



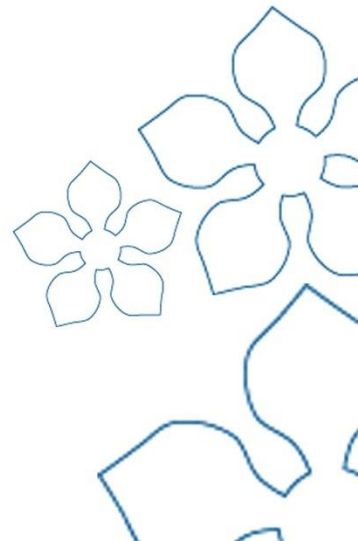
Cognitive Psychology

Judgement and Decision making

Seminar



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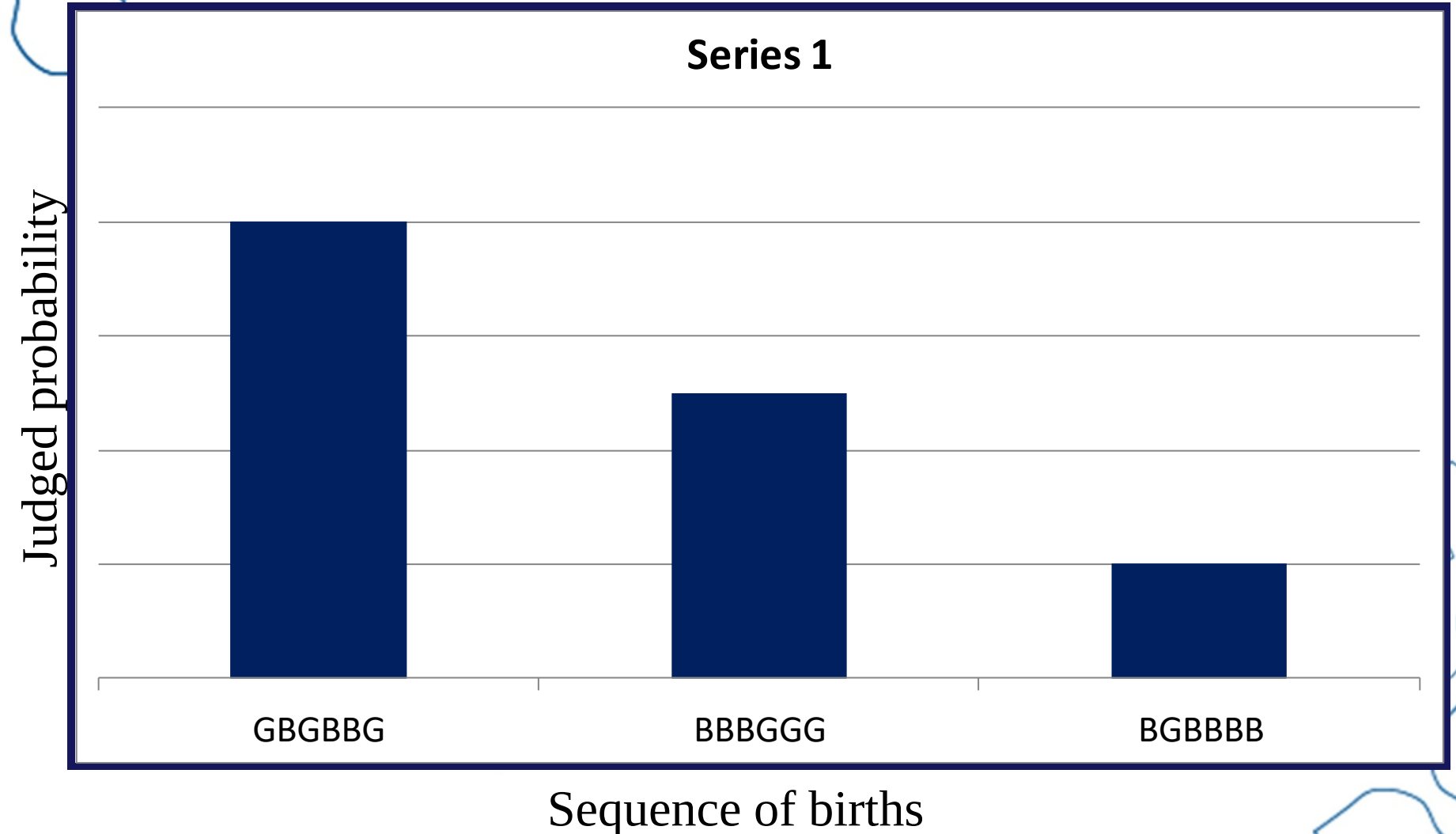
The Birth Problem

- In families of six children, which is the most likely sequence of boys and girls?

1. G B G B B G
 2. B G B B B B
 3. B B B G G G
- 

Judgment of Likelihood

Kahneman and Tversky (1972)



The Birth Problem

- The probability of any particular newborn being a boy is 50% (or .5)
 - Probabilities are independent of each other
 - Therefore all equally likely
- First one seems more random as it is more distributed
 - G B G B B G
 - A judgment based on similarity to concept of randomness



The Committee Problem

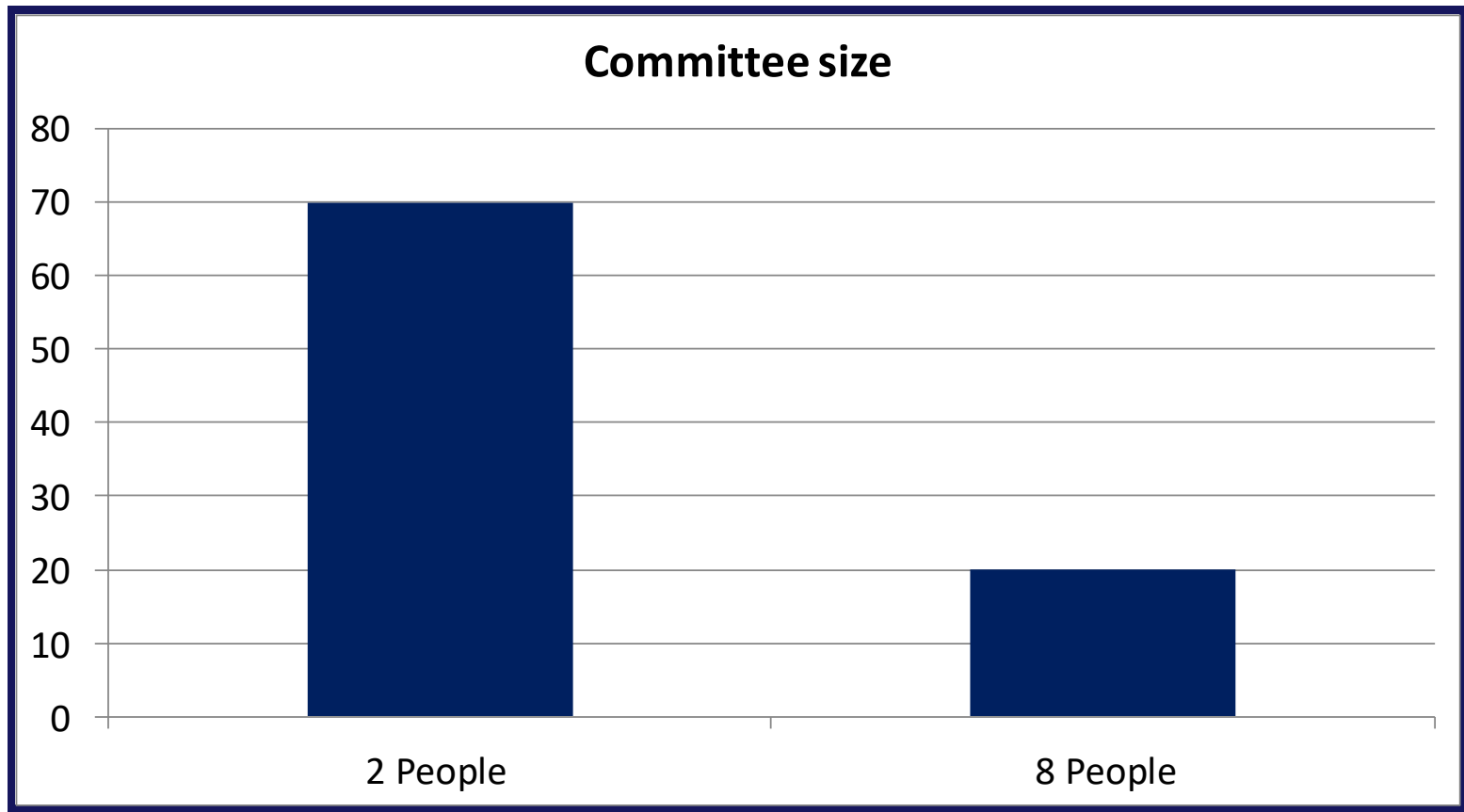
Given a group of 10 people:

1. How many different committees of 2 people can you create?
 - E.g. A and B, B and C, C and A, D and ...
 2. How many different committees of 8 people?
 - E.g. A,B,C,D,E,F,G,H
- 

No. Committees Created From 10

Kahneman and Tversky (1973)

Mean estimate



If you want to work it out...

The formula for a combination of choosing r unique ways from n possibilities is given by:

nCr	=	$\frac{n!}{r! (n - r)!}$
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Therefore...

and

$10C2$	=	$\frac{10!}{2! (10-2)!}$
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$10C8$	=	$\frac{10!}{8! (10-8)!}$
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They both work out to 45



Availability Heuristic

- Judgements are based on the ease with which instances can be brought to mind
 - Frequency and fluency affects availability
- 



The Simulation Heuristic

- Judgment is based on the ease with which a plausible scenario can be constructed
 - Similar to availability
 - But ease of imagination instead of direct retrieval from memory
- 



The Undoing Problem

Two different travellers are heading for the airport. They have to catch different flights, which leave at the same time. They meet outside the hotel and decide to share a cab. On the way they get caught in a traffic jam and get to the airport 30 minutes late. They both expect to have missed their flight. When they arrive at the departure gate, traveller A is told that his plane left on time and traveller B is told her plane was delayed, but left 5 minutes ago.





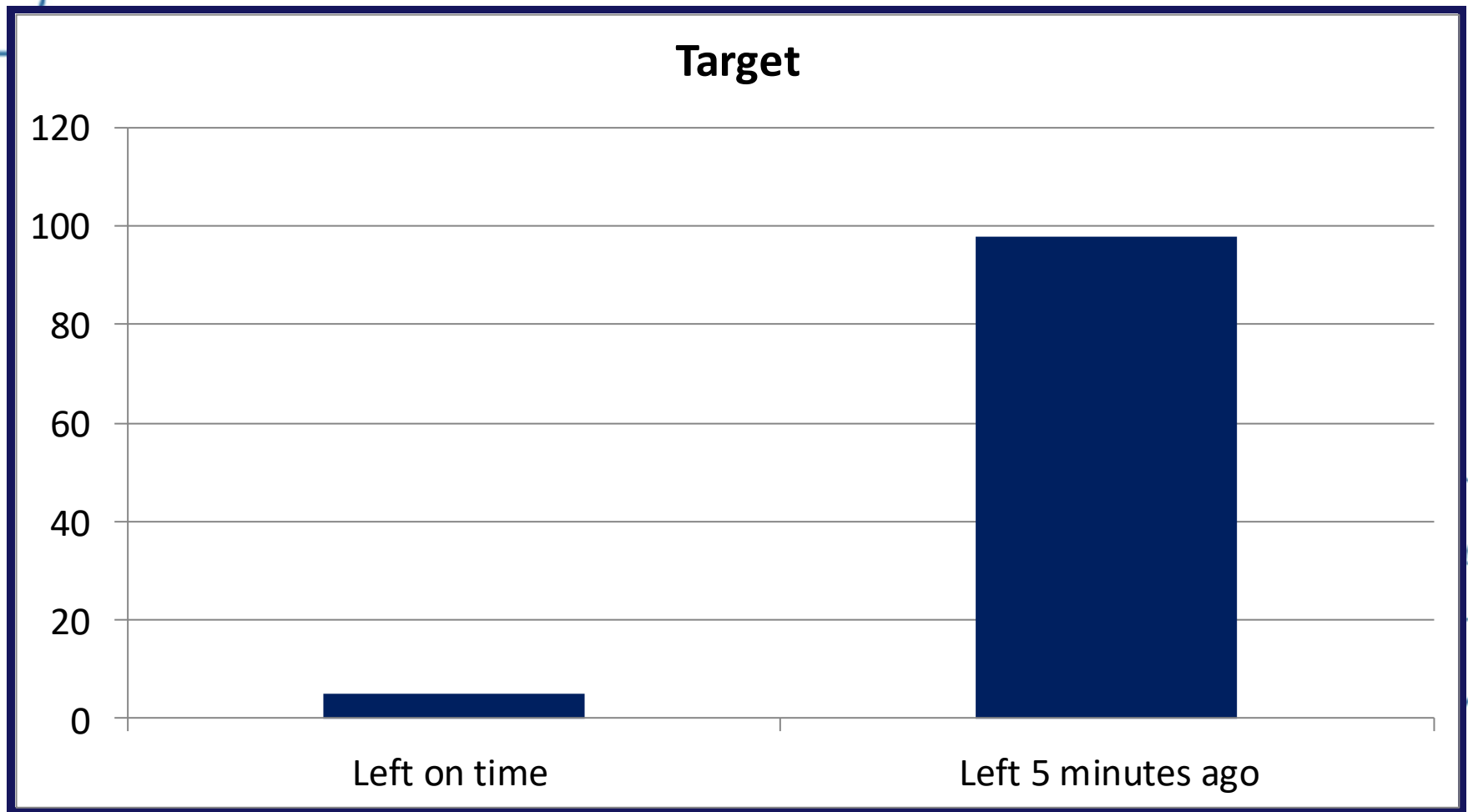
The Undoing Problem

- Who is more upset?
 - A or B?



Judgments of “Upset”

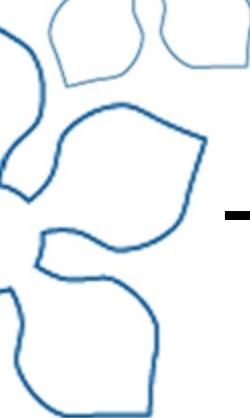
Kahneman and Tversky (1979)





The Simulation Heuristic

- Judgment is based on the ease of imagining plausible alternative scenarios
 - However there is no guarantee that imagined scenario might have occurred
 - Simulation can cause counterfactual emotions
 - Regret caused by comparison between current state and imagined alternative state
- 



The United Nations Problem

- Please estimate the percentage of countries in the United Nations that are from the continent of Africa
 - Some people say 10%
 - What do you say?
 - Some people say 65%
 - What do you say?
- 



The Anchoring and (Insufficient) Adjustment Heuristic

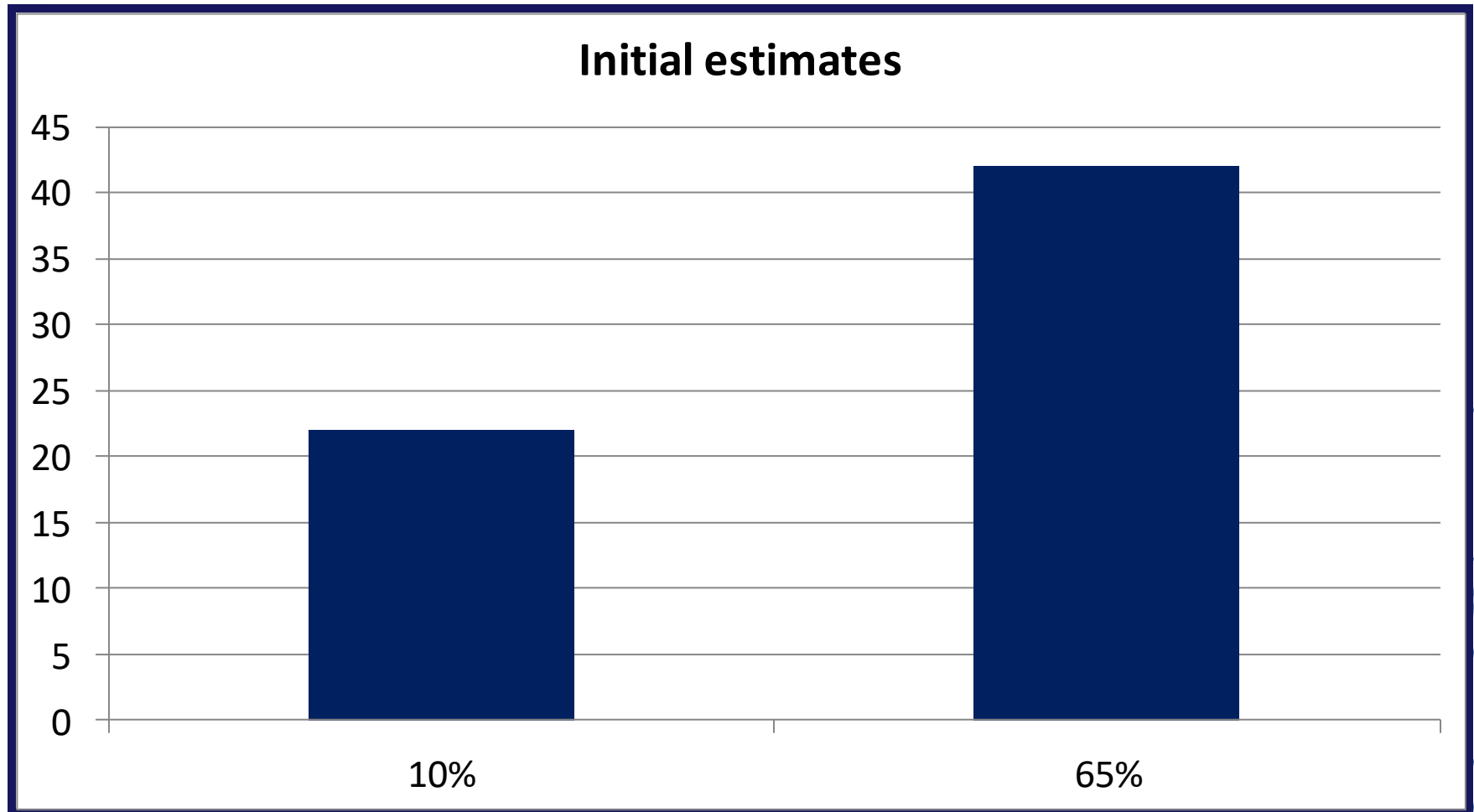
When we make estimates we are influenced by the initial value state

- Tversky & Kahneman (1974)
- see also Epley & Gilovich (2006)



African countries in UN

Kahneman and Tversky (1974)





Anchoring and Adjustment Heuristic

- Final estimates overwhelmingly influenced by initial estimates
 - Estimates begin with initial values
 - Initial value serves as anchor
 - Common sales technique
 - Estimates can even be influenced by meaningless or unrelated figures
 - Anchor to the figure alone
- 



Anchoring and Adjustment

- A phenomenon
 - Final estimates assimilated towards anchor
- A process
 - Adjusting from the initial value

Adjustment from self-generated anchor values insufficient as the process terminates when a plausible (or satisfactory) value is reached.

- Epley & Gilovich (2006)
- 



Task

- Think of a recent life decision you made
 - Did you maximise?
 - Did you satisfice?
 - What heuristics did you use?
 - Cognitive biases?
- 



Bounded rationality

- Herb Simon (1960, 1978)
 - Humans exhibit ‘bounded rationality’
 - We make rational decisions within the limits of human information processing
 - ❖ E.g. STM capacity, incomplete knowledge, uncertainty
 - Definition of situation likely incomplete
 - Impossible to generate all alternatives
 - Impossible to predict consequences of each alternative
- 



Bounded rationality

Final decisions therefore often influenced by personal or political

- Satisficing is often the result
 - ❖ Choice of sandwich?
 - ❖ Degree course or job?
 - ❖ Partner?

Heuristics are part of this bounded rationality





TED Talks

- Dan Ariely – Are we in control of our own decisions?
 - https://www.ted.com/talks/dan_ariely_asks_are_we_in_control_of_our_own_decisions?language=en
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