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Mental Sampling in Preferential Choice: Specifying the Sampling Algorithm

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Abstract

Recent decision making theories have explained behaviour using mental sampling mechanisms where people imagine possible outcomes to guide their choices. Simultaneously, work in other domains has found evidence of particular mental sampling patterns, such as autocorrelations between samples and moderation by prior assumptions, which current decision making theories do not generally consider. Here, we seek to unify this work, developing a new sampling model of preferential choice incorporating these findings in other domains. Our model, based on the Autocorrelated Bayesian Sampler, predicts choice, reaction time, confidence and valuation from a common underlying process. We find a strong correspondence between our model's predictions and empirical choice data, though performance remains below leading explanations for such tasks. Our model does however cover a broader set of response types than existing theories, suggesting the advantages of considering of a wider range of behaviours than are commonly examined in current decision making studies.