Nope, that's NOT a feature, it IS a bug.

psychology in testing

- Schalk Vorster

Before we start...

- This is not a "10 steps to…" talk
- I am not an expert
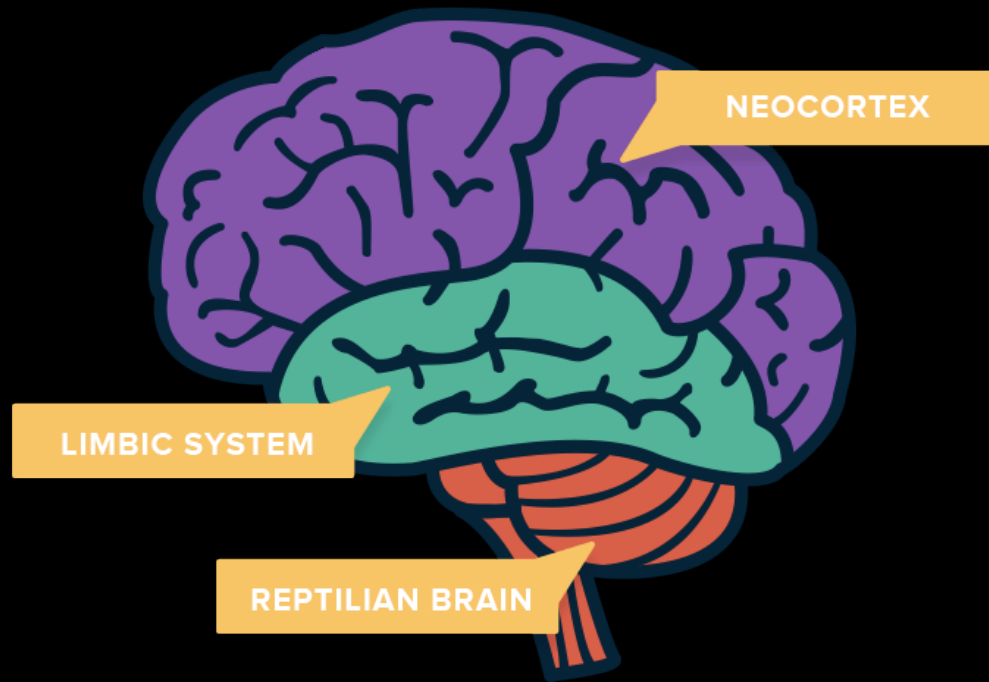- My wife does not approve

This evening…

- What does it mean to think clearly?
- Common errors when solving problems
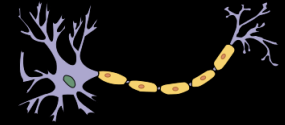- An escape

Thinking clearly

'Failure to think clearly", i.e. cognitive errors:

A systematic deviation from logic; from optimal, rational, reasonable thought and behaviour.

Fun facts about your brain ;)

86 000 000 000

NEOCORTEX

LIMBIC SYSTEM

REPTILIAN BRAIN

2%   Kg

10%

20%   kcal

25%   O⁸

Fun facts about your brain ;)

THINKING

FEELING

PRIMITIVE
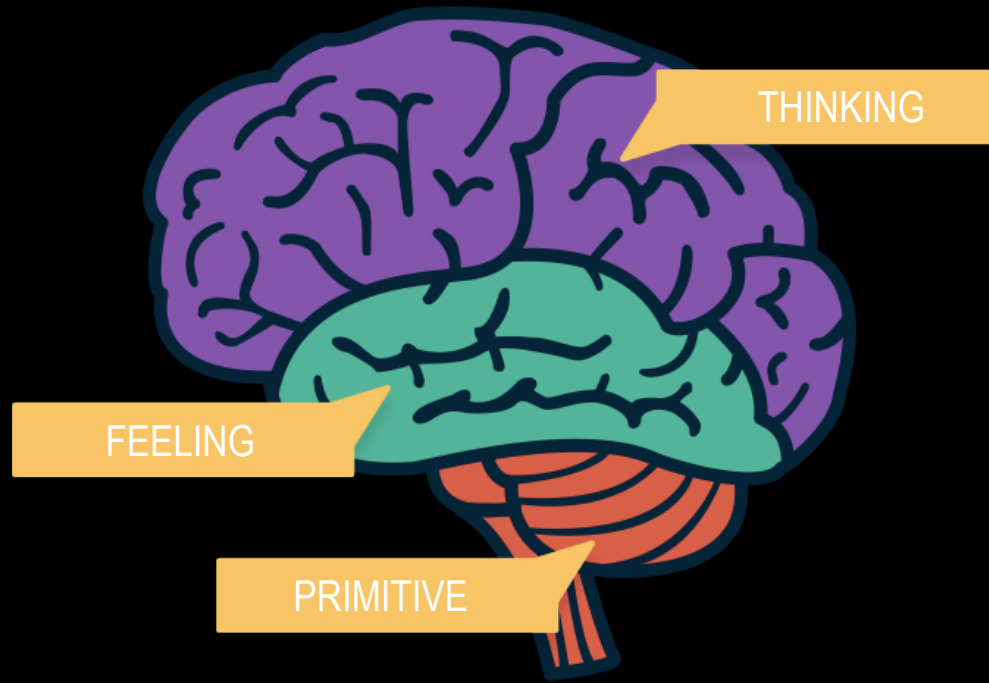
Fun facts about your brain ;)
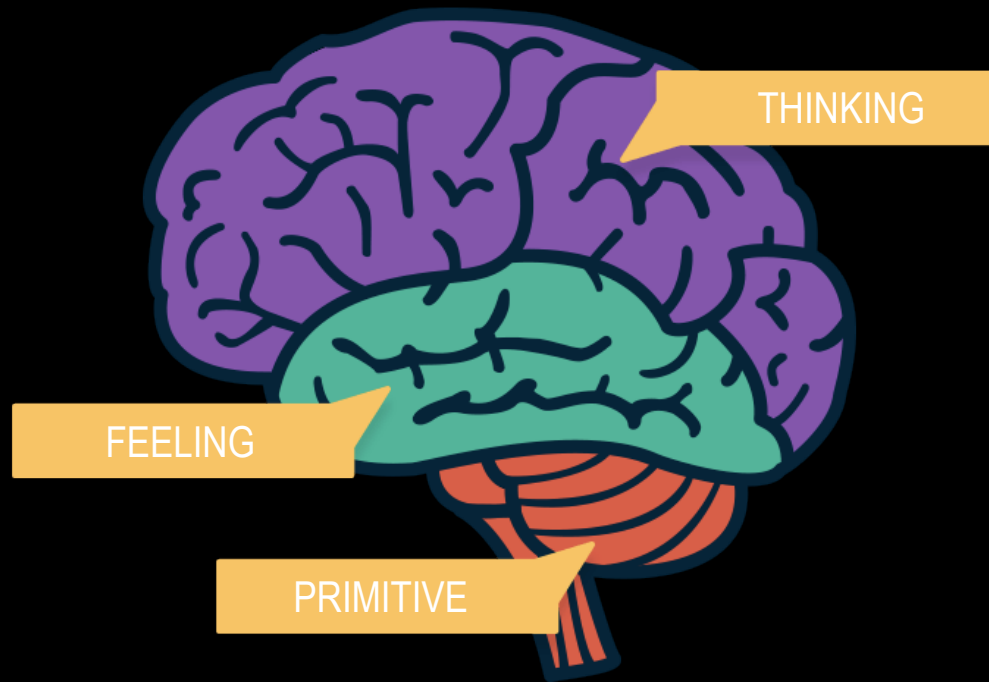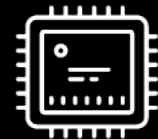
Are we *really* experts?

#30

Anchoring effect

The more unsure you are about your guess, the more susceptible you are to an anchor.

Survey #1

'How few miles…, by road.'

Survey #1

Survey #1

'How few miles…, by road.'

Survey #2

'How many miles…, by road.'
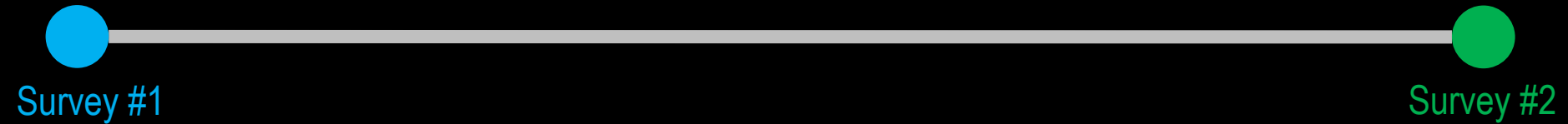
Survey #1

Survey #2

Cape Town, South Africa

Survey #1
Avg. distance: 9 100 km

Cairo, Egypt
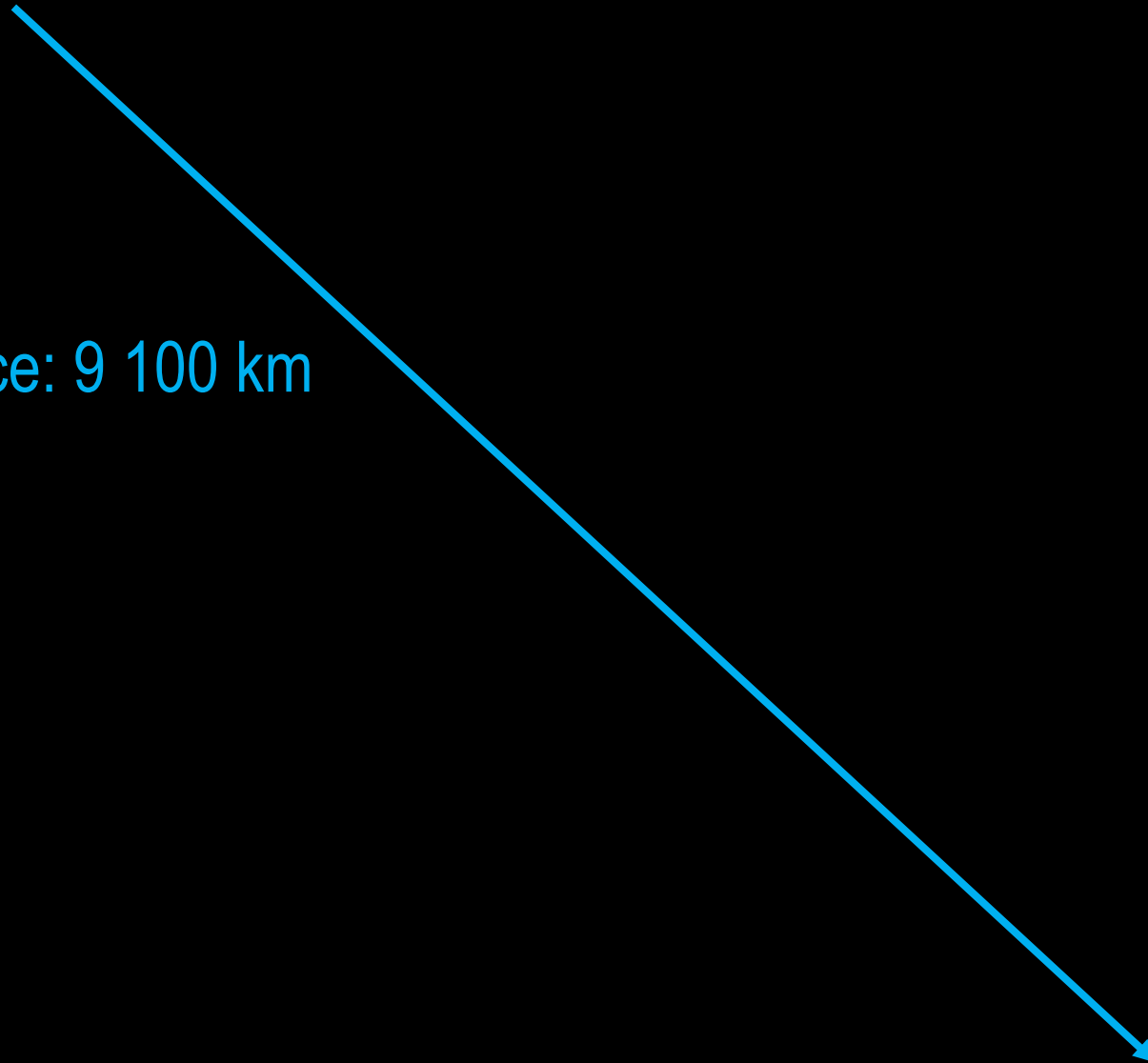
Cape Town, South Africa

Survey #1
Avg. distance: 9 100 km

Survey #2
Avg. distance: 12 417 km

Cairo, Egypt

#15

Overconfidence effect

"Overconfident professionals sincerely believe they have expertise, act as experts and look like experts. You will have to struggle to remind yourself that they may be in the grip of an illusion."

- Daniel Kahneman

#15 Overconfidence

- Does not deal with a single estimate being correct or not
- We all suffer from this
- Not driven by incentive

#15 Overconfidence

- Does not deal with a single estimate being correct or not
- We all suffer from this
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Overconfidence

Overestimation   Over precision   Over placement
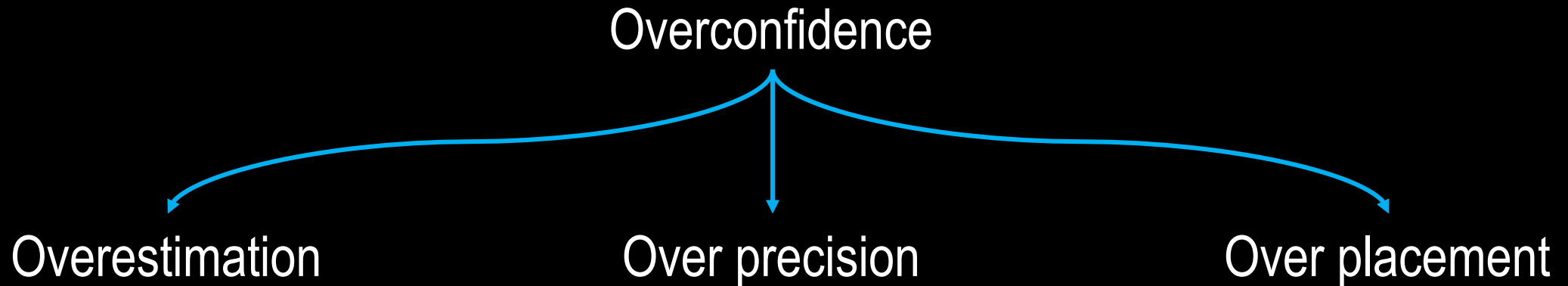
Errors in problem solving

Linda is single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with the issue of discrimination and social justice, and also participated in demonstrations. Which of the following is more probable:

1. Linda is a bank teller, or
2. Linda is a bank teller AND is active in the feminist movement?

Linda is a bank teller

Linda is a bank teller AND is active in the feminist moveme...

Start the presentation to activate live content

If you see this message in presentation mode, install the add-in or get help at PollEv.com/app

Poll Everywhere

Conjunction fallacy

When the subset seems larger than the entire set.

724, 947, 421, 843, 394, 411, 054, 646

724,947,421,843,394,411,054,646

4

349, 851, 274, 905, 772, 032, 854, 113

349,851,274,905,772,032,854,113

no 6

#95

Feature Positive Effect

Why does something and not nothing exist?
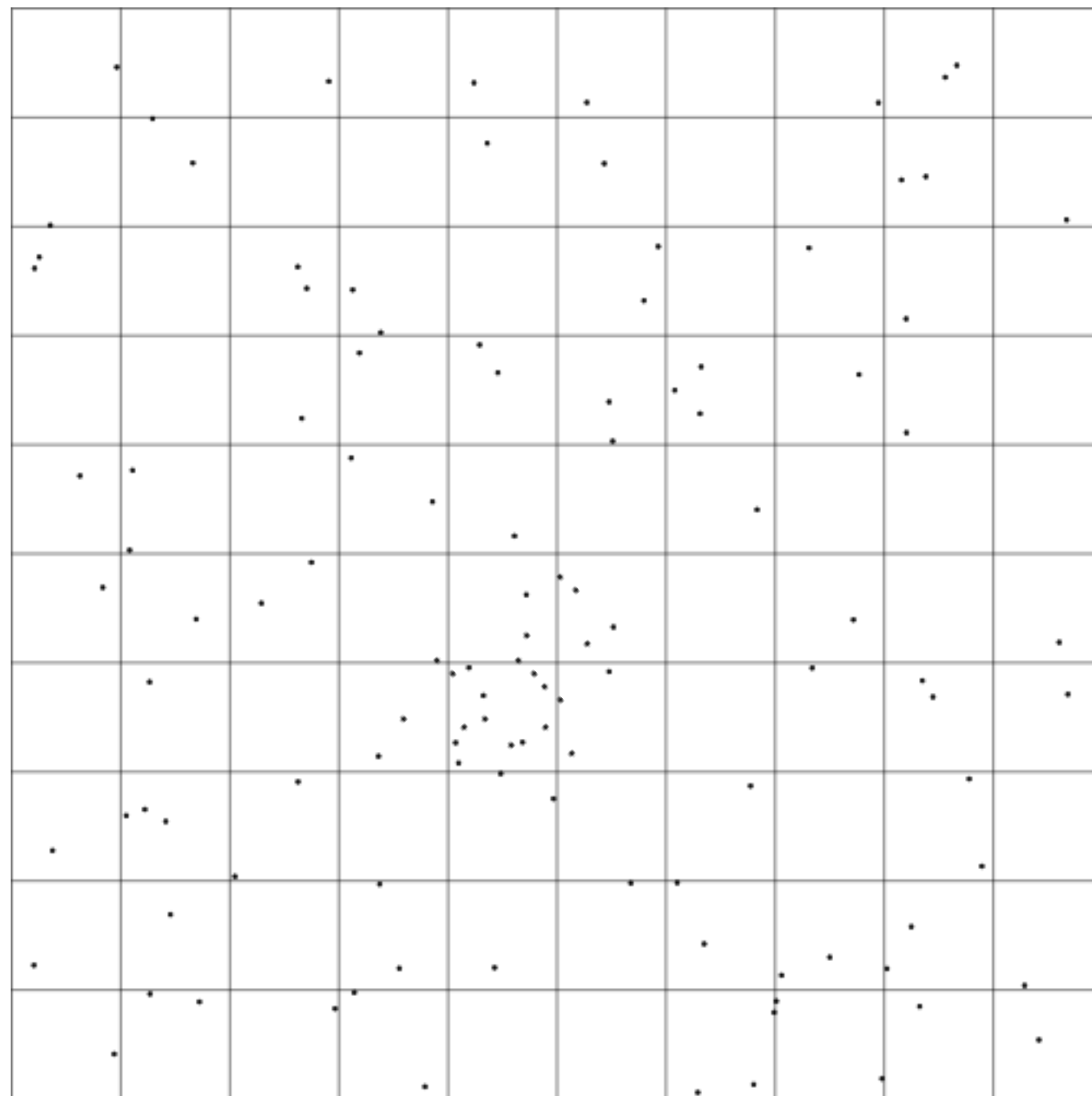
#3

Clustering Illusion

We often see patterns where they no not exist.

Would you take…

1. R 1 000 a day
2. 1c, 2c, 4c (doubling every day)

…for 30 days

R 1 000 a day for 30 days? 1c, 2c, 4c (doubling every day) for 30 days?

Would you take…

R 30 000
R 10 737 418

…after 30 days

#34

Exponential Growth

A cognitive tendency to linearize exponential functions when assessing them intuitively.

What Should We Remember?

- We store memories differently based on how they were experienced
- We reduce events and lists to their key elements
- We discard specifics to form generalities
- We edit and reinforce some memories after the fact

Levels of processing effect
Testing effect
Absent-mindedness
Next-in-line effect
Google effect
Tip of the tongue phenomenon
Suffix effect
Serial position effect
Part-list cueing effect
Recency effect
Primacy effect
Memory inhibition
Modality effect
Duration neglect
List-length effect
Serial recall effect
Misinformation effect
Leveling and sharpening
Peak-end rule
Fading affect bias
Negativity bias
Stereotypical bias
Prejudice
Implicit stereotypes
Implicit associations
Spacing effect
Suggestibility
False memory
Cryptomnesia
Source confusion
Misattribution of memory

Too Much Information

- We notice things already primed in memory or repeated often
- Bizarre, funny, visually-striking, or anthropomorphic things stick out more than non-bizarre/unfunny things
- We notice when something has changed
- We are drawn to details that confirm our own existing beliefs
- We notice flaws in others more easily than than we notice flaws in ourselves

Availability heuristic
Attentional bias
Illusory truth effect
Mere exposure effect
Context effect
Cue-dependent forgetting
Mood-congruent memory bias
Frequency illusion
Baader-Meinhof Phenomenon
Empathy gap
Omission bias
Base rate fallacy
Bizarreness effect
Humor effect
Von Restorff effect
Picture superiority effect
Self-relevance effect
Negativity bias
Anchoring
Conservatism
Contrast effect
Distinction bias
Focusing effect
Framing effect
Money Illusion
Weber-Fechner law
Confirmation bias
Congruence bias
Post-purchase rationalization
Choice-supportive bias
Selective perception
Observer-expectancy effect
Experimenter's bias
Observer effect
Expectation bias
Ostrich effect
Subjective validation
Continued influence effect
Semmelweis reflex
Bias blind spot
Naïve cynicism
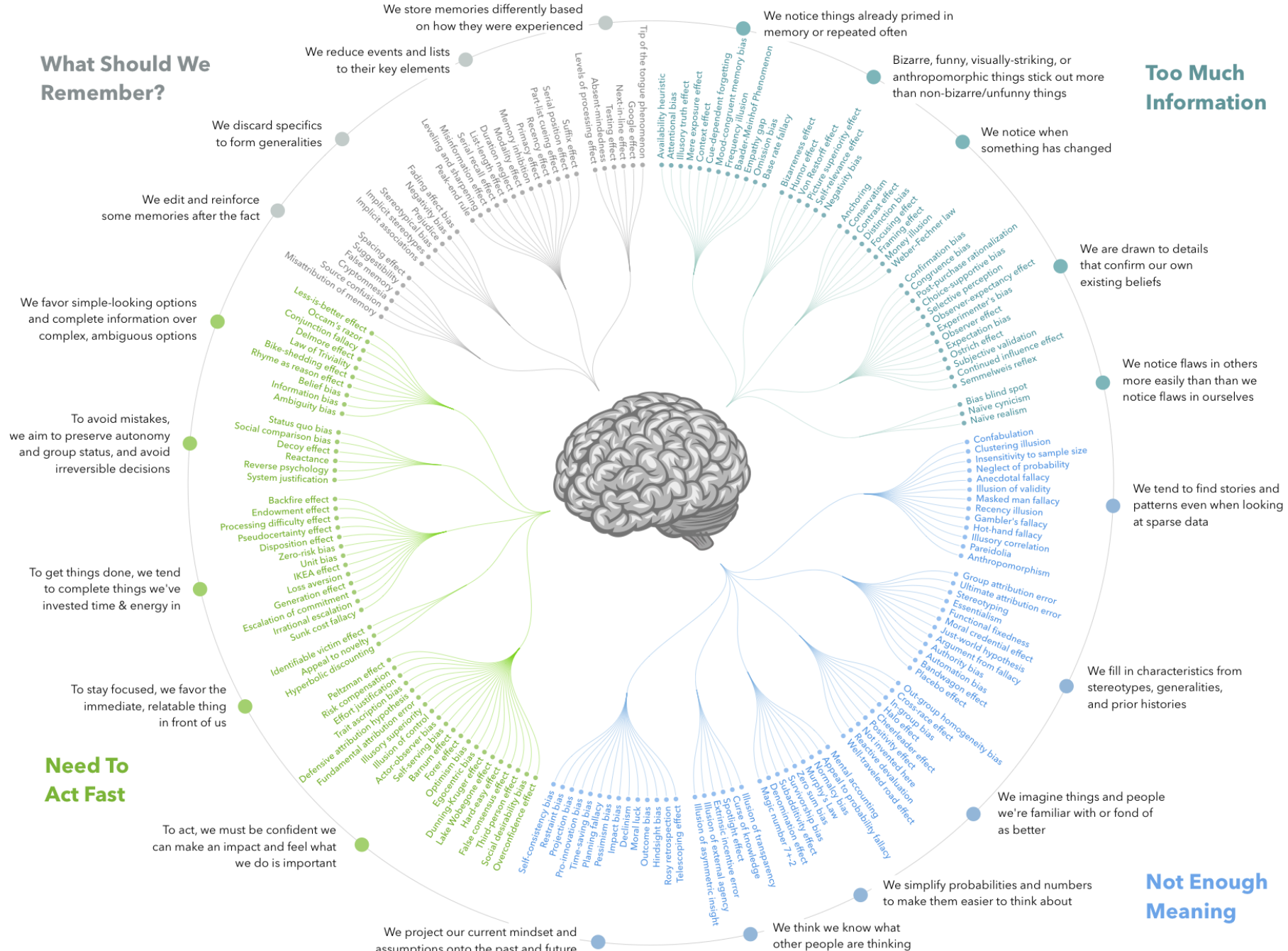Naïve realism

Not Enough Meaning

- We tend to find stories and patterns even when looking at sparse data
- We fill in characteristics from stereotypes, generalities, and prior histories
- We imagine things and people we're familiar with or fond of as better
- We simplify probabilities and numbers to make them easier to think about
- We think we know what other people are thinking
- We project our current mindset and assumptions onto the past and future

Confabulation
Clustering illusion
Insensitivity to sample size
Neglect of probability
Anecdotal fallacy
Illusion of validity
Masked man fallacy
Recency illusion
Gambler's fallacy
Hot-hand fallacy
Illusory correlation
Pareidolia
Anthropomorphism
Group attribution error
Ultimate attribution error
Stereotyping
Essentialism
Functional fixedness
Moral credential effect
Just-world hypothesis
Argument from fallacy
Authority bias
Automation bias
Bandwagon effect
Placebo effect
Out-group homogeneity bias
Cross-race effect
In-group bias
Halo effect
Cheerleader effect
Positivity effect
Not invented here
Reactive devaluation
Well-traveled road effect
Mental accounting
Appeal to probability fallacy
Normalcy bias
Murphy's Law
Zero sum bias
Survivorship bias
Subadditivity effect
Denomination effect
Magic number 7±2
Illusion of transparency
Curse of knowledge
Spotlight effect
Extrinsic incentive error
Illusion of external agency
Illusion of asymmetric insight

Need To Act Fast

- We favor simple-looking options and complete information over complex, ambiguous options
- To avoid mistakes, we aim to preserve autonomy and group status, and avoid irreversible decisions
- To get things done, we tend to complete things we've invested time & energy in
- To stay focused, we favor the immediate, relatable thing in front of us
- To act, we must be confident we can make an impact and feel what we do is important

Less-is-better effect
Occam's razor
Conjunction fallacy
Delmore effect
Law of Triviality
Bike-shedding effect
Rhyme as reason effect
Belief bias
Information bias
Ambiguity bias
Status quo bias
Social comparison bias
Decoy effect
Reactance
Reverse psychology
System justification
Backfire effect
Endowment effect
Processing difficulty effect
Pseudocertainty effect
Disposition effect
Zero-risk bias
Unit bias
IKEA effect
Loss aversion
Generation effect
Escalation of commitment
Irrational escalation
Sunk cost fallacy
Identifiable victim effect
Appeal to novelty
Hyperbolic discounting
Peltzman effect
Risk compensation
Effort justification
Trait ascription bias
Defensive attribution hypothesis
Fundamental attribution error
Illusory superiority
Illusion of control
Actor-observer bias
Self-serving bias
Barnum effect
Forer effect
Optimism bias
Egocentric bias
Dunning-Kruger effect
Lake Wobegone effect
Hard-easy effect
False consensus effect
Third-person effect
Social desirability bias
Overconfidence effect
Self-consistency bias
Restraint bias
Projection bias
Pro-innovation bias
Time-saving bias
Planning fallacy
Pessimism bias
Impact bias
Declinism
Moral luck
Outcome bias
Hindsight bias
Rosy retrospection
Telescoping effect

So now what?

"It's simple. I just removed everything that was not David."

- Michelangelo di Lodovico Buonarroti Simoni

- Knowledge ≠ Understanding
- Aha-moments
- Give yourself a fighting chance

The Backwards Brain Bicycle - Smarter Every Day 133

4:54 / 7:57

Neuroplasticity

- Knowledge ≠ Understanding
- Aha-moments
- Give yourself a fighting chance

Neuroplasticity

- Knowledge ≠ Understanding
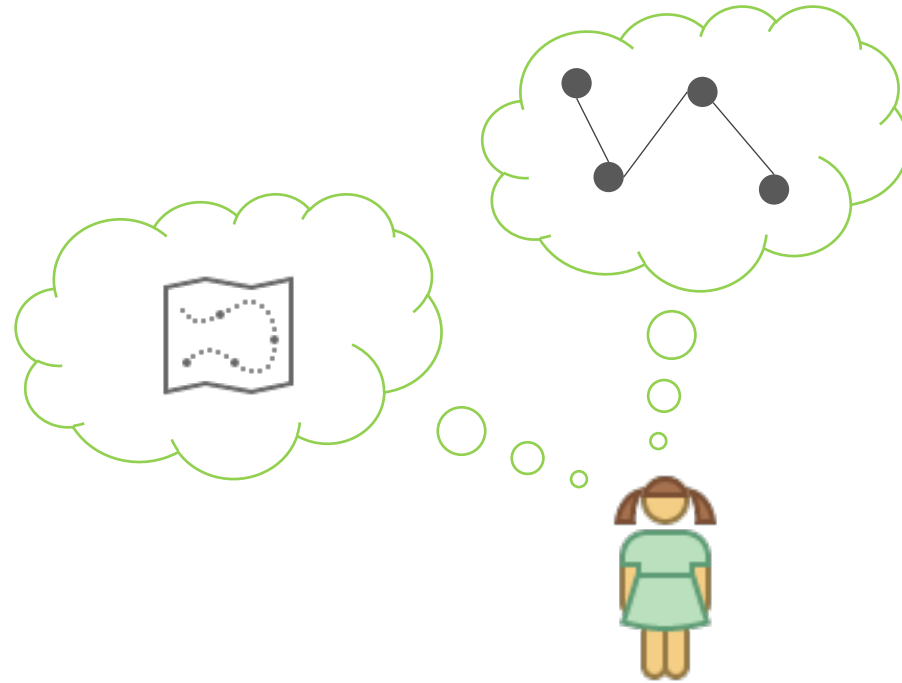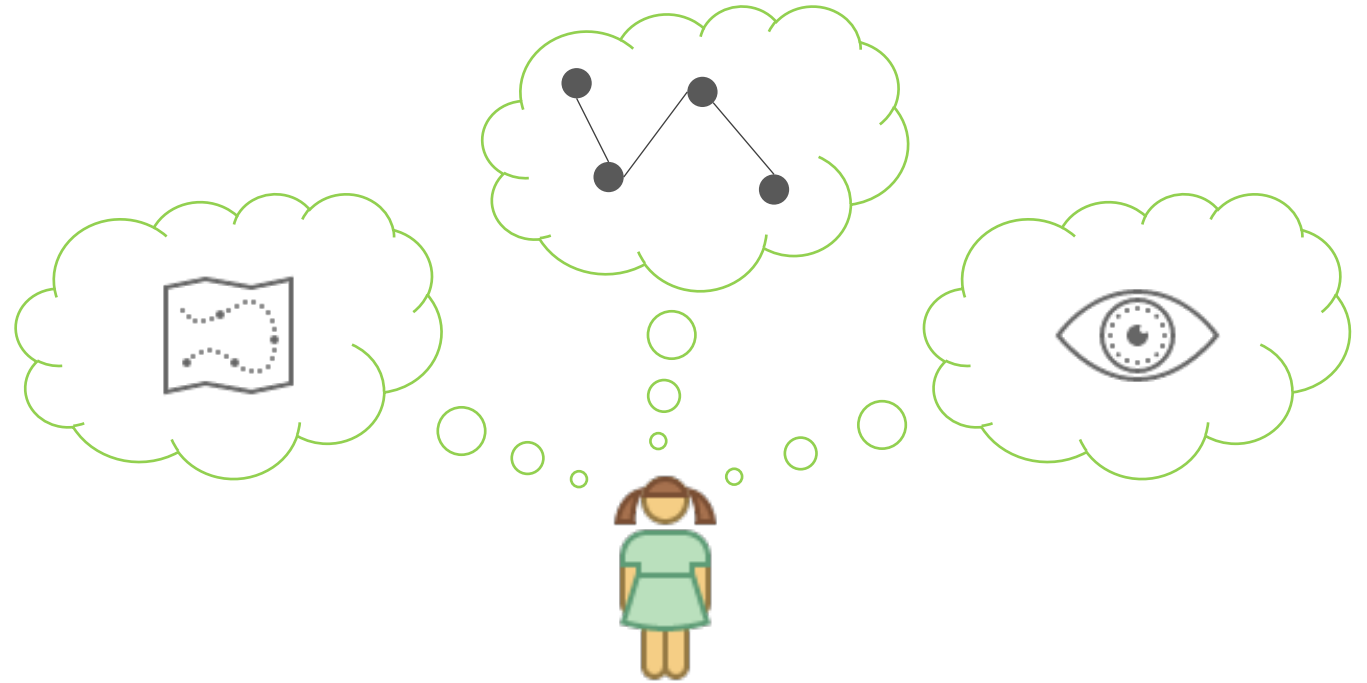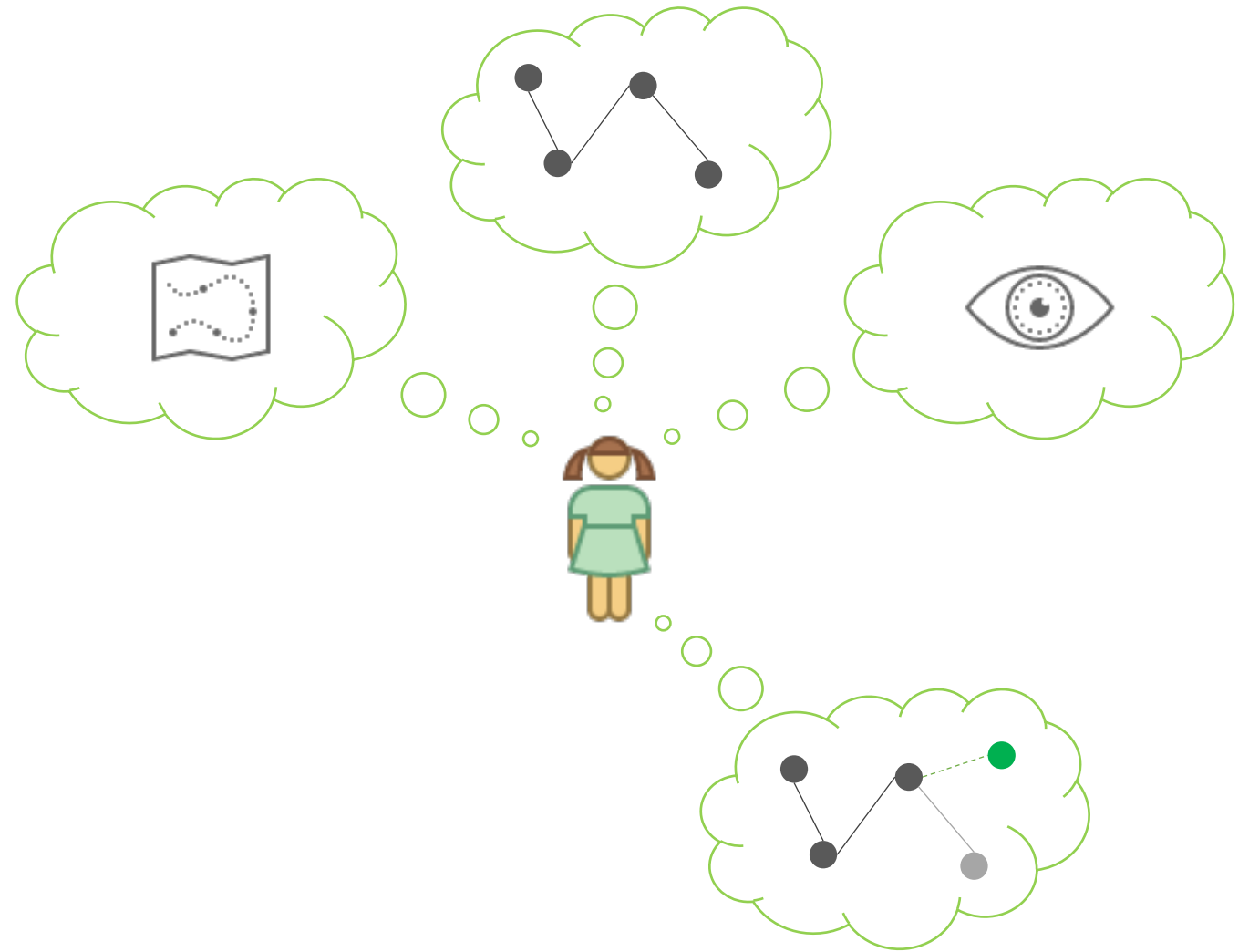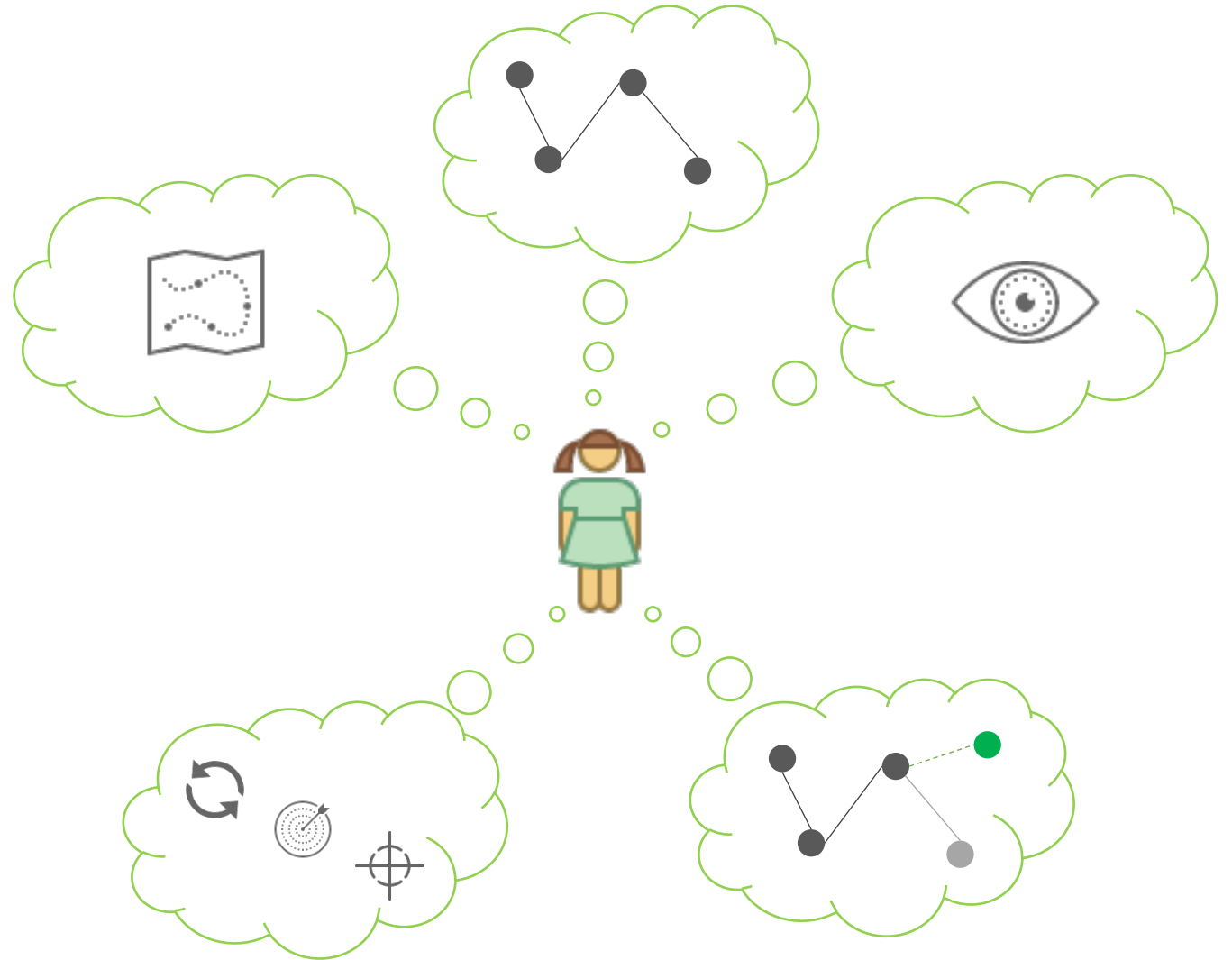- Aha-moments
- Give yourself a fighting chance

Neuroplasticity

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Neuroplasticity

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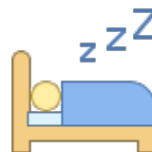- Aha-moments
- Give yourself a fighting chance

Neuroplasticity

- Knowledge ≠ Understanding
- Aha-moments
- Give yourself a fighting chance

Neuroplasticity

- Knowledge ≠ Understanding
- Aha-moments
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- Knowledge ≠ Understanding
- Aha-moments
- Give yourself a fighting chance

Duh!
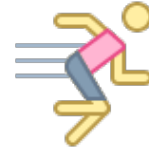
Move to think (4 x 30 minute sessions)
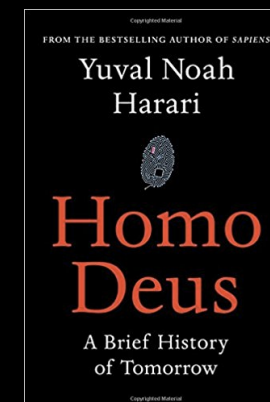
Be mindful

Remember: 2% vs. 20%

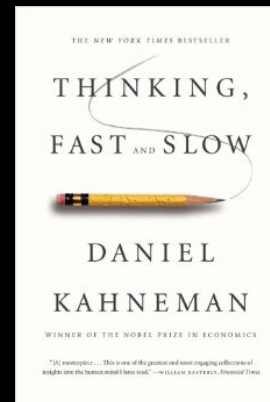7 – 9 hours to function optimally

#thanks

The end!

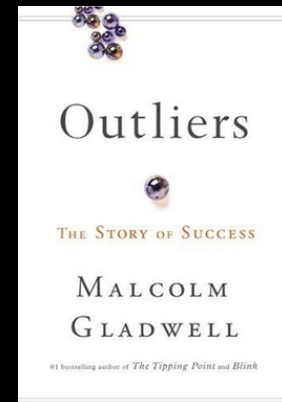"Charlie and I have not learned how to solve difficult business problems. What we have learned is to avoid them."

- Warren Buffet

#some reading

DEEP WORK
RULES FOR FOCUSED SUCCESS IN A DISTRACTED WORLD
Cal Newport
Author of *So Good They Can't Ignore You*

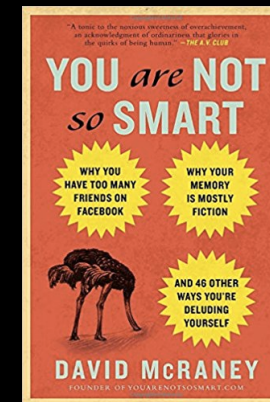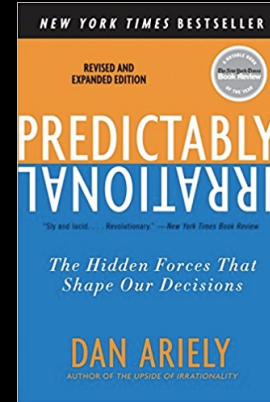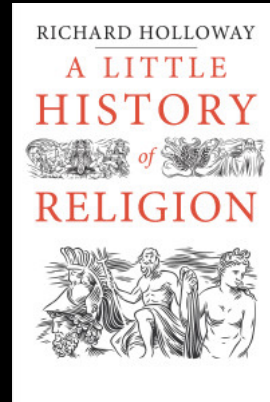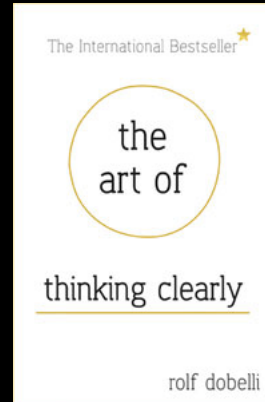THE International Bestseller
the art of
thinking clearly
rolf dobelli

RICHARD HOLLOWAY
A LITTLE HISTORY *of* RELIGION

NEW YORK TIMES BESTSELLER
REVISED AND EXPANDED EDITION
PREDICTABLY IRRATIONAL
"Sly and lucid. . . . Revolutionary." —*New York Times Book Review*
The Hidden Forces That Shape Our Decisions
DAN ARIELY
AUTHOR OF *THE UPSIDE OF IRRATIONALITY*

YOU are NOT so SMART
WHY YOU HAVE TOO MANY FRIENDS ON FACEBOOK
WHY YOUR MEMORY IS MOSTLY FICTION
AND 46 OTHER WAYS YOU'RE DELUDING YOURSELF
DAVID McRANEY
FOUNDER OF YOUARENOTSOSMART.COM

NEW YORK TIMES BESTSELLER
"*Sapiens* tackles the biggest questions of history and of the modern world, and it is written in unforgettably vivid language." —JARED DIAMOND, Pulitzer Prize–winning author of *Guns, Germs, and Steel*
Yuval Noah Harari
Sapiens
A Brief History of Humankind

Outliers
THE STORY OF SUCCESS
MALCOLM GLADWELL
#1 bestselling author of *The Tipping Point* and *Blink*

Bill Bryson
A Short History of Nearly Everything

THE NEW YORK TIMES BESTSELLER
THINKING, FAST AND SLOW
DANIEL KAHNEMAN
WINNER OF THE NOBEL PRIZE IN ECONOMICS

FROM THE BESTSELLING AUTHOR OF *SAPIENS*
Yuval Noah Harari
Homo Deus
A Brief History of Tomorrow

next up