

Responsible Conduct of Research

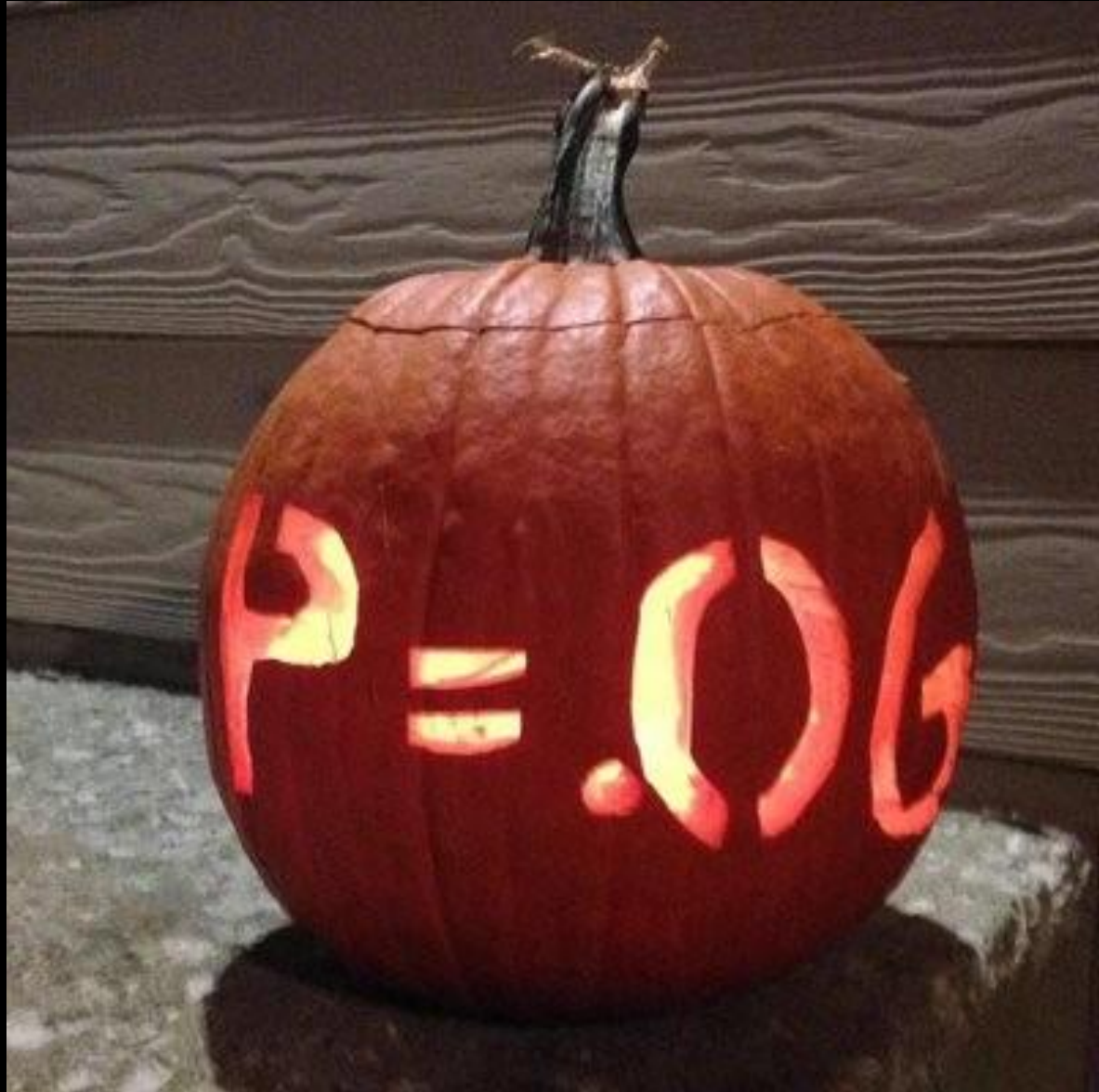
Ramazzini seminar

Sandbjerg

30 October 2018

It is Halloween tomorrow

– the time of year
where we express our
deepest rooted fears
through carved out
pumpkins...



All About Me!

My name is _____

My birthday is _____

I am _____ years old.

My favourite colour is _____

My favourite food is _____

I live with my _____

My brothers and sisters are called _____

Things that I am really good at are, _____

My favourite TV programme is _____

because _____

When I grow up I want to be _____

My best friend is called _____



All About Me!

My name is _____

My birthday is _____

I am _____ years old.

My favourite colour is _____

My favourite food is _____

I live with my _____

My brothers and sisters are called _____

Things that I am really good at are, _____



Ask Vest Christiansen

Expert in RCR? By no means!
If anything an expert in
cheating in competitive
environments...

Research areas:

- Elite sport
- Doping in elite- and recreational sport
- Ethics

Daily manager of International Network for Doping Research
(INDR) – www.doping.au.dk



Scan me

A black and white photograph of a muscular man's torso and arms, flexing his muscles, serving as the background for the book cover.

MOTIONS DOPING

**STYRKETRÆNING,
IDENTITET OG KULTUR**

ASK VEST CHRISTIANSEN

Definition of Research Integrity

The background of the slide features a large, faint word 'INTEGRITY' in a serif font, slanted upwards from left to right. Overlaid on this is a detailed compass rose with a gold-colored needle pointing towards the upper right. A blue and yellow line graph with multiple peaks and valleys is also visible, running diagonally across the upper portion of the image.

Doing the right thing
– also when no one is watching

NY DEFINITION AF VIDENSKABELIG UREDELIGHED OG TVIVLSOM FORSKNINGSPRAKSIS

- ” **Videnskabelig uredelighed:** Fabrikering, forfalskning og plagiering, som er begået forsætligt eller groft uagtsomt ved planlægning, gennemførelse eller rapportering af forskning.
- ” **Tvivlsom forskningspraksis:** Brud på alment anerkendte standarder for ansvarlig forskningspraksis, herunder standarderne i den danske kodeks for integritet i forskning og andre institutionelle, nationale og internationale praksisser og retningslinjer for integritet i forskning
- ” **Behandling af sager:** Sager om videnskabelig uredelighed kan rejses af enhver ved anmeldelse, der indgives til den forskningsinstitution, hvor forskningen er udført.

Fabrication

making up data

Falsification

misrepresenting data

Plagiarism

copying others research without telling

- Norway: No registers (Sudbø, 2006) (NEJM, Lancet)
- Denmark: Missing rats (Penkowa, 2009)
- Japan: No stem cells (Ogata 2011, signature)
- Sweden: Artificial heart transplants (Macchiarini 2014-2016) (Lancet)
- Germany: Plagiarism (three ministers 2005, 2011, 2013)

FEW!

However...

Approx. 30% of university researchers have performed "Questionable Research Practice" (QRP)

1. Martinson BC, Anderson MS, de Vries R. Scientists behaving badly. Nature 2005; 435: 737-8
2. Fanelli D. How many scientists fabricate and falsify research? PloS One 2009; 4: e5738
3. Haagen Nielsen & Axelsen. Ugeskrift for Læger | 14.10.2013 | Artikel-id: e408b208

As can be seen in ...

- Planning, designing and conducting experiments (e.g. insufficient exploration of existing literature, lack of relevance of problem, flexibility, statistical underpowered)
- Data collection, handling and analysis (e.g. inadequate replication of experiments)
- Reporting (e.g. selective reporting of data, deleting outliers)
- Presence of conflict of interest (lack of disclosure)
- Authorship issues

Consequences?

- Public policy based on false assumptions
- Unawareness
- Lack of knowledge

Therefore QRP is our
primary focus

Why fraudulent research?

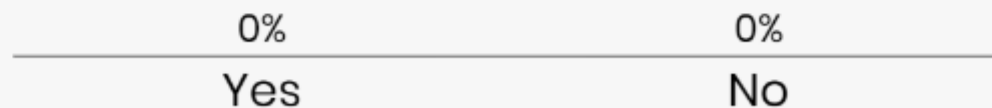
Overarching Aims vs. Personal incentives

- Overarching aims of research:
 - Human curiosity, search for truth, creating a better world
 - The individual doesn't matter (the vocation, mission, calling matters)
- Personal ambitions and incentives:
 - Personal recognition, status, vanity, personal career, competition on access to funding and positions, etc.
 - The individual (I, me, myself) means everything

Go to **www.menti.com** and use the code **31 06 51**



Have you lied or cheated since 1 January this year?



The Simple Model of Rational Crime – SMORC

- Rational Man – Economic Man – Rational Choice Theory
- People commit crimes (behave dishonestly) based on a rational analysis of each situation
- Decisions about honesty, like most other decisions, are based on a cost-benefit analysis



The Simple Model of Rational Crime – SMORC

If the SMORC model accurately describes people's behaviour, society basically has two means to deal with dishonesty:

1. To increase the probability of being caught (through hiring more police officers and installing more **surveillance** cameras, for example)
2. To increase the magnitude of **punishment** for people who get caught (for example, by imposing steeper prison sentences and fines)



Why do we cheat?

- Who lied or cheated since the beginning of 2018?
- Who consider themselves to be good honest people?
- Most people + Most people
- → Inconsistency! → Conflict of interest → We do not have to be 100 percent good to think of ourselves as good
- There is something wrong with the Simple Model of Rational Crime: **SMORC**



THE AUTHOR LIST: GIVING CREDIT WHERE CREDIT IS DUE

The first author
Senior grad student on the project. Made the figures.

The third author
First year student who actually did the experiments, performed the analysis and wrote the whole paper. Thinks being third author is "fair".

The second-to-last author
Ambitious assistant professor or post-doc who instigated the paper.

Michaels, C., Lee, E. F., Sap, P. S., Nichols, S. T., Oliveira, L., Smith, B. S.

The second author
Grad student in the lab that has nothing to do with this project, but was included because he/she hung around the group meetings (usually for the food).

The middle authors
Author names nobody really reads. Reserved for undergrads and technical staff.

The last author
The head honcho. Hasn't even read the paper but, hey, he got the funding, and his famous name will get the paper accepted.

Cheating with Authorships

- In and of itself, cheating with authorships is not a problem
- It doesn't influence the core of research; namely the search for truth
- But it is a problem with the **incentive structure** we have in place. Both regards careers and access to funding.
- Cheating with authorships is a fairness problem concerning the careers of individual researchers. It belongs to the domain of *the good* (morality), not *truth* (science).

Acknowledgements

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Address for reprint requests: D. E. Wesson, Texas Tech Univ. Health Sciences Center, Renal Section, 3601 Fourth St., Lubbock, TX 79430.

ICMJE/Vancouver - WHAT IS AN AUTHOR?

Four criteria that **NEEDS** to be fulfilled

- 1) Substantial contributions to the conception *or* design of the work; *or* the acquisition (*or*), analysis, *or* interpretation of data for the work; **AND**
- 2) Drafting the work or revising it critically for important intellectual content; **AND**
- 3) Final approval of the version to be published; **AND**
- 4) Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
 - Those who **do not** meet all four criteria, but nevertheless contributed, should be acknowledged
 - Likewise: Those who **do** meet all four criteria must be listed as author

Source: [ICMJE](#)



Acknowledgements

We thank F. Howarth, M. Kambysellis, K. Kaneshiro, J. Liebherr, C. Moritz, D. Polhemus, R. Robichaux, I. Thornton, D. Wise, an anonymous reviewer, and our laboratory group for helpful discussions and comments. We are particularly grateful to J. Liebherr and D. Polhemus for making available manuscripts from a concurrent issue in *Pacific Science* on 'The Legacy of R. C. L. Perkins: 100 years of Hawaiian Entomology'. Order of authorship was determined by proximity to tenure decisions. This work was supported by grants from NSF, USFWS and the University of Hawai'i.

Case on Dennis

“Dennis has just been enrolled as a PhD student at Aarhus University, Health....”

- Groups of 4-6 people.
- 15 minutes
- Read the case and discuss it with a point of departure in the questions



Let's go to the polls...



Go to **www.menti.com** and use the code **31 06 51**

i

Are you aware of colleagues who insisted to be an author even if their contribution did not fulfil the criteria of the Vancouver guidelines?



0

I want to have an unfair advantage, so I cheat, although I know it's morally corrupt

?

I want to keep up. I make functional decisions about improving my performances



Moralistic approach

Functionalistic approach

Rotten apples, doping sinners →
Individuals that we can remove

Learned, goal oriented behavior →
Systems and **cultures** that we must change

Gaming the metrics of academic careers

"The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor."

Donald T. Campbell

Campbell's Law

Consequence: Evidence-based policies may turn into Policy-based evidence.

Why do we cheat?

- Who lied or cheated since the beginning of 2018?
 - Who consider themselves to be good honest people?
 - CONFLICT OF INTEREST!
-
- We both want to benefit in specific situations but at the same time want to be able to see ourselves in the mirror and feel good.
 - We do not have to be 100 percent good to think of ourselves as good.



The Matrix Task

1

1,69	1,82	2,91
4,67	4,81	3,05
5,82	5,06	4,28
6,36	5,19	4,57

20 math puzzles. Find the two numbers that add up to 10. Solve as many puzzles as you can in 5 minutes. Earn 1 dollar for each correct puzzle

2



3



Source: Dan Ariely: The (honest) truth about dishonesty

The Matrix Task

What did they find?

- On average, people solved four problems but reported solving six.
- Nearly 70% cheated.
- Only 20 out of the 40,000 were “big cheaters”, people who claimed to have solved all 20 problems. They cost the experiment \$400.
- They also found more than 28,000 “little cheaters” who cost the experiment \$50,000.

1,69	1,82	2,91
4,67	4,81	3,05
5,82	5,06	4,28
6,36	5,19	4,57

So although there are some big cheaters out there, they are very rare and their overall economic impact is relatively low.

On the other hand, there are a lot more “little cheaters” out there and their economic impact is incredibly high

The Matrix Task



Cheating
went up

Cheating
went up

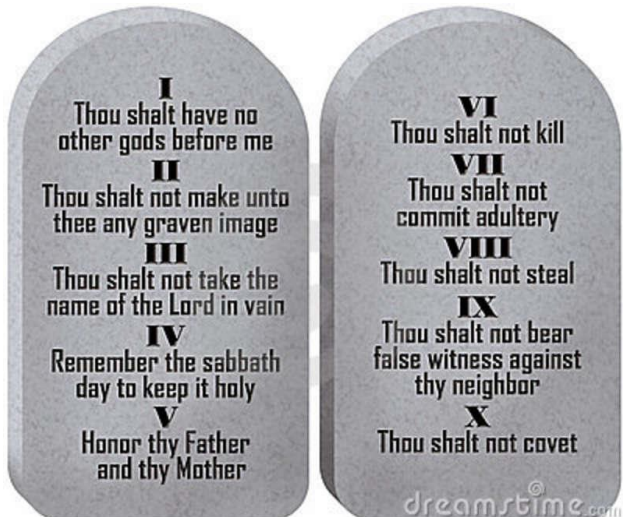


Cheating
went down

Cheating
went down



No impact. Irrelevant



We rationalise our cheating

What kind of rationalisations can we think of that will make us **cheat more**?

- Everybody does it!
 - witnessing others' dishonest acts increases dishonesty
- There is a greater good to take care of (publications, funding, colleagues)
- This is actually not really cheating – it is more being pragmatic or helping out
- ...
- Over time our rationalizations can push the (initial) moral barrier aside



The (non-)relativity of cheating

- Matrix task: People cheat the same in Italy, USA, UK, Israel, Turkey, China, Canada, Columbia...
- The matrix task is abstract from culture. People are not different.
- That does not mean that culture does not matter: Culture work in a domain by domain specific way.
- Pockets with more cheating (in cycling and at universities)
- We can shift our understanding according to the environment and situation we are in.



CONFLICTS OF INTEREST! – We do not see how they work and how they influence us.

”I just did what everybody else was doing””

Yes. But – and I’m not sure that this is an acceptable answer – but that’s like saying we have to have **air in our tyres** or we have to have **water in our bottles**. That was, in my view, part of the job.

Are you saying that to win and keep winning you had to use banned drugs?

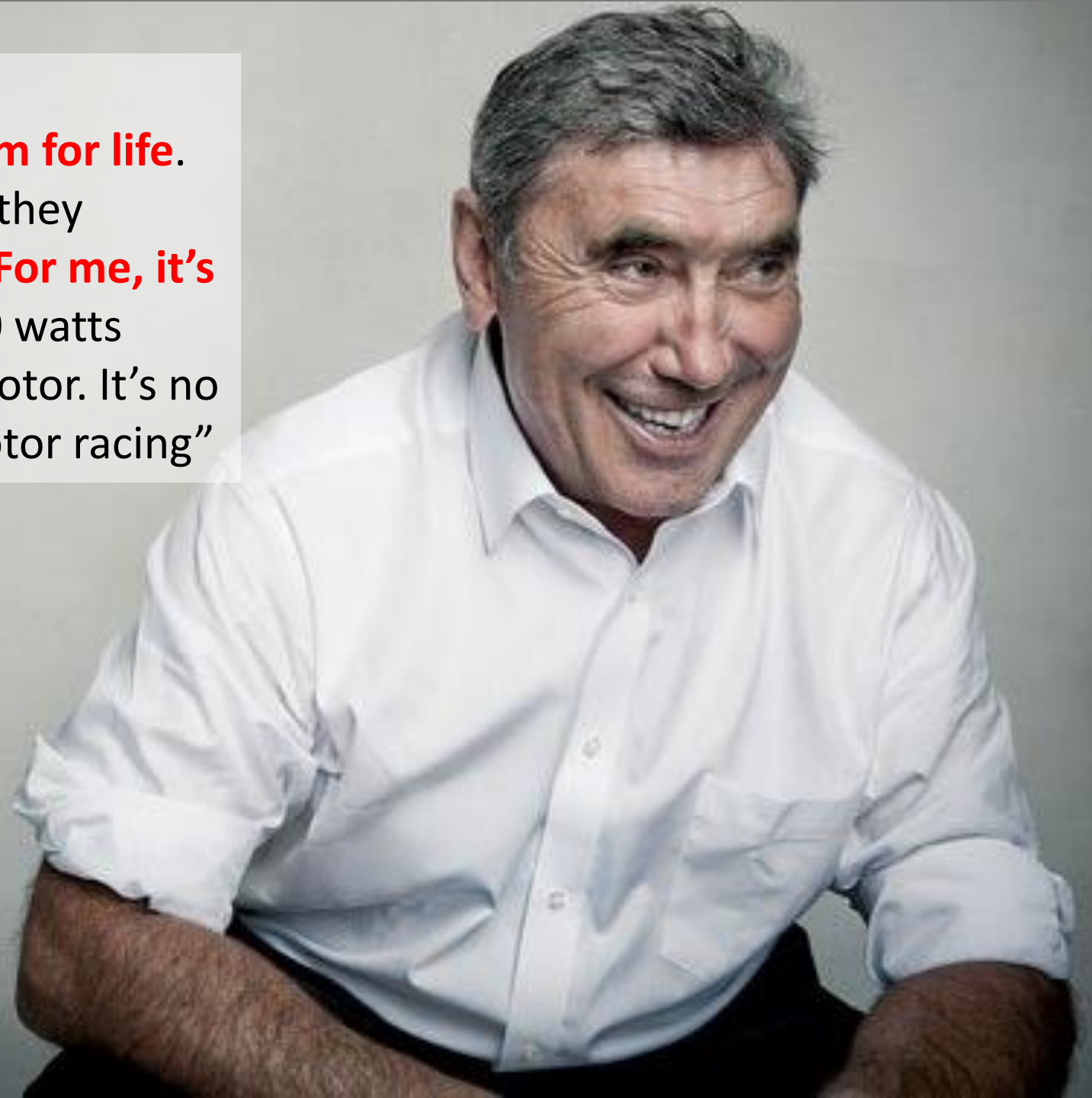


Femke Van den Driessche became the first competitive cyclist to be found using a motorised bike.



Eddy Merckx:

“For me, they should **suspend them for life**. This is the worst that they can do, they should just race motorbikes then. **For me, it's worse than doping**. It gives you 50 watts more, or 100, it depends on the motor. It's no longer cycling at that point, it's motor racing”



Theories explaining cheating and dishonesty

- The **SMORC**: If there is no cost, we go for it.
- Turns out not to be true.
- Alternative theory: human behaviour is driven by two opposing motivations
- We want to view ourselves as good, honest, decent people
- We want to benefit from cheating when we can



- Delicate balance between the contradictory desires to maintain a positive self-image and to benefit from cheating
- To balance such opposing motivations, we allow a certain amount of flexibility in our behaviour before our self-image is affected
- Consequence: We cheat up to a point where we can still see ourselves as good honest people

Øvelse: 25 minutter

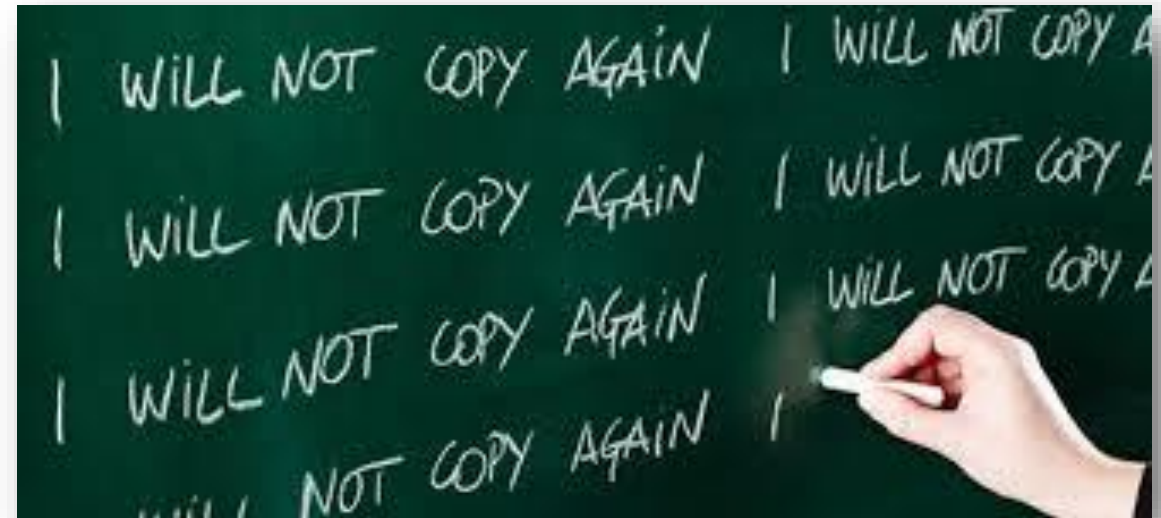
1. Tænk over en situation i dit forskningsliv der involverede uredelighed eller tvivlsom forskningspraksis
 - Skriv et par stikord ned om hvad sagen gik ud på
 - Skriv et par stikord om de (forsknings)etiske dilemmaer det involverede
2. Grupper á 4:
3. Fremlæg på skift jeres case og diskuter dem med de andre:
 - Hvad gik galt?
 - Hvordan kunne det være håndteret anderledes?
 - Hvad kan man gøre for at undgå den type situationer?

Chatham House Rule

- When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.
- See: <https://www.chathamhouse.org/about/chatham-house-rule#>

Forms of cheating in Academia

- People do not cheat because they consider themselves to be evil, bad persons, but because they have a greater cause to take care of
- There are lots of things in academic publications that are manifestations of our abilities to rationalize why it is ok to cheat (a little bit).
- These pressures are very much present in academia:
 - Publication
 - Funding
 - Helping the group
 - Reputation



Career pressures and motivated reasoning

- One of the strongest distorting influences in science is the reward systems that confer kudos, tenure, and funding
- To advance your career you need to get published as frequently as possible in the highest-profile publications as possible.
- That means you must produce articles that are more likely to get published
- These are ones that report positive results...
 - **Therefore**: “I have discovered ...”, **not** “I have disproved ...”, original results
 - **Never**: “We confirm previous findings that ...”
 - **Go for** clean results: “We show that ...”, **not** “It is not clear how to interpret these results”

Career pressures and motivated reasoning

- But most of what happens in the lab doesn't look like that. Instead, it's mush.
- **Question:** How do I get from mush to beautiful results?
- **Answer:** I could be patient, or get lucky...
- Or I could take the easiest way, making often unconscious decisions about which data I select and how I analyze them, so that a clean story emerges.
- But in that case, I am sure to be biased in my reasoning.

<http://nautil.us/issue/24/error/the-trouble-with-scientists>



What makes us cheat less?

- Being reminded of values
 - a) I will obey to my university's code of honour
 - b) Write down the 10 commandments
 - c) Take an oath (even declared atheists will cheat less after having sworn on the Bible)
 - d) Tick a box to be honest before you fill in the insurance form vs. after you filled in the form
- *Reminders*: When we think of morality, we are supervising ourselves to a higher degree



Being pragmatic

Sport



Oftentimes discussions finish with a: Well, you are at the bottom of the hierarchy, and sometimes you have to do things, that you know are not ideal. But we do not live in an ideal world – and this will bring you forward in the real world.

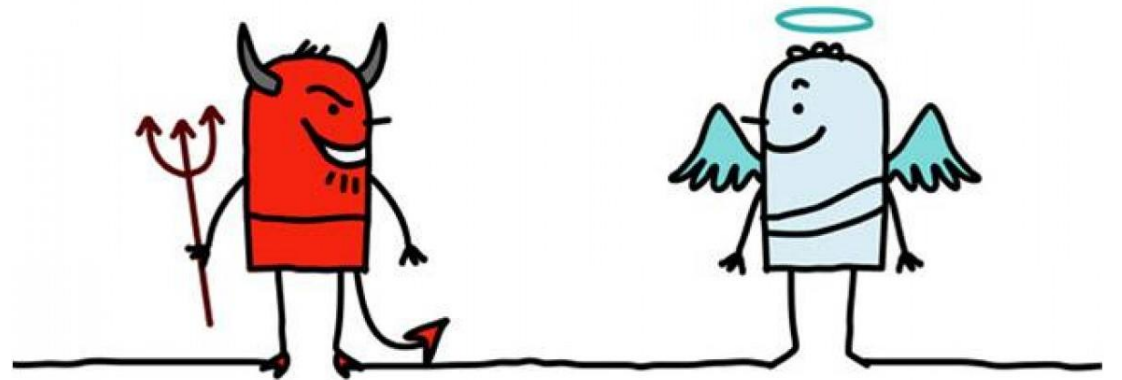


How would you react if you heard of a athlete/cyclist making the same type of rationalisation concerning doping and participation in e.g. the Olympics/Tour de France?

Research ethics

“Ethics is like health and therefore something we need to invest in, monitor, be mindful of and continuously consider – as individuals and as a community. If we only exercised once a year, it would not be helpful. So the question is how we can make ethics a more salient part of our day-to-day.”

(Dan Ariely: Professor of Psychology and Behavioral Economics at Duke University)



We will cheat if we can rationalise the cheating and cheat less if we can find no or fewer rationales for cheating.

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