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# **The rational side of decision bias based on verbal probabilities**

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## **Abstract**

Verbal probabilistic expressions (verbal probabilities) contain a communicative function called directionality and can be categorized as positive (e.g., likely or probable) or negative (e.g., unlikely or doubtful) on the basis of their directionality. Previous studies have demonstrated that the directionality of phrases affects decisions. In particular, people tend to be more risk seeking when presented with positive phrases and risk averse when presented with negative phrases. The rationality (i.e., maximizing utility) of such seemingly biased decisions is examined in this study. We hypothesize that because a speaker tends to choose a positive or negative expression on the basis of context, the selected phrase works as an adaptive cue for understanding the situational change, and that decision biases based on differences in expressions will lead to more rational decision making. Computer simulations were conducted regarding decisions with uncertainty based on verbal probabilities. We found that despite speaker biases in probability judgments, miscommunication generated by the vagueness of verbal expressions, and individual differences in subjective values, biased decision makers who changed their risk attitude on the basis of the directionality of verbal probabilities could make more decisions that were rational than could those who did not show such decision biases.