

Probabilistic Selection Task

Title	Probabilistic Selection Task
Domain	Self-Regulation
Type	Self-report
Duration (min)	14
Description	Subjects learn to decide between multiple stimuli associated with different probabilities of reward (80% stim vs. 20% stim or 70% stim vs 30% stim) during a training phase, eventually learning to reliably choose the 80% stim more than the 20%, 70% more than 30%, etc. In a follow up testing phase subjects must decide between novel combinations of the 80%/20% stimuli with the other stimuli. For instance, they would see the 80% stimuli paired with the 70/60/40/30 stims, but not the 20% stim. In this test phase there will be no feedback. If subjects do better on trials with the 80% stim than the 20% stim (defined as choosing the 80% stim and avoiding the 20% stim) it indicates the subject learns better from positive feedback (or negative feedback if the opposite pattern)
OSF Link	https://osf.io/br2c9/
Adult/Child	adult
Computerized	
Identified	1
Identified Description	The probabilistic selection task assesses learning from positive or negative outcomes. It was developed to probe the behavioral consequences of dopamine depletion in patients with Parkinson's disease, and thus elucidate the cognitive consequences of basal ganglia-dopamine interactions. Briefly, depletion of dopamine improves learning from negative outcomes while excessive dopamine improves learning from positive outcomes. This is thought to be due to the opposite effects dopamine levels have on Go/NoGo pathways in the basal ganglia (dependent, respectively, on D1 and D2 dopamine receptors). Since its original development it has been used to characterize differences in a number of populations, and has found use as an individual difference metric which is associated with individual variability in D1 and D2 receptor binding. Participants are trained to select between abstract stimuli associated with different probabilities of giving a reward (e.g. a stimulus that results in reward 70% of the time vs. one that results in reward

30% of the time). Participants learn three probability pairings: 80/20, 70/30, and 60/40, and eventually learn to select the higher probability outcome. Testing involves selecting amongst novel pairings (e.g. 80/40). The participant's bias towards learning from positive vs. negative outcomes is assessed by their relative success on high valued pairings (80/70) vs. low value pairings (20/30).

Identified Supporting Documentation	
Identified PMCID, PUBMED ID, or CITATION	Text Citation: Frank, M. J., Seeberger, L. C., & O'Reilly, R. C. (2004). By Carrot or by Stick: Cognitive Reinforcement Learning in Parkinsonism. Science, 306(5703), 1940–1943.
Measured	
Measured Description	
Measured Supporting Documentation	
Measured PMCID, PUBMED ID, or CITATION	
Influenced	
Influenced Description	
Influenced Supporting Documentation	
Influenced PMCID, PUBMED ID, or CITATION	
Outcome (Validated vs Invalidated)	
Outcome	
Outcome Description	
Outcome Supporting Documentation	
Outcome PMCID, PUBMED ID, or CITATION	
Owner	Teon Brooks Send email to Teon

