THINKING TRAPS
ON THE PSYCHOLOGY OF HEURISTICS AND BIASES

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Part one: on the evolutionary base of over-selfconfidence
Who of you drives a scooter/car?

1. Yes
2. No
Who of you is inclined to think you are a better scooter/car driver than the average scooter/car driver?

1. Yes, I think so
2. No, I don’t think so
3. Not applicable
Who of you is or has been active as forensic expert?

1. Yes
2. No
Who of you is inclined to think that you are/have been a better forensic expert than the average forensic expert?

1. Yes, I think so
2. No, I don’t think so
3. Not applicable
Who of you is or has been a parent?

1. Children
2. No children
Who of you is inclined to think that you are/have been a better parent than the average parent?

1. Yes, I think so
2. No, I don’t think so
3. Not applicable
Part two: why the human is nothing less than a miracle
Some brainfacts

- 160 billion braincells
- 80 billion neurons
- Each connected to other cells:
  - Important neurons 1000 to 10,000 connections
  - So trillions connections in our brain!

- In addition 80 billion gliacells
  - Protectors, cleaners, connection-strengtheners

- Effort to copy the human brain (SpiNNacker Project)
  - 1 million neurons
    - Weighting 450 kilo’s en consumes 50,000 watt
Copying the human brain (SpiNNaker):

As big as Boeing’s largest hall

Consumes energy of +/- 3 nuclear plants
While our brain:

Weights 1.5 kilogram

consumes 30 watt

It is a miracle, but one problem: it has been delivered without a manual
Part three: on the brain’s rules of thumb, heuristics and biases
Two psychologists-giants in this field cartographers of ‘heuristics’ and ‘biases’ in the human brain

• Daniel Kahneman (Princeton University, Nobel laureate Economics 2002)
• Richard Thaler (University of Chicago, Nobel laureate Economics 2017)
Our brain is of at least two minds, one filled with ‘cognitive’ instincts usually called heuristics and biases.
A study among 5 men and 995 women. J. is 23 years old, at the point of graduating as engineer. On Saturday evenings J. drives through town with male and female friends, music at its loudest and drinking beer heavily. Question: what is most probable?

1. J. is a man.
2. J. is a woman.
Location of Regions of Interest (ROI) involved in analytic versus heuristic thinking

(De Neys et al. HEURISTICS AND BIASES IN THE BRAIN: DUAL NEURAL PATHWAYS FOR DECISION MAKING)
Misled by your own thoughts
Heuristics and Biases: a selection

- Anchor heuristic
- Availability heuristic
- Loss aversion
- ‘Overconfidence’ heuristic
  - Representativiness heuristic
  - Hindsight bias
  - Confirmation bias
  - Truth bias
  - Planning fallacy
  - Fundamental attribution error
  - False consensus
  - Etc.
Part four: on the anchor heuristic
• The Anchoring Heuristic, also known as focalism, refers to the human tendency to accept and rely on the first piece of information received before making a decision. That first piece of information is the anchor and sets the tone for everything that follows.
– (a) ‘How happy are you?’
– (b) ‘How often do you make love?’

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– (b) ‘How happy are you?’

– (a) ‘How healthy do you feel yourself?’
– (b) (i.a.) ‘What were the causes of death of your (grand)parents?’

– (a) ‘(i.a.) ‘What were the causes of death of your (grand)parents?’’
– (b) ‘How healthy do you feel yourself?’
In a debate, it is always to your advantage to be the last speaker instead of going first (you want the last word)

1. Yes
2. No
A particular type of anchor: truth bias

It is human nature to believe communication is honest, which in turn makes us highly vulnerable to deception. The first statement or speaker therefore usually has the advantage.

(cfr: The early bird catches the worm…)
Truth Bias and Fake news

‘Puigimond did ask for political asylum in Denmark’

‘He called Rajoy an elephant in a china shop’
Who of these two guys you like most?

Bill: intelligent, active, critical, impulsive, stubborn, jealous

Donald: jealous, stubborn, critical, impulsive, active, intelligent

Does the presentation sequence of judgements affect, ‘anchor’ your choice?
Anchor Heuristic

Anchor heuristic study (Tversky a.o.. 2002) among traders/Wall Street gurus

Where do you think the Dow Jones (Industrial Average) will be over 6 months from now? 6000? 12000?

- Anchor on 6000 average estimate: 8523
- Anchor on 12000 average estimate: 9840
Part five: on the availability heuristic
How Easily Does It Come to Mind? The Availability Heuristic

- **Availability Heuristic**
  - A mental rule of thumb whereby people base a judgment on the ease with which they can bring something to mind.

The trouble with the availability heuristic is that sometimes what is easiest to remember is not typical of the overall picture, leading to faulty conclusions.
When would somebody rate his or her creativity higher, when asked for 6 or 12 examples?

1. 6 examples
2. 12 examples
3. No difference
In percentages, how big is your contribution to running the household at home?

A. I live alone
B. 80 %
C. 60%
D. 40%
E. 20%
F. 0-19%
Priming: making unnoticed more available

• Increasing the probability of a choice by offering (unnoticed) beforehand a particular concept or stimulus.
  – Denmark
  – Elephant

• Very relevant in (health) care and culture change in communities or companies
Part six: on the heuristic of loss aversion
If a salesman tell a potential client that he/she should urgently replace the central heating oven, which one of the following statements is most effective to stimulate the client to act

1. You save money by replacing the oven.
2. You lose money by not replacing the oven.
Loss aversion

“We humans are by nature loss aversive creatures
(Daniel Kahneman, Thinking, fast and slow, 2011)

“The pain of loss is on the average twice as big as the pleasure of gain”
(Daniel Kahneman, Thinking, fast and slow, 2011)
Part seven: on multitasking and the heuristic of overselfconfidence
How good are you at multitasking?

1. Very good
2. --
3. --
4. --
5. Not good at all
MULTITASKING
1 2 3..........................etc

SINGLETASKING
1 2 3.......................... etc.
Test: How good you are in multitasking

Count in the next video:

1. The number of times you hear the word “magic”

2. You see the name or picture of the man named David Copperfield
How good are you at multitasking?

1. Very good
2. --
3. --
4. --
5. Not good at all
Crucial conclusions

- We are selfinstructing, selfmanaging, selfcoaching, selfadvising, selfsuggesting beings, controlled by a large number of evolutionary build-in heuristics and biases

- How much selfcontrol do we in actual fact have with regard to our selfinstructions, selfmanagement, selfcoaching, selfadvices, selfsuggestions?

- The essence of selfcontrol? Knowledge and selfawareness of your heuristics and biases
You can assess yourself with regard to your vulnerability for and self-awareness of heuristics and biases with the help of:

The Heuristics and Biases Scale (HBS, Sklad and Diekstra, 2014)

See:


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