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Rationalizing subjective probability distortions

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Abstract: You cannot know the contents of a memory until after you have actually retrieved it. This paper considers the implications of this straightforward observation upon the psychological process of preference construction. We show that this constraint renders observers with random access memory susceptible to tail risks. We show that this difficulty can be rectified by permitting observers to weight memory retrieval for such observations, that outcome utility cannot be used for this purpose, but information-theoretic surprise can serve as a useful proxy for it. Using two novel experiments, we present evidence in support of our account. With the first, we show that humans find surprising experiences easier to remember. With the second, we show that surprising experiences in the past have a greater influence on future decisions than is statistically warranted. This twofold demonstration substantiates a psychologically plausible account for the origin of subjective probability distortions.