

This Week's Citation Classic

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Tversky A & Kahneman D. Judgment under uncertainty: heuristics and biases.
Science 185:1124-31, 1974.
[Department of Psychology, Hebrew University, Jerusalem, Israel]

The paper describes three judgmental heuristics—representativeness, availability, and anchoring—that are commonly used to estimate probability, frequency, and values. The heuristics are highly economical and usually effective, but they also produce predictable biases. [The *Social Sciences Citation Index*[®] (SSCI)[®] indicates that this paper has been cited in over 420 publications since 1974.]

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"The research reviewed in this paper began in 1969 when Daniel Kahneman invited Amos Tversky to discuss potential applications of research on judgment and decision making in a seminar on applied psychology. Immediately after the seminar we started a conversation about errors of judgment, their causes and consequences, which led to an extensive professional collaboration and a close personal friendship lasting more than 13 years. The research was sparked by the realization that intuitive predictions and judgments under uncertainty do not follow the laws of probability or the principles of statistics. Instead, people appear to rely on a limited number of heuristics and evaluate the likelihood of an uncertain event by the degree to which it is represen-

tative of the data generating process, or by the degree to which its instances or causes come readily to mind. These hypotheses were formulated very early in conversations between us but it took many years of research and thousands of subject hours to study the role of representativeness, availability, and anchoring, and to explore the biases to which they are prone.

"We spent the better part of 1973 writing the paper and then revising it again and again in an attempt to summarize our research on heuristics and biases in judgment under uncertainty. To our pleasant surprise, the paper reached many readers outside psychology and it has been reprinted in several volumes of readings in economics, public policy, statistics, and cognitive science. It was widely cited because it suggested a new approach to the study of subjective probability.

"The approach to the study of judgment that is reflected in the paper is characterized by (1) a comparison of intuitive judgment to normative principles of probability and statistics, (2) a search for heuristics of judgment and the biases to which they are prone, and (3) an attempt to explore the theoretical and practical implications of the discrepancy between the psychology of judgment and the theory of rational belief. This approach has become one of the foci of judgment research during the last decade. It was criticized by some who found the theory too vague and the phenomena too elusive; it has also generated a substantial body of empirical research. Much of this work has been reprinted and summarized in a recent book, *Judgment under Uncertainty: Heuristics and Biases*.¹ We have received the Distinguished Scientific Award of the American Psychological Association for our research on judgment and decision making."

1. Kahneman D, Slovic P & Tversky A, eds. *Judgment under uncertainty: heuristics and biases*. Cambridge: Cambridge University Press, 1982. 555 p.