Bias and Gender Differences

WISE Conference

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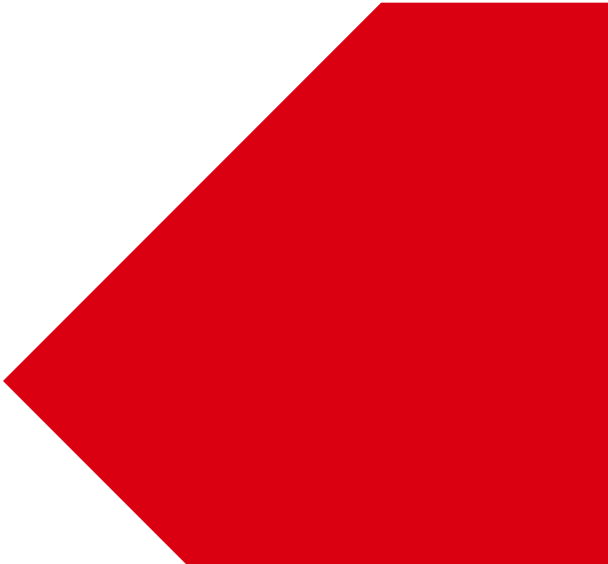
Introduction



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Does identity exist?

Question:

Is personality (e.g. introversion/extroversion, willingness to learn, conscientiousness, etc.)

(A) learned

(B) both

(C) innate

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(A) learned

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(C) innate

Answer/Comment

Most studies show that it is a mix.

Gender

Question:

Is gender a social construct?

(A) Yes, that's it definition

(B) No, gender refers to biological aspects

Gender

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(B) No, gender refers to biological aspects

Answer/Comment

the male sex or the female sex, especially when considered with reference to social and cultural differences rather than biological ones, or one of a range of other identities that do not correspond to established ideas of male and female. — Oxford dictionary

Statistical differences between men and women

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Car accidents

Question:

Who causes more car accidents (= most car accidents are caused by . . .)

(A) Men

(B) Women

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(B) Women

Answer/Comment

Most accidents are caused by men

Car accidents – take 2

Question:

How much more likely are men to die in road accidents (EU stats)

(A) less than 1 (more women die in road accidents)

(B) 1 (men have similar odds than women)

(C) 2

(D) 3

(E) 4

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Answer/Comment

Men are 4 times more likely to die in road fatalities

The data behind car accidents

sources: Hailemariam et al., n.d., Eustace and Wei, 2010, Kouabenan et al., 2001, Obeng, 2011, Szumska, Frej, Grabski, et al., 2020, EU, IIHS, NHSA, Insurance information institute, etc.

All agree:

- men cause around 70% of car accidents in the EU

[1] EU data from: https://ec.europa.eu/transport/road_safety/sites/default/files/pdf/

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- insurers see around slightly more accidents in female customers, but men have more expensive accidents

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- In USA: Men drive ca. 30% more miles than females, and cause 6.1 mln accidents vs females 4.4. (IIHS)

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Suicides

Question:

How much percent of successful suicides are male?

(A) less than 20% (women commit more suicide)

(B) 21% to 39% (more women commit suicide)

(C) between 40% and 60% (roughly half half)

(D) 60% to 79% (more men commit suicide)

(E) 80% or more (men are much more likely to commit suicide)

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Answer/Comment

80% of suicides are male

More differences between the sexes

Table: USA numbers — sources: www.statistica.com, bubmed.ncbi.mlm.nih.gov, prisonpolicy.com, www.childtrends.org

Topic	Men	Women	Ratio	Percent
school dropouts				

More differences between the sexes

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inmates in death row	2695	55	49	98.0%

Medical Doctors

Question:

What is the percentage of female medical doctors in the EU

(A) less than 20%

(B) 21 to 40%

(C) 41 to 60%

(D) 61 to 80%

(E) more than 80%

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Answer/Comment

45% of medical doctors are female

Gender stereotypes and bias

doctor

nurse

police officer

Gender stereotypes and bias

doctor

nurse

police officer

Gender stereotypes and bias

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nurse

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Gender stereotypes and bias

	doctor	nurse	police officer
			
female	45%		
male	55%		

Gender stereotypes and bias

	doctor	nurse	police officer
			
female	45%	90%	
male	55%	10%	

Gender stereotypes and bias

	doctor	nurse	police officer
			
female	45%	90%	17%
male	55%	10%	83%

What are the reasons for those differences?

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Why?

Question:

Why do we have such wide differences between men and women in those statistics?

(A) social constructs such as expectations towards women

(B) differences in personalities and traits

(C) all those numbers are biased

(D) the numbers are wrong

(E) other reasons

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Answer/Comment

Let's dive into possible causes!

The Gender of Personality: the 16 MBTI personality types

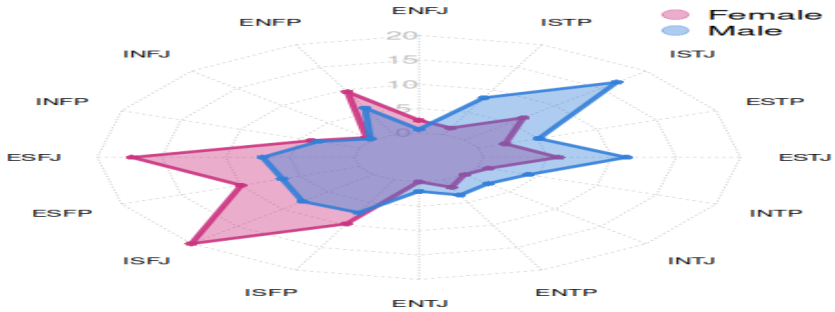

Figure: Gender differences in the MBTI profiles.

The Gender Differences in the MBTI Dimensions

Table: Gender differences in personality. Data from `www.statisticbrain.com/myers-briggs-statistics` and `https://personalitymax.com/personality-types/population-gender/`.

Dimension	**Male**	**Female**	**Δ**
Introversion/ **E**xtrav.	5% more Introvert	3% more Extrovert	**8%**

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Sensing/iNtuition and Judging/Perceiving

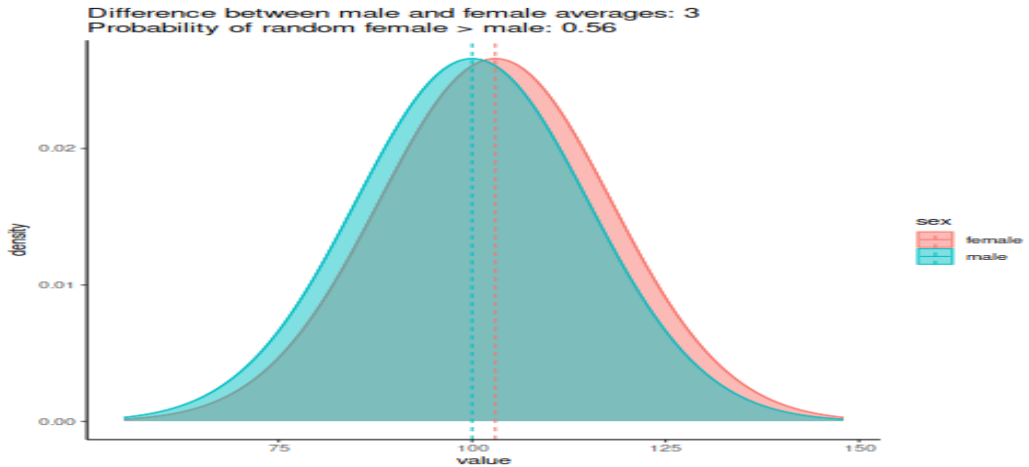

Figure: When the differences are small (e.g. 3% or 4%, then the probability that in a random pair men score lower is roughly 50%.

Introversion vs. Extroversion

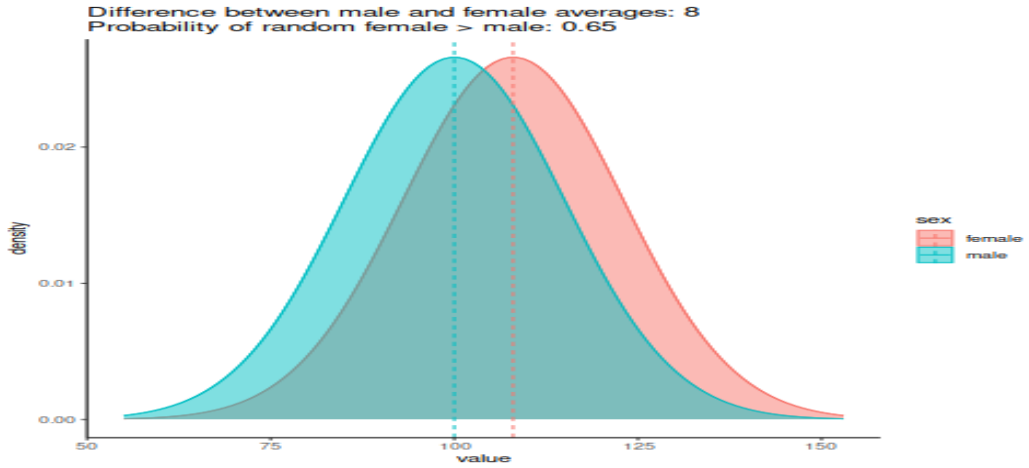

Figure: With 8% difference, the probability that in a random pair the woman scores higher/lower is 65%.

What are the reasons for those differences?

Thinking vs. Feeling

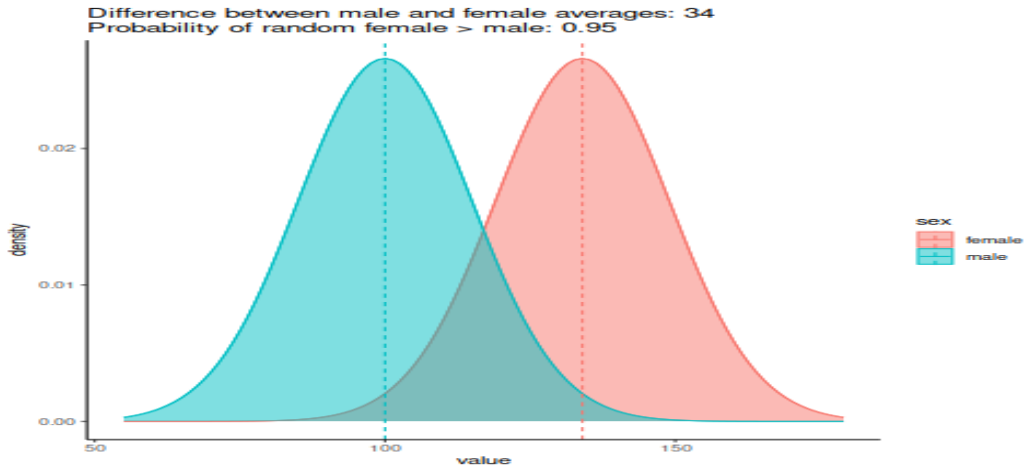

Figure: With 34% difference, the probability that in a random pair the woman scores higher is 95% – almost always.

The Big 5

- **Neuroticism** – experience negative emotion in response to perceived threat and punishment (e.g. anxiety, depression, anger, self-consciousness, and emotional lability) — women score higher (except anger)

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- **Openness/Intellect** – imagination, creativity, intellectual curiosity, and appreciation of aesthetic experiences — no diff.

Summary for Personality Types

1. There are significant differences between the sexes on some of the personality dimensions
2. There is overlap on all dimensions (this means that even where stereotypes seem often true, there will always be exceptions)
3. Innate personality exists, learned traits exist too
4. Evolutionary psychology is a compelling explanation for much differences
5. Personality traits correlate to success at work for example

Bias

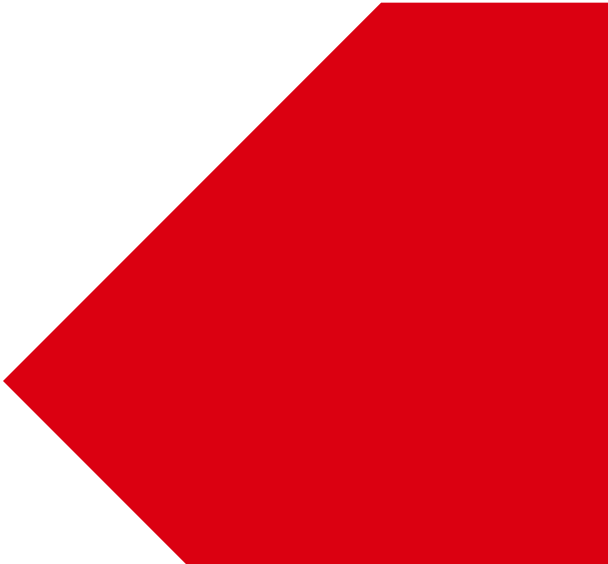

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Figure: The Makapansgat Pebble is 2.5 million years old, and might be the oldest evidence of abstract thinking of a humanoid.

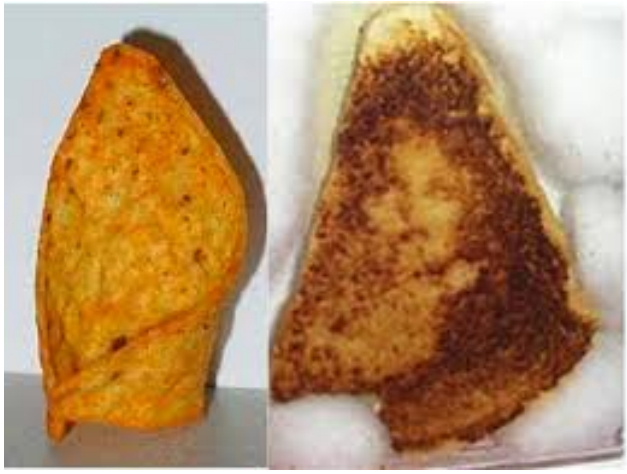

Figure: Mary got grilled cheese in 2004 and earned $24’000

Figure: Another face that is not.

Question: Linda is thirty-one years, single, outspoken and very bright. She majored in Phylosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti nuclear demonstrations.”

What is most probable:

(A) Linda is a bank teller

(B) Linda is a bank teller and is active in the feminist movement

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Question: Assume that you're hungry and find two restaurants that only differ in name and in the number of guests: one is empty and the other is half full.

Which restaurant would you choose?

(A) the empty restaurant

(B) the half full restaurant

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Bias

source: White paper “Reporting about Diversity and Inclusion that Inspires to Action” by Philippe De Brouwer

- **Overconfidence on own ability and own judgement**
- **Framing**
- **Confirmation Bias**
- **Information Bias**
- **Groupthink**
- **Attribution Bias and Failure to Seek Feedback**
- **Tribal Thinking**
- **Failure to Learn**
- **Herd behaviour**
- **In-group favouritism**

What is Bias Anyhow?

Question:

A golf-club and ball cost together 1,050$. The club is 1,000$ more expensive than the ball.

How much cost the ball?

(A) 0.0$
(B) 25.5$
(C) 50.0$
(D) 75.5$

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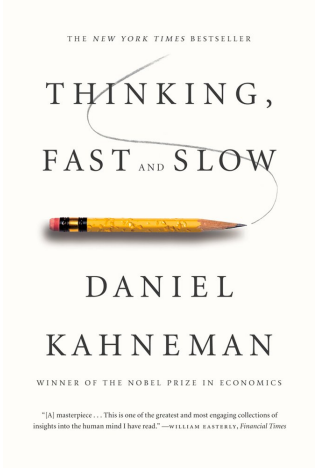
Answer/Comment

$1,025.5 + 25.5 = 1,050$

Bias is Rooted in Heuristics for Fast Decisions



Two systems of thinking

System 1

- automatic
- quick
- no sense of voluntary control
- huge processing capacity (11 000 000 bits per second)

System 2

- requires effort and concentration
- slow
- conscious
- limited capacity (40 bits per second)

When we think about “us”, we think of System 2, but from others we see more of System 1 (e.g. System 1 is only 7%)

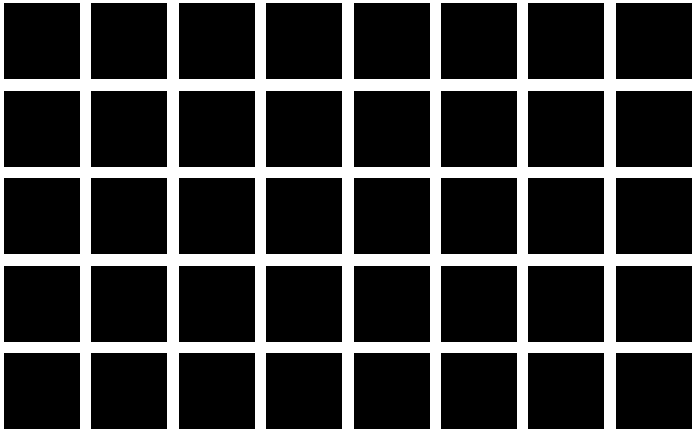


Figure: Gray dots appear at the intersection of the black squares (and if you focus on it, then it disappears, but others become visible).

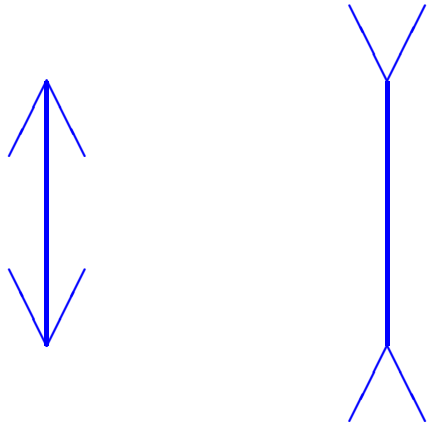
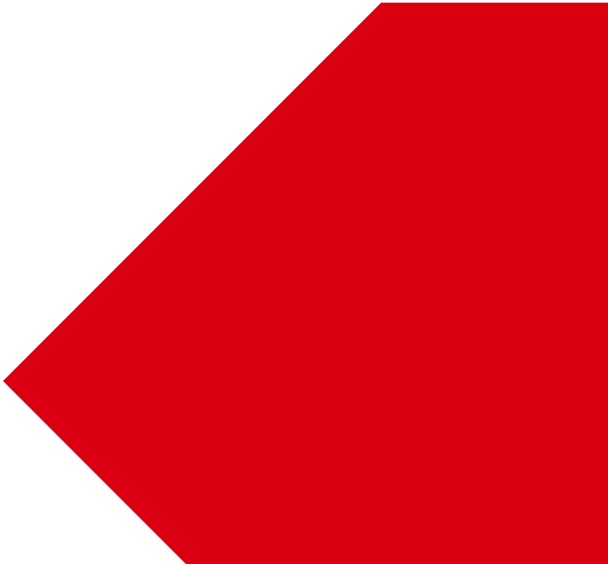


Figure: Which vertical line is longer? (only taking into account the vertical lines, not the arrows)

Conclusions for Bias

1. We are all biased in many ways
2. Our brain naturally decides based on bias, when a fast decision is needed
3. We cannot de-bias ourselves completely . . . if at all

Recruitment



HSBC

How to Tame System 1?

Question: – Recruitment

How can we get System 1 under control for recruitment?

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Answer/Comment

- Have a process and stick to it
- Select CVs based on quantifiable criteria
- Interview with 2 people (ideally different backgrounds, gender, age, character (MBTI), seniority, . . .)
- Decide in advance what questions to ask
- Score answers (from 1 to 5), based on quantifiable aspects of the answer
- Decide on beforehand how you will calculate a total score

Is this enough to get to equal chances

Question: Assuming that our method is sufficient to tame System 1 in the recruitment process, are the previous rules enough to provide equal and fair chances to everyone?

(A) Yes

(B) No

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Answer/Comment

No, equal chances to get through the CV selection does not provide fair chances to submit the CV, nor does it guarantee equal pay.

Avoid Gender Biased Language

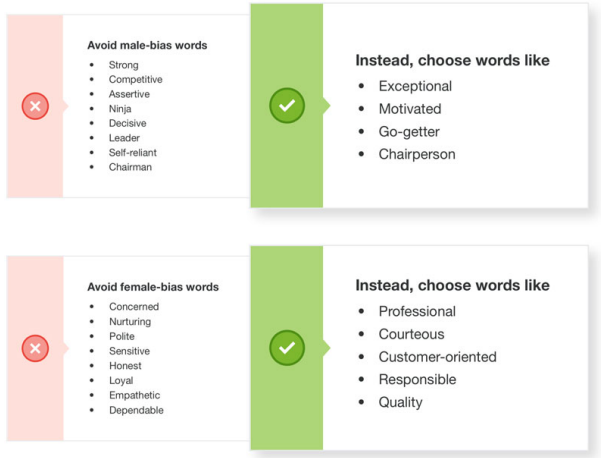

Figure: source: https://business.linkedin.com/talent-solutions/blog/job-descriptions/2018/writing-job-descriptions-6-common-mistakes-and-how-to-avoid-them

Conclusions for Recruitment

To counter-act bias, we can:

- Have a process and stick to it
- Select CVs based on quantifiable criteria
- Interview with 2 people (ideally different backgrounds, gender, age, character (MBTI), seniority, . . .)
- Decide in advance what questions to ask
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Beyond Recruitment

HSBC

Beyond Recruitment

Question:

Is de-biasing recruitment enough to get equal pay for equal work?

(A) Yes

(B) No

See the paper “Reporting about Diversity and Inclusion that Inspires to Action” – `http://www.de-brouwer.com/assets/div/div-white-paper.pdf`

Beyond Recruitment

Question:

Is de-biasing recruitment enough to get equal pay for equal work?

(A) Yes

(B) No

Answer/Comment

No, there are many biases that will work so that salaries of men will be higher.

See the paper “Reporting about Diversity and Inclusion that Inspires to Action” – `http://www.de-brouwer.com/assets/div/div-white-paper.pdf`

Salary and Gender

Question: What mechanisms *can* lead to lower pay for women?

(A) biases like over-confidence, availability heuristic etc
(B) biases like framing, groupthink, in-group favouritism, etc.
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Answer/Comment

Indeed most biases can –depending on the circumstances– act against a certain group.

Decision Process

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Before

- use different frames,
- consider the decision process
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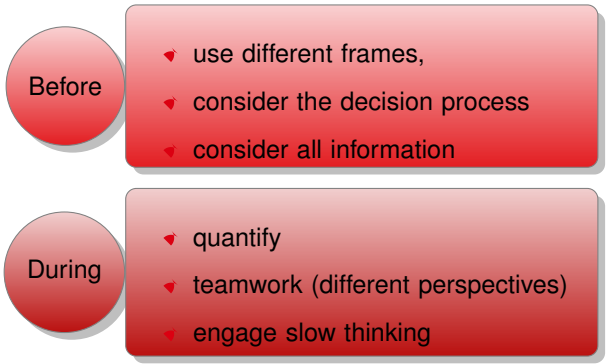
Decision Process



Decision Process

Before

- use different frames,
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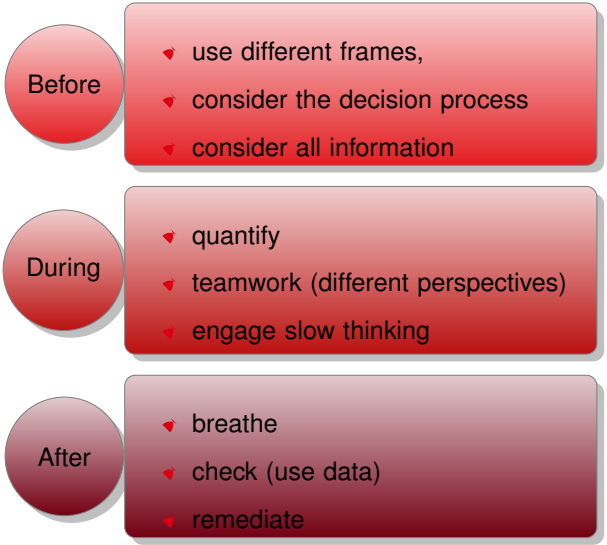
During

- quantify
- teamwork (different perspectives)
- engage slow thinking

After

Decision Process



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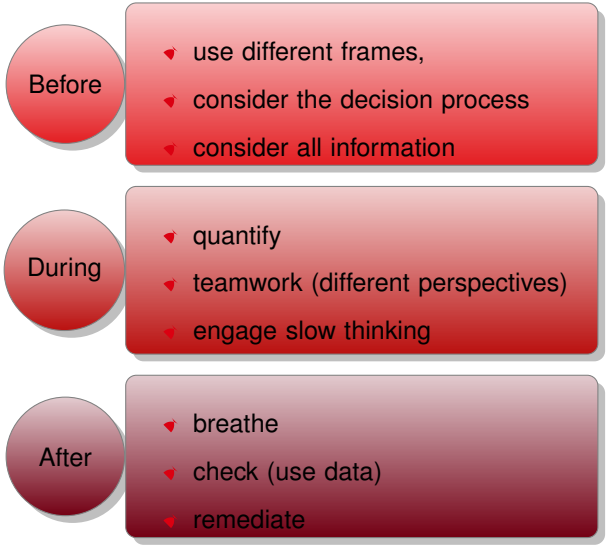


{div}

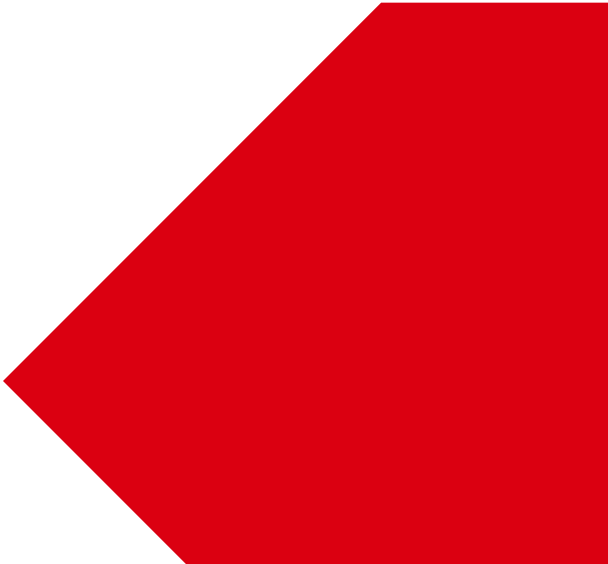
making paygap actionable

```
http://www.de-brouwer.com/div
```

{div} is a FOSS library to automate beautiful interactive html reports for

- diversity
- inclusion via statistical confidence for bias in pay, and
- make bias actionable:
  - it identifies if a team has bias, and
  - provides priorities of jobs/level combinations that needs most attention
- released under AGPL V3 (so can be modified and used by any private person or company)

Conclusion



HSBC

Can we learn to de-bias?

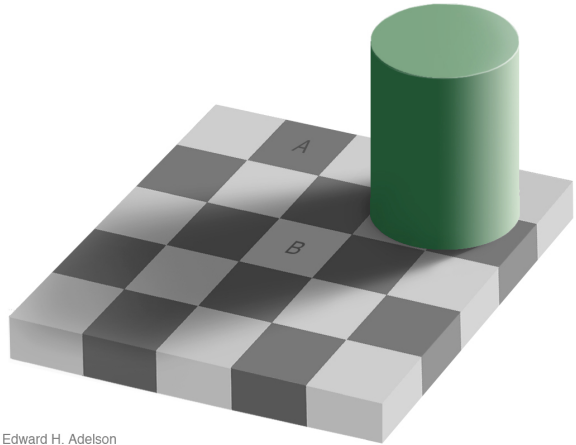


Figure: Are A and B of the same shade of grey? – Source: Edward H. Adelson
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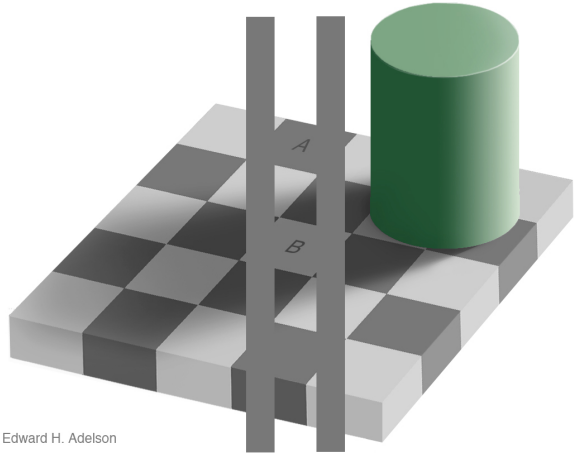

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- **Hence, it is necessary to use data and check post decision**
- **especially for salary . . . and we have a free tool for that**
- an unbiased process can still lead to unequal representation (people have preferences)

Suggested Actions

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- educate managers about bias,
- have a process

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Before

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During

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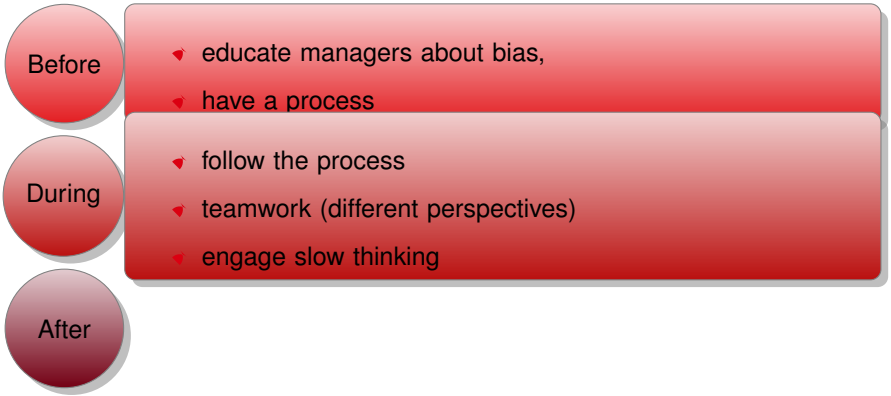

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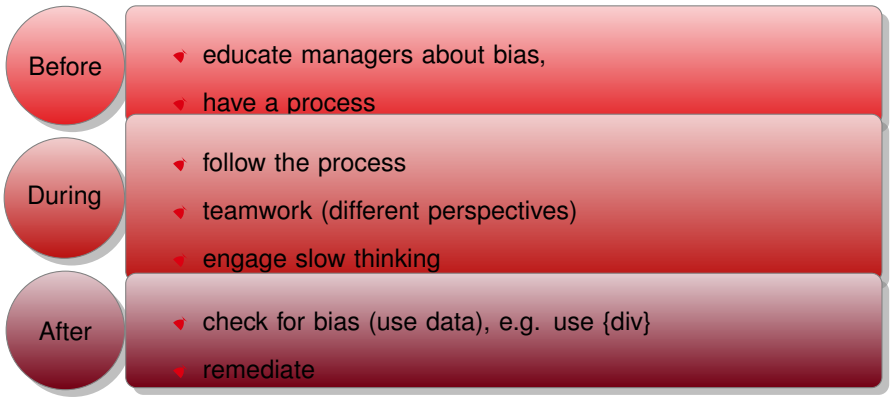

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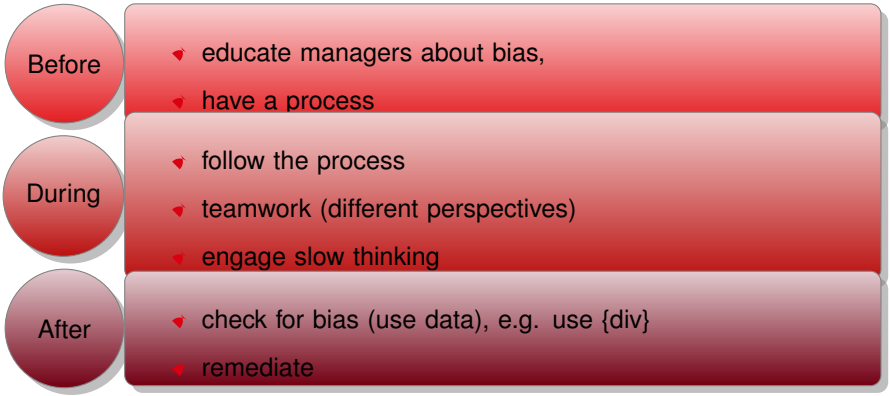

Always remember

> *Everything we hear is an opinion, not a fact. Everything we see is a perspective, not the truth.*

Marcus Aurelius , Meditations

Last question

Question:

When did Marcus Aurelius stop writing the texts that we know as his “meditations” (choose the closest answer)

(A) ca. 300 BCE

(B) ca. 20 BCE

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Answer/Comment

Marcus Aurelius died in 180

Thank you for your attention!

handouts

Philippe’s business card