

Category Learning in a Transitive Inference Paradigm

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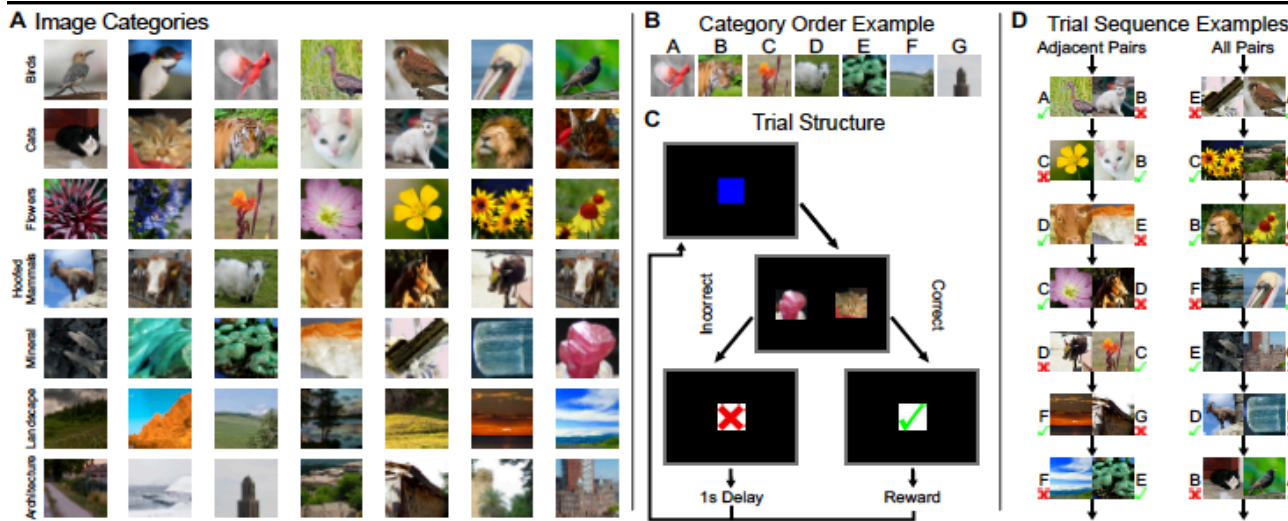
Abstract

The implied order of a ranked set of visual images can be learned by transitive inference (TI), without reliance on stimulus features that explicitly signal their order. Such learning is difficult to explain by associative mechanisms but can be accounted for by cognitive representations and processes such as TI. Our study seeks to determine if those processes are also applied to categories of images. Specifically, we asked whether participants can (a) infer that images being presented belonged to familiar categories, even when every image presented during every trial is unique, and (b) perform TI about the ordering of those categories. Despite receiving minimal instruction, participants learned the implied order of lists of fixed stimuli and lists of ordered categories, using trial-unique exemplars. However, participants who were presented with category exemplars did not display a symbolic distance effect, unlike participants whose TI training used fixed stimuli. These findings suggest that differing cognitive processes may underpin serial learning when learning about specific stimuli as opposed to stimulus categories.

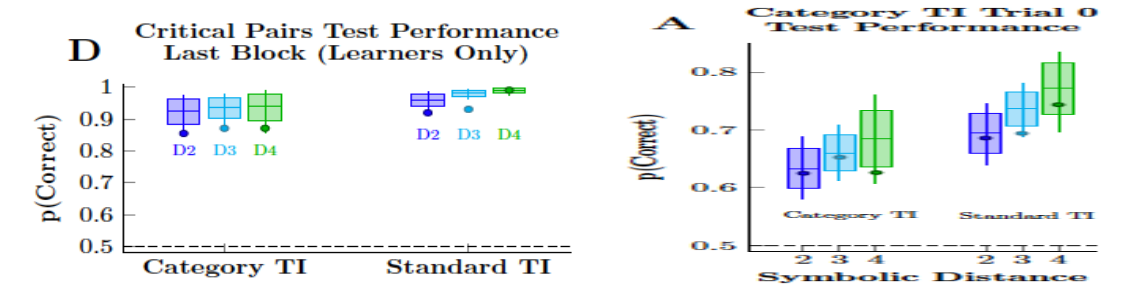
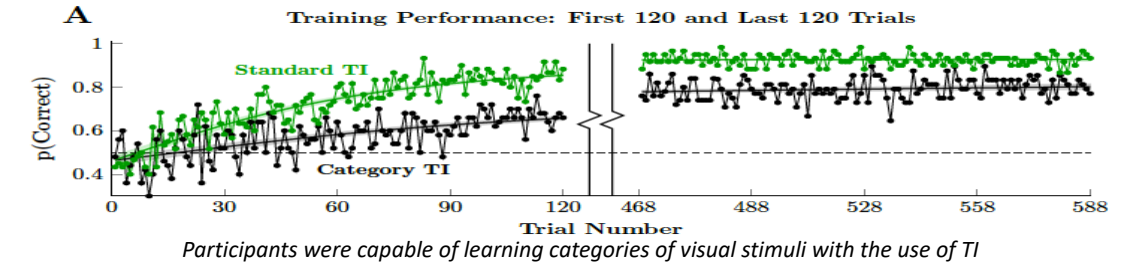
Methods

Participants – two groups:

- 1) visual stimuli were presented using TI ($n=60$)
- 2) Visual stimuli were presented using category TI (which exemplars of each category were trial-unique) ($n=50$)



Results



Learning categories of visual stimuli with the use of TI were comparable with learning visual stimuli with the use of TI

Symbolic distance effects were not demonstrated for learning categories of visual stimuli with the use of TI

Conclusions

Differing cognitive processes may underpin serial learning when 1) learning the orders of visual stimuli, as opposed to 2) learning the orders of categories of visual stimuli.

Ongoing work:

1. MRI and electrophysiological techniques implicate specific areas of the brain for this cognitive processing
2. Implement task on children diagnosed with autism spectrum disorder (ASD)