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Eye Tracking Studies of Category Learning: Fitting Complex Models to Individuals.

The Cognitive Science Lab at Simon Fraser University conducts experiments in which human subjects are asked to categorize a series of images based on criteria that are not initially specified to the subject. At the beginning of a trial, a subject must simply guess the correct category, but is given feedback on performance. Within an hour, most subjects learn the correct rule for categorization. The data collected includes the guesses of the subjects, the timing of the guesses, and eye tracking data, i.e. where on a video screen the subject's gaze is fixated at every point in time.

We have constructed a model that is able to reproduce many features of this data set, while trying to maintain neuropsychological plausibility. I'll talk about some of the challenges of fitting this model to individual subjects (rather than averages over subjects, as is usually done) and in interpreting the resulting distribution of parameters.

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