Gideon Henderson

Dean's Lecture

Taking it Back: Removing CO_2 from the Atmosphere to Limit Climate Change

Wednesday, April 3, 2019
19:00 Ted Center, Blue Big Room

Mitigation and Adaptation Studies

Class 20: Decision-Making: Human Nature and Facing Threats

Contents

- Decisions and Human Nature:
  - Biases
  - Overcoming Biases
  - Fast and Slow Thinking - Enigma of Reason
- Science-Society Dialog
- Economic Context
- Social and Political Context

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Decision and Human Nature

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Decision and Human Nature

Intuition

Rational

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Decision and Human Nature

Biases

Intuition

Rational

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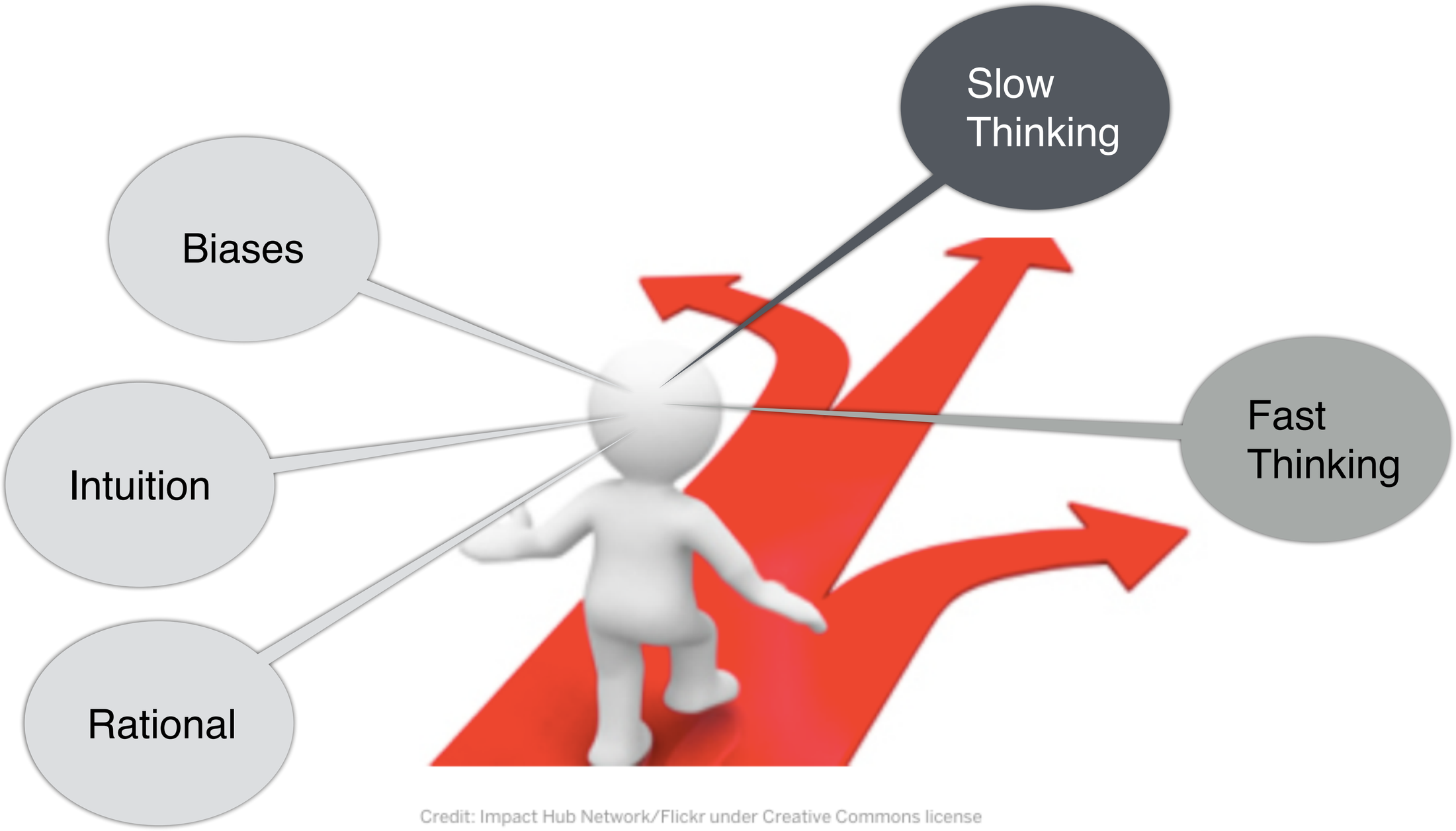

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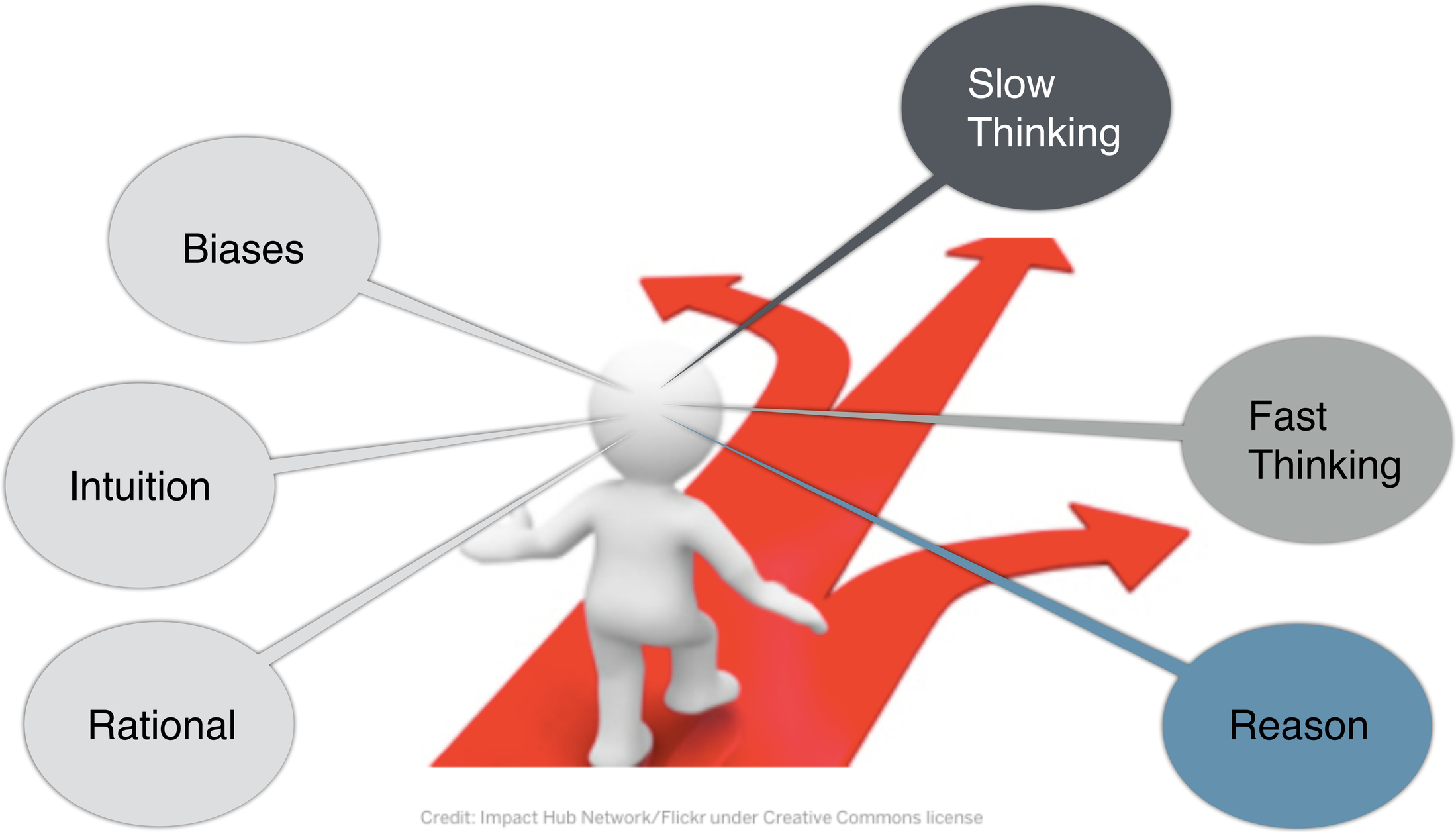
Decision and Human Nature



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Decision and Human Nature: Biases

Behavioral economics studies the effects of psychological, social, cognitive, and emotional factors on the economic decisions of individuals and institutions and the consequences for market prices, returns, and resource allocation, although not always that narrowly, but also more generally, of the impact of different kinds of behavior, in different environments of varying experimental values.

https://en.wikipedia.org/wiki/Behavioral_economics

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THE BEHAVIORAL ECONOMICS OF DECISION MAKING
Daniel Kahneman (the lead author) and Amos Tversky introduced the idea of **cognitive biases**, and their impact on decision making, in 1974. Their research and ideas were recognized when Kahneman was awarded a Nobel Prize in economics in 2002. These biases, and behavioral psychology generally, have since captured the imagination of business experts.

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Some notable popular books on this topic:

Thaler, R. H., Sunstein, C. R., 2008. Nudge: Improving Decisions About Health, Wealth, and Happiness, Caravan.

Mauboussin, M. J., 2009. Think Twice: Harnessing the Power of Counterintuition, Harvard Business Review Press.

Finkelstein, S., Whitehead, J., Campbell, A., 2009. Think Again: Why Good Leaders Make Bad Decisions and How to Keep It from Happening to You, Harvard Business Review Press.

Ariely, D., 2008. Predictably Irrational: The Hidden Forces That Shape Our Decisions, HarperCollins.

Kahneman, D., 2011. Thinking, Fast and Slow, Farrar, Straus and Giroux.

Kahneman, D., Lovallo, D., Sibony, O., 2011. Before you make that decision. Harvard Business Review, June 2011, 51-60.

20 cognitive biases that screw up your decisions

Samantha Lee and Shana Lebowitz

Aug. 26, 2015, 12:28 PM 285,981 3

FACEBOOK LINKEDIN TWITTER EMAIL PRINT

You make thousands of rational decisions every day — or so you think.

From what you'll eat throughout the day to whether you should make a big career move, research suggests that there are a number of cognitive stumbling blocks that affect your behavior, and they can prevent you from acting in your own best interests.

Here, we've rounded up the most common biases that screw up our decision-making.

20 COGNITIVE BIASES THAT SCREW UP YOUR DECISIONS

Decision and Human Nature: Biases

1. Anchoring bias.

People are **over-reliant** on the first piece of information they hear. In a salary negotiation, whoever makes the first offer establishes a range of reasonable possibilities in each person's mind.

2. Availability heuristic.

People **overestimate the importance** of information that is available to them. A person might argue that smoking is not unhealthy because they know someone who lived to 100 and smoked three packs a day.

3. Bandwagon effect.

The probability of one person adopting a belief increases based on the number of people who hold that belief. This is a powerful form of **groupthink** and is reason why meetings are often unproductive.

4. Blind-spot bias.

Failing to recognize your own cognitive biases is a bias in itself. People notice cognitive and motivational biases much more in others than in themselves.

5. Choice-supportive bias.

When you choose something, you tend to feel positive about it, even if that **choice has flaws**. Like how you think your dog is awesome — even if it bites people every once in a while.

6. Clustering illusion.

This is the tendency to **see patterns in random events**. It is key to various gambling fallacies, like the idea that red is more or less likely to turn up on a roulette table after a string of reds.

7. Confirmation bias.

We tend to listen only to information that confirms our **preconceptions** — one of the many reasons it's so hard to have an intelligent conversation about climate change.

8. Conservatism bias.

Where people favor prior evidence over new evidence or information that has emerged. People were **slow to accept** that the Earth was round because they maintained their earlier understanding that the planet was flat.

Decision and Human Nature: Biases

9. Information bias.

The tendency to **seek information when it does not affect action**. More information is not always better. With less information, people can often make more accurate predictions.

10. Ostrich effect.

The decision to **ignore dangerous or negative information** by "burying" one's head in the sand, like an ostrich. Research suggests that investors check the value of their holdings significantly less often during bad markets.

11. Outcome bias.

Judging a decision based on the **outcome** — rather than how exactly the decision was made in the moment. Just because you won a lot in Vegas doesn't mean gambling your money was a smart decision.

12. Overconfidence.

Some of us are **too confident about our abilities**, and this causes us to take greater risks in our daily lives. Experts are more prone to this bias than laypeople, since they are more convinced that they are right.

13. Placebo effect.

When **simply believing** that something will have a certain effect on you causes it to have that effect. In medicine, people given fake pills often experience the same physiological effects as people given the real thing.

14. Pro-innovation bias.

When a proponent of an innovation tends to **overvalue its usefulness** and undervalue its limitations. Sound familiar, Silicon Valley?

15. Recency.

The tendency to weigh the **latest information** more heavily than older data. Investors often think the market will always look the way it looks today and make unwise decisions.

16. Salience.

Our tendency to focus on the **most easily recognizable features** of a person or concept. When you think about dying, you might worry about being mauled by a lion, as opposed to what is statistically more likely, like dying in a car accident.

Decision and Human Nature: Biases

17. Selective perception.

Allowing our expectations to **influence how we perceive** the world. An experiment involving a football game between students from two universities showed that one team saw the opposing team commit more infractions.

18. Stereotyping.

Expecting a group or person to have certain qualities without having real information about the person. It allows us to quickly identify strangers as friends or enemies, but people tend to **overuse and abuse** it.

19. Survivorship bias.

An error that comes from focusing only on surviving examples, causing us to **misjudge a situation**. For instance, we might think that being an entrepreneur is easy because we haven't heard of all those who failed.

20. Zero-risk bias.

Sociologists have found that **we love certainty** — even if it's counterproductive. Eliminating risk entirely means there is no chance of harm being caused.

SOURCES: Brain Biases; Ethics Unwrapped; Explorable; Harvard Magazine; HowStuffWorks; LearnVest; Outcome bias in decision evaluation, Journal of Personality and Social Psychology; Psychology Today; The Bias Blind Spot: Perceptions of Bias in Self Versus Others, Personality and Social Psychology Bulletin; The Cognitive Effects of Mass Communication, Theory and Research in Mass Communications; The less-is-more effect: Predictions and tests, Judgment and Decision Making; The New York Times; The Wall Street Journal; Wikipedia; You Are Not So Smart; ZhurnalyWiki

BUSINESS INSIDER

Decision and Human Nature: Biases

anchoring

The first thing you judge influences your judgment of all that follows.

Human minds are associative in nature, so the order in which we receive information helps determine the course of our judgments and perceptions.

Be especially mindful of this bias during financial negotiations such as houses, cars, and salaries. The initial price offered is proven to have a significant effect.

sunk cost fallacy

You irrationally cling to things that have already cost you something.

When we've invested our time, money, or emotion into something, it hurts us to let it go. This aversion to pain can distort our better judgment and cause us to make unwise investments.

To regain objectivity, ask yourself: had I not already invested something, would I still do so now? What would I counsel a friend to do if they were in the same situation?

availability heuristic

Your judgments are influenced by what springs most easily to mind.

How recent, emotionally powerful, or unusual your memories are can make them seem more relevant. This, in turn, can cause you to apply them too readily.

Try to gain different perspectives and relevant statistical information rather than relying purely on first judgments and emotive influences.

curse of knowledge

Once you understand something you presume it to be obvious to everyone.

Things makes sense once they make sense, so it can be hard to remember why they didn't. We build complex networks of understanding and forget how intricate the path to our available knowledge really is.

When teaching someone something new, go slow and explain like they're ten years old (without being patronizing). Repeat key points and facilitate active practice to help embed knowledge.

confirmation bias

You favor things that confirm your existing beliefs.

We are primed to see and agree with ideas that fit our preconceptions, and to ignore and dismiss information that conflicts with them.

Think of your ideas and beliefs as software you're actively trying to find problems with rather than things to be defended.

"The first principle is that you must not fool yourself – and you are the easiest person to fool."
- Richard Feynman

dunning-kruger effect

The more you know, the less confident you're likely to be.

Because experts know just how much they don't know, they tend to underestimate their ability, but it's easy to be over-confident when you have only a simple idea of how things are.

"The whole problem with the world is that fools and fanatics are so certain of themselves, yet wiser people so full of doubts."
- Bertrand Russell

belief bias

If a conclusion supports your existing beliefs, you'll rationalize anything that supports it.

It's difficult for us to set aside our existing beliefs to consider the true merits of an argument. In practice this means that our ideas become impervious to criticism, and are perpetually reinforced.

A useful thing to ask is 'when and how did I get this belief?' We tend to automatically defend our ideas without ever really questioning them.

self-serving bias

You believe your failures are due to external factors, yet you're personally responsible for your successes.

Many of us enjoy unearned privileges, luck and advantages that others do not. It's easy to tell ourselves that we deserve these things, whilst blaming circumstance when things don't go our way.

When judging others, be mindful of how this bias interacts with the just-world hypothesis, fundamental attribution error, and the in-group bias.

backfire effect

When your core beliefs are challenged, it can cause you to believe even more strongly.

We can experience being wrong about some ideas as an attack upon our very selves, or our tribal identity. This can lead to motivated reasoning which causes us to double-down, despite disconfirming evidence.

"It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so."
- Mark Twain

barnum effect

You see personal specifics in vague statements by filling in the gaps.

Because our minds are given to making connections, it's easy for us to take nebulous statements and find ways to interpret them so that they seem specific and personal.

Psychics, astrologers and others use this bias to make it seem like they're telling you something relevant. Consider how things might be interpreted to apply to anyone, not just you.

groupthink

You let the social dynamics of a group situation override the best outcomes.

Dissent can be uncomfortable and dangerous to one's social standing, and so often the most confident or first voice will determine group decisions.

Rather than openly contradicting others, seek to facilitate objective means of evaluation and critical thinking practices as a group activity.

negativity bias

You allow negative things to disproportionately influence your thinking.

The pain of loss and hurt are felt more keenly and persistently than the fleeting gratification of pleasant things. We are primed for survival, and our aversion to pain can distort our judgment for a modern world.

Pro-and-con lists, as well as thinking in terms of probabilities, can help you evaluate things more objectively than relying on a cognitive impression.

declinism

You remember the past as better than it was, and expect the future to be worse than it will likely be.

Despite living in the most peaceful and prosperous time in history, many people believe things are getting worse. The 24 hour news cycle, with its reporting of overtly negative and violent events, may account for some of this effect.

Instead of relying on nostalgic impressions of how great things used to be, use measurable metrics such as life expectancy, levels of crime and violence, and prosperity statistics.

framing effect

You allow yourself to be unduly influenced by context and delivery.

We all like to think that we think independently, but the truth is that all of us are, in fact, influenced by delivery, framing and subtle cues. This is why the ad industry is a thing, despite almost everyone believing they're not affected by advertising messages.

Only when we have the intellectual humility to accept the fact that we can be manipulated, can we hope to limit how much we are. Try to be mindful of how things are being put to you.

fundamental attribution error

You judge others on their character, but yourself on the situation.

If you haven't had a good night's sleep, you know why you're being a bit slow; but if you observe someone else being slow you don't have such knowledge and so might presume them to just be a slow person.

It's not only kind to view others' situations with charity, it's more objective too. Be mindful to also err on the side of taking personal responsibility rather than justifying and blaming.

halo effect

How much you like someone, or how attractive they are, influences your other judgments of them.

Our judgments are associative and automatic, and so if we want to be objective we need to consciously control for irrelevant influences. This is especially important in a professional setting.

If you notice that you're giving consistently high or low marks across the board, it's worth considering that your judgment may be suffering from the halo effect.

optimism bias

You overestimate the likelihood of positive outcomes.

There can be benefits to a positive attitude, but it's unwise to allow such an attitude to adversely affect our ability to make rational judgments (they're not mutually exclusive).

If you make rational, realistic judgments you'll have a lot more to feel positive about.

pessimism bias

You overestimate the likelihood of negative outcomes.

Pessimism is often a defense mechanism against disappointment, or it can be the result of depression and anxiety disorders.

Perhaps the worst aspect of pessimism is that even if something good happens, you'll probably feel pessmistic about it anyway.

just world hypothesis

Your preference for a just world makes you presume that it exists.

A world in which people don't always get what they deserve, hard work doesn't always pay off, and injustice happens is an uncomfortable one that threatens our preferred narrative. However, it is also the reality.

A more just world requires understanding rather than blame. Remember that everyone has their own life story, we're all fallible, and bad things happen to good people.

in-group bias

You unfairly favor those who belong to your group.

We presume that we're fair and impartial, but the truth is that we automatically favor those who are most like us, or belong to our groups.

Try to imagine yourself in the position of those in out-groups; whilst also attempting to be dispassionate when judging those who belong to your in-groups.

placebo effect

If you believe you're taking medicine it can sometimes 'work' even if it's fake.

The placebo effect can work for stuff that our mind influences (such as pain) but not so much for things like viruses or broken bones.

Homeopathy, acupuncture, and many other forms of natural 'medicine' have been proven to be no more effective than placebo. Keep a healthy body and bank balance by using evidence-based medicine from a qualified doctor.

bystander effect

You presume someone else is going to do something in an emergency situation.

When something terrible is happening in a public setting we can experience a kind of shock and mental paralysis that distracts us from a sense of personal responsibility. The problem is that everyone can experience this sense of deindividuation in a crowd.

If there's an emergency situation, presume to be the one who will help or call for help. Be the change you want to see in the world.

reactance

You'd rather do the opposite of what someone is trying to make you do.

When we feel our liberty is being constrained, our inclination is to resist, however in doing so we can over-compensate.

Be careful not to lose objectivity when someone is being coercive/manipulative, or trying to force you do something. Wisdom springs from reflection, folly from reaction.

spotlight effect

You overestimate how much people notice how you look and act.

Most people are much more concerned about themselves than they are about you. Absent overt prejudices, people generally want to like and get along with you as it gives them validation too.

Instead of worrying about how you're being judged, consider how you make others feel. They'll remember this much more, and you'll make the world a better place.

24 cognitive biases stuffing up your thinking

Cognitive biases make our judgments irrational. We have evolved to use shortcuts in our thinking, which are often useful, but a cognitive bias means there's a kind of misfiring going on causing us to lose objectivity. This poster has been designed to help you identify some of the most common biases and how to avoid falling victim to them. Help people become aware of their biases generally by sharing the website **yourbias.is** or more specifically e.g. **yourbias.is/confirmation-bias**

This poster is published under a Creative Commons BY-NC-ND license 2017 by Jesse Richardson. You are free to print and redistribute this artwork non-commercially with the binding proviso that you reproduce it in full so that others may share alike. To learn more about biases you should definitely read the books **Thinking, Fast and Slow** and **You Are Not So Smart.**

The illustration above is a reference to Michaelangelo's 'Creation of Adam' which many believe depicted the human brain in God's surrounding decoration. The godfathers of research into cognitive biases, Daniel Kahneman and Amos Tversky, are pictured alongside the Christian God above.

Download this poster at www.yourbias.is

Decision and Human Nature: Biases

Six biases highly relevant to **slowly developing threats** (like climate change, sea level rise, extinction, overpopulation, …)

Positive illusions: unrealistically favorable attitudes about own abilities, control of events, and of the future.

Over confidence

Cognitive dissonance: a bias that emerges when facing information that is psychologically discomforting because it is inconsistent with current believes or opinion; is handled by selecting, organizing, or even distorting, conflicting information so that it matches preferred or pre-existing beliefs.

Ostrich Effect, Confirmation Bias, Normalcy Bias

Fundamental attribution error: tendency to attribute the behavior of others to their personality or intentions, called dispositional causes, while one's own behavior is attributed to limited choices, necessities, or competing concerns, called situational causes.

…

Decision and Human Nature: Biases

Six biases highly relevant to **slowly developing threats** (like climate change, sea level rise, extinction, overpopulation, …)

…

Risk perception bias: Describes the way people choose between alternatives that involve risk, where people make decisions based on the potential value of losses and gains rather than on the final outcomes:
- risk-averse when choosing among potential gains (the domain of gains),
- risk-prone when choosing among potential losses (the domain of losses).

In case of expected negative consequences: high apparent costs leads to doing nothing.

Selective perception

In-group bias: Based on the minimal group paradigm proposing that the minimal condition for this bias (such as favoritism towards one's own group and prejudice towards other groups) is simply being a member of a group. More likely to emerge in the presence of strong categorizations into groups and in the presence of actual or perceived inter-group threats and low information flow between groups.

Band wagon bias, Confirmation Bias, Normalcy Bias

Present bias: disregarding of costs and benefits occurring in the future.

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Dangerous biases can creep into every strategic choice. Here's how to find them—before they lead you astray. *by Daniel Kahneman, Dan Lovallo, and Olivier Sibony*

Before You Make That Big Decision...

THANKS TO a slew of popular new books, many executives today realize how biases can distort reasoning in business. *Confirmation bias*, for instance, leads people to ignore evidence that contradicts their preconceived notions. *Anchoring* causes them to weigh one piece of information too heavily in making decisions; *loss aversion* makes them too cautious. In our experience, however, awareness of the effects of biases has done little to improve the quality of business decisions at either the individual or the organizational level.

Though there may now be far more talk of biases among managers, talk alone will not eliminate them. But it is possible to take steps to counteract them. A recent McKinsey study of more than 1,000 major business investments showed that when organizations worked at reducing the effect of bias in their decision-making processes, they achieved returns up to seven percentage points higher. (For more on this study, see "The Case for Behavioral Strategy," *McKinsey Quarterly*, March 2010.) Reducing bias makes a difference. In this article, we will describe

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ILLUSTRATION: LASSE SKARBOVIK

Ask yourself

1

CHECK FOR SELF-INTERESTED BIASES

Is there any reason to suspect the team making the recommendation of errors motivated by self-interest?

Review the proposal with extra care, especially for overoptimism.

2

CHECK FOR THE AFFECT HEURISTIC

Has the team fallen in love with its proposal?

Rigorously apply all the quality controls on the checklist.

3

CHECK FOR GROUPTHINK

Were there dissenting opinions within the team?

Were they explored adequately?

Solicit dissenting views, discreetly if necessary.

CHALLENGE QUESTIONS

Ask the recommenders

4

CHECK FOR SALIENCY BIAS

Could the diagnosis be overly influenced by an analogy to a memorable success?

Ask for more analogies, and rigorously analyze their similarity to the current situation.

5

CHECK FOR CONFIRMATION BIAS

Are credible alternatives included along with the recommendation?

Request additional options.

6

CHECK FOR AVAILABILITY BIAS

If you had to make this decision again in a year's time, what information would you want, and can you get more of it now?

Use checklists of the data needed for each kind of decision.

7

CHECK FOR ANCHORING BIAS

Do you know where the numbers came from? Can there be
...unsubstantiated numbers?
...extrapolation from history?
...a motivation to use a certain anchor?

Reanchor with figures generated by other models or benchmarks, and request new analysis.

8

CHECK FOR HALO EFFECT

Is the team assuming that a person, organization, or approach that is successful in one area will be just as successful in another?

Eliminate false inferences, and ask the team to seek additional comparable examples.

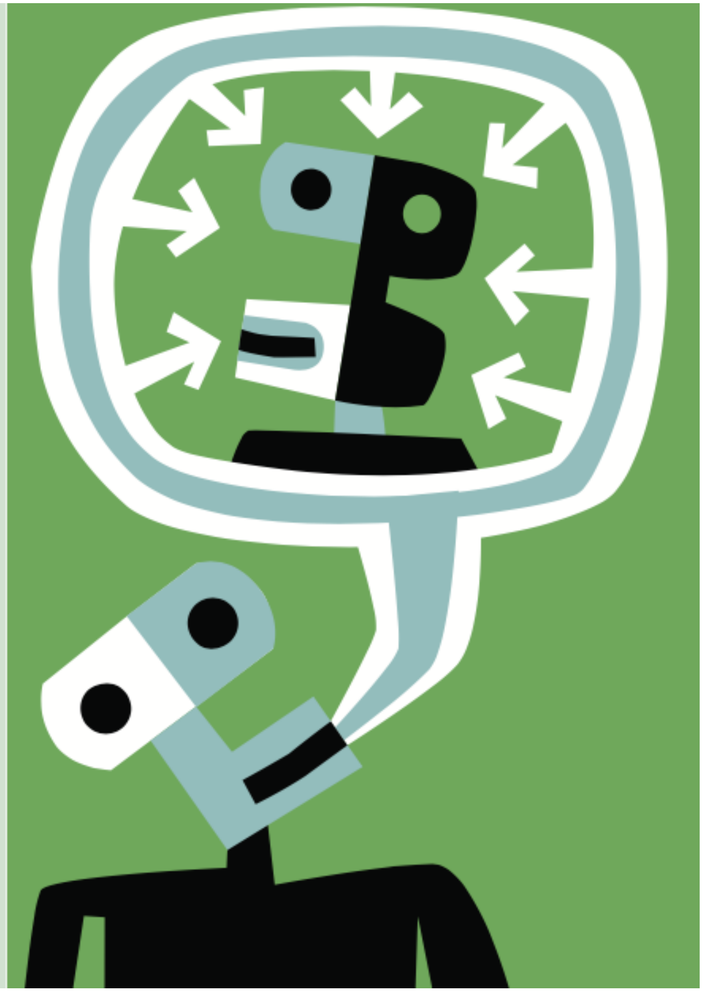
Decision and Human Nature: Overcoming Biases

9

CHECK FOR SUNK-COST FALLACY, ENDOWMENT EFFECT

Are the recommenders overly attached to a history of past decisions?

Consider the issue as if you were a new CEO.



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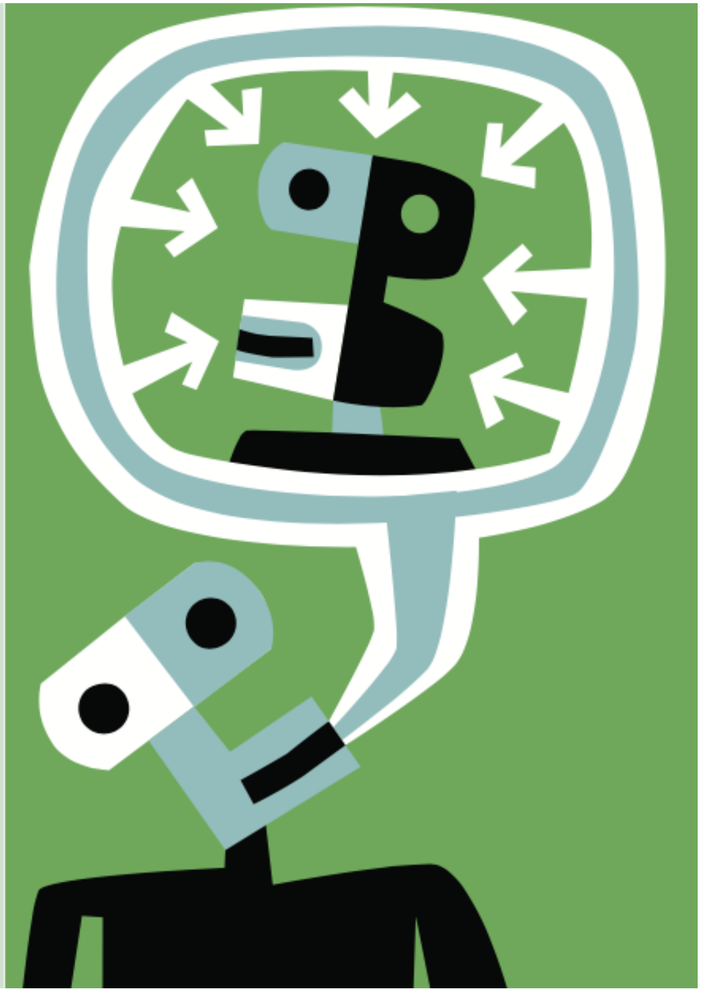

Ask about the proposal

10

CHECK FOR OVERCONFIDENCE, PLANNING FALLACY, OPTIMISTIC BIASES, COMPETITOR NEGLECT

Is the base case overly optimistic?

Have the team build a case taking an outside view; use war games.

11

CHECK FOR DISASTER NEGLECT

Is the worst case bad enough?

Have the team conduct a premortem: Imagine that the worst has happened, and develop a story about the causes.

12

CHECK FOR LOSS AVERSION

Is the recommending team overly cautious?

Realign incentives to share responsibility for the risk or to remove risk.

BIASES ARE EVERYWHERE …

Artificial intelligence (AI)

'Bias deep inside the code': the problem with AI 'ethics' in Silicon Valley

As algorithms play a growing role in criminal justice, education and more, tech advisory boards and academic programs mirror real-world inequality

Sam Levin *in San Francisco*

@SamTLevin

Email

Fri 29 Mar 2019
01.00 EDT

773

Shortcuts
Motoring

The racism of technology - and why driverless cars could be the most dangerous example yet

'Machine vision' is struggling to recognise darker-skinned pedestrians, and cost pressures could make things worse

Alex Hern

@alexhern

Wed 13 Mar 2019
12.31 EDT

1431

▲ Crash course … an autonomous self-driving vehicle spots some pedestrians in Milton Keynes – hopefully
Photograph: Justin Tallis/AFP/Getty Images

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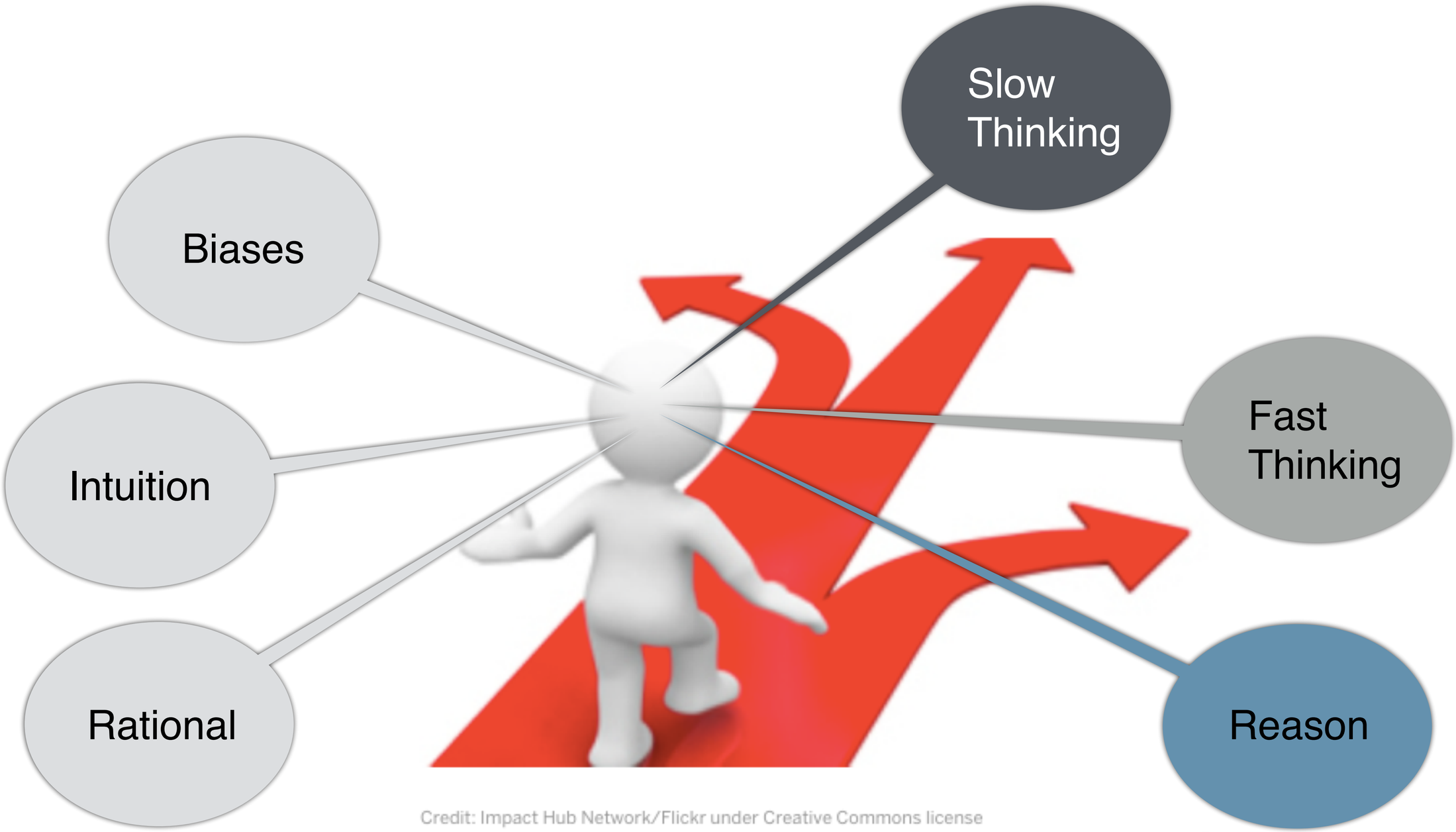

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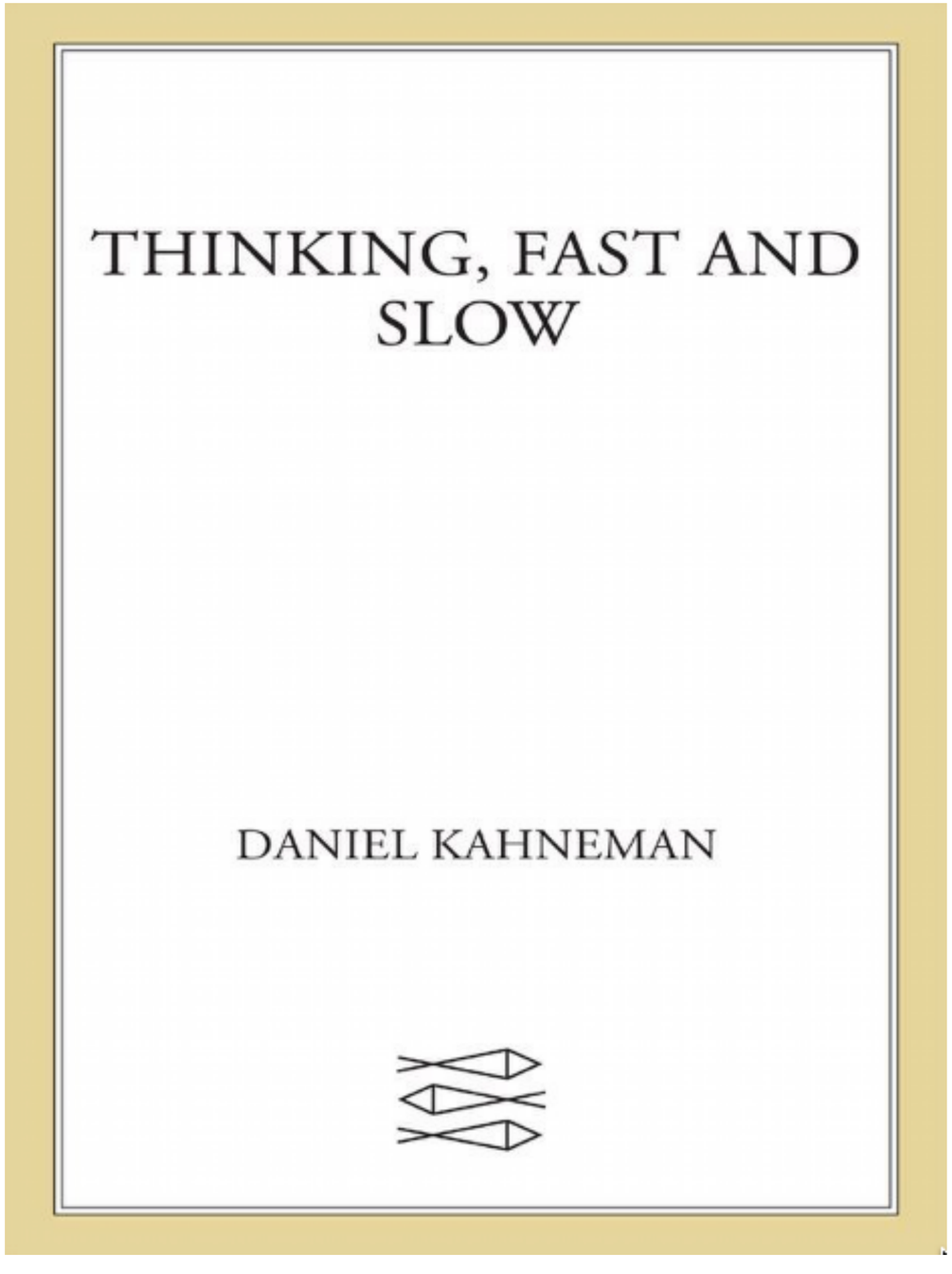
Decision and Human Nature: Fast and Slow Thinking - The Enigma of Reason



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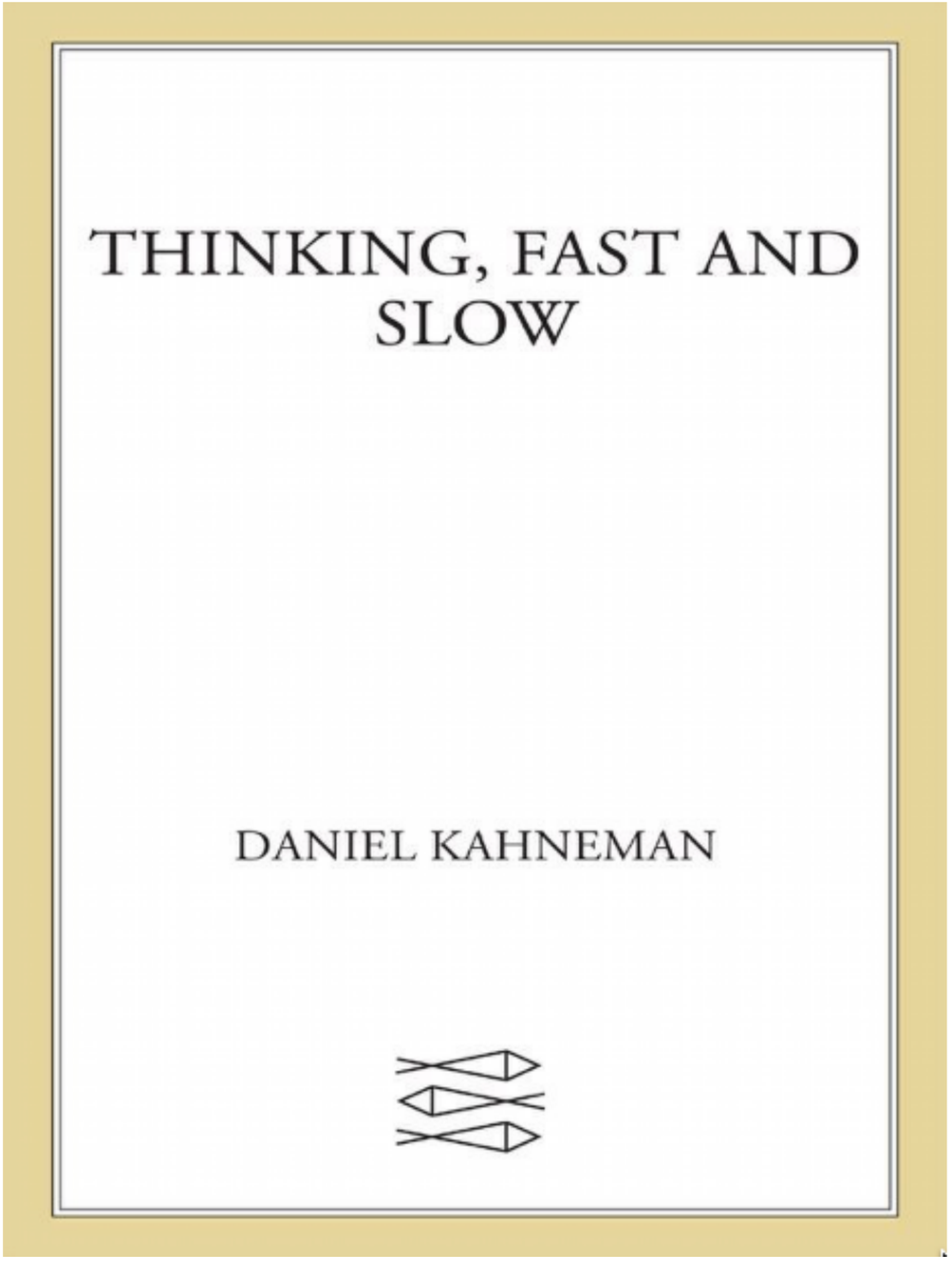

Herbert Simon on Intuition:

"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."

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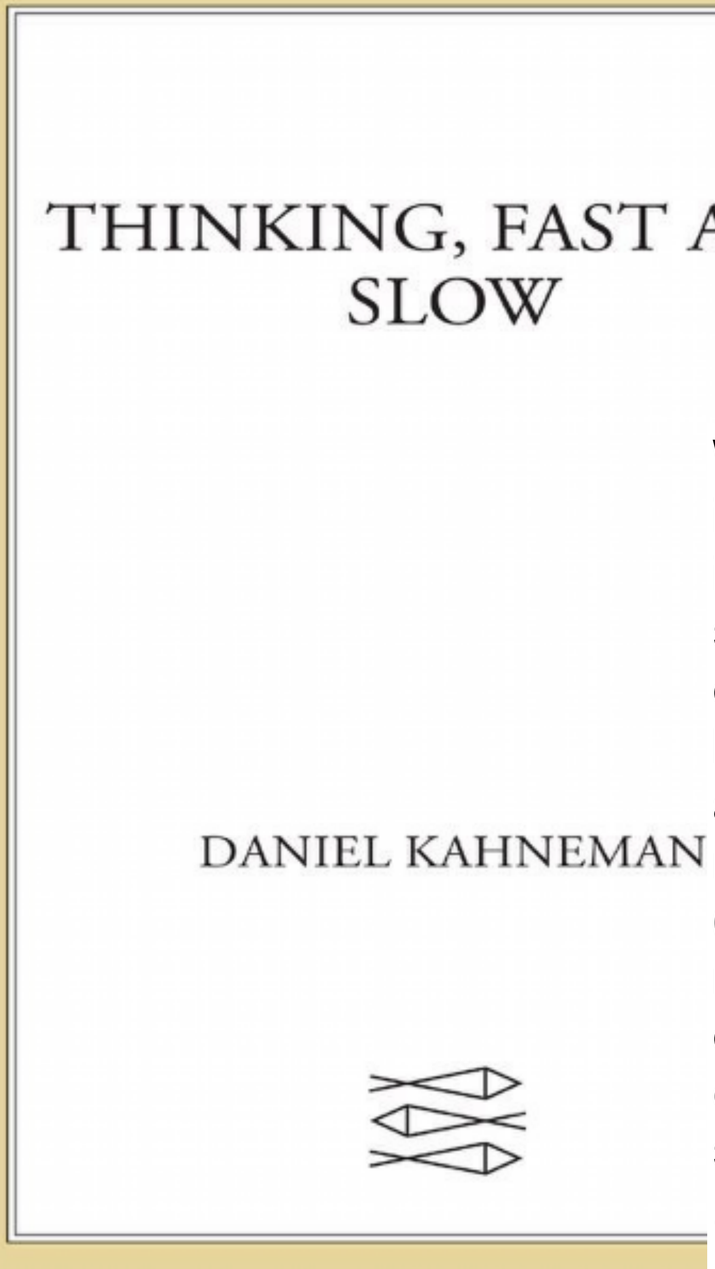
Decision and Human Nature: Fast and Slow Thinking - The Enigma of Reason



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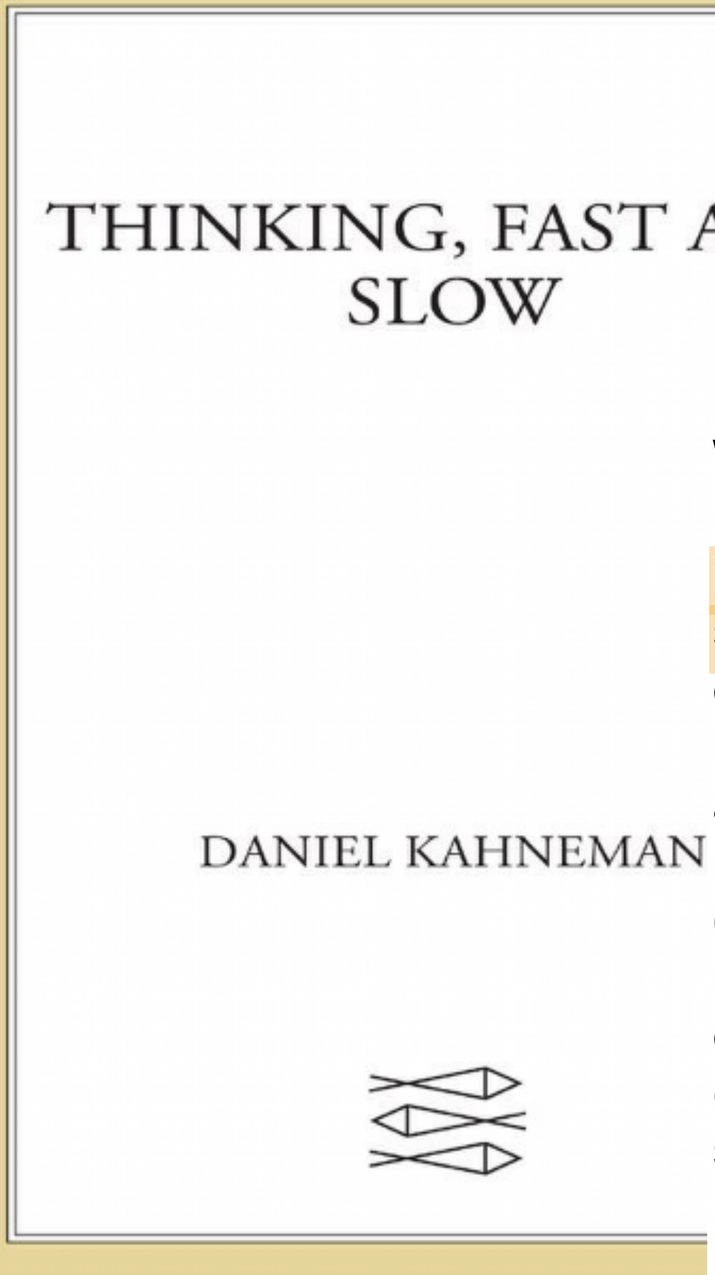

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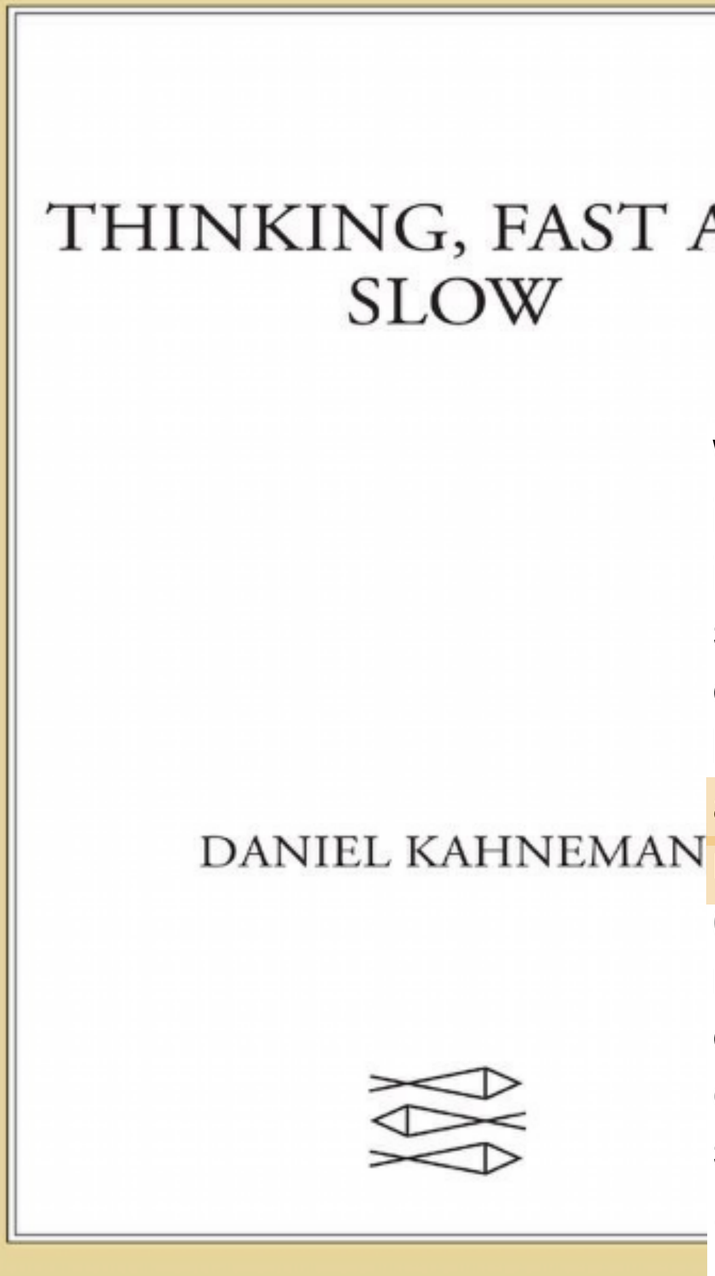

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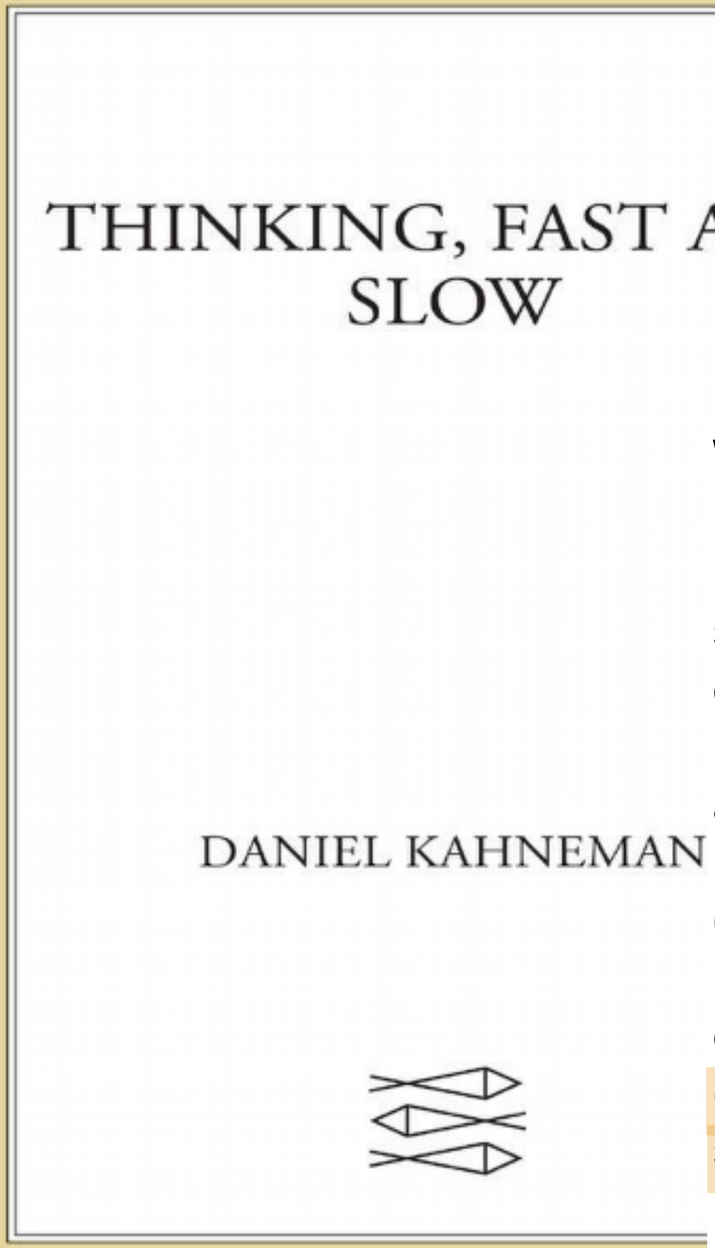

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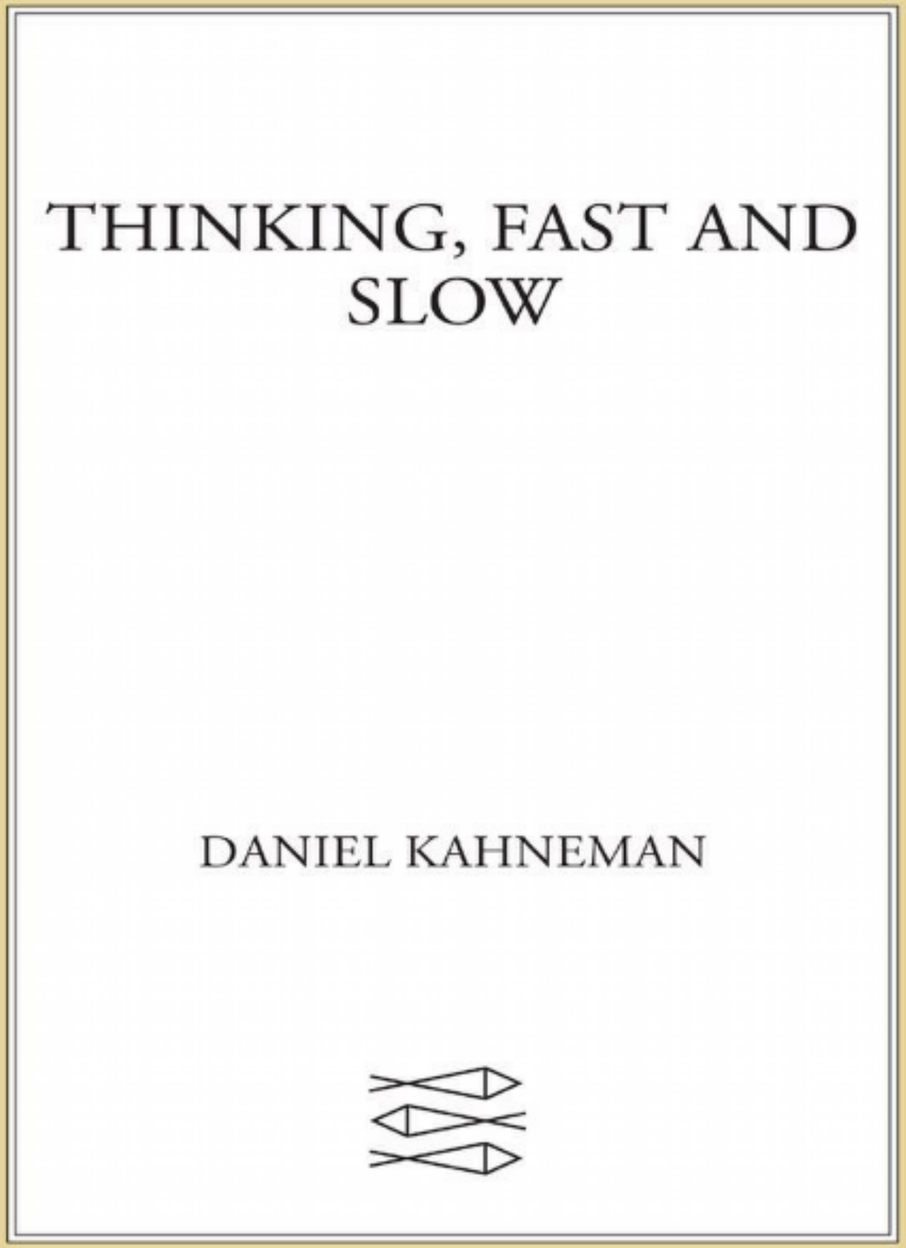

The spontaneous search for an intuitive solution sometimes fails—neither an expert solution nor a heuristic answer comes to mind. In such cases we often find ourselves switching to a slower, more deliberate and effortful form of thinking. This is the slow thinking of the title. Fast thinking includes both variants of intuitive thought— the expert and the heuristic— as well as the entirely automatic mental activities of perception and memory, the operations that enable you to know there is a lamp on your desk or retrieve the name of the capital of Russia.

Kahneman, Daniel. Thinking, Fast and Slow (p. 13). Farrar, Straus and Giroux. Kindle Edition.

Conclusions

I began this book by introducing two fictitious characters, spent some time discussing two species, and ended with two selves. The two characters were the intuitive System 1, which does the fast thinking, and the effortful and slower System 2, which does the slow thinking, monitors System 1, and maintains control as best it can within its limited resources. The two species were the fictitious Econs, who live in the land of theory, and the Humans, who act in the real world. The two selves are the experiencing self, which does the living, and the remembering self, which keeps score and makes the choices.

Kahneman, Daniel. Thinking, Fast and Slow (p. 408). Farrar, Straus and Giroux. Kindle Edition.

Decision and Human Nature: Fast and Slow Thinking - The Enigma of Reason

Two Selves

The possibility of conflicts between the remembering self and the interests of the experiencing self turned out to be a harder problem than I initially thought.

The remembering self's neglect of duration, its exaggerated emphasis on peaks and ends, and its susceptibility to hindsight combine to yield distorted reflections of our actual experience.

The remembering self is a construction of System 2. However, the distinctive features of the way it evaluates episodes and lives are characteristics of our memory. Duration neglect and the peak-end rule originate in System 1 and do not necessarily correspond to the values of System 2. We believe that duration is important, but our memory tells us it is not. The rules that govern the evaluation of the past are poor guides for decision making, because time does matter. The central fact of our existence is that time is the ultimate finite resource, but the remembering self ignores that reality. The neglect of duration combined with the peak-end rule causes a bias that favors a short period of intense joy over a long period of moderate happiness. The mirror image of the same bias makes us fear a short period of intense but tolerable suffering more than we fear a much longer period of moderate pain. Duration neglect also makes us prone to accept a long period of mild unpleasantness because the end will be better, and it favors giving up an opportunity for a long happy period if it is likely to have a poor ending.

Kahneman, Daniel. Thinking, Fast and Slow (p. 409). Farrar, Straus and Giroux. Kindle Edition.

System 2

Two Selves

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System 2

System 1

Two Selves

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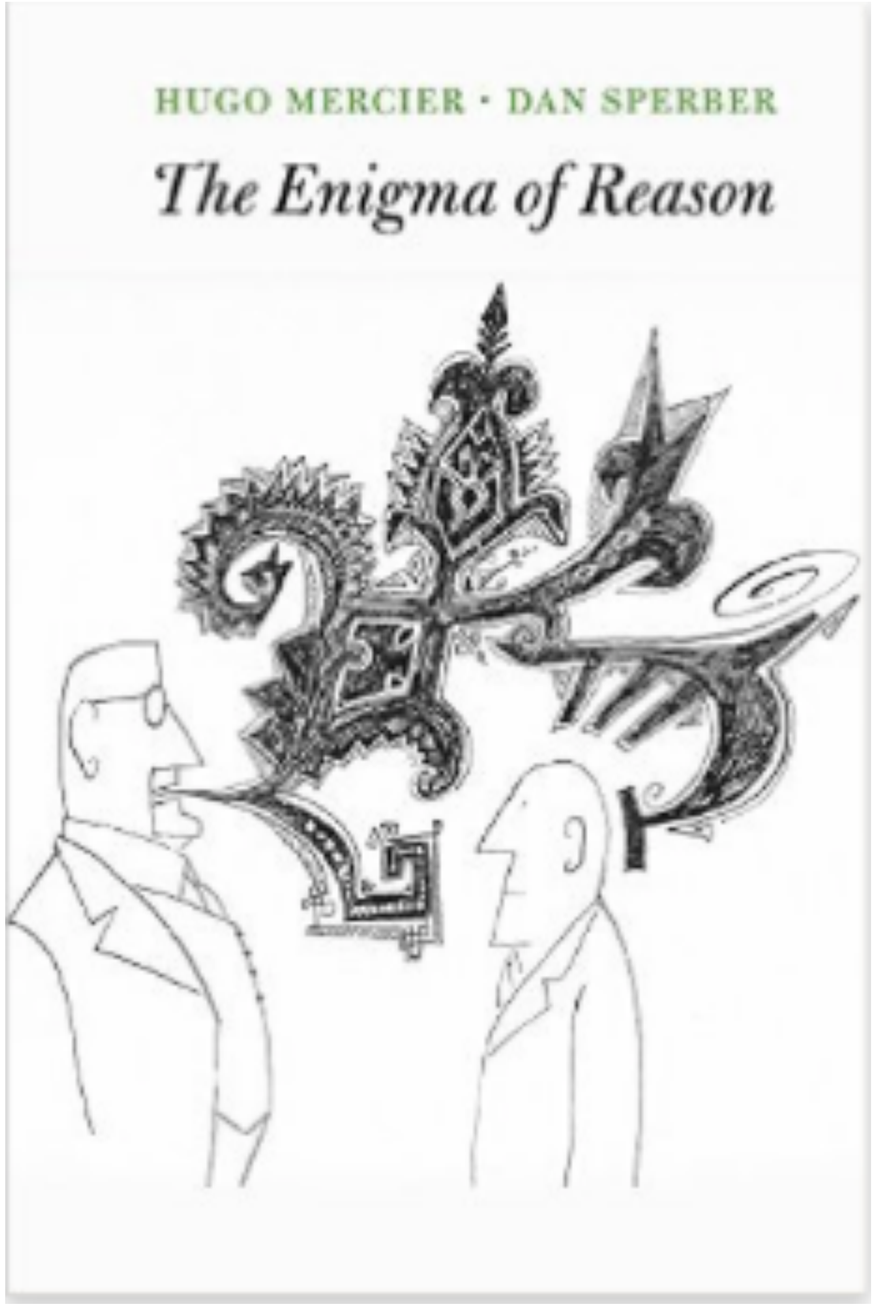

Reason, we are told, is what makes us human, the source of our knowledge and wisdom. If reason is so useful, why didn't it also evolve in other animals? If reason is that reliable, why do we produce so much thoroughly reasoned nonsense? In their groundbreaking account of the evolution and workings of reason, Hugo Mercier and Dan Sperber set out to solve this double enigma. Reason, they argue with a compelling mix of real-life and experimental evidence, is not geared to solitary use, to arriving at better beliefs and decisions on our own. What reason does, rather, is help us justify our beliefs and actions to others, convince them through argumentation, and evaluate the justifications and arguments that others address to us.

In other words, reason helps humans better exploit their uniquely rich social environment. This interactionist interpretation explains why reason may have evolved and how it fits with other cognitive mechanisms. It makes sense of strengths and weaknesses that have long puzzled philosophers and psychologists—why reason is biased in favor of what we already believe, why it may lead to terrible ideas and yet is indispensable to spreading good ones.

Decision and Human Nature: Fast and Slow Thinking - The Enigma of Reason

Core concepts:

- modules are tasks with highly specialized tasks
- representations and metarepresentations

GETTING USED TO IT (NORMALCY BIAS) …

AS THE CLIMATE CHANGES, ARE WE ALL BOILING FROGS?

New research finds that we normalize rising temperatures remarkably quickly.

TOM JACOBS · FEB 26, 2019

A winter storm left cold temperatures, heavy rains, and even snow on the mountains of Baja California State and other parts of northwestern Mexico, pictured here on February 22nd, 2019.
(Photo: Guillermo Arias/AFP/Getty Images)

Rapidly declining remarkability of temperature anomalies may obscure public perception of climate change

Frances C. Moore, Nick Obradovich, Flavio Lehner, and Patrick Baylis

PNAS March 12, 2019 116 (11) 4905-4910; published ahead of print February 25, 2019
https://doi.org/10.1073/pnas.1816541116
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Edited by Edward W. Maibach, George Mason University, Fairfax, VA, and accepted by Editorial Board Member Hans J. Schellnhuber January 14, 2019 (received for review September 25, 2018)

THE VALUE OF EVIDENCE …

nature climate change

Perspective | Published: 14 January 2019

Evidence-based strategies to combat scientific misinformation

Justin Farrell ✉, Kathryn McConnell & Robert Brulle

Nature Climate Change **9**, 191–195 (2019) | Download Citation ⬇

Abstract

Nowhere has the impact of scientific misinformation been more profound than on the issue of climate change in the United States. Effective responses to this multifaceted problem have been slow to develop, in large part because many experts have not only underestimated its impact, but have also overlooked the underlying institutional structure, organizational power and financial roots of misinformation. Fortunately, a growing body of sophisticated research has emerged that can help us to better understand these dynamics and provide the basis for developing a coordinated set of strategies across four related areas (public inoculation, legal strategies, political mechanisms and financial transparency) to thwart large-scale misinformation campaigns before they begin, or after they have taken root.

Climate change

Americans' climate change concerns surge to record levels, poll shows

Total of 72% polled now say global warming is personally important to them, Yale said, as 73% accept it is happening

Oliver Milman *in New York*

@olliemilman

Tue 22 Jan 2019
12.45 EST

8533
This article is over 2 months old

▲ People in Atlantic Beach, North Carolina watch as Hurricane Florence threatens the Carolinas on 12 September 2018. Photograph: Travis Long/TNS/Getty Images

Mitigation and Adaptation Studies

Class 20: Decision-Making: Human Nature and Facing Threats

Contents

- Decisions and Human Nature:
  - Biases
  - Overcoming Biases
  - Fast and Slow Thinking - Enigma of Reason
- Science-Society Dialog
- Economic Context
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Creating the ‘Illusion of Truth’

“Repeat a lie often enough and it becomes the truth”, is a law of propaganda often attributed to the Nazi Joseph Goebbels.

Creating the ‘Illusion of Truth’

Neurohacks | Psychology

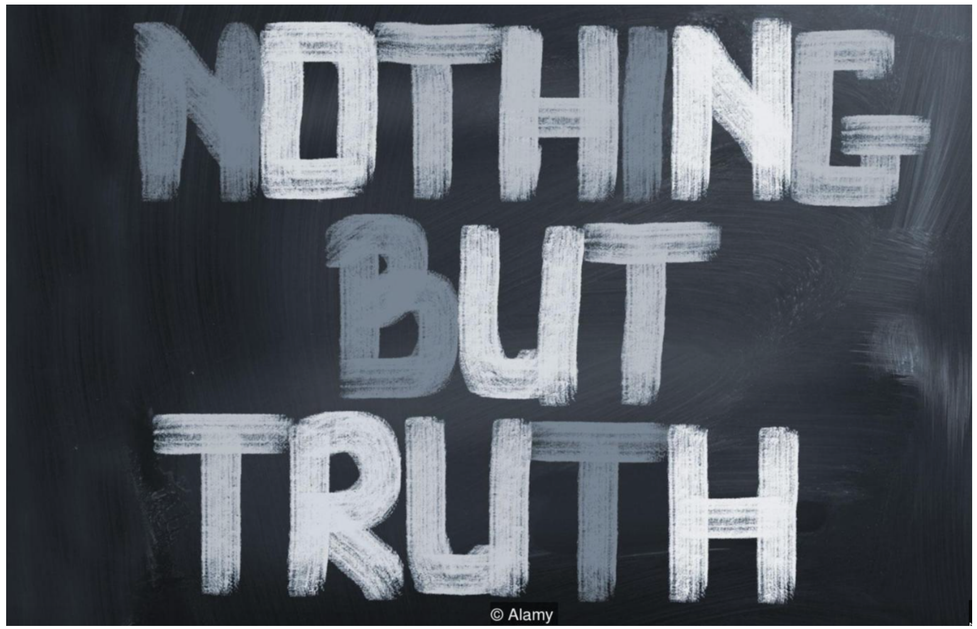
How liars create the 'illusion of truth'

Repetition makes a fact seem more true, regardless of whether it is or not. Understanding this effect can help you avoid falling for propaganda, says psychologist Tom Stafford.

By Tom Stafford
26 October 2016

Creating the ‘Illusion of Truth’

Recently, a team led by Lisa Fazio of Vanderbilt University set out to test how the illusion of truth effect interacts with our prior knowledge. Would it affect our existing knowledge? They used paired true and un-true statements, but also split their items according to how likely participants were to know the truth (so "The Pacific Ocean is the largest ocean on Earth" is an example of a "known" items, which also happens to be true, and "The Atlantic Ocean is the largest ocean on Earth" is an un-true item, for which people are likely to know the actual truth).



Repetition can even make known lies sound more believable

What Fazio and colleagues actually found, is that the biggest influence on whether a statement was judged to be true was... whether it actually was true. The repetition effect couldn’t mask the truth. With or without repetition, people were still more likely to believe the actual facts as opposed to the lies.
This shows something fundamental about how we update our beliefs – repetition has a power to make things sound more true, even when we know differently, but it doesn't over-ride that knowledge

Creating the ‘Illusion of Truth’

The illusion of truth is not inevitable – when armed with knowledge, we can resist it

If repetition was the only thing that influenced what we believed we'd be in trouble, but it isn't. We can all bring to bear more extensive powers of reasoning, but we need to recognise they are a limited resource. Our minds are prey to the illusion of truth effect because our instinct is to use short-cuts in judging how plausible something is. Often this works. Sometimes it is misleading.

Once we know about the effect we can guard against it. Part of this is double-checking why we believe what we do – if something sounds plausible is it because it really is true, or have we just been told that repeatedly? This is why scholars are so mad about providing references - so we can track the origin on any claim, rather than having to take it on faith.

But part of guarding against the illusion is the obligation it puts on us to stop repeating falsehoods. We live in a world where the facts matter, and should matter. If you repeat things without bothering to check if they are true, you are helping to make a world where lies and truth are easier to confuse. So, please, think before you repeat.

Creating the ‘Illusion of Truth’

“Repeat a lie often enough and it becomes the truth”, is a law of propaganda often attributed to the Nazi Joseph Goebbels.

Creating Knowledge
(as in “justified true belief”)

“Repeat a truth often enough and eventually it will become widely accepted.”