

Combating Bias in Problem Solving

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bias

noun

1. a particular tendency, trend, inclination, feeling, or opinion, especially one that is preconceived or unreasoned
2. unreasonably hostile feelings or opinions about a social group

In total, there are over 180 cognitive biases that interfere with how we process data, think critically, and perceive reality.

We know the answer...
...don't we?

We use intuition and experience to solve most simple problems.

Pads and Pens at the ready, please?

$$2 \times 2 = 4$$

$$8 \times 7 = 56$$

We know the answer...
...don't we?



= \$60



= \$10

**We know the answer...
...don't we?**



**MERLOT
ON
SPECIAL**



**GRAVEYARD
SHIRAZ... JUST \$100
MORE THAN THE
MERLOT**

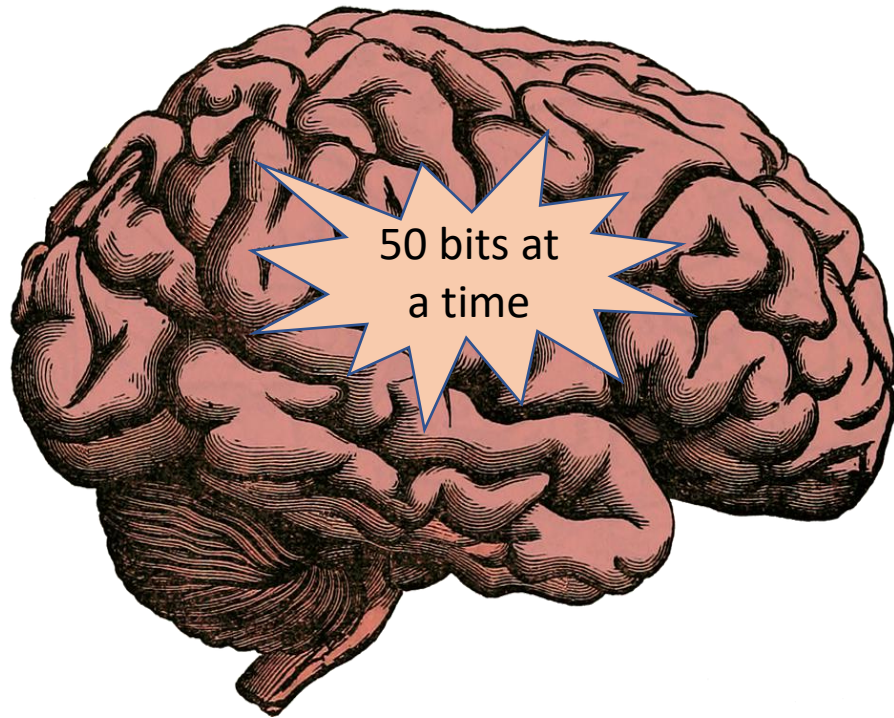
= \$110

How much was the Merlot? = \$5

Availability bias

We humans over-estimate the importance of available information

11 million bits of
information per
second



The brain has to AUTOMATE = Availability bias



AVAILABILITY BIAS

A sundial is the man-made timepiece with the fewest moving parts.

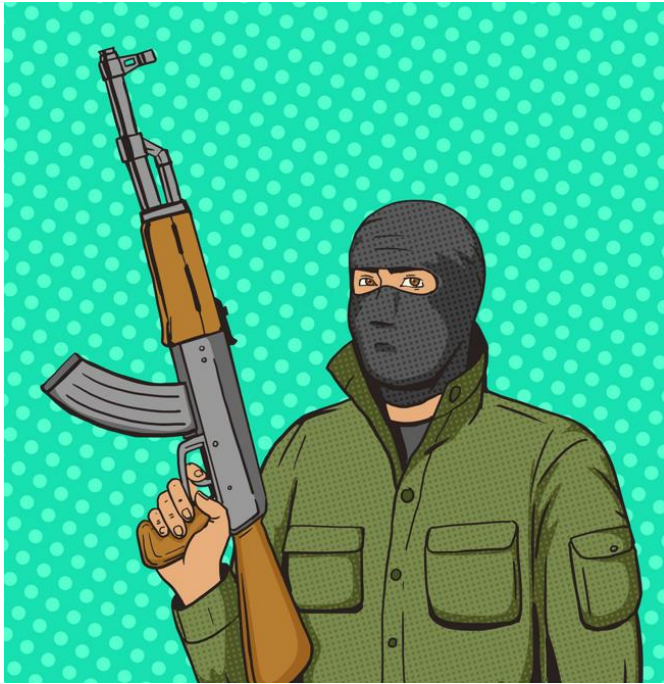
What is the man-made timepiece with the most moving parts?

Availability bias

The line of least resistance is to default to the “easiest accessible information”



Availability bias



*130
Times*

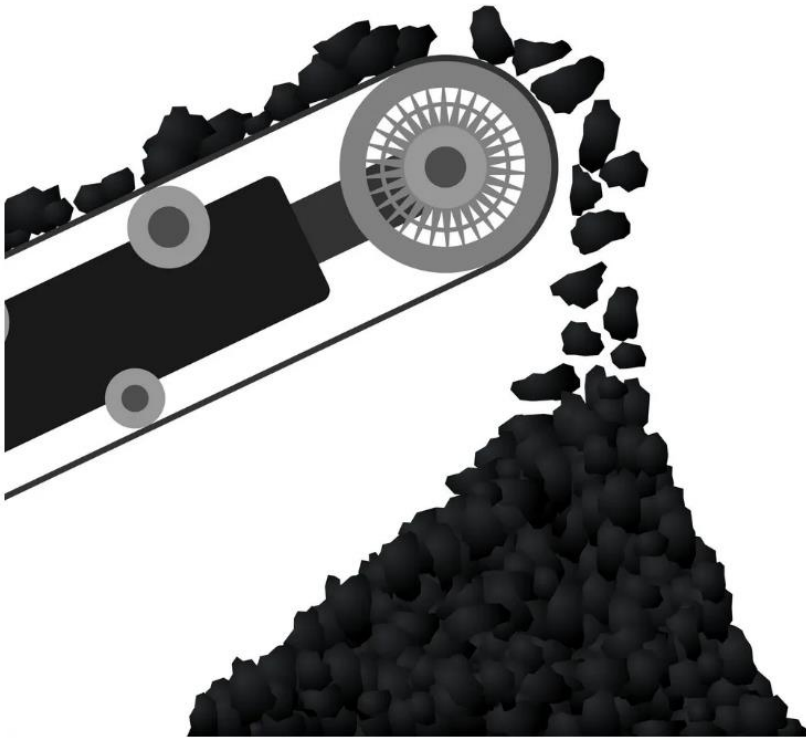
*more likely
to be killed
by a police
officer*



Are there more words that start with “K”?
Write “1”

Or are there more words where “K” is the third letter?
Write “3”

Example of Availability bias in Problem-Solving



2015

- *Belt would last >6months*
- *Belt material changed to Fire Resistant, anti-static*
- *Belt failed every 30 days*

Assumption: The new belt material has a shorter life

BUT! The Root cause was something else!

Combating Availability bias

- *Move from **FAST** thinking to **SLOW** thinking.*
- *Avoid impulse decisions.*
- *Consult others with a different viewpoint.*
- *Ask others to deliberately question our own assumptions (Red-teaming).*
- *Look for TRENDS not just recent events.*

Confirmation bias

The tendency to process information by looking for, or interpreting, information that is consistent with one's existing beliefs.



Left-handed people

ARE MORE CREATIVE!

than Right-handed people



Signs of Confirmation bias



Seeking information to confirm your beliefs and ignoring information that doesn't.



Relying on stereotypes or personal biases when assessing information.

Selectively remembering information that supports your views while forgetting information that doesn't.



Looking for evidence that confirms what you already think is true, rather than considering all of the evidence available.



Having a strong emotional reaction to information confirming your beliefs, while remaining unaffected by information that doesn't.



WHAT IS MY RULE?

Example of Confirmation bias in Problem-Solving



MY COFFEE MACHINE IS NOT GETTING TO PRESSURE

MY EXPERIENCE TELLS ME IT MUST BE THE PUMP – SERVICE COST = \$150

MY COFFEE MACHINE IS STILL NOT GETTING TO PRESSURE

MY EXPERIENCE TELLS ME IT MUST BE THE GRIND – 15 BAD CUPS LATER!

PROBLEM SOLUTION? – CHANGED BEAN SUPPLIER!

Combating Confirmation bias

- *Become self-aware about your own biases.*
- *Use structured Problem-Solving techniques.*
- *Work towards CAUSES and not SOLUTIONS*
- *Consider all the evidence available, rather than just the evidence confirming your views.*
- *Seek out different perspectives, especially from those who hold opposing views.*
- *Be willing to change your mind in light of new evidence, even if it means updating or even changing your current beliefs.*

Anchoring bias

We humans usually rely on the first information we receive



= \$249



= \$105



Anchoring bias

We humans usually rely on the first information we receive



= \$49



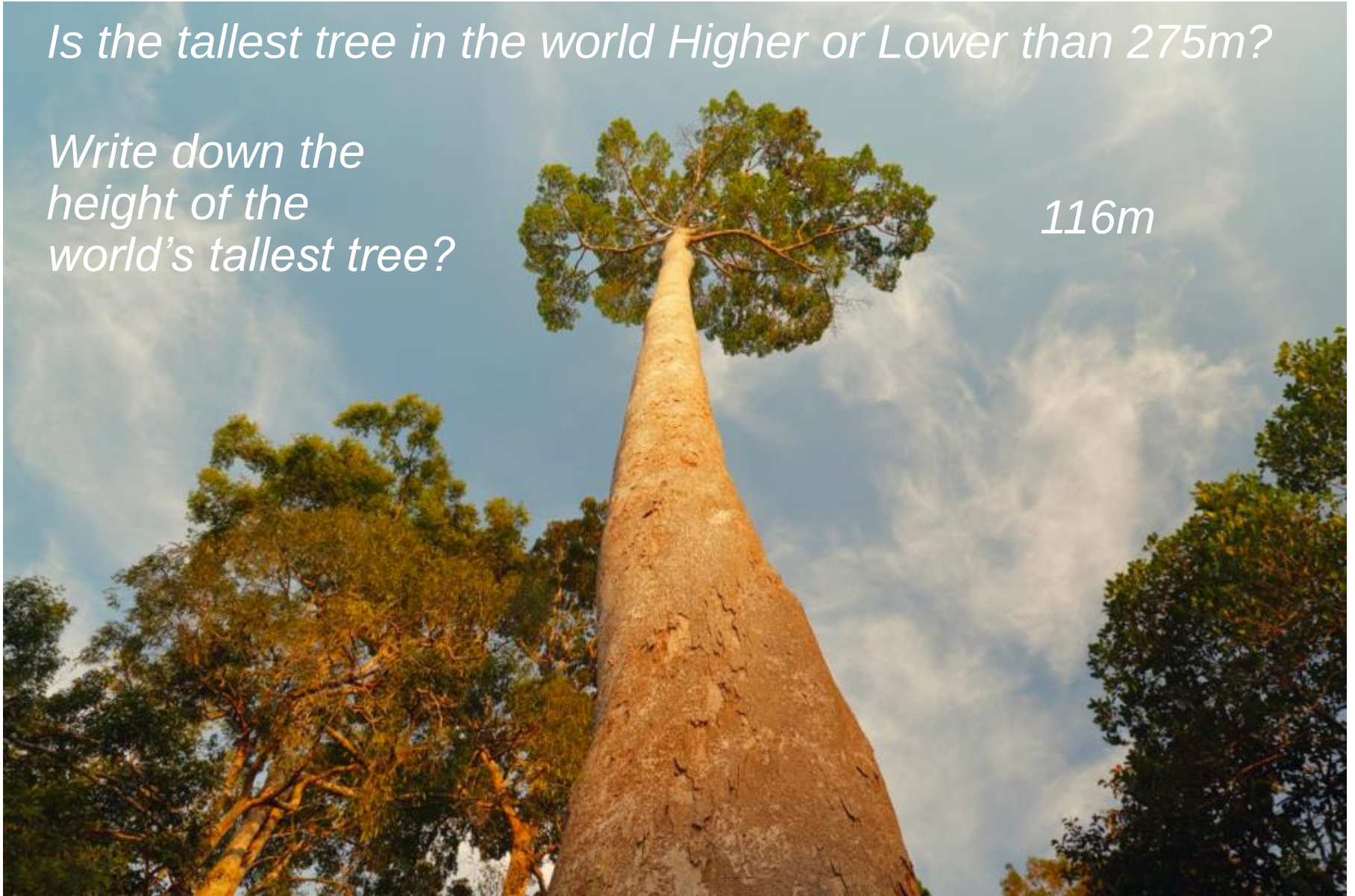
= \$105



Is the tallest tree in the world Higher or Lower than 275m?

*Write down the
height of the
world's tallest tree?*

116m



Example of Anchoring bias in Problem-Solving

<5% Wastage = 

Why not <2%?

Combating Anchoring bias

STOP and take time. Then ask:

- *Is this information relevant to the decision I am making?*
- *Is it coming from an independent source or from someone who has a vested interest in how I decide?*
- *What is the context of this information? What is the “standard” I am holding in this decision?*
- *What do I already know about this topic?*

Authority bias

Our tendency to be more influenced by the opinion of an authority figure, unrelated to its actual content.

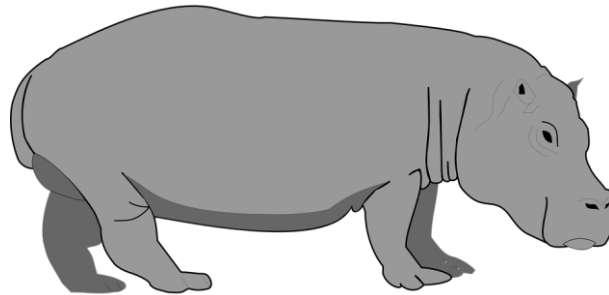


1930 ad for American Tobacco Company's Lucky Strike cigarettes.

Authority bias

Authority bias has an impact in business through what is referred to as HiPPOs.

*This stands for **Highest Paid Person's Opinion**, which means decisions in business are often based upon the opinion of a senior staff member, which people in lower level pay grades often concede to.*



In other words, we often overlook the details of an issue to conform with the most senior person involved.

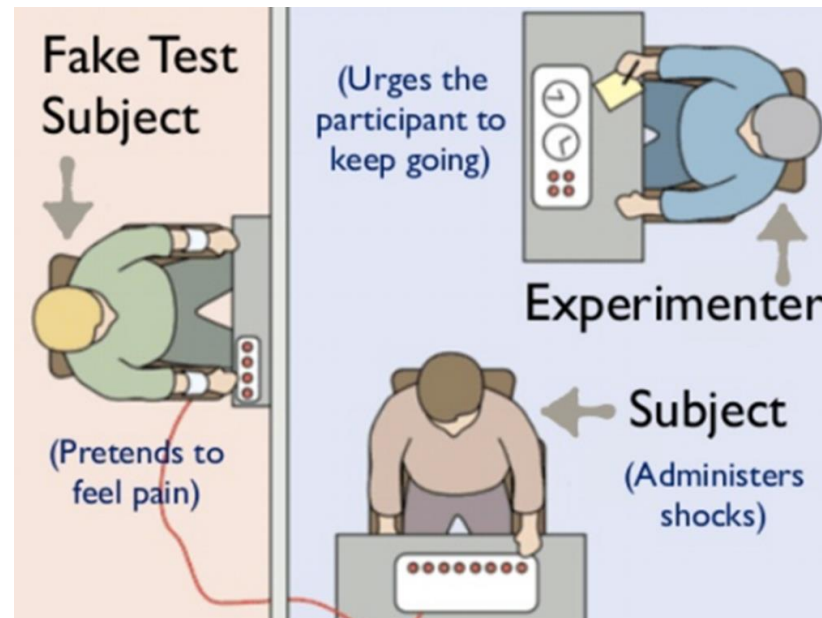
The Milgram Obedience Experiment (Yale University 1963)

Stanley Milgram investigated whether Germans were particularly obedient to authority figures. This was a common explanation for the Nazi killings in WWII.



The Milgram Obedience Experiment (Yale University 1963)

- 40 men (Paid \$4.50)
- Shock Generator – 0 to 450v in 15v Increments
- Teacher (Subject of the experiment)
- Student (An actor pretending to be shocked)



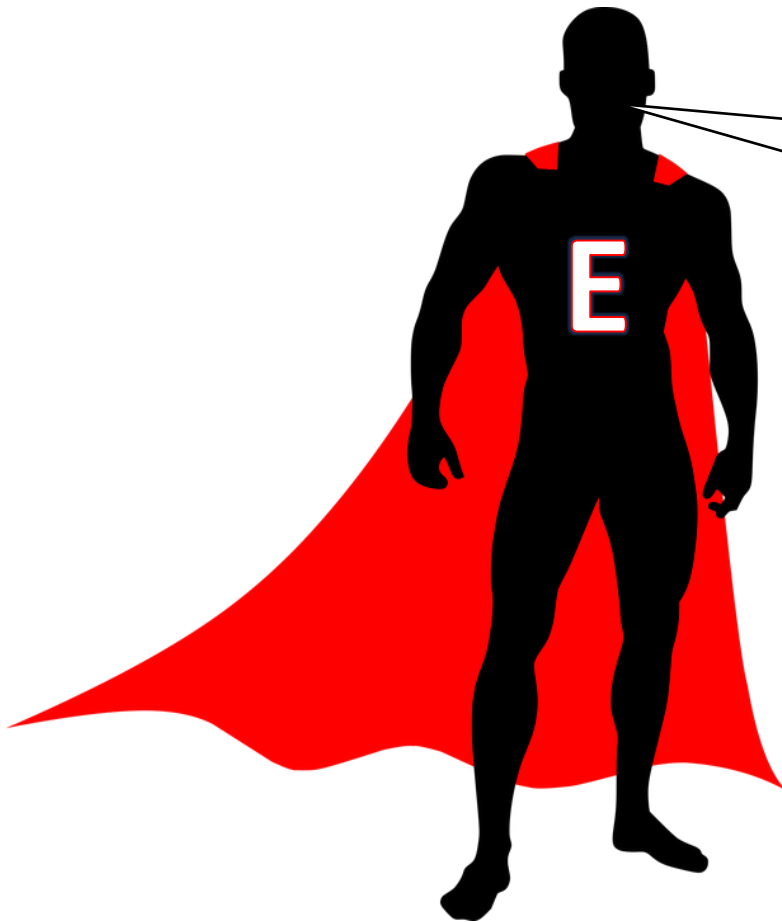
The Milgram Obedience Experiment (Yale University 1963)

What % delivered the Maximum 450v?

65%

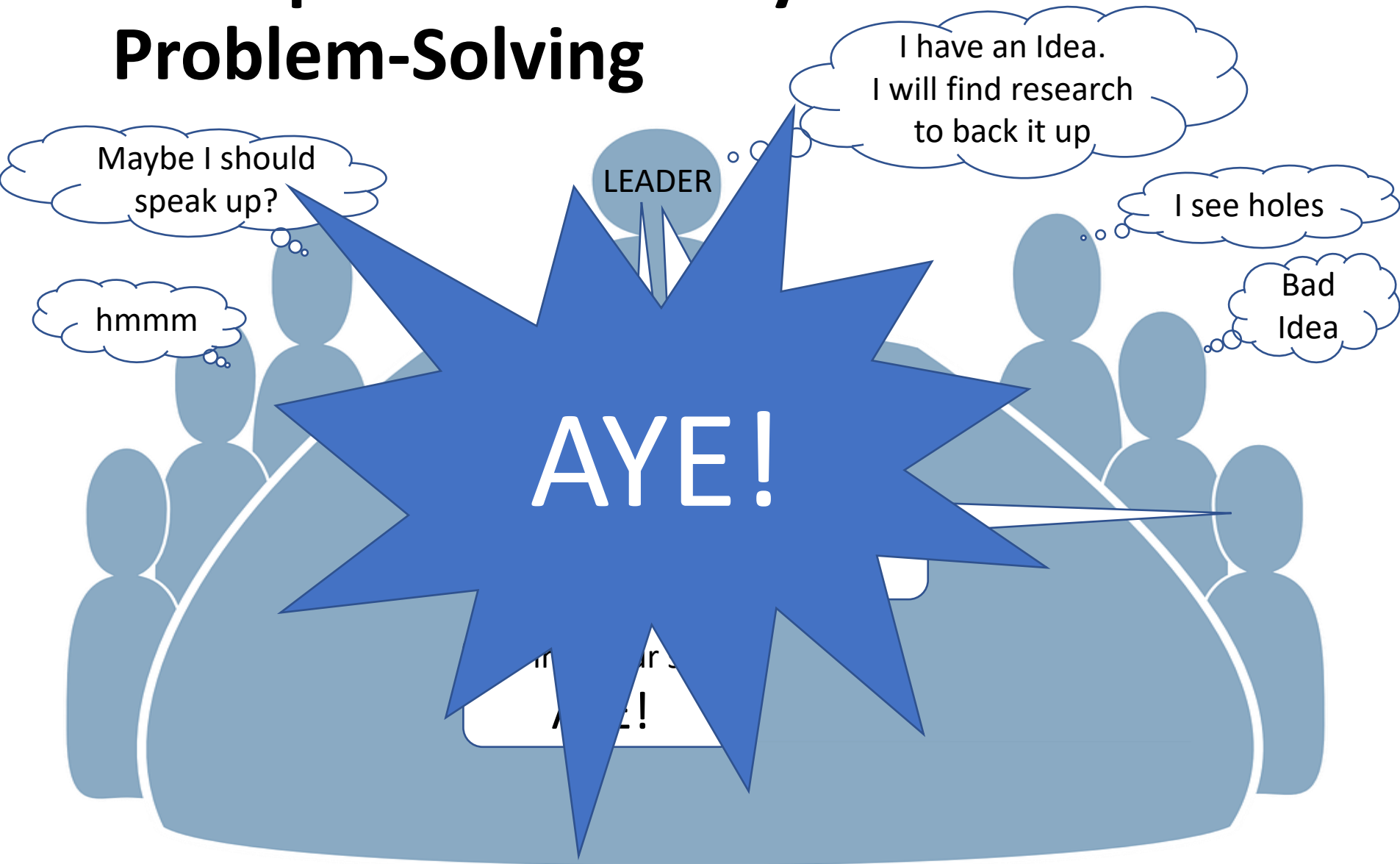
The participants were later surveyed: 84% were glad to have participated and only 1% regretted their involvement.

Example of Authority bias in Problem-Solving



FEAR NOT, MORTALS!
SUPER-ENGINEER IS HERE!
I FIXED THE SAME PROBLEM
LAST WEEK!
...and the week before

Example of Authority bias in Problem-Solving



Combating Authority bias

If you are the Authority figure...

- *Explain your position with EVIDENCE*
- *Encourage others to challenge you.*
- *Admit when you have made a mistake.*
- *Speak up when you “Don’t know”.*
- *Step out of the process if you feel your presence is detrimental to open dialogue.*

If the Authority figure is detrimentally affecting the process...

- *Consider your assumptions about the Authority figure (Are they really the expert?)*
- *Ask an “Outsider” to facilitate*

“A simple thing that a leader can do in a meeting is speak last and speak least.”

Jennifer Overbeck, Associate Professor of Management, Melbourne Business School

Groupthink

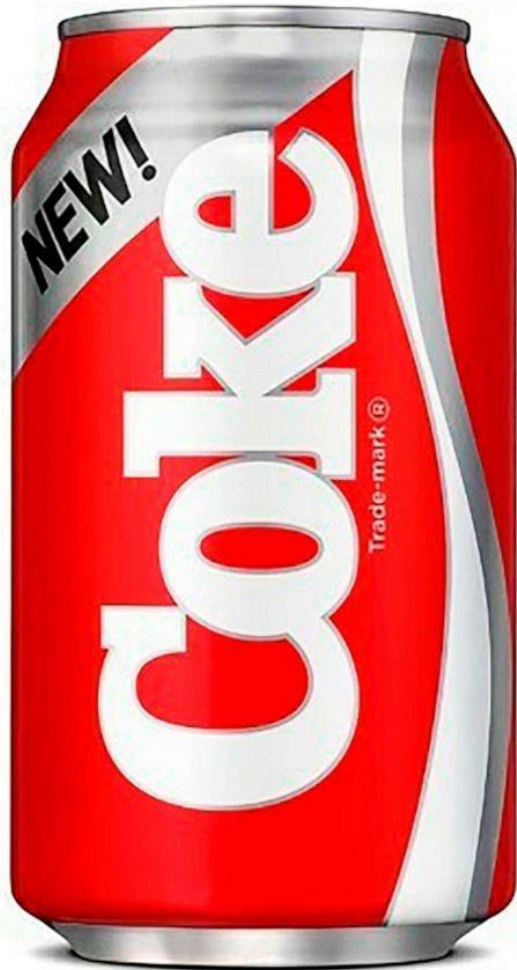
Groupthink occurs when a group of well-intentioned people makes non-optimal decisions spurred by the urge to conform or the belief that dissent is impossible.

SYMPTOMS OF GROUPTHINK

- Trying to evade conflict.
- Lack of critical thinking / The “Know-it-all” attitude.
- Lack of Psychological Safety.
- Overly Rigid thinking / Lack of creativity

The term “groupthink” was first introduced in the November 1971 issue of Psychology Today by psychologist Irving Janis.

Groupthink



- New Coke was introduced in April 1985.
- Coca-Cola decided to change its 99-year-old formula to make it sweeter and more modern.
- Researched and tested extensively.
- Focus group 'detractors' were 'rationalized'.
- Doubters in the team kept quiet.
- The Executives felt 'infallible' and went for 'wholesale replacement' rather than launching alongside the existing range.
- Initially well-received.
- But the tide turned.
- Now, those execs who liked 'New Coke' were afraid to speak up.
- After 79 days, Coca-Cola reintroduced 'Coke Classic' and killed 'New Coke'.
- The whole experience cost Est \$30m

Groupthink



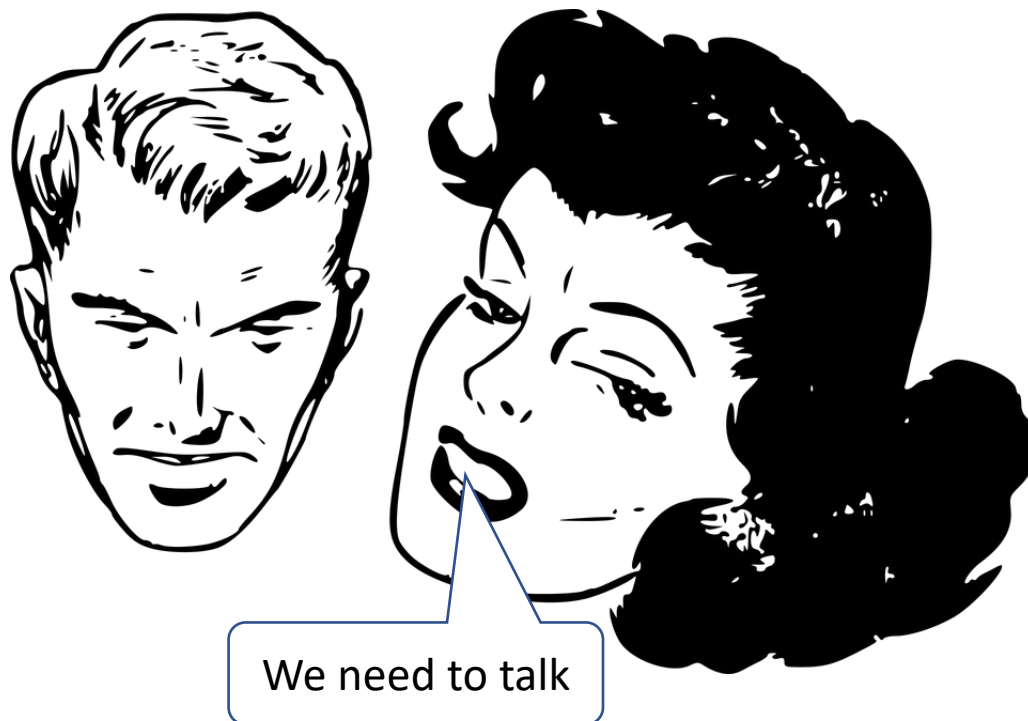
Shout out what you see?

Combating Groupthink

- *Evaluate all ideas critically*
- *Leaders step back.*
- *Initiate small group discussions to increase the voice of all parties.*
- *Bring in an outsider (maybe HR, HSE, Marketing?)*
- *Have as “Devil’s Advocate” or “Black Hat”*

Hindsight bias

Our tendency to look back at an unpredictable event and think it was easily predictable. It is also called the 'knew-it-all-along' effect.



Hindsight bias

“ If you feel like you knew it all along, it means you won't stop to examine why something really happened...“It's often hard to convince seasoned decision makers that they might fall prey to hindsight bias.”

- Neal Roese, expert in psychology of judgment and decision-making

Combating Hindsight Bias

- *Remind yourself “You can’t predict the future”*
- *Examine the data*
- *Record your thought process*
- *Consider alternative outcomes*
- *Trust the process – Not the outcome*
- *Analyse the outcome*
- *NEVER blame others. You were part of the process.*

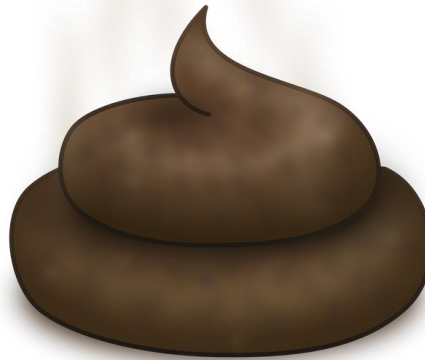
In summary...

ANCHORING BIAS

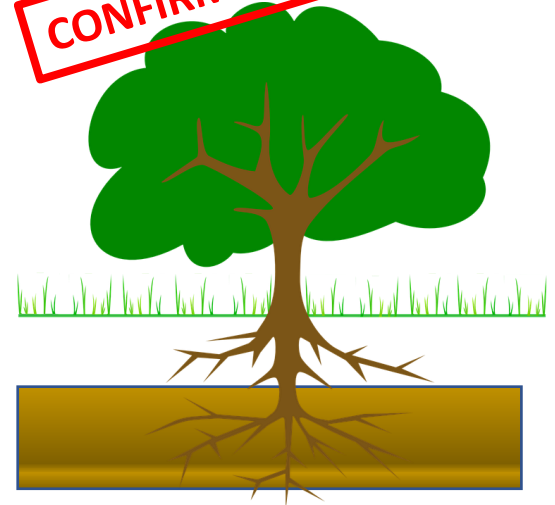


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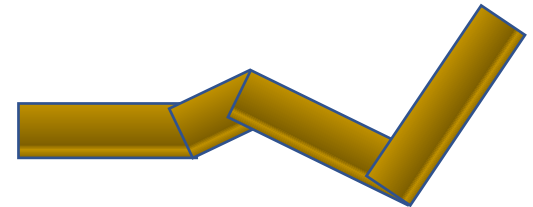
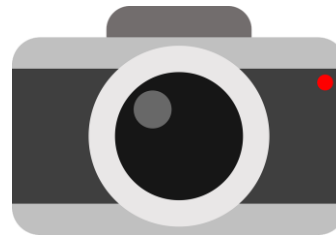
AUTHORITY BIAS



CONFIRMATION BIAS



HINDSIGHT BIAS





CRITICAL THINKING

FOR PROBLEM-SOLVING



SYDNEY 17th NOVEMBER

BRISBANE 24th NOVEMBER