Understanding & Navigating Cognitive Biases: Annotated Bibliography

Humans are not always rational decision-makers. Research on human judgment and decision-making demonstrates that our thinking is not aligned with rational expectations. This is due to human limitations in cognition, goals and motivated reasoning, and blind spots that get in the way of taking in all relevant information. We use short cuts, or heuristics, to make decisions that are not necessarily based on a comprehensive understanding of the situation. Over decades of research, many types of cognitive biases, which are predictable deviations from rational thought, have been defined and explained. Examples include the confirmation bias, in which we tend to seek information that confirms our already established beliefs instead of searching evidence that would contrast; another is the availability bias in which we make decisions based on easily available and repeated information. A more complete list of cognitive biases can be found here.

One way to improve decision-making is to understand how biases and heuristics work to encourage deviations from rational thinking, and then to pay attention to situations in which the biases are likely to play a role. Here we offer resources that explain the fundamental research on biased decision-making, the effects that biases can have on our behavior, and specific applications of biases to organizational life. Exciting news is that research on cognitive biases has been and is continuing to be successfully replicated.

Foundational research articles on judgment and decision-making

Tversky & *Kahneman*, 1981, "The framing of decisions and the psychology of choice"- LINK

This is a foundational work on framing effects in decision theory. Daniel Kahneman won the Nobel Prize in Economics for his work in this field (Amos Tversky was his research partner, but died before the Nobel Prize was awarded). This piece is an academic research article that describes Prospect Theory in basic economic terms. Prospect Theory says that we value losses more than gains, which skews the way we may decisions in the face of losses versus gains. This article provides the basic economics that describe how people value losses more than gains and then discusses the implications for decision-making.

Kunda 1990, "The case for motivated reasoning" - *LINK*

Kunda's review is another foundational piece of research; this time drawn from a social psychological perspective. In this article, Kunda draws on psychological research to demonstrate how personal motivations and goals shape the reasoning process. Kunda goes beyond the traditional cognitive explanations that rely on a rational process of evaluation in decision-making, and uses research to demonstrate that decision-making is swayed by individual motivations and goals. In addition to introducing a concept of motivated reasoning, this article is a comprehensive review of the psychological research conducted at the time, giving the reader a rich background of the concept of motivated reasoning and how this affects decision-making from a psychological perspective.

International best-selling books examining behavioral economics

Thinking Fast and Slow - *LINK*

In this best-selling book, Daniel Kahneman reviews the work he conducted over decades with Amos Tversky in behavioral economics. The book offers a fairly straightforward framework: humans have two systems of thinking. System 1 is fast, efficient, and emotional. System 2 is slower and more reasoned. We spend most of our time in System 1 (e.g., you don't have to reason slowly through how to pour your coffee or tie your shoes in the morning). There are times when we need to access System 2 for more complex problems. In addition to telling stories about the

process of discovery of this phenomena, Kahneman provides specific examples of the types of questions that he has asked in his research to arrive at these conclusions. This book is a thorough examination of Kahneman and Tversky's work in behavioral economics, and offers insights into the research that allowed them to draw the conclusions that they did.

Predictably Irrational - LINK

This is another best-selling book that explores the way in which humans are not rational decision makers. Dan Ariely, a professor of psychology and behavioral economics at Duke University, suggests that humans are not only irrational (compared to a rational, economic, decision-making model), but that the irrationality emerges in a pattern. He describes research that demonstrates how we can predict when people will deviate from rational decision-making, and then intuits how this irrationality contributed to the economic crisis of the late 2000s.

Nudge - LINK

Our environment shapes our choices, even without us realizing it. Richard Thaler, Nobel-prize winning economist, and thought leader Cass Sustein consider the role of choice architecture - meaning how environmental effects shape our decision making - and discuss ways that designing choice architecture can improve people's well-being. They make the argument that by making small changes to our environment (i.e., automatic bank deductions that go into retirement accounts), people can be nudged into making better decisions. Choice architecture seeks to remove some of the need for the reasoned, rational thinking of System 2, arguing that many of the day to day choices that we make can be changed with a slight modification, but with improved results for the individual.

Mistakes Were Made But Not By Me - LINK

In this book, Carroll Travis and Elliot Aronson move beyond errors in decision-making as a broad category, and instead focus on the role of justification that re-enforces these errors. They draw on decades of research to demonstrate how people externalize blame and put on blinders that allow them to see their errors as good decision-making. This book can make us see how humans are generally all alike in their ability to reduce cognitive dissonance by selecting parts of reality to support bad decision-making. The authors go further to help the reader identify their own self-justification habits and offer steps to improve individual decision-making.

Specific applications of biased judgment and decision-making

Managerial: *Outsmarting Your Own Biases* - LINK

The authors take the perspective of a manager/leader, although the conclusions work beyond this domain. After setting up a brief example of how our narrow thinking leads us to make inefficient decisions, they identify particular tactics that you can use both individually and in group settings to reduce decision-making errors. They argue that awareness of our own biases is the first step, and that there are specific tactics we can employ to improve our decision making. Examples include the "premortem", in which team members are encouraged to analyze hypothetical failures to better identify gaps in their thinking.

Ethical: *Bounded Ethicality* - LINK

Dolly Chugh and Mary Kern review research on ethical behavioral and the outcome of bounded ethicality. Bounded ethicality is a specific prescription of the decision-making literature. The authors examine decades of work on motivated decision-making as it relates to ethical or moral issues. This specific application of behavioral decision-making helps us to consider why ethical dilemmas create blinders or biases that prevent us from making ethical decisions, even when we intend to do so.

Medical: *Cognitive Biases Related to Diagnostic Errors and Medical Decisions* - LINK

In this article, the authors conduct a systematic review of medical literature to increase our understanding of how biases in decision-making can lead to diagnostic and other errors in a medical environment. The authors find that overconfidence, falling victim to anchoring, availability biases, and tolerance for risk all lead to diagnostic errors in medicine, demonstrating that even doctors are affected by biased decision-making and that there are meaningful downstream effects for this in the medical field.

Psychological: *The Role of the Future Self in Decision-Making* - LINK

This piece of journalism draws on much of the research described above, and goes further by identifying how thinking about how your future self would evaluate the decision you are currently making can change the decision you make in the moment. Citing examples like considering how your future self might evaluate your financial habits now, can actually make people more willing to invest money at the moment. The author cites specific examples, previously used in research by Kahneman and Tversky, to illustrate the effects of biases. Unlike the scientific pieces, this is a popular article that provides very tangible examples while drawing from the different research that has been conducted. It is a thorough examination of the concept of cognitive biases, and the way in which we can play around with our environment and our thinking to change our decision-making.

Conclusion

There is a lot of work - both academic and popular - on the concept of biases. This recent thinking by Teppo Felin suggests that we shouldn't think about biased decision-making as a "bad" or "non-rational" thing, but rather recognize that as humans, we cannot ever have perfect information. It is correct and rational to make decisions based on our motivated reasoning. Certainly an opinion worth exploring, and one that rounds out the research mentioned earlier in this annotated bibliography.