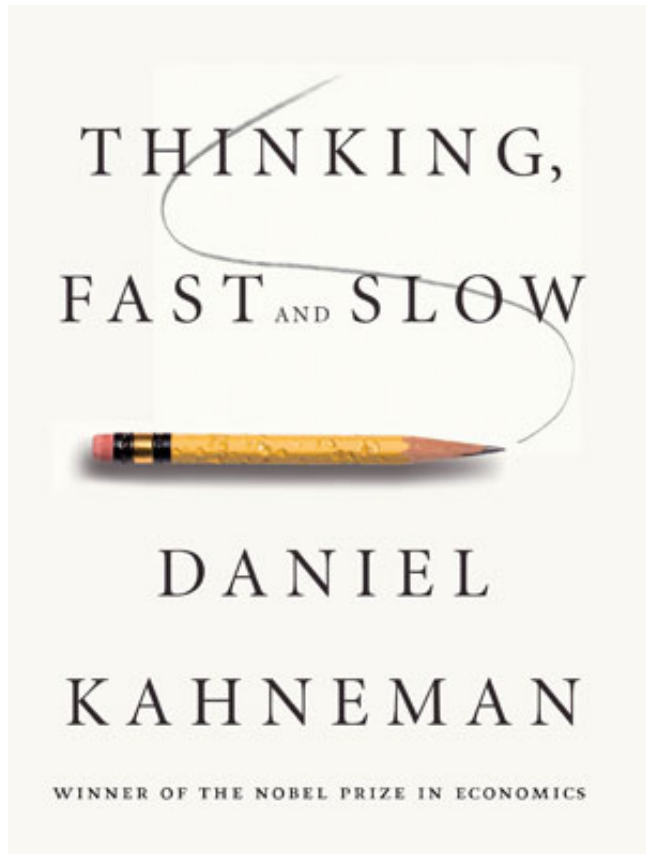# Review of *Thinking, Fast and Slow* by Daniel Kahneman

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Do cognitive biases show up in people other than college sophomores? Do people make decision mistakes outside the lab, when real incentives are on the line? Are smart people immune from bias? Are these biases really mistakes? Does experience eliminate biases?

As a card-carrying member of the biases-and-heuristics crowd of the behavioral decision research field, these are the questions I have continually been asked over the years, despite my belief that they were answered conclusively long ago. In accepting an invitation to review *Thinking, Fast and Slow* (*TFS*) by Daniel (Danny) Kahneman, I anticipated getting a comprehensive and clear response to these decades-old questions. Instead, *TFS* provides an assessment and integration that goes far beyond these early, comparatively simple questions.

I have followed Danny's work closely since my days as a graduate student, have discussed many issues about the field with him, and even had the opportunity to co-teach a decision-making course with him to executives at a major corporation. Yet despite having followed Danny's work quite closely, I feel *TFS* is a much more complex book than I anticipated: It provides an integrated tale that could easily have been broken down into three different books. One book would describe the broad psychology underlying the judgment and decision-making field. A second book would provide a contemporary history of the field through the eyes of its leading scholar. The third book would offer a set of snapshots of Danny's

personal journey.

The field of behavioral decision research has proven to be remarkably robust, demonstrating effects that have had profound influences on economics, finance, marketing, medicine, law, and negotiation, among other applied fields. Behavioral decision research has diffused to other academic areas faster than any topic in the history of psychology. And Danny has been recognized with the Nobel Prize in Economics, among many other well-deserved awards. But for the past 35 years, one ongoing criticism of the behavioral decision research field, particularly the work focusing on heuristics and biases, is that it doesn't offer enough detail about the psychological mechanisms underlying the fascinating effects it documents. This tension about the nature of the field, and about the nature of evidence needed for journal publication, may be partially responsible for behavioral decision research developing more in professional schools than in psychology departments in recent years. (Of course, there are other explanations as well.) Then, with so much of the field drifting away from psychology departments, there was less of a push for researchers to explain the underlying psychological mechanisms. Answering the many questions about psychological mechanisms underlying behavioral decision research is at the core of *TFS*, and these answers represent the first of the three books specified above.

For more on Daniel Kahneman read his recent *New York Times* article [Don't Blink! The Hazards of Confidence](#) and David Brooks' *New York Times* opinion piece [Who You Are](#) profiling Kahneman's life.

In the early history of the field, many judgment and decision-making researchers were content to demonstrate these interesting and important effects along with their impact, their generalizability, and (surprisingly for work coming out of psychology) the need to redefine traditional neoclassical model of economics as a result of Kahneman and Tversky's results. Yet *TFS* is not defensive in responding to psychologists' criticisms that behavioral decision researchers have ignored the mechanisms and psychological processes underlying these effects. Rather, Danny provides a history of the "demonstration approach" that he and Amos Tversky developed and perfected, starting in 1969 in Israel. He provides vivid details of how he and Amos would set about looking for biases in their own judgments, then he describes how they sought to develop demonstration projects to show that the effects were robust. But he also conveys a concern for the underlying mechanisms as a source for understanding the demonstrations that they were providing, a concern that often did not show up in their early writing. *TFS* makes it clear that Kahneman and Tversky had these questions on their minds when developing their amazing demonstrations. And *TFS* also clarifies that we now know a tremendous amount about the underlying mechanisms for the effects in the behavioral decision research field, often based on mechanisms that we did not formally understand when Kahneman and Tversky published their 1974 Science paper (e.g., priming, automaticity).

As an example of their early search for psychological mechanisms, *TFS* documents Kahneman and Tversky's early discussions about the mechanism underlying the anchoring phenomenon. Tversky viewed the underlying process as one of anchoring and insufficient adjustment — the view that prevailed in the years following their famous 1974 paper in *Science*. In contrast, Kahneman argued for a priming explanation, where an anchor leads to a biased search for relevant data. But, as critics have observed, little process evidence appeared in their early work. Rather than being defensive about this, *TSF* gives credit to Epley, Gilovich, Leboeuf, and Shafir for later showing that Tversky's anchoring-and-adjustment explanation was correct, and then credits Mussweiler and Strack for later showing that Kahneman was also right about priming. As Kahneman writes in *TFS*, "it is now clear that Amos and I

were both right. Two different mechanisms produce anchoring effects…" (p. 120).

TFS also provides a comprehensive and integrated treatment of the role that two different cognitive systems play in explaining our judgments and decisions, adopting Stanovich and West's System 1 and System 2 distinction. Danny explains that System 1 thinking, or the intuitive reactions and quick judgments that we rely on for most decisions, is also the process that leads to far greater biases in judgment. He also documents recent advances in how System 2, our more deliberative thought processes, can be used to dampen the negative effects of our intuitive judgments. In doing so, Kahneman clarifies a structure for understanding the processes and mechanisms that can explain when biases are most likely to appear and when we need to apply our System 2 processes to the problem at hand.

The second "book within a book" focuses on Danny's version of the history of the field. We are presented with a nice overview of how early work focused on demonstrating biases, with Slovic, Lichtenstein, and Fischhoff playing important roles in the story. *TFS* then explains how behavioral decision research diffused into many scholarly and policy realms (with much credit given to Thaler and Sunstein for their amazing book, *Nudge*, 2008). Yet it is clear that Danny's assessment of the current state of the field is now intimately connected to the System 1/System 2 distinction.

The third book within a book, which recounts Danny's personal intellectual journey, with many reflections on his collaboration with Tversky, provides the glue that turns *TFS* into a compelling story. We will apparently learn far more about this partnership, as there are rumors that journalist Michael Lewis is working on a book on how Kahneman and Tversky's collaboration has changed the world. But, for now, Kahneman's version is very rewarding, and nicely connects the other two books in the process.

This summary is far too brief to capture the complexity of *TFS*, and there are many insights outside the structure of this review. For example, *TFS* develops Danny's current view that both expertise and heuristics are sources of intuition, and this development presents intuition in a much more positive light than many people would expect from Danny. But, to see all of the developments in Danny's current views of the field, a careful reading of *TFS* is required; this short review cannot do *TFS* justice.

As I think about key publications in the field of behavioral decision making, I think about March and Simon's 1958 book; I think of papers Kahneman and Tversky published in 1974, 1979, and 1981; I think of Thaler and Sunstein's 2008 guide on using behavioral decision research to make the world a better place; and I will now think about Kahneman's 2011 statement on the history and current status of the field.