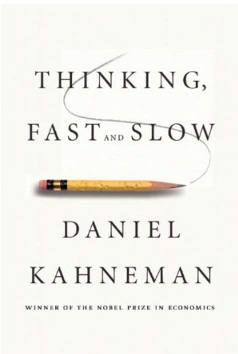

Thinking, Fast and Slow

by Daniel Kahneman
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512 pages

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Take-Aways

- When you think, your mind uses two cognitive systems.
- “System 1” works easily and automatically and doesn't take much effort; it makes quick judgments based on familiar patterns.
- “System 2” takes more effort; it requires intense focus and operates methodically.
- These two systems interact continually, but not always smoothly.
- People prefer to make simple stories out of complex reality. They seek causes in random events, consider rare occurrences likely and overweight the import of their experiences.
- “Hindsight bias” causes you to distort reality by realigning your memories of events to jibe with new information.
- “Loss aversion” and the “endowment effect” influence how you estimate value and risk.
- Your “two selves” appraise your life experiences differently.
- Your “experiencing self” lives your life; your “remembering self” evaluates your experiences, draws lessons from them and decides your future.
- These two contrasting systems and selves disprove economic theories that say that people act rationally.

Rating (10 is best)

Overall	Importance	Innovation	Style
8	6	9	8

Relevance

What You Will Learn

In this Abstract, you will learn: 1) How your mind works "fast and slow," 2) How your "two selves" affect your perspective, and 3) How to think better.

Recommendation

The topics that Nobel Prize winner Daniel Kahneman addresses are both complex and integral to the human mind: He asks you to think about thinking by considering how your mind habitually contradicts itself, distorts data and misleads you. His prose is lucid, his reasoning rigorous and his honesty refreshing – more than once Kahneman illustrates conflicted thinking with examples from his own life. The result is a fairly slow read, but an ultimately rewarding experience. *getAbstract* recommends this book to anyone interested in neuroscience and neuroeconomics, and to all those who want to improve their thinking about thinking.

Abstract

Your "Two Systems" and What They Mean

"Although System 2 believes itself to be where the action is, the automatic System 1 is the hero of the book."

Any time you have to make sense of something, your mind applies two systems to the question at hand. The first is "System 1," or the mental processing that reads emotions and handles your automatic skills, like driving your car or adding two plus two. System 1 takes over your thinking when you comprehend simple statements (such as "complete the phrase 'bread and . . .'"), instinctively turn to see where a noise is coming from or grimace when you see a gruesome image. System 1 supplies associated meanings (including stereotypes) rapidly and involuntarily.

By contrast, you use "System 2" when you're focusing on specific details, like counting or figuring out how to complete your income tax forms. System 2 applies effort consciously, such as when you do complicated math, try new physical activities or search for a specific person in a crowd. System 2 thinking is slower, but you need it for methodical thinking processes such as formal logic.

"The main function of System 1 is to maintain and update a model of your personal world, which represents what is normal in it."

Human beings tend to value the measured System 2 while dismissing the mechanical System 1, but reality is much more complicated. These mental processes engage in a "division of labor" when it comes to thinking, and they constantly interact. You usually live in System 1's world, where its fast processing is extremely efficient. In fact, you can be reasoning about a task in System 2, get tired or distracted, and find that you've shifted over to System 1 without realizing it. If you've ever puzzled over an optical illusion, you've experienced what happens when these two systems work at cross-purposes.

Duality and Collaboration

Which system you use and how you think depends a lot on the effort you are expending. If you are doing something easy, like strolling on a known path, you're using System 1 and have a lot of cognitive capacity left for thinking. If you push the pace to a speed walk, System 2 switches on to maintain your effort. Now try to solve an arithmetic problem, and you're likely to stop walking altogether; your brain can't handle the additional burden. Recent lab studies show that intense System 2 concentration lowers the body's glucose

levels. If your System 2 is busy, you're more likely to stereotype, give in to temptation or consider issues only superficially.

"People who are 'cognitively busy' are...more likely to make selfish choices, use sexist language and make superficial judgments in social situations."

System 1 likes to jump on the straightforward answer, so if a seemingly correct solution quickly appears when you face a challenge, System 1 will default to that answer and cling to it, even if later information proves it wrong. System 1 performs rapid "associative activation." Pair two words, or a word and an image, and your mind will link them, weaving a story from those scraps of information. In the phenomenon of "priming," if you see the word "banana" followed by the word "vomit," your mind creates an instantaneous connection that causes a physical reaction. Similarly, if exposed to the word "eat," you will more likely complete the sequence S-O-_-P as "soup" rather than "soap."

If you want to persuade people, appeal to their System 1 preference for simple, memorable information: Use a bold font in your reports, try rhyming slogans in your advertising and make your company's name easy to say. These tendencies are markers of System 1's larger function, which is to assemble and maintain your view of the world. System 1 likes consistency: Seeing a car in flames stands out in your mind. If you see a second car on fire at roughly the same spot later on, System 1 will label it "the place where cars catch fire."

"A compelling narrative fosters an illusion of inevitability."

Making Meaning, Making Mistakes

System 1 prefers the world to be linked and meaningful, so if you are dealing with two discrete facts, it will assume that they are connected. It seeks to promote cause-and-effect explanations. Similarly, when you observe a bit of data, your System 1 presumes that you've got the whole story. The "what you see is all there is" or "WYSIATI" tendency is powerful in coloring your judgments. For example, if all you have to go on is someone's appearance, your System 1 will fill in what you don't know – that's the "halo effect." For example, if an athlete is good looking, you'll assume he or she is also skilled.

"When an unpredicted event occurs, we immediately adjust our view of the world to accommodate the surprise."

System 1 is also responsible for "anchoring," in which you unconsciously tie your thinking on a topic to information you've recently encountered, even if the two have nothing to do with one another. For example, mentioning the number 10 and then asking how many African countries belong to the United Nations will produce lower estimates than if you mentioned 65 and asked the same question. System 2 can magnify your mistakes, though, by finding reasons for you to continue believing in the answers and solutions you generate. System 2 doesn't dispute what System 1 presents; rather, it is the "endorser" of how System 1 seeks to categorize your world.

The natural tendency to focus on a message's content rather than its relevance affects your ability to judge. People seize on vivid examples to shape their fears and plans for the future. For example, media coverage of dramatic but infrequent events like accidents and disasters – as opposed to dull but common threats like strokes and asthma – sets those events up as anchors that people use to make wildly inaccurate assessments about where the risks to their health lie.

"Facts that challenge...basic assumptions – and thereby threaten people's livelihood and self-esteem – are simply not absorbed."

People also reason incorrectly when they don't recognize the "regression to the mean." Over time, everything tends to return to the average, but people create and apply "causal interpretations" to what are, in effect, random events. For example, if a baseball player who has a strong first year subsequently falters in his sophomore slump, sports fans will ascribe the decline to any number of rationales – but, in reality, the player was probably just more fortunate in his initial outings than in later ones.

Distorted Reality and Optimism

"The idea that the future is unpredictable is undermined every day by the ease with which the past is explained."

Simplification is at work in the "narrative fallacy," or the mind's inclination toward the plain, tangible and cohesive instead of the theoretical, contradictory and vague. People derive meaning from stories that emphasize individual characteristics like virtue and skill, but discount the role of luck and statistical factors. You will tend to "focus on a few striking events that happened rather than on the countless events that failed to happen." Due to "hindsight bias," you will distort reality by realigning your memories of events to jibe with new information. And when telling stories about events you're involved in, you tend to be overly optimistic and predisposed to overvaluing your talents relative to those of others. You also will give your knowledge greater weight than it should have.

This intense, pervasive optimism is useful for the economy in many ways because entrepreneurs and inventors tend to start new businesses all the time, notwithstanding the overwhelming odds against them. Despite knowing that roughly only a third of enterprises make it to their fifth anniversary, more than 80% of American entrepreneurs rate their ability to beat that statistic as high; fully a third "said their chance of failing was zero."

"We are confident when the story we tell ourselves comes easily to mind, with no contradiction and no competing scenario. But ease and coherence do not guarantee that a belief held with confidence is true."

Experts and Risk

System 1 influences how candidly people assess their own "intuition and validity," which means that not all experts always provide great counsel. Expertise relies on an individual's skill, "feedback and practice." For example, firefighters' repeated practice in weighing the risks posed by specific types of fires and their experience in extinguishing those fires give them an impressive ability to read a situation intuitively and identify crucial patterns. Similarly, an anesthesiologist relies on regular, immediate medical feedback to keep a patient safe during surgery. But don't put too much trust in the judgment of experts in fields where challenges vary greatly, where luck determines success, and where too great a gap exists between action and feedback. Those who predict stock values and political contests, for instance, tend to fall into this category. Because System 1 lulls experts with "quick answers to difficult questions," their intuition may be flawed, but your System 2 can't detect those inconsistencies.

"Most of us view the world as more benign than it really is, our own attributes as more favorable than they truly are, and the goals we adopt as more achievable than they are likely to be."

You're especially prone to unclear thinking when making decisions about risk and value. Most people are "loss averse": You hate to lose $100 more than you like winning $150. But financial traders tend to demonstrate less of an emotional, System 1-type reaction to losses. Individuals also suffer from the "endowment effect": When something belongs to you, even if only for a brief period of time, you tend to overestimate its value relative to the value of things you don't own. Homeowners exemplify the endowment effect, often overvaluing their properties.

When you combine all this with the fact that people misjudge how likely rare events are or, alternatively, give rare events too much weight when making decisions, you have the foundations of the modern insurance industry. How you frame risk shapes your evaluation of it. For example, if you hear a life-saving vaccine has "a 0.0001% risk of permanent disability," your reaction is much different than it would be to the same treatment that leaves one of 100,000 individuals forever incapacitated. Yet the two are identical. When you take all these tendencies into account, it is hard to believe any economic theory based on the idea that people are rational actors. But making good decisions depends on paying attention to where your information comes from, understanding how it is framed, assessing your own confidence about it and gauging the validity of your data sources.

"Organizations that take the word of overconfident experts can expect costly consequences."

"Confusing experience with the memory of it is a compelling cognitive illusion."

"The experiencing self does not have a voice. The remembering self is sometimes wrong, but it is the one that keeps score and governs what we learn from experience, and it is the one that makes decisions."

"The way to block errors that originate in System 1 is simple in principle: recognize the signs that you are in a cognitive minefield, slow down and ask for reinforcement from System 2."

"Two Selves," One Mind

Just as two systems interact in your mind, two selves clash over the quality of your experiences. The "experiencing self" is the part of you that lives your life; the "remembering self" is the part that evaluates the experiences you have, draws lessons from them and "makes decisions" about the future. For the remembering self, happiness is not cumulative, and the final stages of any event play a critical role in your recollection of its quality. For example, when researchers asked subjects to evaluate the life of someone who lived happily to the age of 65, relative to someone else who lived happily through 65 but was only moderately content for another five years, the subjects rated the first life as more desirable.

Your remembering self's evaluation of your life story is one part of how you judge whether you are happy. You rate your life by standards or goals you set. The moment-to-moment assessments of your experiencing self provide the other side of your happiness. These conclusions may conflict because they account for different aspects of reality. Work benefits and status that affect "general job satisfaction" do not shape people's everyday moods at work. Instead, job context contributes more to happiness, including such factors as chatting with co-workers and being free from "time pressure."

The things you pay attention to have major implications for your mood. "Active forms of leisure," like physical activity or spending time with good friends, satisfy you a lot more than the "passive leisure" of, for example, watching television. You can't necessarily change your job or your disposition, but you can change what you focus on and how you spend your time. Focus shapes your self-assessments: "Nothing in life is as important as you think it is when you are thinking about it."

Your two selves are intertwined with your two mental systems: System 2 constructed your remembering self, but your tendency to weigh experiences by their final moments and to favor "long pleasures and short pains" comes from System 1. The relationship between your selves holds implications for philosophers and policy makers. You would make different decisions about which social, health and economic issues to address, and how to address them, depending on whether you see the perspective of the remembering self or of the experiencing self as primary.

In general, recognizing how these different mental systems work can help you realize that the purely rational beings favored by economic theory are fictional, and that real people need help making better judgments in their financial and life choices. Understanding how your mind works can help you advocate for policies that take those issues into account. The converse is also true: Because your mind doesn't function optimally in all instances, rules should protect people from those who would "deliberately exploit their weaknesses." Because individuals find it difficult to catch glitches originating in their own System 1 processing, an organization can operate with more methodical rationality than can the separate individuals within it.

About the Author

Daniel Kahneman, a professor emeritus at Princeton and a Nobel laureate in economics, has written extensively on the psychology of judgment and decision making.