We won't be...

BULLIED INTO BAD SCIENCE

Dr. Corina Logan
Max Planck Institute
for Evolutionary Anthropology
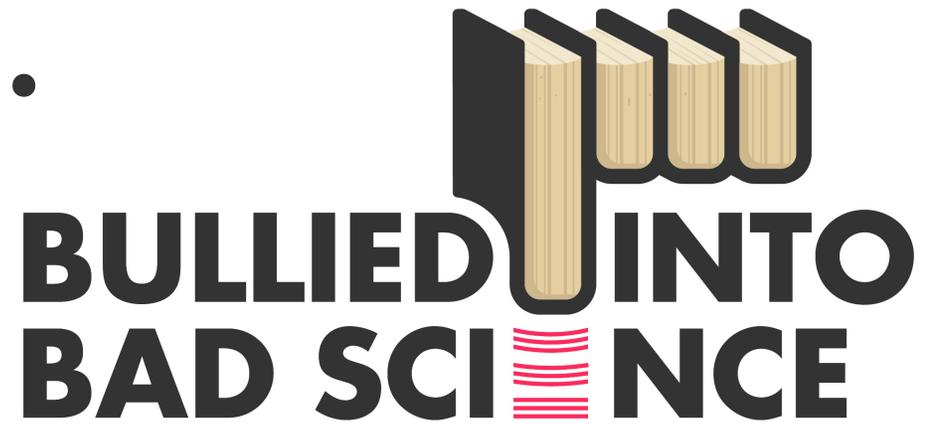corina_logan@eva.mpg.de | @LoganCorina

Dr. Laurent Gatto, Dr. Ross Mounce, Dr. Stephen Eglen, Dr. Adrian Currie, Dr. Lauren Maggio

www.BulliedIntoBadScience.org
Slides CC-BY-SA 4.0 at osf.io/sy9f7/

We won't be...

Corina Logan & Laurent Gatto

BULLIED INTO BAD SCIENCE
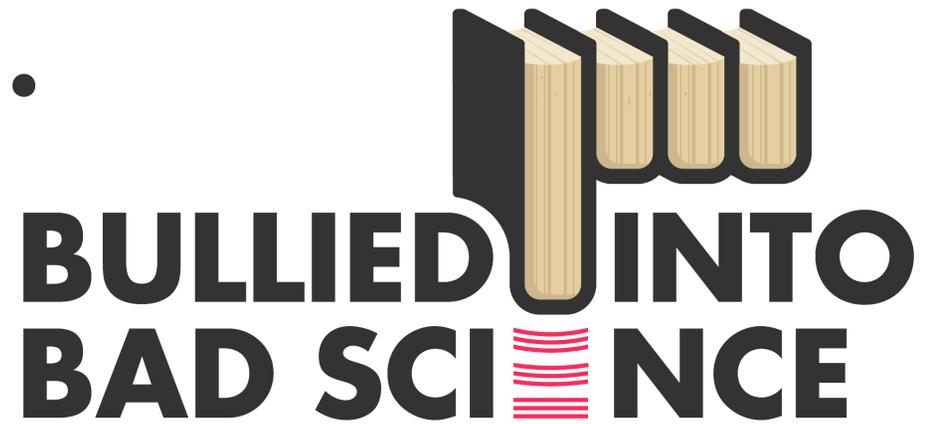
Leading individuals and institutions in adopting open practices to improve research rigor

ECRs often feel pressured into taking actions against our ethics to pursue an academic career (e.g., publishing in particular journals)

www.BulliedIntoBadScience.org

We won't be...

Corina Logan & Laurent Gatto

BULLIED INTO BAD SCIENCE

Leading individuals and institutions in adopting open practices to improve research rigor

ECRs often feel pressured into taking actions against our ethics to pursue an academic career (e.g., publishing in particular journals)

People who are not bullied are able to:
READ, UNDERSTAND, and VERIFY research
GENERATE and DISSEMINATE research

www.BulliedIntoBadScience.org

How BIBS started...

Many ECRs at Cambridge felt pressured into publishing in particular journals and not to use open practices

We met and strategized at...

http://www.openconcam.org

How BIBS started...

December 2016: University of Cambridge signed a 5yr **Elsevier contract** despite researcher opposition

Elsevier Home

160 UK universities

~£40 million/yr to Elsevier

Jisc ⟷ ELSEVIER

1) No cost increase
2) Offset APCs
3) No confidentiality
4) 3yr contract, not 5
5) Pricing not based on 'historic spend'

Gowers 2016 https://gowers.wordpress.com/2016/11/29/time-for-elsexit/

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How BIBS started...

Rampage formed

Stephen Eglen
Maths

Yvonne Nobis
Betty & Gordon
Moore Library

Laurent Gatto
Biochemistry

Peter Murray Rust
Chemistry

Tim Gowers
Maths

Rupert Gatti
Economics

Photos © University of Cambridge

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Photos © University of Cambridge

Our efforts to change Cambridge failed

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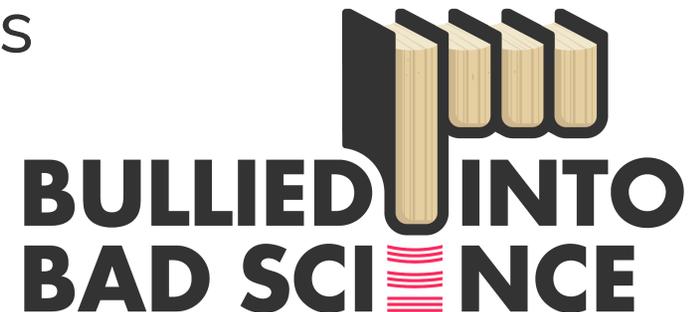
Peter Murray Rust
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Maths

Rupert Gatti
Economics

Photos © University of Cambridge

Our efforts to change Cambridge failed

Need to put pressure on decision makers and
change our behavior as researchers

BULLIED INTO BAD SCIENCE

How BIBS works to change behavior

- **ECRs: Sign the** petition to help us change academic culture

- **Non-ECRs:** Join the list of **supporters** by valuing open practices, especially when making decisions about hiring, promotion, and grants

- Submitted written evidence to the *UK Parliament Science and Technology Committee* inquiry on Research Integrity

BIBS principles

People who are not bullied are able to:

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- Closed vs. Transparent research process

GENERATE and DISSEMINATE research
- Perception of prestige vs. Tackle implicit biases
- Select based on metrics vs. Access to opportunity
- Wealth vs. Ability

How can we remove these inequities?

What can we do?

Researchers:

Connect the costs of publishing with our publishing choices

Change our behavior to stop exploiting ourselves and discriminating against other researchers and the public

...because all of the options we need exist **right now**

Exploitative route

Academia

goal=share research[2]

Paper published

[1]Van Noorden 2013 nature.com/news/open-access-the-true-cost-of-science-publishing-1.12676
[2]Nosek & Bar-Anan 2012 *J Psych Inquiry*
Logan 2017 *F1000Research*

Exploitative route

$0

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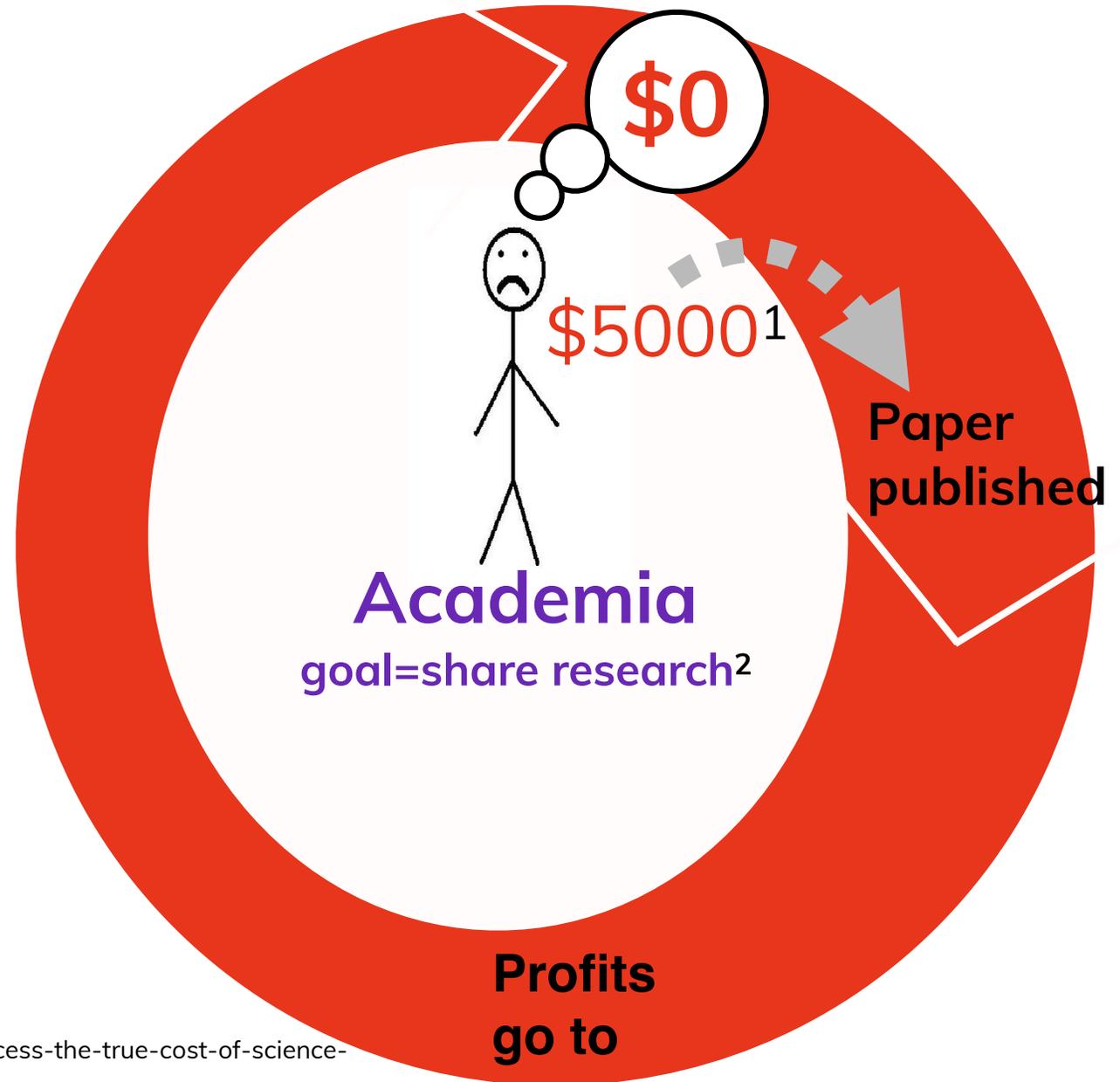Logan 2017 *F1000Research*

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$0

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Profits go to

$1850 (37%)[1]

Shareholders

goal=maximize profits[3]

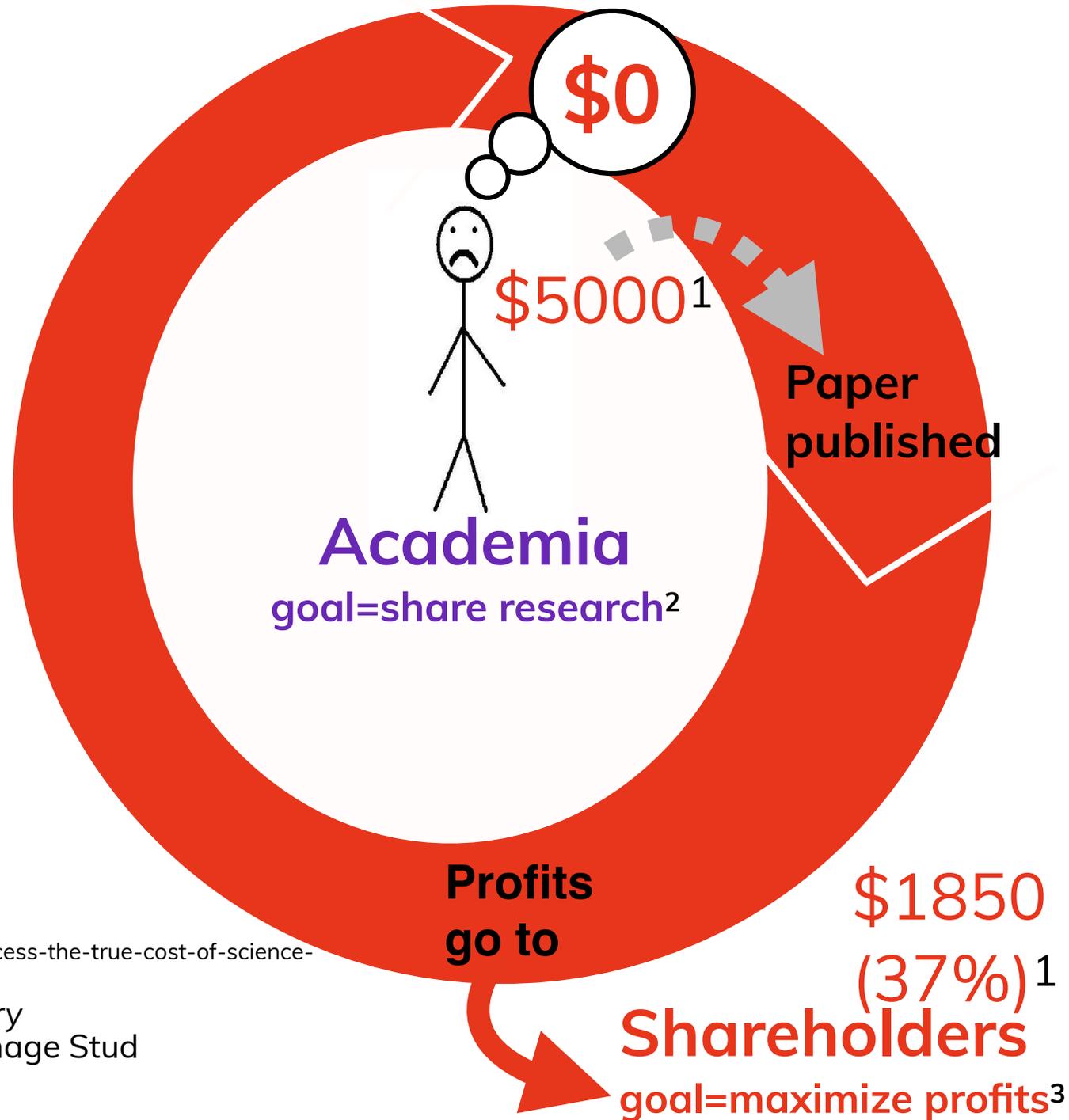[1]Van Noorden 2013 nature.com/news/open-access-the-true-cost-of-science-publishing-1.12676
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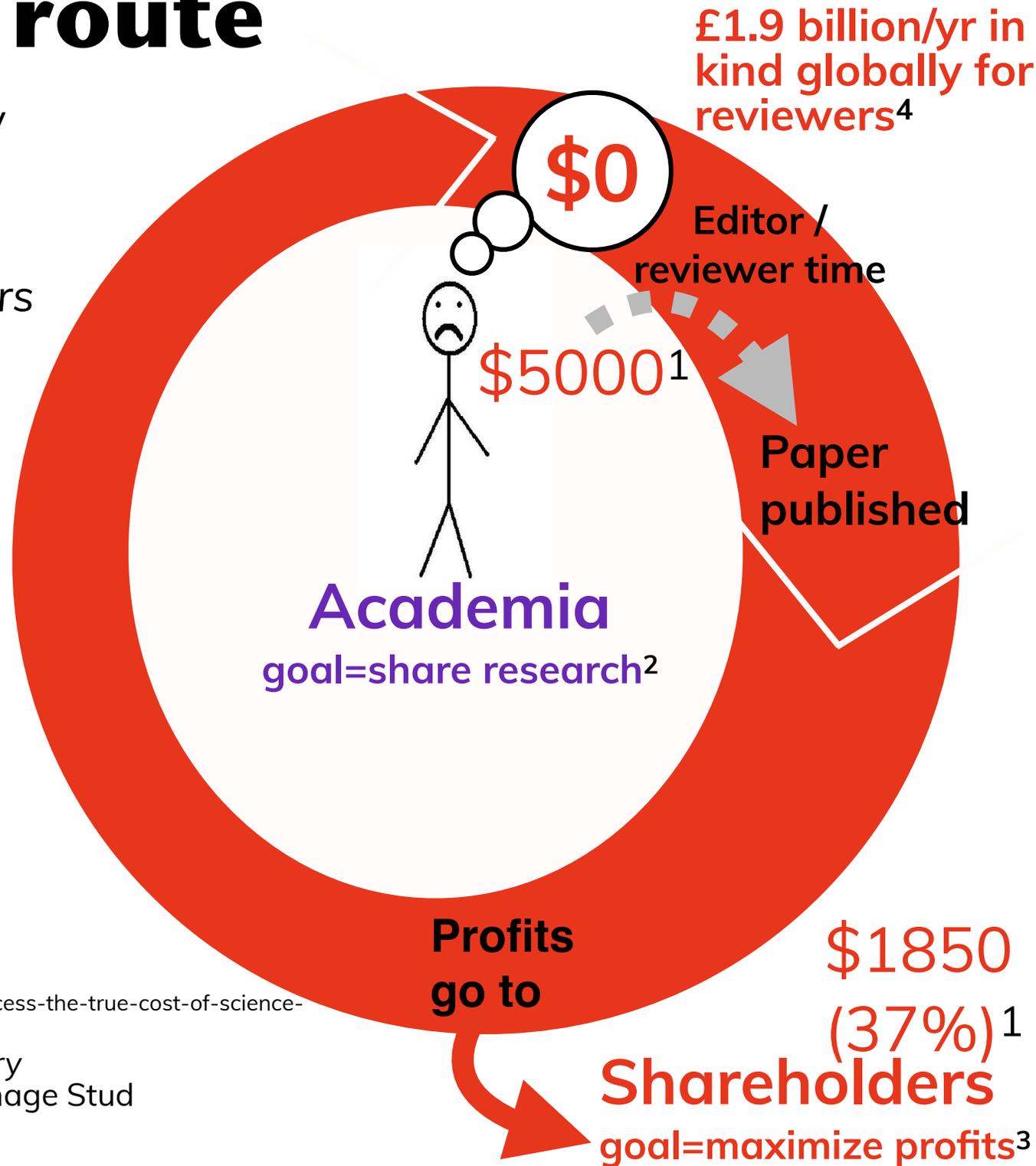[3]Husted & de Jesus Salazar 2006 J Manage Stud
[4]Research Information Network 2008
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Exploitative route

Academics perform quality control at no cost to publishers

What services do publishers actually provide?

£1.9 billion/yr in kind globally for reviewers[4]

$0

Editor / reviewer time

$5000[1]

Paper published

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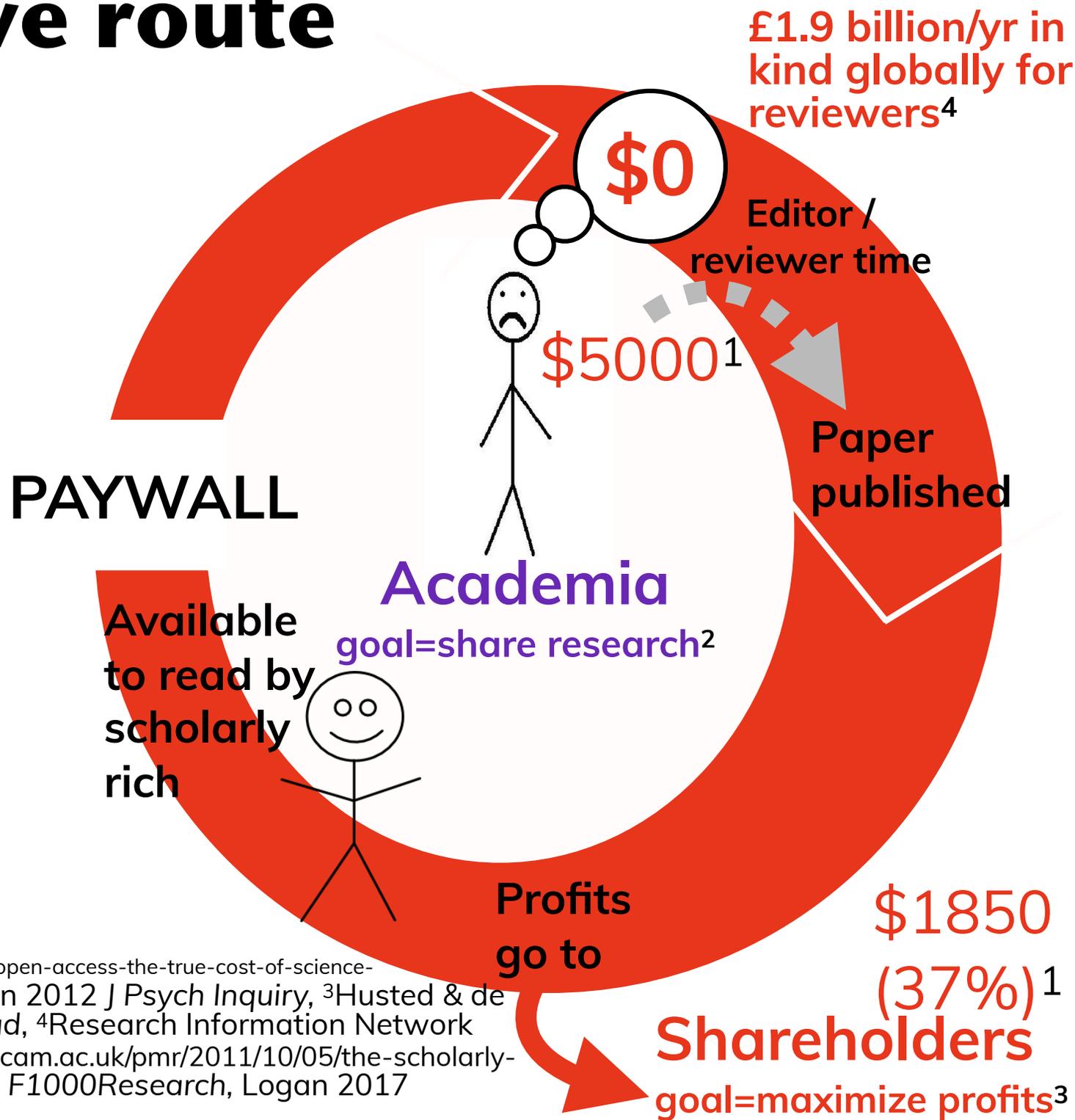[2]Nosek & Bar-Anan 2012 *J Psych Inquiry*
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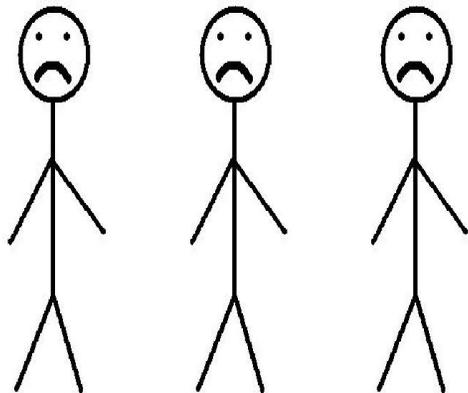Logan 2017 *F1000Research*

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Paper published

PAYWALL

Academia
goal=share research[2]

Available to read by scholarly rich

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Exploitative route

Indirect discrimination

Patient   MD   Public

Other researchers

£1.9 billion/yr in kind globally for reviewers[4]

$0

Editor / reviewer time

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Paper published

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Exploitative route

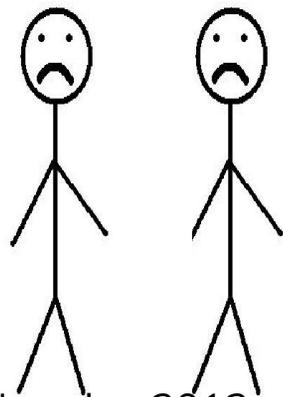Indirect discrimination

Patient MD Public

Other researchers

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Public funds research

$0

Editor / reviewer time

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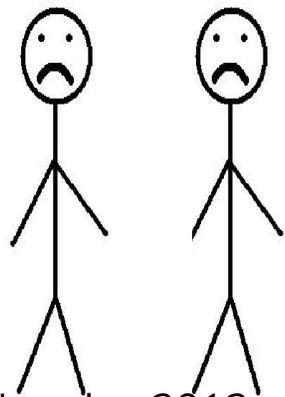
The ethical framework

1) Researchers and publishers have a **responsibility to the public** to provide them with **free access to publicly funded products**, which are a common good[1,2]

2) Publishers of research products have a **responsibility to researchers** to value the generation and packaging of knowledge[3]

3) Researchers have a **responsibility to the public to conduct rigorous research** because it will serve as the foundation for the advancement of discoveries, it provides the best value for money, and earns public trust[4]

[1]Stilgoe et al. 2013 *Res Policy*
[2]Woodward 1990 *Library Trends*
[3]Fuchs & Sandoval 2013 *TripleC: Communication, Capitalism & Critique*
[4]Nosek & Bar-Anan 2012 *J Psych Inquiry*
Logan 2017 *F1000Research*

Ethical route

OA APC $0-2900[1]

Academia
goal=share research

Paper published *(100% OA journal)*

[1]SPARC http://sparceurope.org/oaca/, [2]McKiernan et al. 2016 *eLife*, Tennant et al. 2016 *F1000Research*, Logan 2017 *F1000Research*

Ethical route

£1.9 billion/yr in kind globally for reviewers

OA APC $0-2900[1]

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Public funds research

OA APC $0-2900[1]

£1.9 billion/yr in kind globally for reviewers

Editor / reviewer time

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Academia goal=share research

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Ethical route

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OA APC $0-2900^1

£1.9 billion/yr in kind globally for reviewers

Editor / reviewer time

Paper published *(100% OA journal)*

Academia
goal=share research

Available to read by public

Profits contribute to academia through the *publisher*

+ readers
+ citations
+ media
+ jobs
+ funding^2

[1]SPARC http://sparceurope.org/oaca/, [2]McKiernan et al. 2016 *eLife*, Tennant et al. 2016 *F1000Research*, Logan 2017 *F1000Research*

BIBS principles

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- **Wealth vs. Ability**

How can we remove these inequities?

Prestige = barrier to knowledge generation

Open Global South conference 2017 UC Davis Library & UC Law[1]

Rachael G. S.
@rach_scholcomm

Follow

#OpenGlobalSouth Do we agree on "access"? i.e. Who gets to read (access to scholarship) v. who gets to publish (access to publishing system)

Arianna Becerril @ariannabec · 25 May 2017
Two different models, hey latin people we're doing good in #OpenAccess #OpenGlobalSouth #DangerousAPC amp.theguardian.com/higher-educati...

2017

Two different OA models

Commercial publishing

Scholarly-led
Scholarly-financed
Scholarly-owned publishing

Barriers to accessing knowledge

Mar Candela
@marcandela77

Follow

Elsevier continues to be among the biggest barriers towards public access to research, preventing its use as a fundamental right for education & advancement of our society- #DemocratiseKnowledge bit.ly/2DAxW2n

[1]Amano & Sutherland 2013 *Proceedings B,* [2]Amano et al. 2016 *PLOS Biology,* [3]diversityinacademia.strikingly.com, https://blogs.scientificamerican.com/voices/diversity-in-stem-what-it-is-and-why-it-matters/, https://twitter.com/marcandela77/status/1062278950607638528?s=09

Barriers to accessing knowledge

Only people like ourselves can access the knowledge we generate: English-speaking academics at wealthy universities[1,2]

This **blocks progress** in research and applications

Increasing diversity in research and researchers can help address this limitation[3]

Mar Candela
@marcandela77

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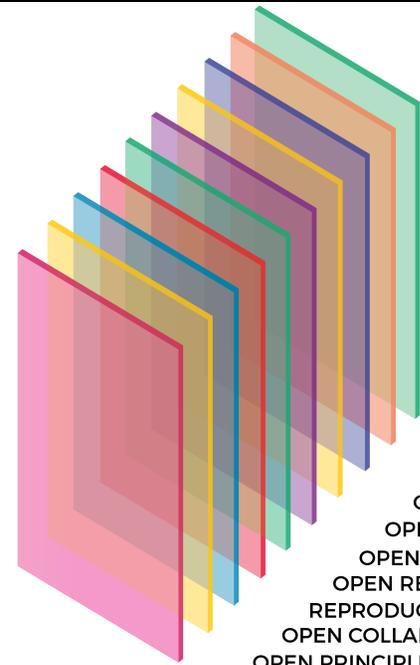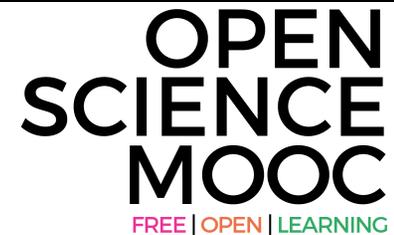
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One way to increase diversity...
https://opensciencemooc.eu

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OPEN SCIENCE MOOC
FREE | OPEN | LEARNING

OPEN ADVOCACY
OPEN EDUCATIONAL RESOURCES
PUBLIC ENGAGEMENT WITH SCIENCE
OPEN EVALUATION
OPEN ACCESS TO RESEARCH PAPERS
OPEN RESEARCH SOFTWARE & OPEN SOURCE
OPEN RESEARCH DATA
REPRODUCIBLE RESEARCH & DATA ANALYSIS
OPEN COLLABORATION
OPEN PRINCIPLES

[1]Amano & Sutherland 2013 *Proceedings B*, [2]Amano et al. 2016 *PLOS Biology*, [3]diversityinacademia.strikingly.com, https://blogs.scientificamerican.com/voices/diversity-in-stem-what-it-is-and-why-it-matters/, https://twitter.com/marcandela77/status/1062278950607638528?s=09

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How can we remove these inequities?

How BIBS works with others to change behavior

Data Champion at the University of Cambridge: Laurent Gatto

Advised on how to handle data; supported Findable, Accessible, Interoperable, and Reusable (FAIR) practices[1]

Publishing data = 9-50% more citations[2]

[1]https://lgatto.github.io/engage-RDM-2017/, [2]McKiernan et al. 2016 eLife

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How BIBS works with others to change behavior

Managing board member: Corina Logan (& Dieter Lukas)
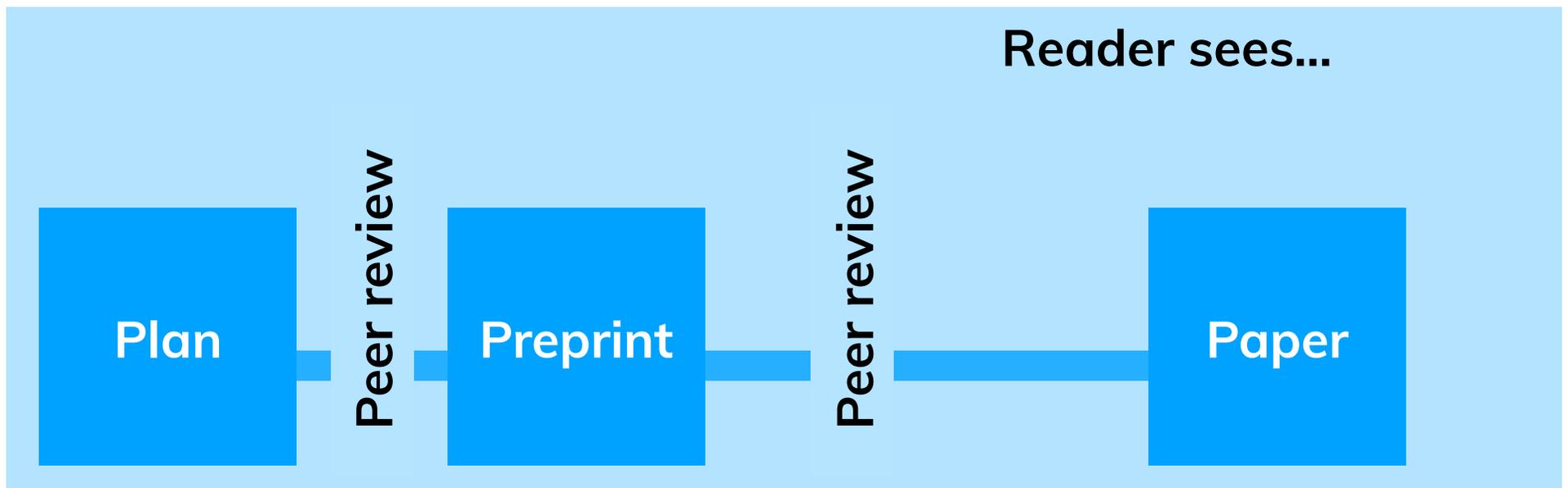
Implemented peer review of preregistrations

Peer Community In
Ecology   Free and transparent preprint and postprint
recommendations in ecology

Prevents wasting resources by improving research before it begins, allows quality checking

Reader sees...

Plan — Peer review — Preprint — Peer review — Paper

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How BIBS works with others to change behavior

Editors4BetterResearch with Chris Chambers & Brad Wyble

Together with @LoganCorina and @bradpwyble we are soon launching a new initiative called Editors4BetterResearch to help identify journal editors who support reproducible open practices.

Editors4BetterResearch initiative

Editors4BetterResearch initiative 1. Purpose: The aim of this initiative is to create a public database of journal editors who commit to valuing and upholding open a...

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Developing best practices:
Making my lab transparent and open

- All studies **preregistered** (GitHub) and **peer reviewed** (PCI Ecology) before data collection begins

- Final results published in 100% OA journals at ethical publishers - data & R code published as well

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Making my lab transparent and open

- All studies **preregistered** (GitHub) and **peer reviewed** (PCI Ecology) before data collection begins

- Final results published in 100% OA journals at ethical publishers - data & R code published as well

- Automating the workflow

Being open & transparent saves time & improves research

THE GRACKLE PROJECT

Hypotheses

Papers

All programs = free to use

Being open & transparent saves time & improves research
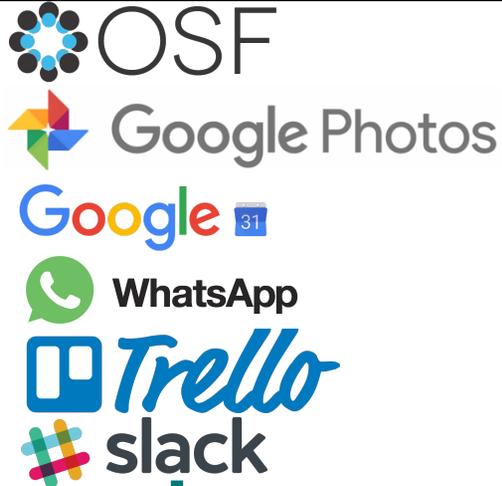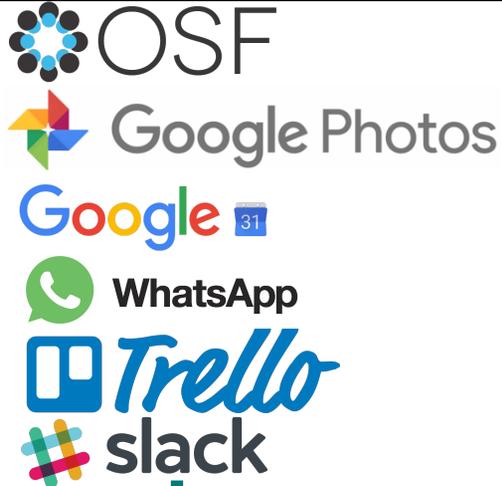
THE GRACKLE PROJECT

Hypotheses

Papers

Preregister

GitHub

rmarkdown

Peer review #1

Peer Community In Ecology
Free and transparent preprint and postprint recommendations in ecology

All programs = free to use

Being open & transparent saves time & improves research

THE GRACKLE PROJECT

Coordinate team
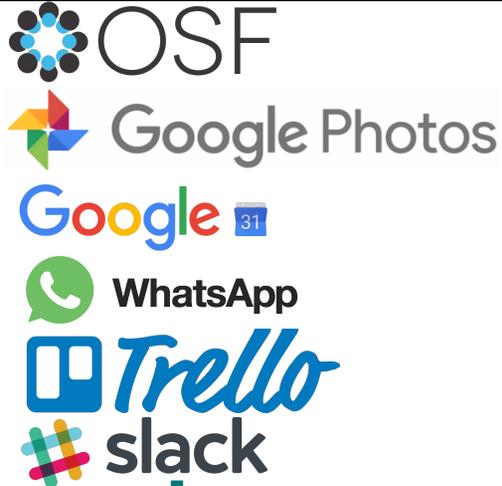
OSF

Google Photos

Google 31

WhatsApp

Trello

slack

Hypotheses

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THE GRACKLE PROJECT

Hypotheses

Papers

Coordinate team
- OSF
- Google Photos
- Google 31
- WhatsApp
- Trello
- slack

Collect data on laptops
- Google Sheets
- Prim8 Software

Preregister
- GitHub
- rmarkdown

3D print & laser cut apparatuses
- GitHub
- FreeCAD — Open Source parametric 3D CAD modeler

Code experiments
- PsychoPy — Psychology software in Python

Peer review #1
- Peer Community In Ecology — Free and transparent preprint and postprint recommendations in ecology
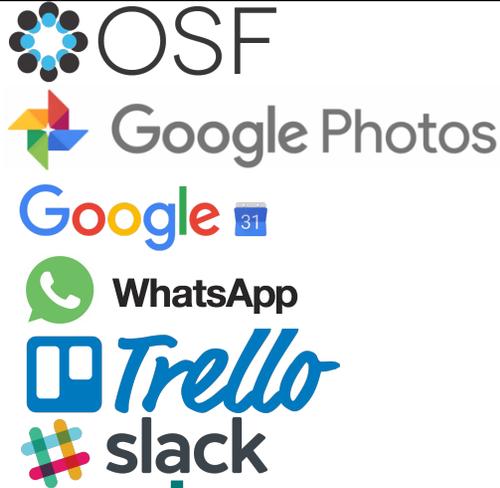
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3D print & laser cut apparatuses
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Code experiments
- PsychoPy — Psychology software in Python

Back up data
- KEEPER

All programs = free to use

Developing best practices:
Making my lab transparent and open

Essential requirements in **job adverts**[1]:

- require evidence/willingness to engage in open practices

twitter.com/chrisdc77/status/871733428433104897, [1]osf.io/afwre/ & jobs.zeit.de/jobs/
muenchen_professur_w3_fuer_sozialpsychologie_121431.html

Developing best practices:
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Essential requirements in **job adverts**[1]:

- require evidence/willingness to engage in open practices

Chris Chambers (Cardiff) & Felix Schönbrodt (LMU)

Level 0 = no commitment to open research

Level 3 = only those with proven track record of open practices are interviewed/hired

Chris Chambers ✓
@chrisdc77

Following

We're developing a scheme to promote #openscience in hiring policies. @nicebread303 & I need your feedback please!

Practices: Modular Certification Initiative

Open Hiring Policy - Modular Certification Initiative
Open Hiring Practices: Modular Certification Initiative Summary and aims: One potentially powerful way to normalise open scientific practices is to explicitly value them in hiring policies ...

docs.google.com

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How can we remove these inequities?

Developing best practices:
Making my lab transparent and open

[1]https://sfdora.org, [2]Filardo et al. 2016 *BMJ*

Developing best practices:
Making my lab transparent and open

Essential requirements in **job adverts:**

- require evidence/willingness to engage in open practices
- **assess research quality directly (DORA[1])**
- **must be good role models for groups traditionally underrepresented in STEM**
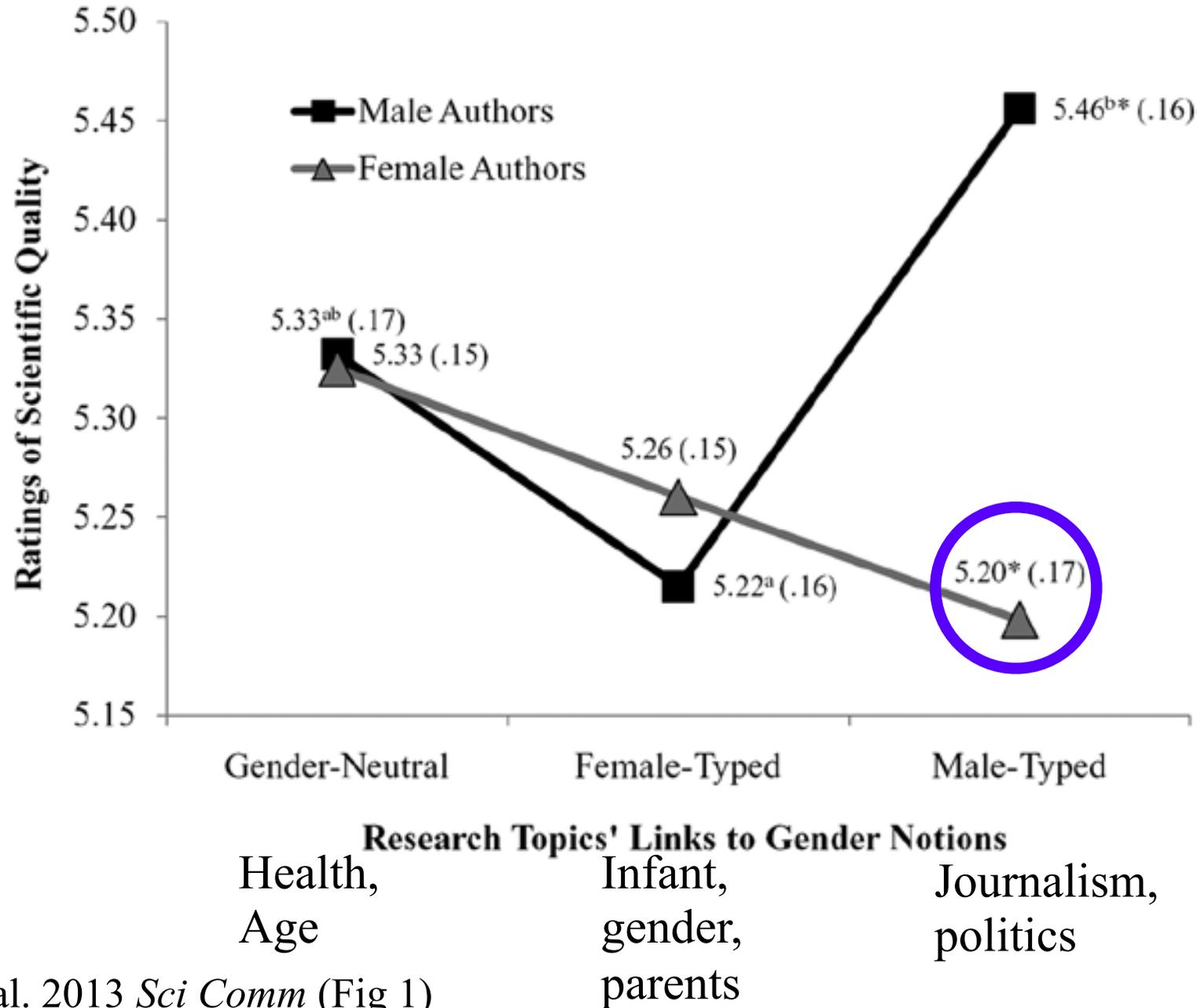
...because **metrics** can be gamed and are more a **sign of privilege** than quality

For example, women are less likely to be first authors of papers in journals with high impact factors[2]

[1]https://sfdora.org, [2]Filardo et al. 2016 *BMJ*

Implicit biases block assessment of quality: Women's research rated lower quality

Knobloch-Westerwick et al. 2013 *Sci Comm* (Fig 1)

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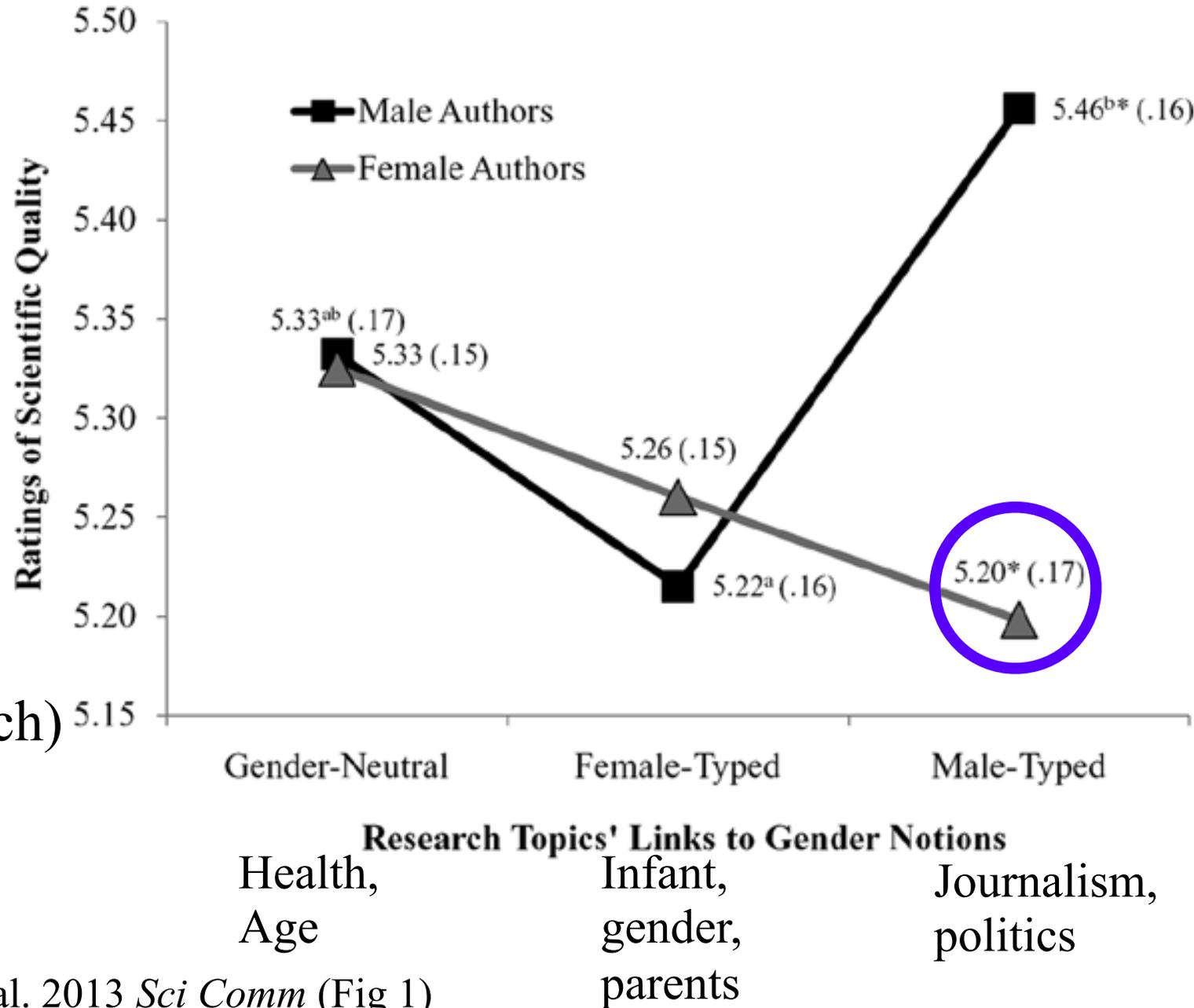
Risk taking (publishing research) is **more costly for women** (lower payoff)

Knobloch-Westerwick et al. 2013 *Sci Comm* (Fig 1)

Women are **NOT** more risk averse than men

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Differences in Ambition?

Surgeons
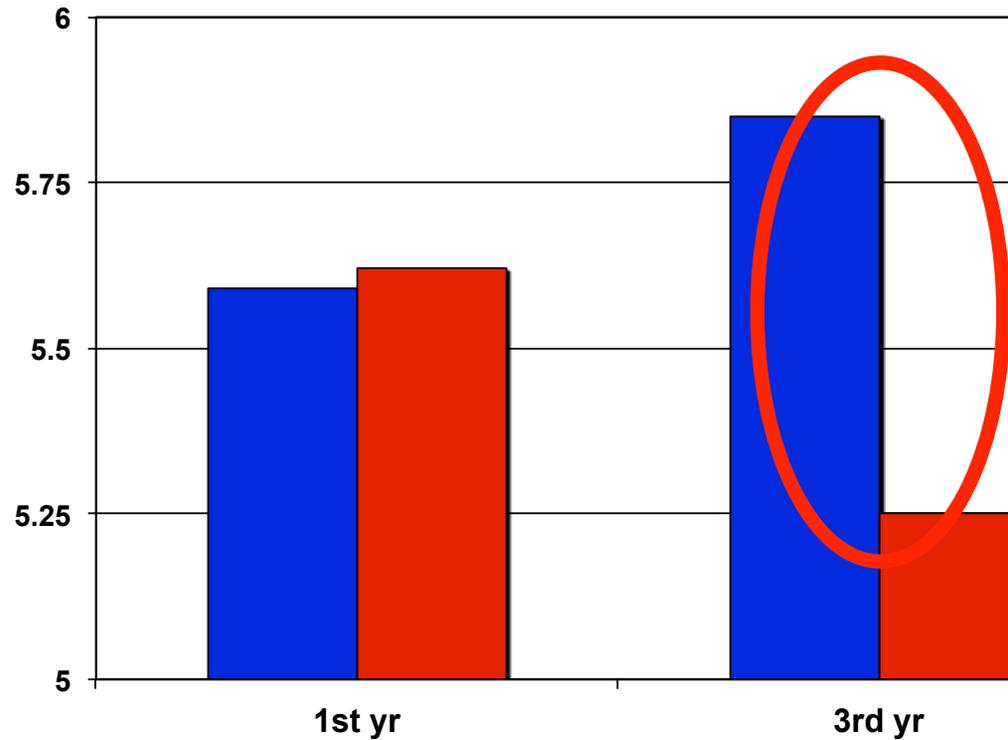
The Police service
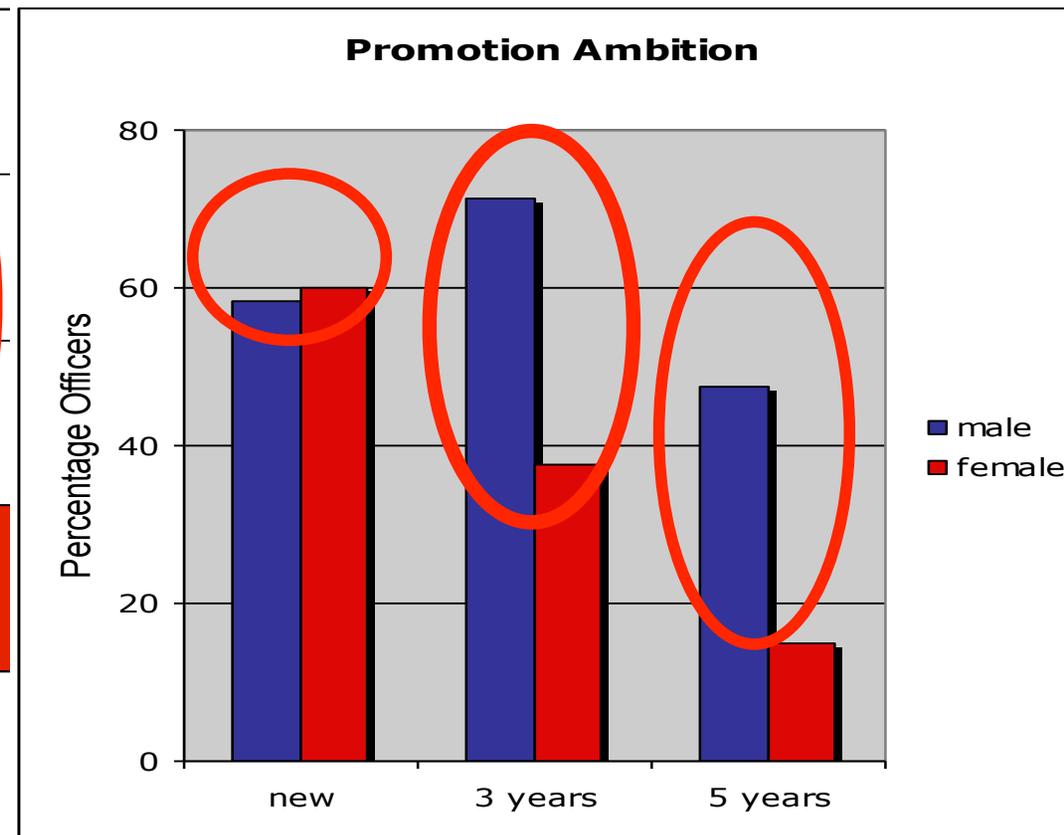
Prof Michelle Ryan, 9 May 2017, Gender in STEM conference, Cambridge (pub in prep.)

Women are NOT more risk averse than men

Women are less likely to take risks
(apply, interview, do research, ask for promotion, etc.)
because they are **less likely to receive a reward** for such efforts

Prof Michelle Ryan (in prep.); Murray Edwards murrayedwards.cam.ac.uk/sites/default/files/files/
Women%20Today%20Women%20Tomorrow%20Survey%20Report.pdf

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Non-supportive workplace culture

Legend:
- Challenges at the workplace
- Balancing family and work
- Inadequate training/information
- Personal issues
- Changing career direction
- Other

Pie chart values: 38%, 22%, 14%, 11%, 7%, 7%

Center: Career challenges?

n=954 female alumna of Murray Edwards College 2014

Prof Michelle Ryan (in prep.); Murray Edwards murrayedwards.cam.ac.uk/sites/default/files/files/Women%20Today%20Women%20Tomorrow%20Survey%20Report.pdf

Tackling implicit biases: changing my behavior

My biases

Tackling implicit biases: changing my behavior

My biases

- **Discover** your implicit biases: https://implicit.harvard.edu

- Gender language **calculator** http://gender-decoder.katmatfield.com/about, use "they"

- Talking time **calculator** http://arementalkingtoomuch.com

- See someone who doesn't look like you? **Retrain your brain** - label them: medical doctor, professor, something prestigious

- Consider the **evidence** before judging a top woman harshly

- Ensure **50% female speakers + other URMs** in seminars/conferences (need to see role models). ALWAYS well qualified women - stop and think

500 WOMEN SCIENTISTS

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500 WOMEN SCIENTISTS

Request a woman scientist
500womenscientists.org

Prestige = blocks knowledge generation

Corin@ Logan
@LoganCorina

#Prestige=subjectivly defined by the privileged. No wonder only privileged have it. Prestige=bad 4 science & bad 4 non-privileged scientists

> **WhoseKnowledge?** @WhoseKnowledge
> Latin America has most #openaccess journals. >1000 journals in @RedeSciELO network. Have to prove credibility daily #OpenGlobalSouth

Archive > Volume 537 > Issue 7621 > News Feature > Article

NATURE | NEWS FEATURE

Is science only for the rich?

Around the world, poverty and social background remain huge barriers in scientific careers.

21 September 2016

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| Archive | Volume 537 | Issue 7621 | News Feature | Article |

A "good" CV is more
an indicator of
prestige and access
to opportunity

NATURE | NEWS FEATURE

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21 September 2016

Tackling prestige barriers

SACNAS

Advancing Chicanos/Hispanics & Native Americans in Science

http://sacnas.org

Tackling prestige barriers

Recruit students via groups that
support URMs (e.g., SACNAS)

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Tackling prestige barriers

Recruit students via groups that support URMs (e.g., SACNAS)

Consider the background of the person behind the CV: do they have enough privilege to have **access** to opportunity?

Remove indicators of "quality" when evaluating researchers (journal name, impact factor, etc.). Instead, read their work
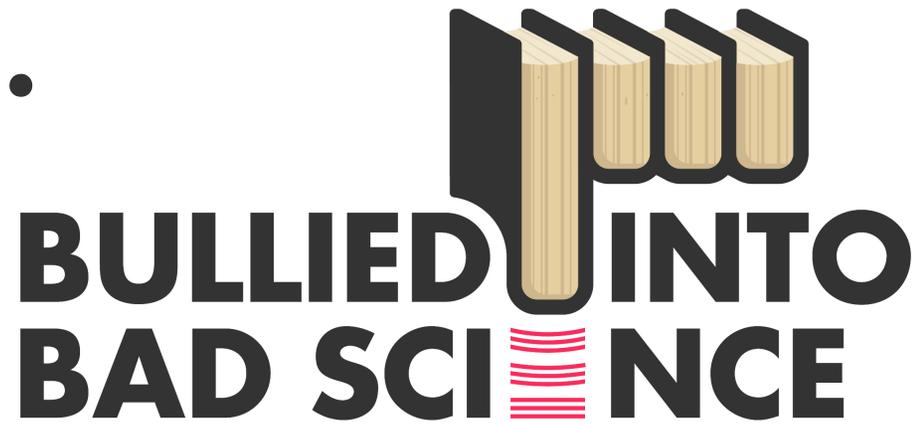
I have argued that...

I have argued that...

1) Scholarly publishing can exploit researchers, academia, the public

2) Publishing non-OA is discriminatory

3) Traditional academic practices are discriminatory

We can stop the exploitation and discrimination **right now** because...
 - ethical OA options exist
 - we can address our implicit biases

We won't be...

Corina Logan & Laurent Gatto

BULLIED INTO BAD SCIENCE

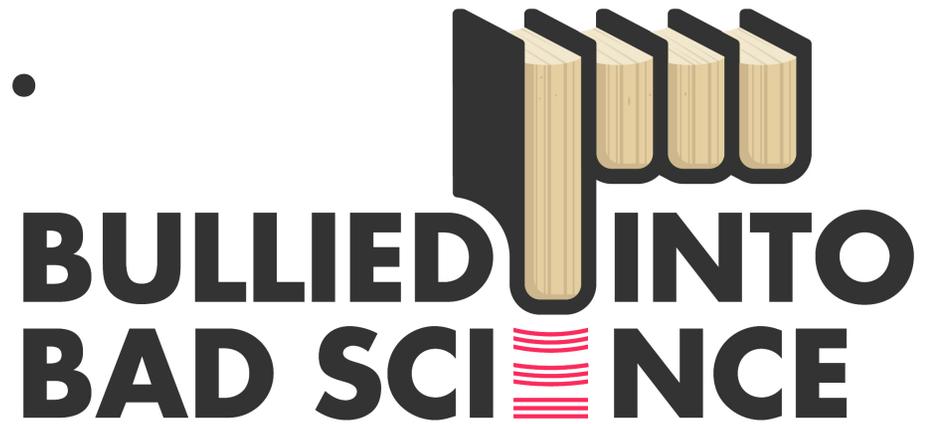Leading individuals and institutions in adopting open practices to improve research rigor

ECRs often feel pressured into taking actions against our ethics to pursue an academic career (e.g., publishing in particular journals)

ECRs:

Sign the petition to help us change academic culture

http://bulliedintobadscience.org/#ecrs:_sign_the_letter

We won't be...

Corina Logan & Laurent Gatto

BULLIED INTO BAD SCIENCE

Leading individuals and institutions in adopting open practices to improve research rigor

Senior researchers, librarians, research administrators, and more:

Join the list of **supporters** by valuing open practices, especially when making decisions about hiring, promotion, and grants

http://bulliedintobadscience.org/#non-ecrs:_support_the_campaign

www.BulliedIntoBadScience.org | Twitter: #BulliedIntoBadScience
Slides CC-BY-SA 4.0 at osf.io/sy9f7/

Ethical publishers to recommend

The easy way with APCs

The more technical way with no or low APCs

Ethical publishers to recommend

The easy way with APCs

| £50/pg £300/article | £ as needed to meet goals | £ + 37% profit margin |

Base APC   Society Income   Price advantage over legacy publishers

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]u[ubiquity press open scholarship

Copernicus Publications The Innovative Open Access Publisher
Serving Sciences since 1988

The more technical way with no or low APCs

Preprint server (bioRxiv) ➡ **Open Journals System** **eLife Continuum** ➡ **Journal website (GitHub)**

Scholastica

Ongoing conversation at: https://github.com/corinalogan/CuttingEdgeOAjournal

Discrimination in success rates for GRANTS

Discrimination in success rates for GRANTS

Success rates by domain - StG/CoG (cumulative data)

Legend:
- LS - M — *Life Sci*
- LS - F
- PE - M — *Phys Sci & Eng*
- PE - F
- SH - M — *Soc Sci & Hum*
- SH - F

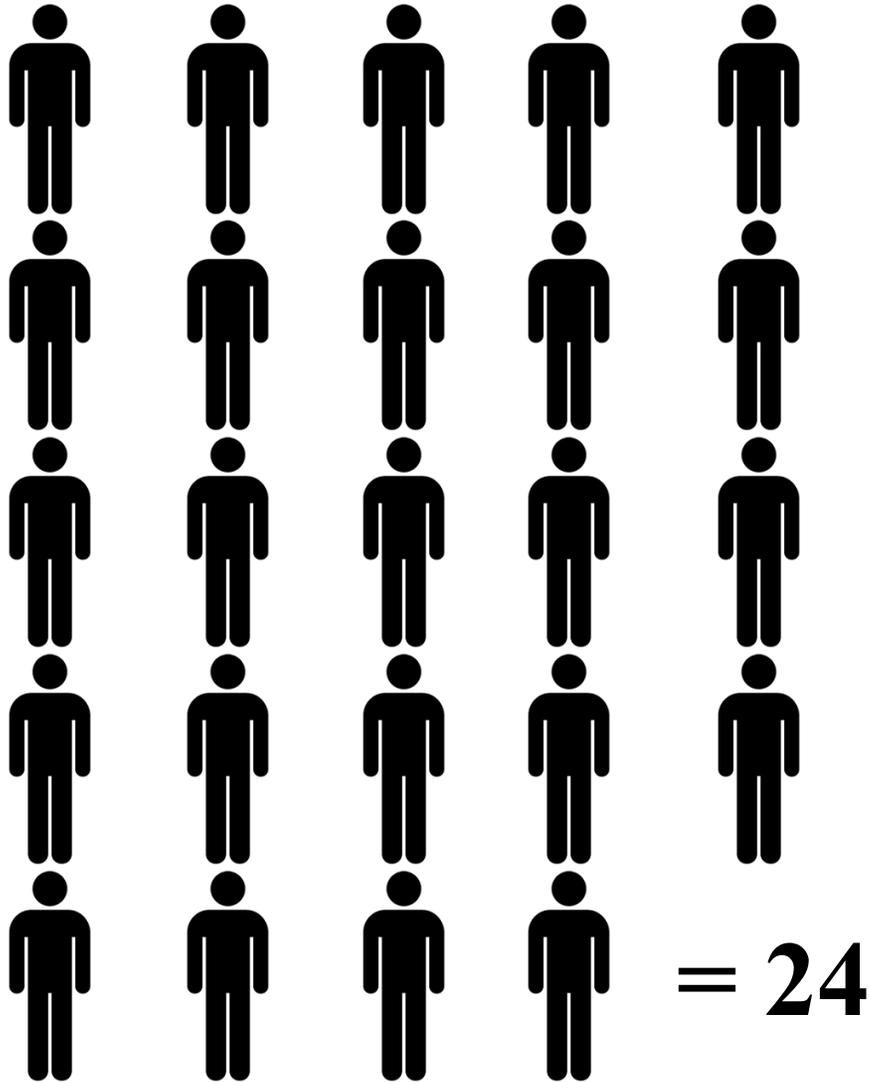European Research Council
Established by the European Commission
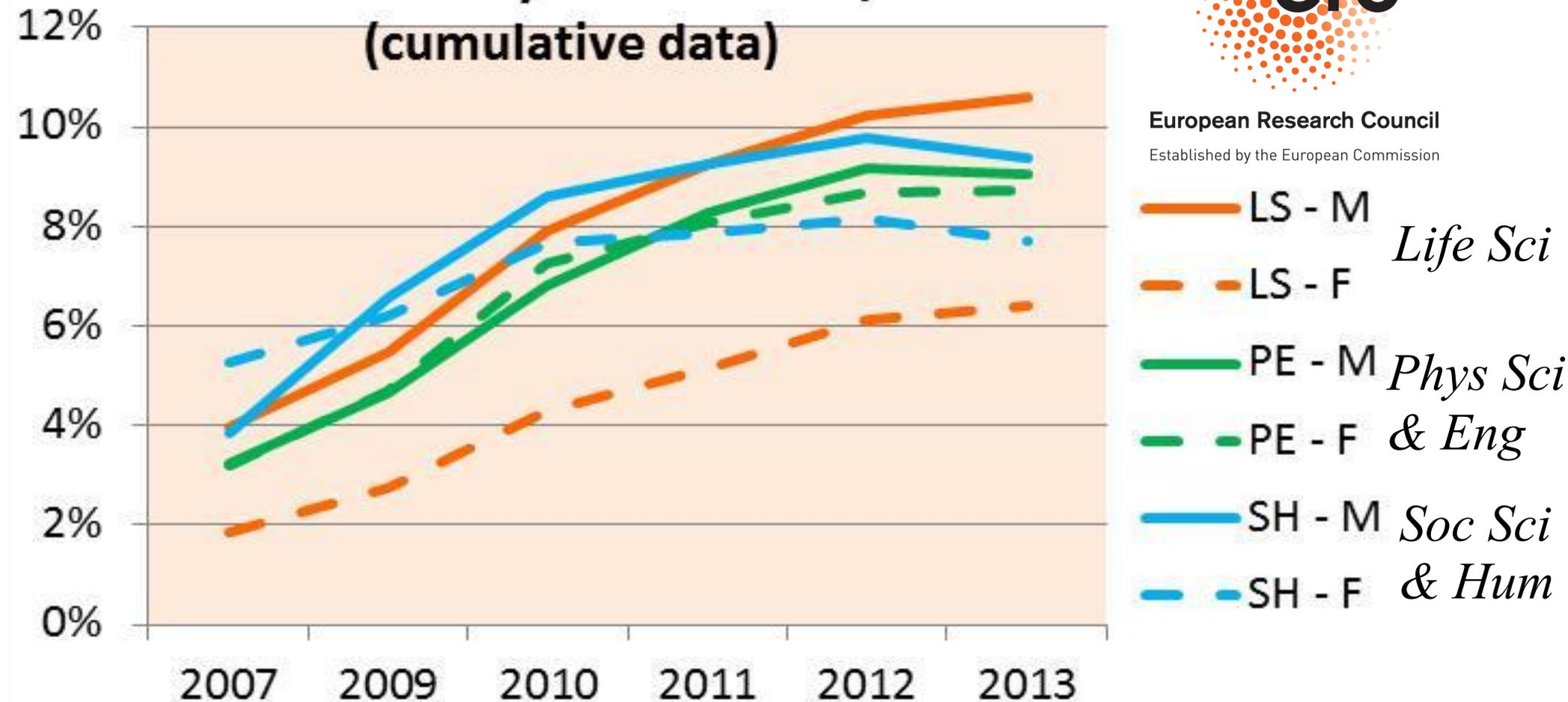
Risk taking (applying) is **more costly for women** (lower payoff)

Discrimination in success rates for JOBS
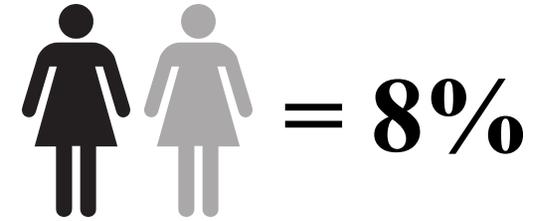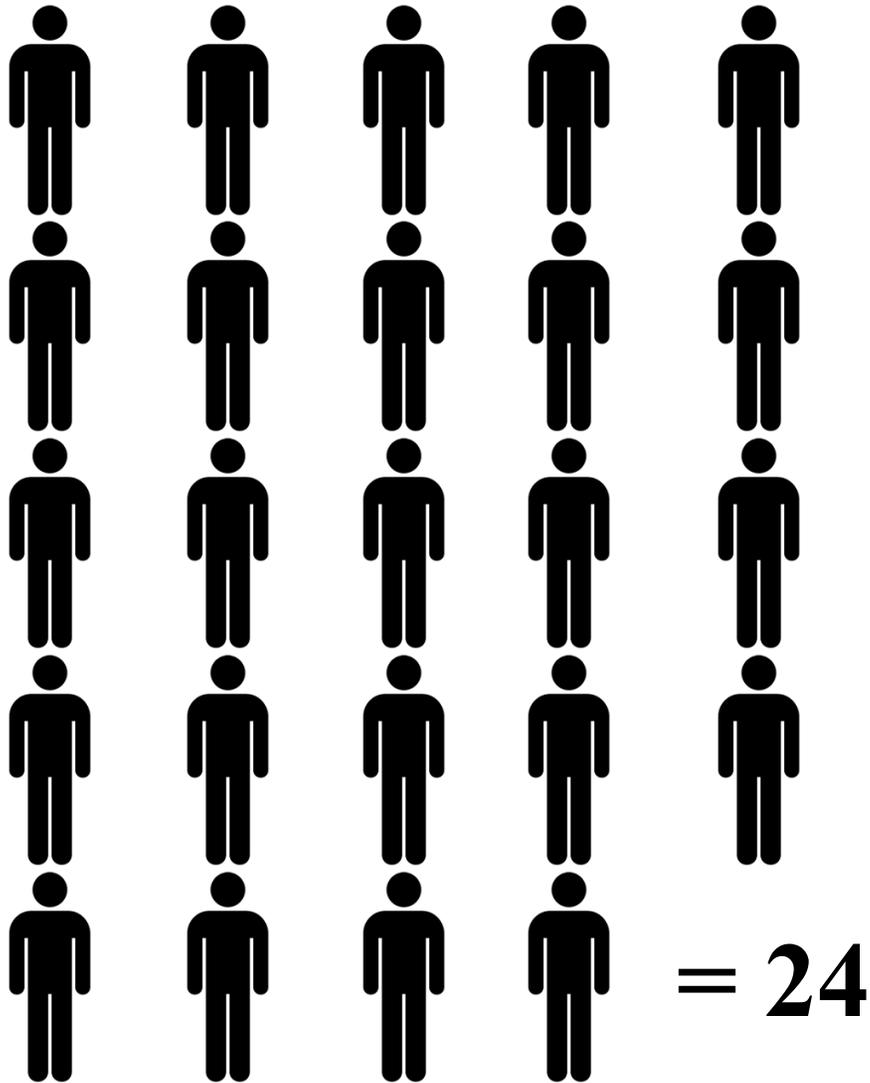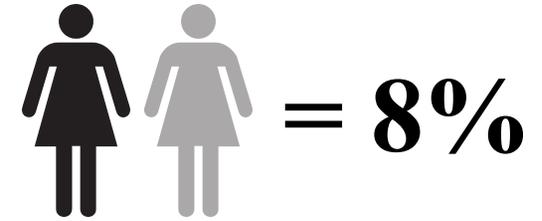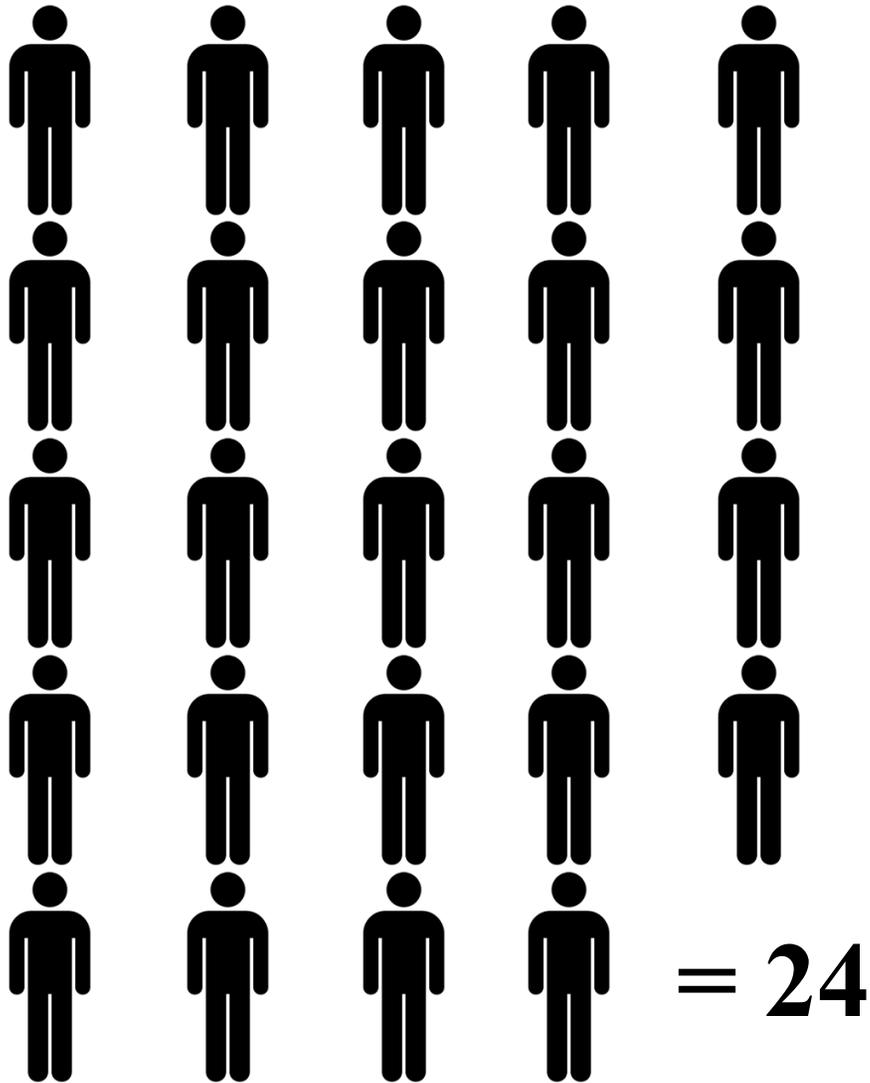
Permanent faculty in Zoology, University of Cambridge (as of June 2017)

Discrimination in success rates for JOBS

Permanent faculty in Zoology, University of Cambridge (as of June 2017)

= 24

https://www.zoo.cam.ac.uk/directory/academic-staff

Discrimination in success rates for JOBS

Permanent faculty in Zoology, University of Cambridge (as of June 2017)

= 8%

= 24

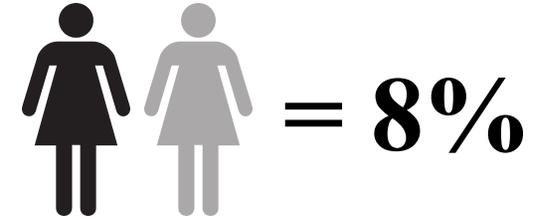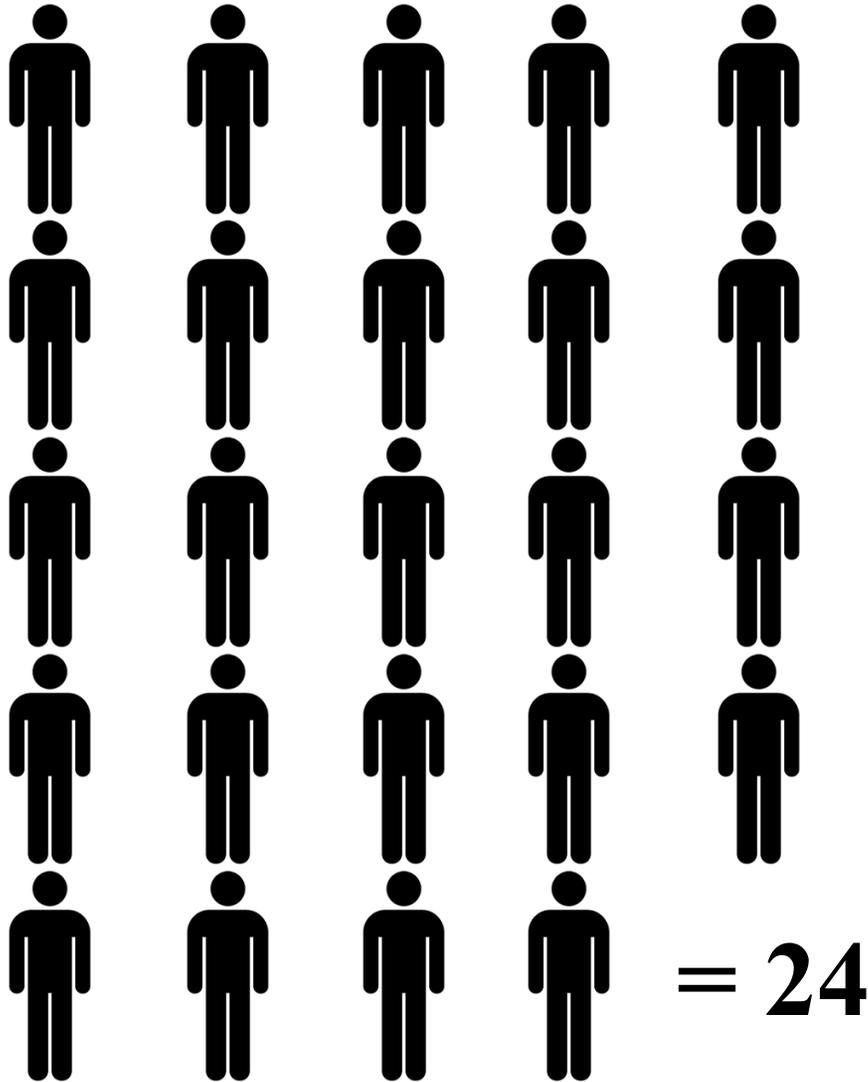# Discrimination in success rates for JOBS

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Or **are women are more risk averse than men?**

https://www.zoo.cam.ac.uk/directory/academic-staff