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Khanh P. Nguyen*, 12218 North Palm Lake Dr., Houston, TX 77034, and **Zachary Kilpatrick** and **Kresimir Josic**. *Probabilistic feedback updates priors in sequential decisions with accumulated evidence.*

To make the best decisions organisms must flexibly accumulate information, accounting for what is relevant and ignoring what is not. Many decision-making studies focus on sequences of independent trials in which the evidence gathered to make a choice, as well as the resulting actions and feedback are irrelevant to future decisions. Normative theories have been developed for two-alternative forced choice tasks when rewards provide the sole evidence. Less is known about how observers should integrate probabilistic rewards interspersed with noisy evidence to inform their decisions in future, correlated trials. To understand decision-making under more natural conditions, we extend drift-diffusion models of evidence accumulation in serial correlations trials with and without feedback. Ideal observers integrate noisy evidence within a trial and optimize their reward rate across trials by adjusting their sequence of decision thresholds to deliberate longer on early decisions and respond more quickly in later trials. We show how conflicts between feedback and accumulated evidence are resolved and under which conditions one of them dominates. Our findings are consistent with experimentally observed response trends. (Received March 03, 2020)