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Modeling Human Performance on SHJ Category Structures with a Divergent Autoencoder

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Abstract

In this study we conducted further tests of the ability of a computational model to fit human category learning performance. The Divergent Autoencoder (DIVA) is a generative-connectionist model of human categorization that learns through error-driven adjustments to predict class membership on the basis of the fidelity of auto-associative item reconstructions with respect to each category (Kurtz 2007). DIVA was tested on the classic SHJ category structures resulting in new qualitative and quantitative fits to both the original and revised SHJ orderings that show the impact of proposed design modifications and parameters. Theoretical implications for psychological accounts of category learning are discussed.