS category structure using a bank of test phase measures to more fully reveal what each individual has learned and represented. We identify a systematic set of profiles to characterize individual learners and demonstrate novel evidence on the nature and role of traditional psychological constructs: exemplars, prototypes, and rules. In particular we show classic prototype effects arising not as a broad-based phenomenon but only from a specific path to learning. Keywords: categorization; tacl: prototype effect; individual differences