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Learning Affects Strategic Processing on Raven's Advanced Progressive Matrices

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Abstract: Eye-movement patterns contain important information about strategic information processing. Using the successor representation (SR, Dayan, 1993, Neural Computation) to capture statistical regularities in temporally extended fixation sequences we were able to assess strategic shifts in eye-movement patterns and predict scores on Raven's Advanced Progressive Matrices (APM) test. Thirty-five participants completed two subsets of APM items on two separate days. Principal-component analysis of the SRs revealed individual differences in scanning patterns. The strongest principal component quantified the tendency to systematically scan the Raven matrix by rows; another component quantified the tendency to toggle to and from the response area. Leave-one-out cross validation demonstrated that these two components predicted 41