

The Quantum Sequential Sampler

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Paradoxical findings in decision making have been a driving force in the development of quantum cognitive models since the inception of such models. However, some of these paradoxical findings were first discovered several decades ago. Current quantum models and corresponding Bayesian models are generally considered to offer a good explanation for many of decision findings, from the research tradition of especially Kahneman, Tversky, and their colleagues. Therefore, there is a question of how to advance decision empirical research, in a way to discover new, exciting findings and challenge existing probability models. I will present a large empirical investigation in decision making related to the US Presidential elections (for Biden vs Trump). Amongst other interesting findings, these results revealed systematic violations of binary complementarity, which could not be accounted for either by the original quantum model or the Bayesian ones. I then discuss an extension to the original quantum model, involving sequential sampling mechanisms, whose effect is to introduce a particular kind of noise into predictions. This model, the Quantum Sequential Sampler, performs very well and allows several new insights into the underlying cognitive principles.