

# Behavioral economics

## Lecture 2 - Judgments

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Student resources: [www.lorko.sk](http://www.lorko.sk)

### References:

- Kahneman, D. (2011). *Thinking, fast and slow*.

A B C

12 13 14

A **B** C

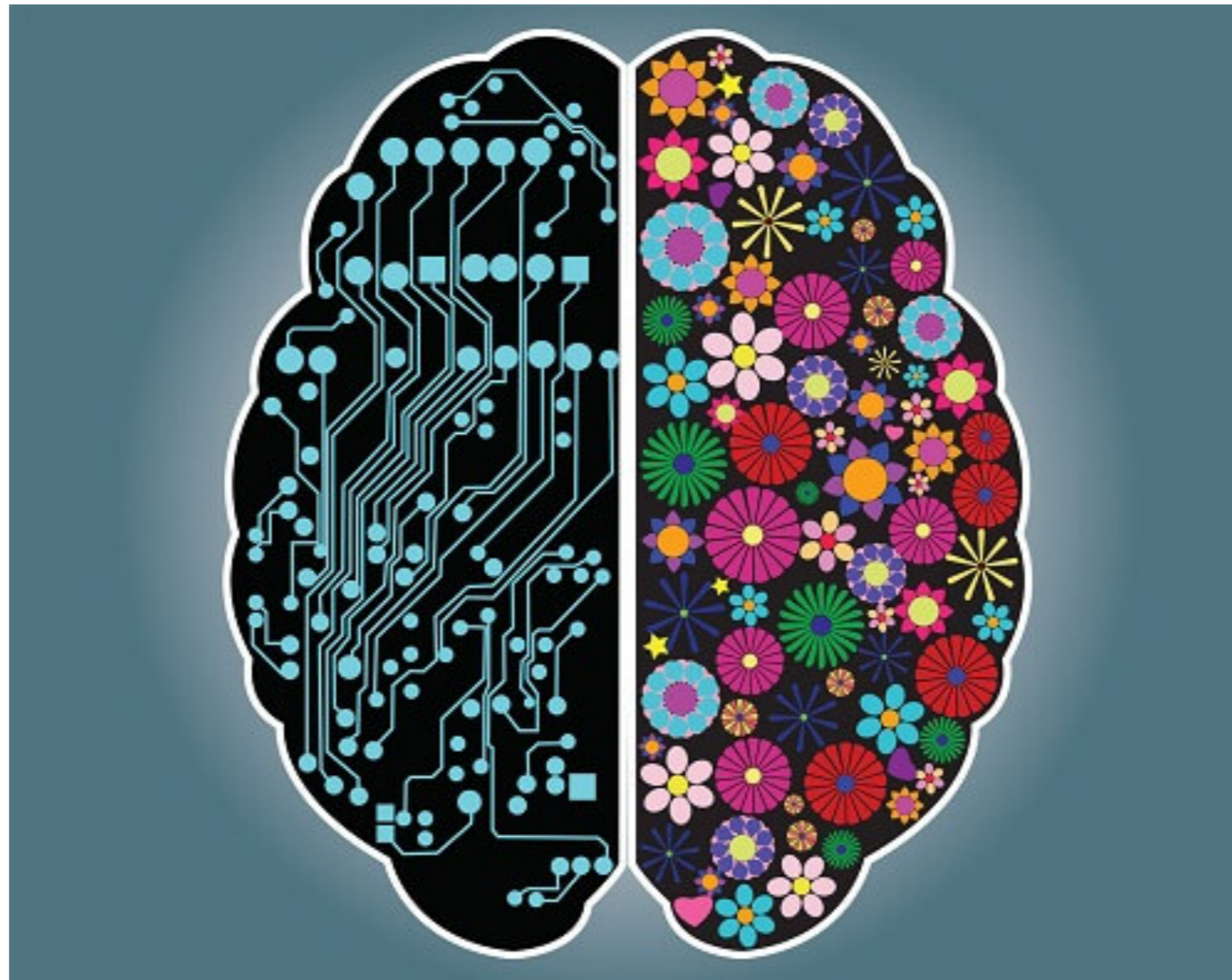
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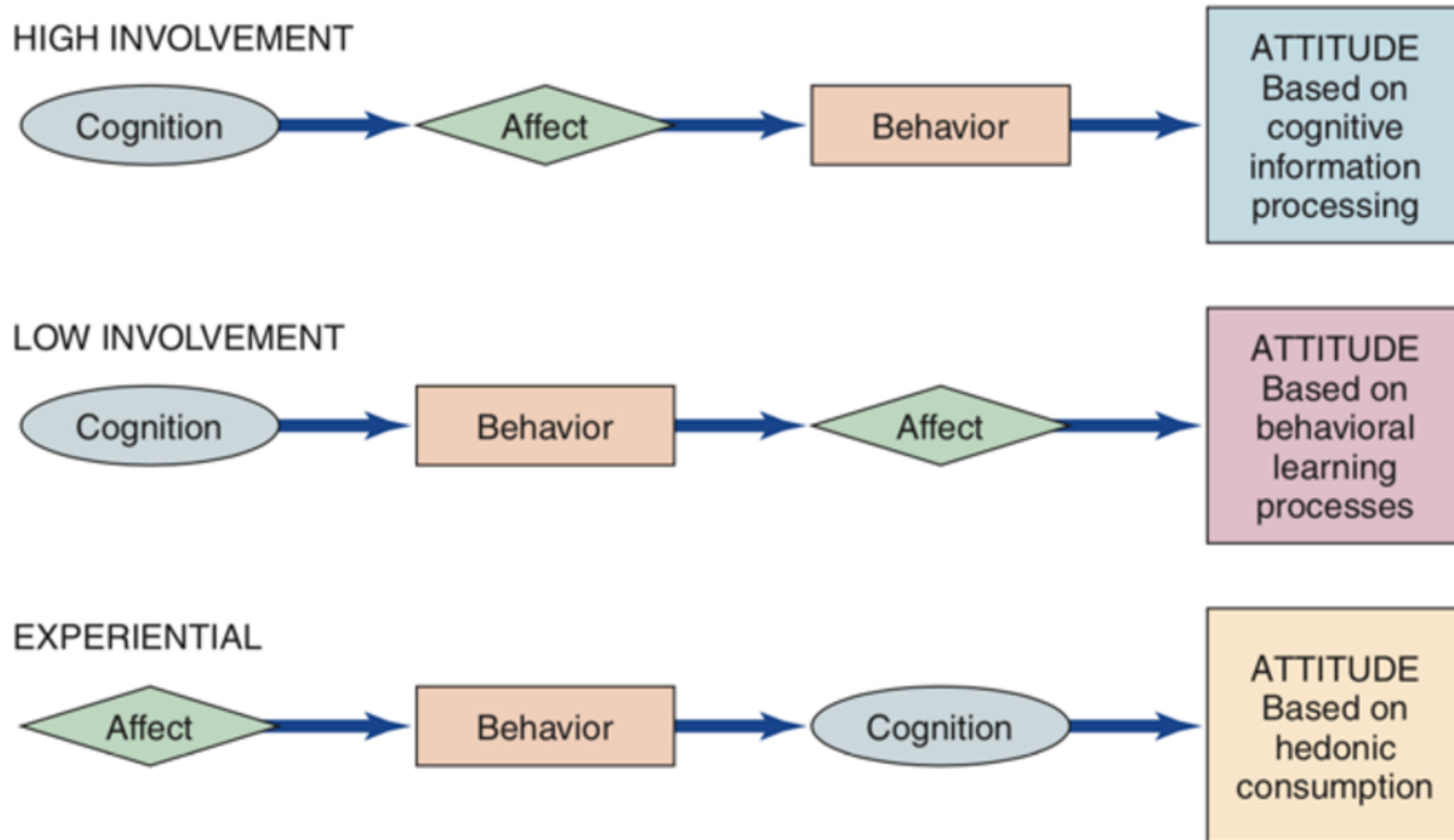


34 x 27



- Two types of thinking: one is deliberative and the other is reactive/intuitive
- Our reactive thinking (aka intuitive, or System 1) is blazingly fast and automatic, it uses our past experiences and a set of simple rules of thumb, almost immediately give us an intuitive evaluation of a situation— through our emotions and through sensations around our bodies like a “gut feeling.
- It’s generally quite effective in familiar situations, where our past experiences are relevant, and does less well in unfamiliar situations.
- Our deliberative thinking (aka conscious, or System 2) is slow, focused, self-aware, and what most of us consider “thinking.” We can rationally analyze our way through unfamiliar situations and handle complex problems with System 2.

**Figure 8.1** THREE HIERARCHIES OF EFFECTS





- We're often not "thinking" when we act. At least, we're not choosing consciously.
- Most of our daily behavior is governed by our intuitive mode.
- We're acting on habit (learned patterns of behavior), on gut instinct (blazingly fast evaluations of a situation based on our past experiences), or on simple rules of thumb (cognitive shortcuts or heuristics built into our mental machinery).
- "The rider thinks it's always in charge, but it's the elephant doing the work; if the elephant disagrees with the rider, the elephant usually wins."



- <https://www.youtube.com/watch?v=vJG698U2Mvo>
- <https://www.youtube.com/watch?v=ubNF9QNEQLA>

bike

CAR

car

BIKE

car

car

BIKE

car

bike

green

red

red

**GREEN**

red

green

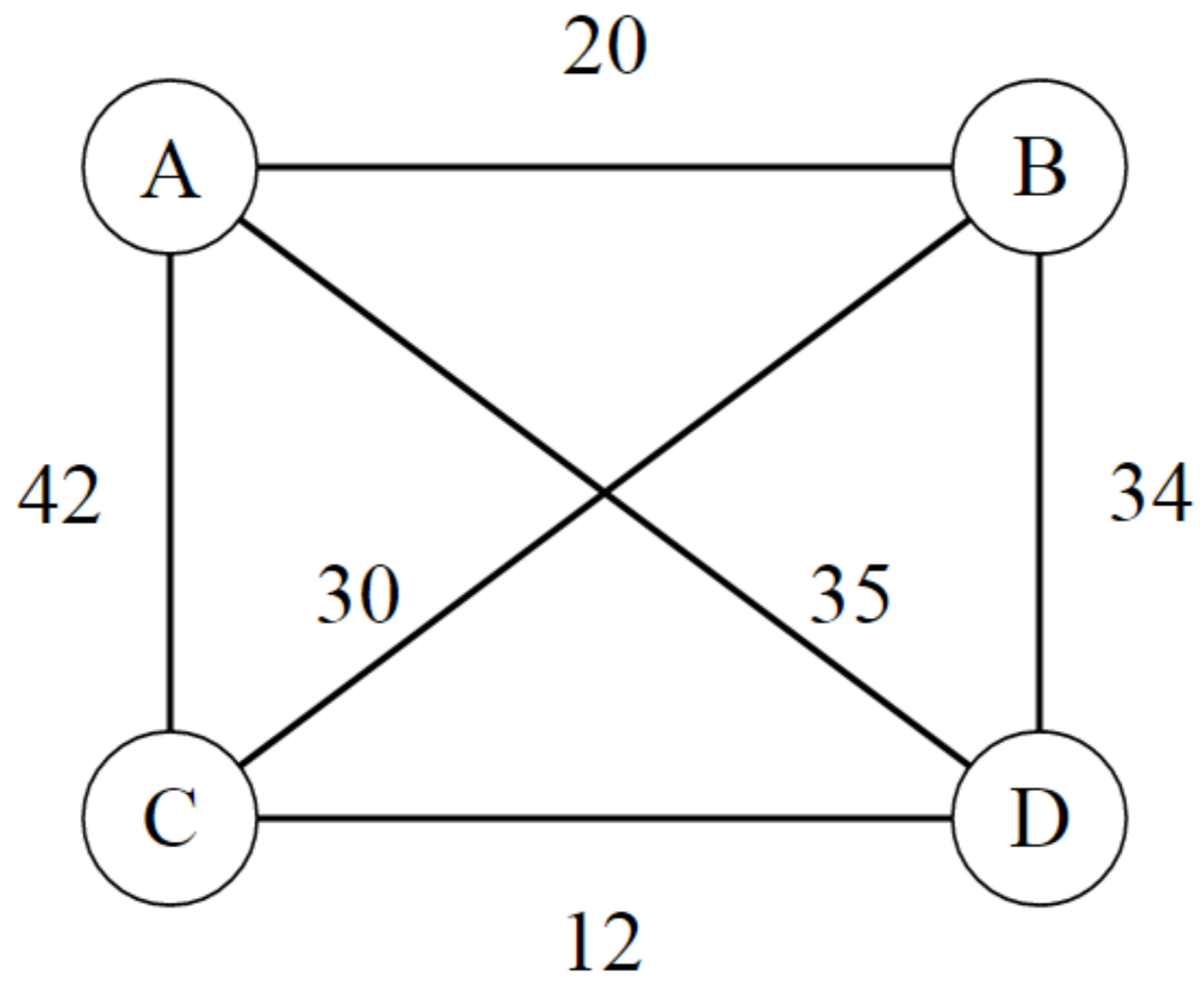
**GREEN**

red

**Green**

- A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost?
- If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?
- In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

<b>System 1</b>	<b>System 2</b>
Subconscious	Conscious
Automatic	Controlled
Effortless	Requires effort
Fast	Slow
Large capacity	Small capacity
Basic process	Learned process
<b>Heuristics</b>	<b>Deliberate decisions</b>



**Tab. 1 Časová náročnosť výpočtov [8]**

Počet miest	Počet rôznych ciest	Potrebný čas
11	1 814 400	1 s.
12	19 958 400	11 s.
13	239 500 800	2 min.
14	3 113 510 400	30 min.
15	43 589 145 600	7 h.
16	653 837 184 000	4 dni
17	10 461 394 944 000	2,5 mesiaca
21	1 216 451 004 088 320 000	22 000 rokov
25	31 022 420 086 661 971 968 000 000	5 mld. rokov



Highest rating?  
A lot of customers?  
Remember an ad?  
Experience with sth similar?  
Price as a quality signal?



# System 1 characteristics

- While researchers don't fully understand this process, we have some significant clues as to what drives our nonconscious reactions.
- **It's strongly social:** In many ways, we are wired to pay attention to and focus on social interactions. We intuitively assess whether something is right for us to do based on whether it's something that other people like us seem to do. We are hesitant to take actions that our peers might disapprove of. We try to be consistent with our social commitments and our sense of identity, both of which depend on and are shaped by our interactions with others. Our social connections reach us at a level that's deeper, less deliberative, than merely a cost-benefit analysis of expected outcomes.
- **It's linked by similarity:** Our minds quickly assess how we feel about unfamiliar things based on their similarity to more familiar items (aka the similarity heuristic). Sometimes those similarities express something essential—like the genre of a book or movie. But often, the distinctions are based on more cursory distinctions: shape, color, smell. This is true for fruit and for people: it's a root cause of stereotyping, and like all mental shortcuts, it's a valuable cognitive tool that can go awry.
- **It's shaped by familiarity:** The more we're exposed to something, like an idea or object, the more we tend to like it (all else being equal). Researchers call this the mere exposure effect. For example, advertisers rely on this principle when they buy ads to show you an image of a brand again and again—just by seeing the ad, people can come to like the brand more (again, all else being equal). More generally, our minds confound the easy-to-remember with the true; it just feels right to us when we can think about it quickly.
- **It's trained by experience:** Our intuitive responses are the ruts cut into the earth of our mind by frequent passage. Over time, our minds learn associations; the things that we have enjoyed in the past, we learn to react positively to in the future (operant conditioning); even the things that are associated with good experiences in the past can make us respond positively (classical conditioning). And even without formal conditioning, our minds learn what to expect in a familiar situation. For example, if we're thinking about walking up 10 flights of stairs, the last time we took the stairs and almost had a heart attack will color how we feel about doing it again (and this can occur before we consciously think about whether or not to act). Prior experience can also affect us in more immediate ways: if we've become angry, we may interpret an ambiguous situation as more hostile than if we were in a good mood to start with.

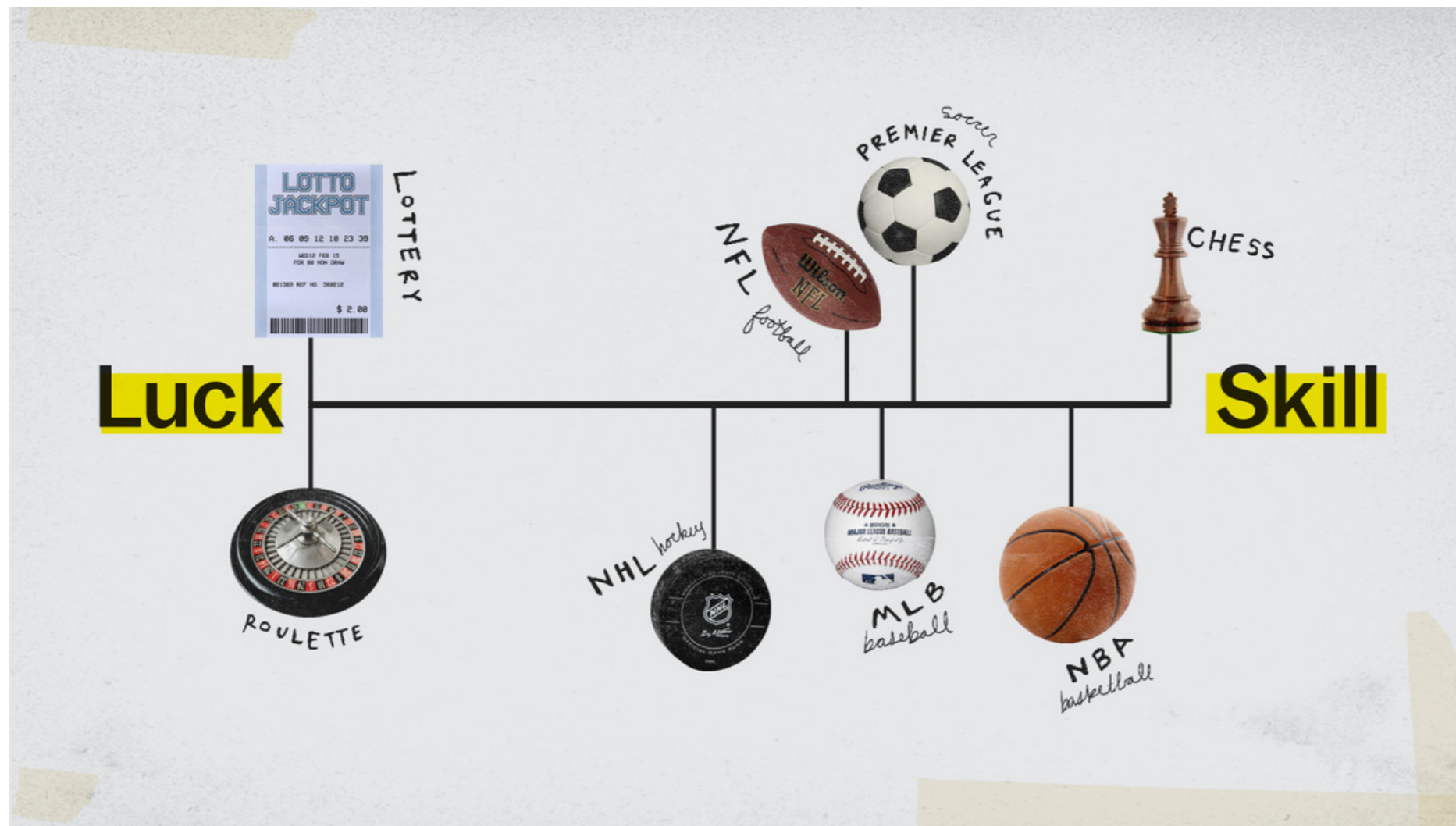
- A group of depressive kids underwent an experimental treatment in which each kid drank 1 liter of Coca-Cola each day. After two months it was found that the kids felt on average significantly better. Should we recommend Coca-Cola as a treatment for children depression?

# Regression towards mediocrity

- Regression towards the mean is a statistical phenomenon that occurs when an extreme value of a variable is likely to be followed by a value that is closer to the average or mean of the distribution. It is a result of the fact that extreme events or observations are usually not as extreme when they happen again. In other words, extreme values are likely to be followed by less extreme values.
- For example, if a student scores very high on a test, it is unlikely that they will score as high on the next test. Similarly, if a stock has a very high return one year, it is unlikely to have a similarly high return the next year.
- This concept is important in many fields, such as finance, sports and medicine. In finance, it is used to model stock prices, in sports is used to predict future performance of a team or player and in medicine to understand the effect of a treatment. It is also important to note that it is not a "law" but a statistical tendency that can be affected by many factors, such as changing conditions or new information.

# Regression towards mediocrity

- success = talent + luck
- great success = a little more talent + a lot of luck



- A study focusing on kidney cancer found that this type of cancer is **most prevalent** in rural, sparsely populated villages, in which there is also a very high unemployment rate.
- What could be the reason?

- A study focusing on kidney cancer found that this type of cancer is **least prevalent** in rural, sparsely populated villages, in which there is also a very high unemployment rate.
- What could be the reason?

- It is a well known fact that the most intelligent women tend to marry less intelligent men on average. Why?

# Narrative fallacies

- Narrative fallacies arise inevitably from our continuous attempt to make sense of the world. A great example is a survivorship bias.
- 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. We humans constantly fool ourselves by constructing flimsy accounts of the past and believing they are true.
- You build the best possible story from the information available to you, and if it is a good story, you believe it. Paradoxically, it is easier to construct a coherent story when you know little, when there are fewer pieces to fit into the puzzle. Our comforting conviction that the world makes sense rests on a secure foundation: our almost unlimited ability to ignore our ignorance.
- The most coherent stories are not necessarily the most probable, but they are plausible, and the notions of coherence, plausibility, and probability are easily confused by the unwary. This is a trap for forecasters and their clients: adding detail to scenarios makes them more persuasive, but less likely to come true.
- Statistics produce many observations that appear to beg for causal explanations but do not lend themselves to such explanations. Many facts of the world are due to chance, including accidents of sampling. Causal explanations of chance events are inevitably wrong.

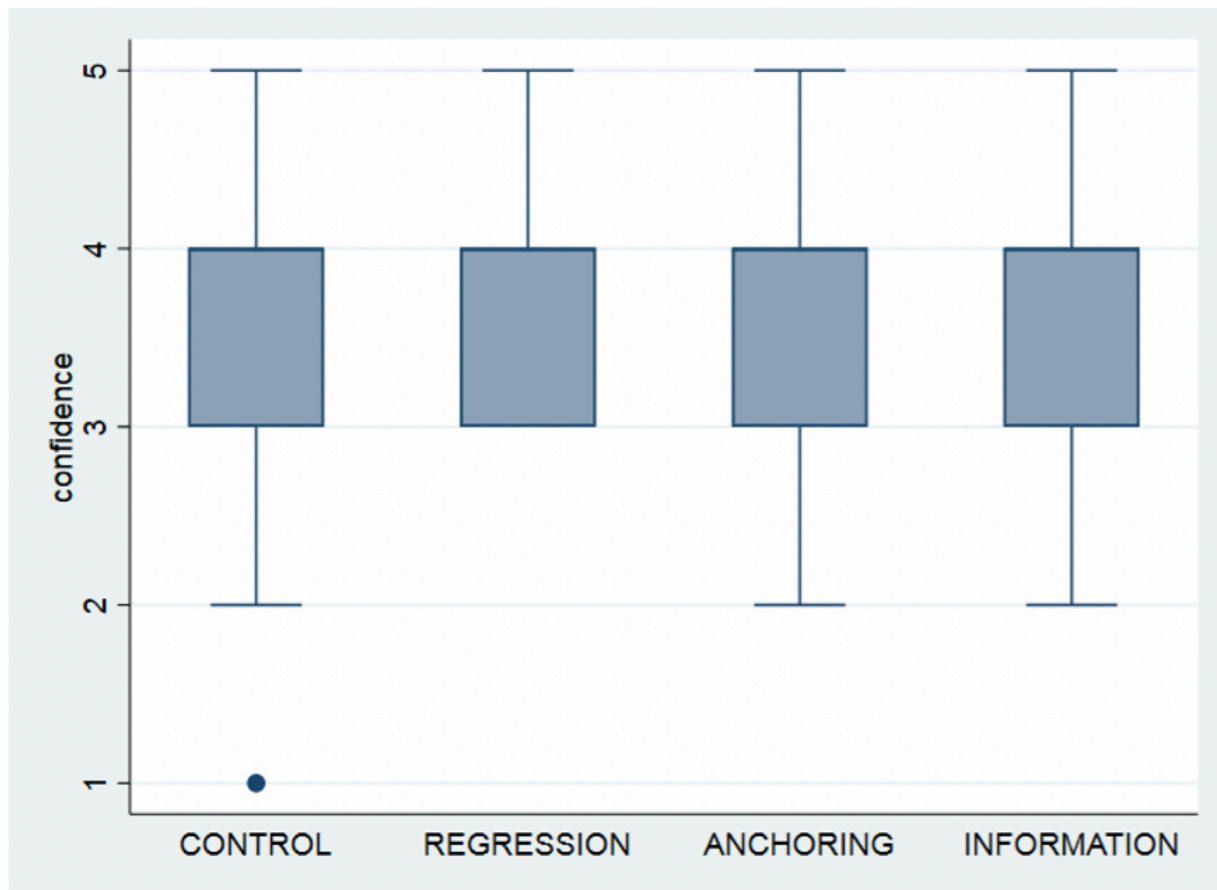


- [https://www.youtube.com/watch?v=nisSeC81u2M&ab\\_channel=TED](https://www.youtube.com/watch?v=nisSeC81u2M&ab_channel=TED)

1. Age of William Shakespeare at his death (in years)
2. Length of the Mississippi River (in km)
3. Total number of medals awarded to all participants during the Olympic Winter Games in Sochi 2014
4. Total number of rainy days per year in Bergen (Norway)
5. Weight (in kg) of an empty Airbus A380
6. Height of the Eiffel Tower (in m)
7. Duration of the pregnancy of a Koala (in days)
8. Diameter of the moon (in km)
9. Total number of Premier League goals scored by David Beckham
10. Grams of sugar in a 1,5 l bottle of Coca Cola.

# Overconfidence

- Neither the quantity nor the quality of the evidence counts for much in subjective confidence. The confidence that individuals have in their beliefs depends mostly on the quality of the story they can tell about what they see, even if they see little. We often fail to allow for the possibility that evidence that should be critical to our judgment is missing—what we see is all there is. Furthermore, our associative system tends to settle on a coherent pattern of activation and suppresses doubt and ambiguity.
- A puzzling limitation of our mind: our excessive confidence in what we believe we know, and our apparent inability to acknowledge the full extent of our ignorance and the uncertainty of the world we live in. We are prone to overestimate how much we understand about the world and to underestimate the role of chance in events. Overconfidence is fed by the illusory certainty of hindsight.
- If subjective confidence is not to be trusted, how can we evaluate the probable validity of an intuitive judgment? When do judgments reflect true expertise? When do they display an illusion of validity? The answer comes from the two basic conditions for acquiring a skill: an environment that is sufficiently regular to be predictable and an opportunity to learn these regularities through prolonged practice.
- How good are experts? Often not very good (Meehl, Tetlock, Malkiel...)

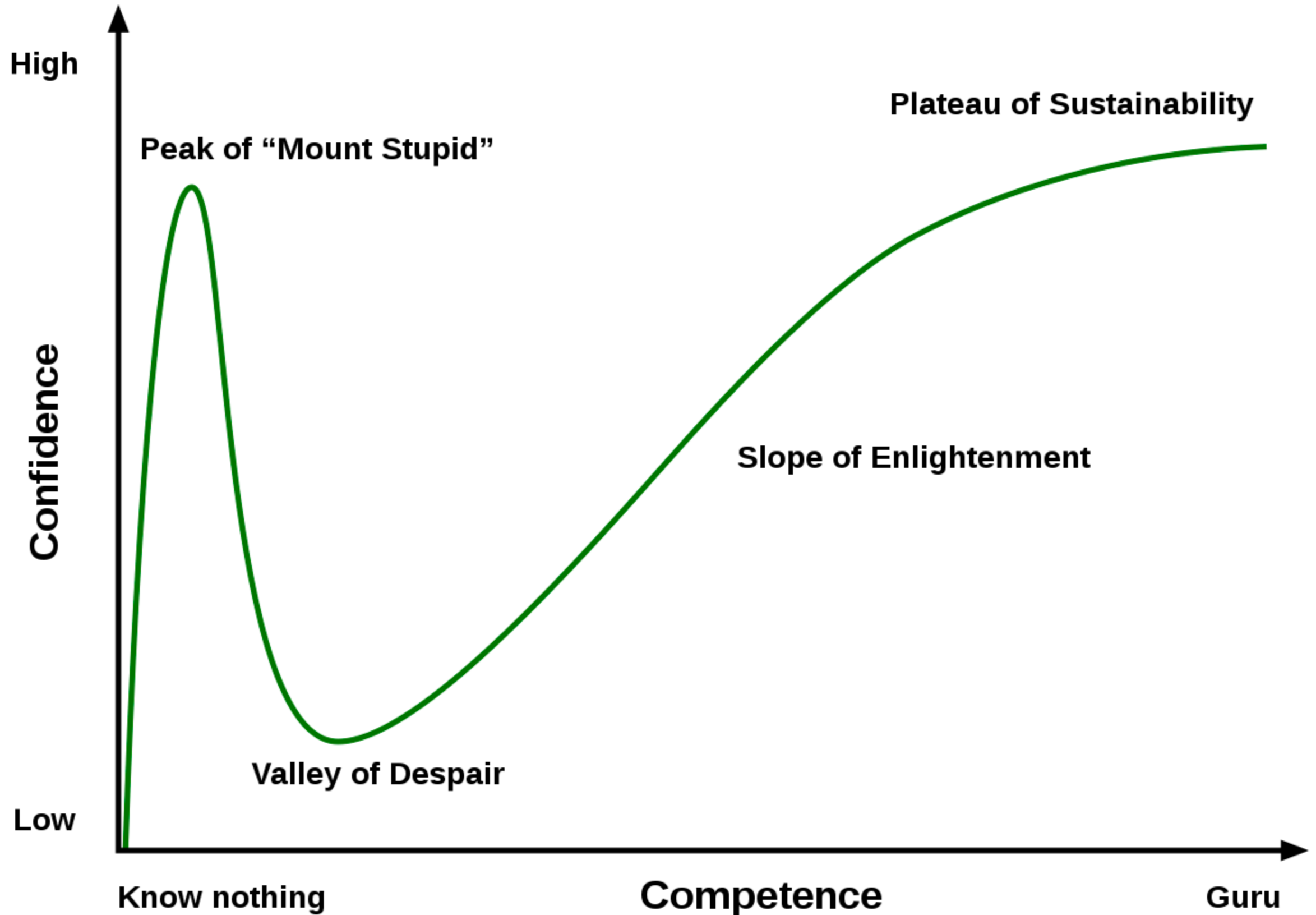


Treatment	Control	Reg. - 1 <sup>st</sup>	Reg. - 2 <sup>nd</sup>	Anchoring	Information
Median confidence	4	4	4	4	4
Mean confidence	3.7	3.5	3.8	3.5	3.5
(SD)	(0.8)	(0.7)	(0.7)	(0.8)	(0.9)

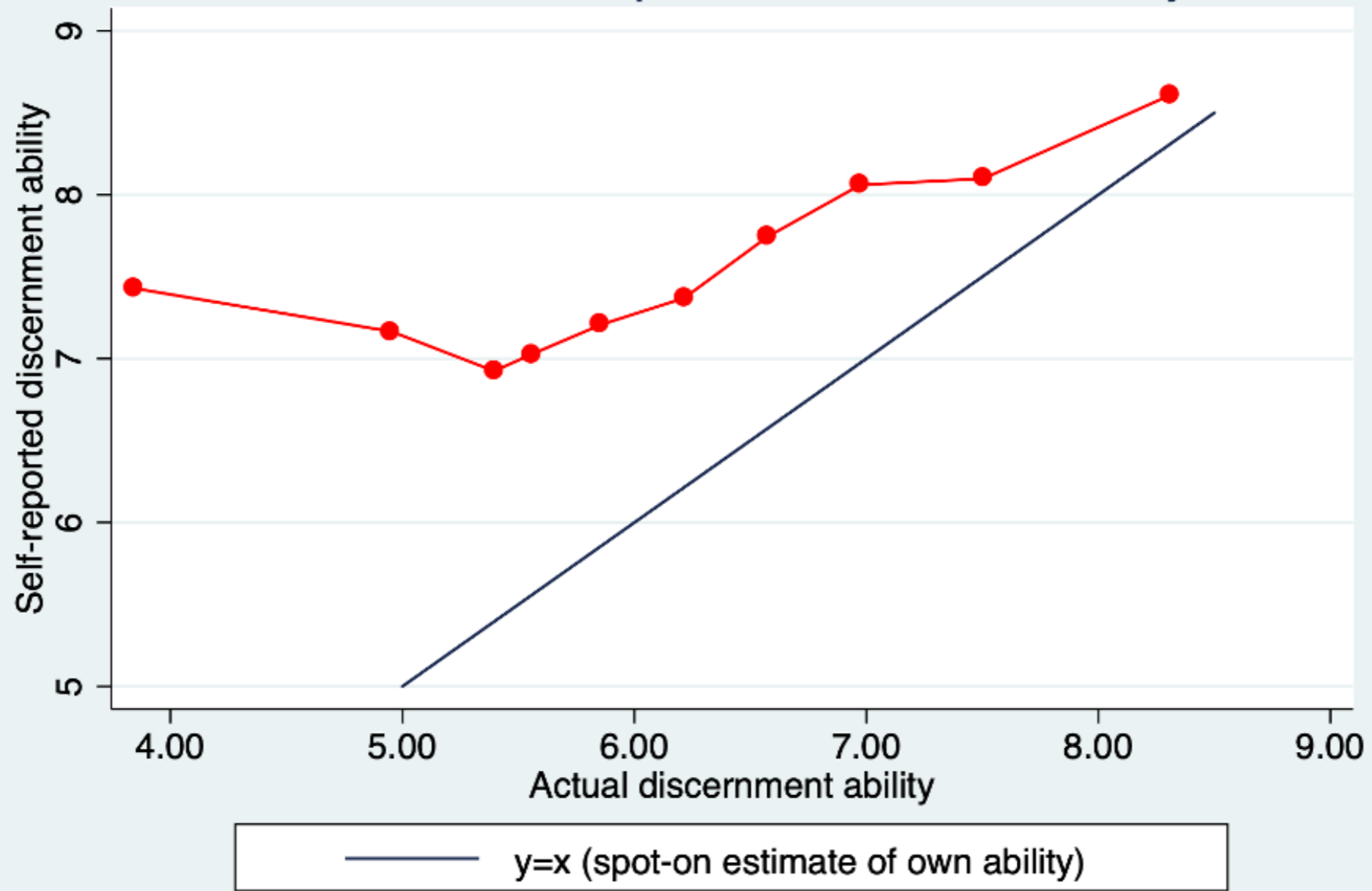
M-W tests	C vs. A	C vs. R	A vs. R	C vs. I
Estimates	0.84	0.56	0.45	0.28

- “What you see is all there is” ([Kahneman, 2011](#))

# Dunning-Kruger Effect



### Actual vs. self-reported discernment ability



# Intuition

- Intuition is the ability to understand something immediately, without the need for conscious reasoning. It is often described as a "gut feeling" or a sense of knowing something without being able to explain how or why. Intuition is often thought to be a combination of past experiences, knowledge, and subconscious processing of information. Intuition can manifest in many forms, such as a hunch, a feeling, or a sense of knowing. It is not always reliable, but it can be a valuable tool for making decisions or understanding complex situations.
- Form of thinking, but not a conscious, analytical (logical, sequential, step-by-step and reasoned) process.
- Three types:
  - The “eureka phenomenon” = insight gained by an expert after a period of study. While the insight seems to occur suddenly, without conscious analytical process, it is actually the last stage of a past intellectual effort.
  - Expert judgments made on a daily or a moment-by-moment basis (e.g., diagnoses, predictions)
  - Sudden judgment regardless of expertise (e.g. a sense of danger, intention of others, size of distant objects, well-being of a friend etc.). It occurs when the mind perceives relationship between two ideas immediately, directly and with such a sense of certainty that proof is not required.

# Should we trust in intuition of experts?







# Takeaways

- Most judgments happen on unconscious level and are a product of System 1. It works on associations (patterns) and builds heuristics and habits. It remembers hits but often does not remember misses.
- We use heuristics (mental shortcuts), often called “intuition” or “common sense” because of our constraints, such as limited attention, limited computational capacity and limited energy. They are automatic - the action occurs outside of conscious control, and we may not even be aware of it happening, which keeps our conscious minds free for other things, where conscious thought is required. They are also extremely fast, potentially saving a lot of time (and costs) and often quite reliable.
- System 1 always offer intuitive solution. But intuition is not always correct. Intuition is nothing more and nothing less than recognition. It works neatly only in predictable environments which offer immediate feedback and opportunity to repeat the decision or judgment. In other environments, it is better to stop and doubt, use Devil’s advocate or a premortem strategy.
- We are prone to overestimate how much we understand about the world and to underestimate chance events. 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.
- Instead of jumping to conclusions, it is often better to consider the source of the information, the sample size and assess how big is the role of luck in a given situation.