



Maps of bounded rationality: a perspective on intuitive judgment and choice

Daniel Kahneman

<https://www.nobelprize.org/uploads/2018/06/kahnemann-lecture.pdf>

Judgment under Uncertainty: Heuristics and Biases

Amos Tversky and Daniel Kahneman

Science; New Series; Vol. 185; No. 4157; Sep. 27, 1974; pp. 1124-1131.

Cognitive Reflection and Decision Making

Shane Frederick

Journal of Economic Perspectives; Vol. 19, No. 4; Fall 2005; pp. 25-42

A bat and ball cost \$1.10.

The bat costs \$1 more than the ball.

How much does the ball cost?

A **heuristic** is a rule that provides a shortcut to solving difficult problems. Heuristics are used when you have limited time and/or information to make a decision. Heuristics lead you to a good decision most of the time. Heuristics are discussed in both computer science and psychology circles.

All roses are flowers.

Some flowers fade quickly.

Therefore some roses fade quickly.











Linda is 31 years old, single, outspoken and very bright. She majored in philosophy. As a student she was deeply concerned with issues of discrimination and social justice and also participated in antinuclear demonstrations.

Which is more likely?

- a. Linda is a bank teller.
- b. Linda is a bank teller and active in the feminist movement.

Would you accept this gamble?

50% chance to win \$150

50% chance to lose \$100

A person who is asked "What proportion of long-distance relationships break up within a year?" may answer as if she had been asked "Do instances of swift breakups of long-distance relationships come readily to mind?"

Sampling bias occurs when the units that are selected from the population for inclusion in your sample are not characteristic of (i.e., do not reflect) the population. This can lead to your sample being unrepresentative of the population you are interested in.

For example, you want to measure how often residents in New York go to a Broadway show in a given year. Clearly, standing along Broadway and asking people as they pass by how often they went to Broadway shows in a given year would not make sense because a higher proportion of those passing by are likely to have just come out of a show. The sample would therefore be biased.

For this reason, we have to think carefully about the types of sampling techniques we use when selecting units to be included in our sample. Some sampling techniques, such as convenience sampling, a type of non-probability sampling (which reflected the Broadway example above), are prone to greater bias than probability sampling techniques. We discuss sampling techniques further next.