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Cross-dimensional contextual effects in decision under risk

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Abstract

It has been theorized that people, as decision-makers with limited cognitive resources, may represent value and probability in an adaptive way, thus exhibiting context-dependent decision biases. However, most theoretical models and empirical tests only focused on contextual effects within single dimensions, such as the influence of the value context on the utility function or that of the probability context on the probability distortion function. Here we investigated potential cross-dimensional as well as within-dimensional contextual effects in a series of experiments of decision under risk. Each participant was tested on gambles with factorially-designed values and probabilities so that we could simultaneously estimate their utility and probability distortion functions. Across participants we manipulated the mean and variance of the distribution of the gamble values. We found not only within-dimensional effects of the value context on the utility function, but also cross-dimensional effects of the value context on the probability distortion function.