BOOK
Thinking Fast and Slow

AUTHOR
Daniel Kahneman

PUBLISHER
FSG Adult

PUBLICATION DATE
April 2013

SYNOPSIS [From the publisher]
In the international bestseller, *Thinking, Fast and Slow*, Daniel Kahneman, the renowned psychologist and winner of the Nobel Prize in Economics, takes us on a groundbreaking tour of the mind and explains the two systems that drive the way we think. System 1 is fast, intuitive, and emotional; System 2 is slower, more deliberative, and more logical. The impact of overconfidence on corporate strategies, the difficulties of predicting what will make us happy in the future, the profound effect of cognitive biases on everything from playing the stock market to planning our next vacation—each of these can be understood only by knowing how the two systems shape our judgments and decisions.

"Amos told the class about an ongoing program of research at the University of Michigan that sought to answer this question: Are people good intuitive statisticians? We already knew that people are good intuitive grammarians: at age four a child effortlessly conforms to the rules of grammar as she speaks, although she has no idea that such rules exist. Do people have a similar intuitive feel for the basic principles of statistics? Amos reported that the answer was a qualified yes. We had a lively debate in the seminar and ultimately concluded that a qualified no was a better answer."

"We proposed that they used resemblance as a simplifying heuristic (roughly, a rule of thumb) to make a difficult judgment. The reliance on the heuristic caused predictable biases (systematic errors) in their predictions."

"People tend to assess the relative importance of issues by the ease with which they are retrieved from memory—and this is largely determined by the extent of coverage in the media."

"Expert intuition strikes us as magical, but it is not. Indeed, each of us performs feats of intuitive expertise many times each day. Most of us are pitch-perfect in detecting anger in the first word of a telephone call, recognize as we enter a room that we were the subject of the conversation, and quickly react to subtle signs that the driver of the car in the next lane is dangerous. Our everyday intuitive abilities are no less marvelous than the striking insights of an experienced firefighter or physician—only more common."

"The situation has provided a cue; this cue has given the expert access to information stored in memory, and the information provides the answer. Intuition is nothing more and nothing less than recognition."

"The best we can do is a compromise: learn to recognize situations in which mistakes are likely and try harder to avoid significant mistakes when the stakes are high. The premise of this book is that it is easier to recognize other people's mistakes than our own."

"It is normally easy and actually quite pleasant to walk and think at the same time, but at the extremes these activities appear to compete for the limited resources of System 2. You can confirm this claim by a simple experiment. While walking comfortably with a friend, ask him to compute 23 × 78 in his head, and to do so immediately. He will almost certainly stop in his tracks. My experience is that I can think while strolling but cannot

engage in mental work that imposes a heavy load on short-term memory. If I must construct an intricate argument under time pressure, I would rather be still, and I would prefer sitting to standing. Of course, not all slow thinking requires that form of intense concentration and effortful computation—I did the best thinking of my life on leisurely walks with Amos."

"Intelligence is not only the ability to reason; it is also the ability to find relevant material in memory and to deploy attention when needed."

"This remarkable priming phenomenon—the influencing of an action by the idea—is known as the ideomotor effect."

"A reliable way to make people believe in falsehoods is frequent repetition, because familiarity is not easily distinguished from truth. Authoritarian institutions and marketers have always known this fact. But it was psychologists who discovered that you do not have to repeat the entire statement of a fact or idea to make it appear true. People who were repeatedly exposed to the phrase "the body temperature of a chicken" were more likely to accept as true the statement that "the body temperature of a chicken is 144°" (or any other arbitrary number). The familiarity of one phrase in the statement sufficed to make the whole statement feel familiar, and therefore true. If you cannot remember the source of a statement, and have no way to relate it to other things you know, you have no option but to go with the sense of cognitive ease."

"Adolf Hitler was born in 1892. Adolf Hitler was born in 1887. Both are false (Hitler was born in 1889), but experiments have shown that the first is more likely to be believed. More advice: if your message is to be printed, use high-quality paper to maximize the contrast between characters and their background. If you use color, you are more likely to be believed if your text is printed in bright blue or red than in middling shades of green, yellow, or pale blue."

"In addition to making your message simple, try to make it memorable. Put your ideas in verse if you can; they will be more likely to be taken as truth. Participants in a much cited experiment read dozens of unfamiliar aphorisms, such as: Woes unite foes. Little strokes will tumble great oaks. A fault confessed is half redressed. Other students read some of the same proverbs transformed into nonrhyming versions: Woes unite enemies. Little strokes will tumble great trees. A fault admitted is half redressed. The aphorisms were judged more insightful when they rhymed than when they did not."

"Mood evidently affects the operation of System 1: when we are uncomfortable and unhappy, we lose touch with our intuition."

"We are biologically predisposed to reject candidates who lack the attributes we value—in this research, losers evoked stronger indications of (negative) emotional response. This is an example of what I will call a judgment heuristic in the following chapters. Voters are attempting to form an impression of how good a candidate will be in office, and they fall back on a simpler assessment that is made quickly and automatically and is available when System 2 must make its decision."

"The psychologist Paul Slovic has proposed an affect heuristic in which people let their likes and dislikes determine their beliefs about the world. Your political preference determines the arguments that you find compelling."

"Psychologists commonly chose samples so small that they exposed themselves to a 50% risk of failing to confirm their true hypotheses! No researcher in his right mind would accept such a risk. A plausible explanation was that psychologists' decisions about sample size reflected prevalent intuitive misconceptions of the extent of sampling variation."

"The hot hand is entirely in the eye of the beholders, who are consistently too quick to perceive order and causality in randomness. The hot hand is a massive and widespread cognitive illusion."

"It is an anchoring effect. It occurs when people consider a particular value for an unknown quantity before estimating that quantity. What happens is one of the most reliable and robust results of experimental psychology: the estimates stay close to the number that people considered—hence the image of an anchor."

"When no anchor was mentioned, the visitors at the Exploratorium—generally an environmentally sensitive crowd—said they were willing to pay $64, on average. When the anchoring amount was only $5, contributions averaged $20. When the anchor was a rather extravagant $400, the willingness to pay rose to an average of $143."

"We see the same strategy at work in the negotiation over the price of a home, when the seller makes the first move by setting the list price. As in many other games, moving first is an advantage in single-issue negotiations—for example, when price is the only issue to be settled between a buyer and a seller. As you may have experienced when negotiating for the first time in a bazaar, the initial anchor has a powerful effect. My advice to students when I taught negotiations was that if you think the other side has made an outrageous proposal, you should not come back with an equally outrageous counteroffer, creating a gap that will be difficult to bridge in further negotiations. Instead you should make a scene, storm out or threaten to do so, and make it clear—to yourself as well as to the other side—that you will not continue the negotiation with that number on the table."

"The dynamics of memory help explain the recurrent cycles of disaster, concern, and growing complacency that are familiar to students of large-scale emergencies."

"Here's a sample of their findings: Strokes cause almost twice as many deaths as all accidents combined, but 80% of respondents judged accidental death to be more likely. Tornadoes were seen as more frequent killers than asthma, although the latter cause 20 times more deaths. Death by lightning was judged less likely than death from botulism even though it is 52 times more frequent. Death by disease is 18 times as likely as accidental death, but the two were judged about equally likely. Death by accidents was judged to be more than 300 times more likely than death by diabetes, but the true true ratio is 1:4. The lesson is clear: estimates of causes of death are warped by media coverage. The coverage is itself biased toward novelty and poignancy. The media do not just shape what the public is interested in, but also are shaped by it."

"The Alar tale illustrates a basic limitation in the ability of our mind to deal with small risks: we either ignore them altogether or give them far too much weight—nothing in between. Every parent who has stayed up waiting for a teenage daughter who is late from a party will recognize the feeling. You may know that there is really (almost) nothing to worry about, but you cannot help images of disaster from coming to mind."

"The relevant "rules" for cases such as the Tom W problem are provided by Bayesian statistics. This influential modern approach to statistics is named after an English minister of the eighteenth century, the Reverend Thomas Bayes, who is credited with the first major contribution to a large problem: the logic of how people should change their mind in the light of evidence. Bayes's rule specifies how prior beliefs (in the examples of this chapter, base rates) should be combined with the diagnosticity of the evidence, the degree to which it favors the hypothesis over the alternative."

"Stereotyping is a bad word in our culture, but in my usage it is neutral. One of the basic characteristics of System 1 is that it represents categories as norms and prototypical exemplars. This is how we think of horses, refrigerators, and New York police officers; we hold in memory a representation of one or more "normal" members of each of these categories. When the categories are social, these representations are called stereotypes. Some stereotypes are perniciously wrong, and hostile stereotyping can have dreadful consequences, but the psychological facts cannot be avoided: stereotypes, both correct and false, are how we think of categories."

"I happened to watch the men's ski jump event in the Winter Olympics while Amos and I were writing an article about intuitive prediction. Each athlete has two jumps in the event, and the results are combined for the final score. I was startled to hear the sportscaster's comments while athletes were preparing for their second jump: "Norway had a great first jump; he will be tense, hoping to protect his lead and will probably do worse" or "Sweden had a bad first jump and now he knows he has nothing to lose and will be relaxed, which should help him do better." The commentator had obviously detected regression to the mean and had invented a causal story for which there was no evidence. The story itself could even be true. Perhaps if we measured the athletes' pulse before each jump we might find that they are indeed more relaxed after a bad first jump. And perhaps not. The point to remember is that the change from the first to the second jump does not need a causal explanation. It is a mathematically inevitable consequence of the fact that luck played a role in the outcome of the first jump. Not a very satisfactory story—we would all prefer a causal account—but that is all there is."

"In The Black Swan, Taleb introduced the notion of a narrative fallacy to describe how flawed stories of the past shape our views of the world and our expectations for the future. Narrative fallacies arise inevitably from our continuous attempt to make sense of the world. The explanatory stories that people find compelling are simple; are concrete rather than abstract; assign a larger role to talent, stupidity, and intentions than to luck; and focus on a few striking events that happened rather than on the countless events that failed to happen. Any recent salient event is a candidate to become the kernel of a causal narrative. Taleb suggests that we humans constantly fool ourselves by constructing flimsy accounts of the past and believing they are true. Good stories provide a simple and coherent account of people's actions and intentions. You are always ready to interpret behavior as a manifestation of general propensities and personality traits—causes that you can readily match to effects."

"I have heard of too many people who "knew well before it happened that the 2008 financial crisis was inevitable." This sentence contains a highly objectionable word, which should be removed from our vocabulary in discussions of major events. The word is, of course, knew. Some people thought well in advance that there would be a crisis, but they did not know it. They now say they knew it because the crisis did in fact happen. This is a misuse of an important concept. In everyday language, we apply the word know only when what was known is true and can be shown to be true. We can know something only if it is both true and knowable. But the people who thought there would be a crisis (and there are fewer of them than now remember thinking it) could not conclusively show it at the time. Many intelligent and well-informed people were keenly interested in the future of the economy and did not believe a catastrophe was imminent; I infer from this fact that the crisis was not knowable. What is perverse about the use of know in this context is not that some individuals get credit for prescience that they do not deserve. It is that the language implies that the world is more knowable than it is. It helps perpetuate a pernicious illusion."

"A general limitation of the human mind is its imperfect ability to reconstruct past states of knowledge, or beliefs that have changed. Once you adopt a new view of the world (or of any part of it), you immediately lose much of your ability to recall what you used to believe before your mind changed."

"Hindsight bias has pernicious effects on the evaluations of decision makers. It leads observers to assess the quality of a decision not by whether the process was sound but by whether its outcome was good or bad. Consider a low-risk surgical intervention in which an unpredictable accident occurred that caused the patient's death. The jury will be prone to believe, after the fact, that the operation was actually risky and that the doctor who ordered it should have known better. This outcome bias makes it almost impossible to evaluate a decision properly—in terms of the beliefs that were reasonable when the decision was made."

"The halo effect and outcome bias combine to explain the extraordinary appeal of books that seek to draw operational morals from systematic examination of successful businesses. One of the best-known examples of this genre is Jim Collins and Jerry I. Porras's Built to Last. The book contains a thorough analysis of eighteen pairs of competing companies, in which one was more successful than the other. The data for these comparisons are ratings of various aspects of corporate culture, strategy, and management practices. "We believe every CEO, manager, and entrepreneur in the world should read this book," the authors proclaim. "You can build a visionary company." The basic message of Built to Last and other similar books is that good managerial practices can be identified and that good practices will be rewarded by good results. Both messages are overstated. The comparison of firms that have been more or less successful is to a significant extent a comparison between firms that have been more or less lucky. Knowing the importance of luck, you should be particularly suspicious when highly consistent patterns emerge from the comparison of successful and less successful firms. In the presence of randomness, regular patterns can only be mirages. Because luck plays a large role, the quality of leadership and management practices cannot be inferred reliably from observations of success."

"An optimistic attitude is largely inherited, and it is part of a general disposition for well-being, which may also include a preference for seeing the bright side of everything."

"Optimistic individuals play a disproportionate role in shaping our lives. Their decisions make a difference; they are the inventors, the entrepreneurs, the political and military leaders—not average people. They got to where they are by seeking challenges and taking risks. They are talented and they have been lucky, almost certainly luckier than they acknowledge. They are probably optimistic by temperament; a survey of founders of small businesses concluded that entrepreneurs are more sanguine than midlevel managers about life in general. Their experiences of success have confirmed their faith in their judgment and in their ability to control events."

“More often than not, risk takers underestimate the odds they face, and do not invest sufficient effort to find out what the odds are. Because they misread the risks, optimistic entrepreneurs often believe they are prudent, even when they are not.”

“Even when they are not sure they will succeed, these bold people think their fate is almost entirely in their own hands. They are surely wrong: the outcome of a start-up depends as much on the achievements of its competitors and on changes in the market as on its own efforts.”

“Asked why so many expensive big-budget movies are released on the same days (such as Memorial Day and Independence Day), he replied: Hubris. Hubris. If you only think about your own business, you think, “I’ve got a good story department, I’ve got a good marketing department, we’re going to go out and do this.” And you don’t think that everybody else is thinking the same way. In a given weekend in a year you’ll have five movies open, and there’s certainly not enough people to go around. The candid answer refers to hubris, but it displays no arrogance, no conceit of superiority to competing studios.”

“Although Humans are not irrational, they often need help to make more accurate judgments and better decisions, and in some cases policies and institutions can provide that help.”