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https://osf.io/preprints/metaarxiv/3hb6g

Advancing Openness and Transparency in Scientific Contributions

Rima-Maria Rahal[1,2] & Susann Fiedler[2,3]

[1] Tilburg University

[2] Max Planck Institute for Research on Collective Goods

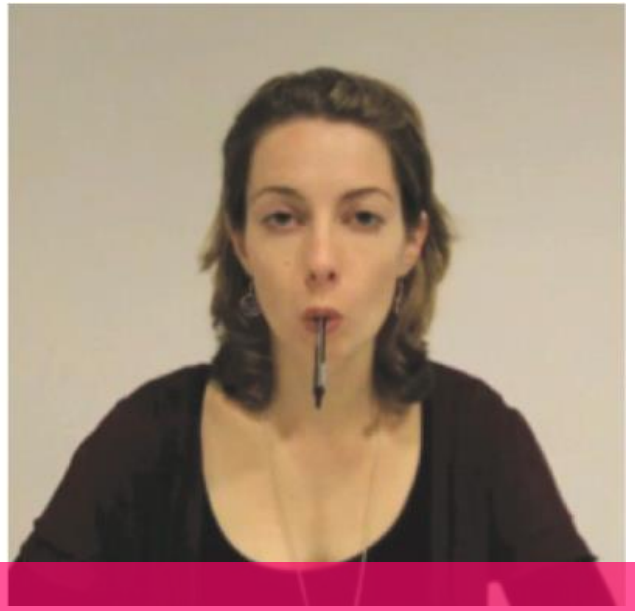
[3] Open Science Framework

26.08.2019 | GridKa School

Pretty different...

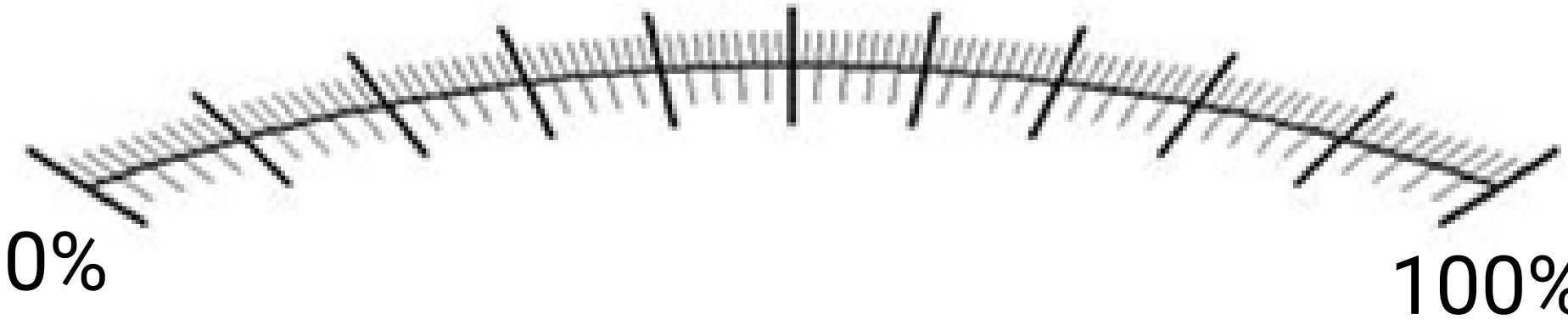
Do we have anything in common?

Tension between Mission and Practice.



Seizing up the problem.

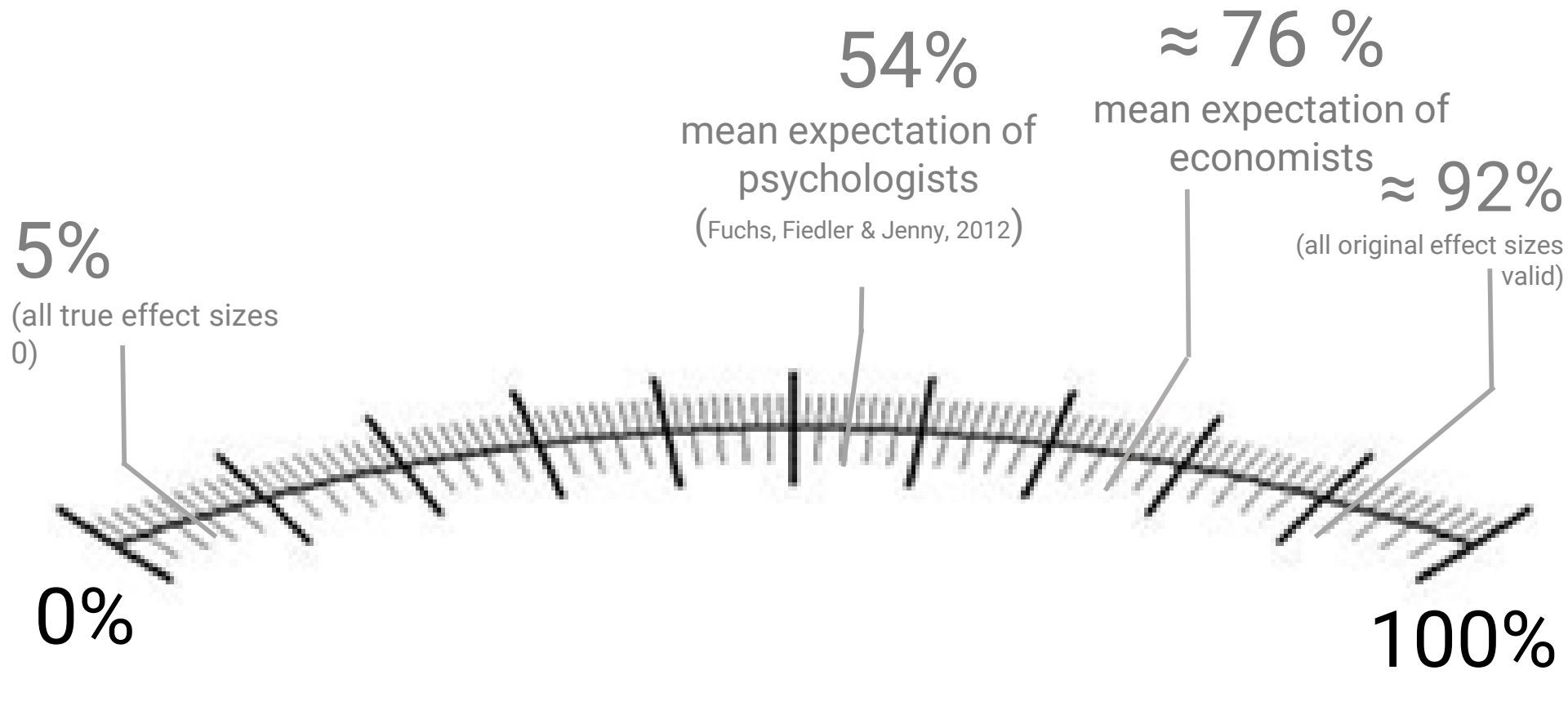
Estimating the replicability of scientific research.



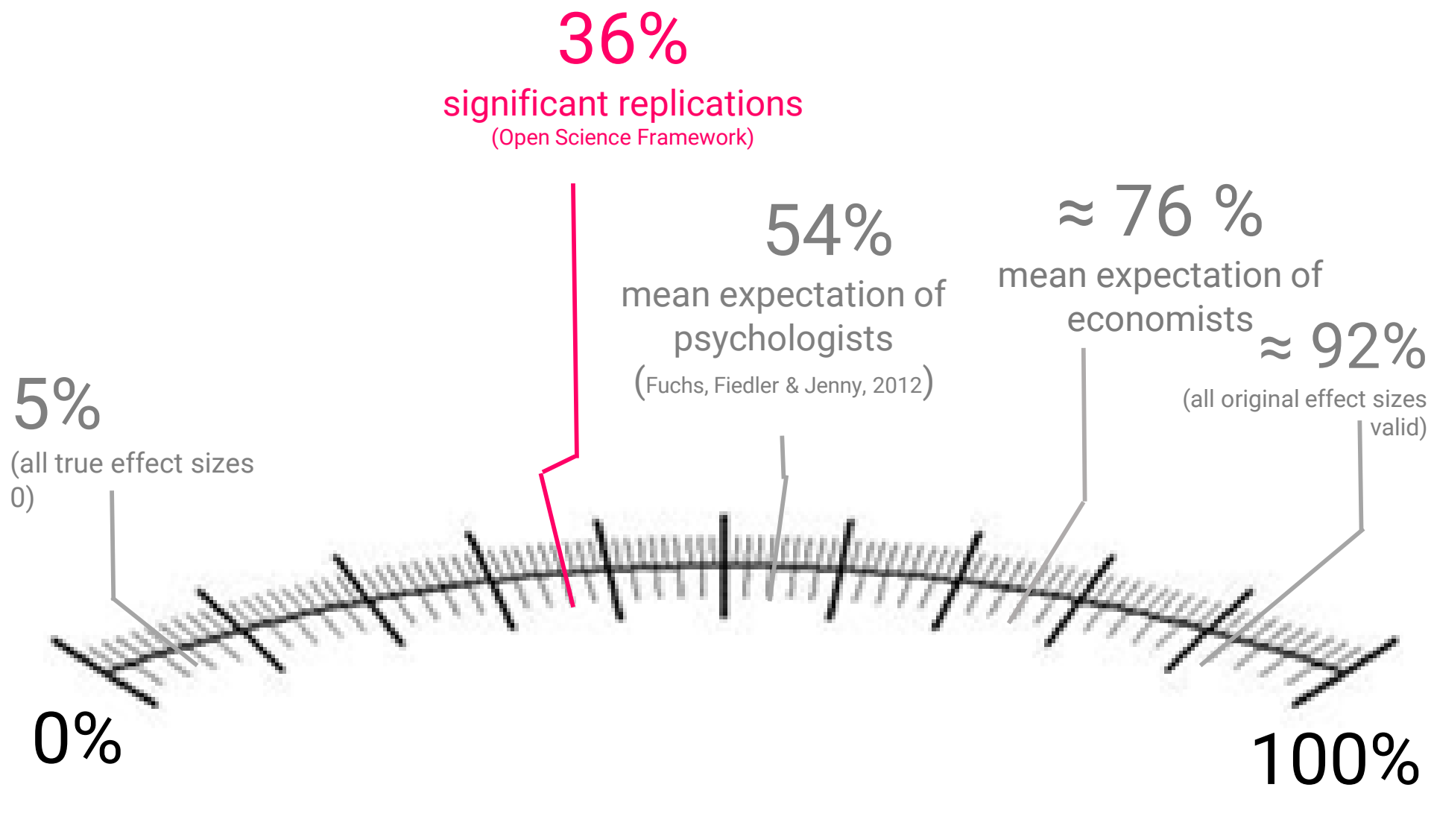
Predictions of Replication.

Predictions of Replication.

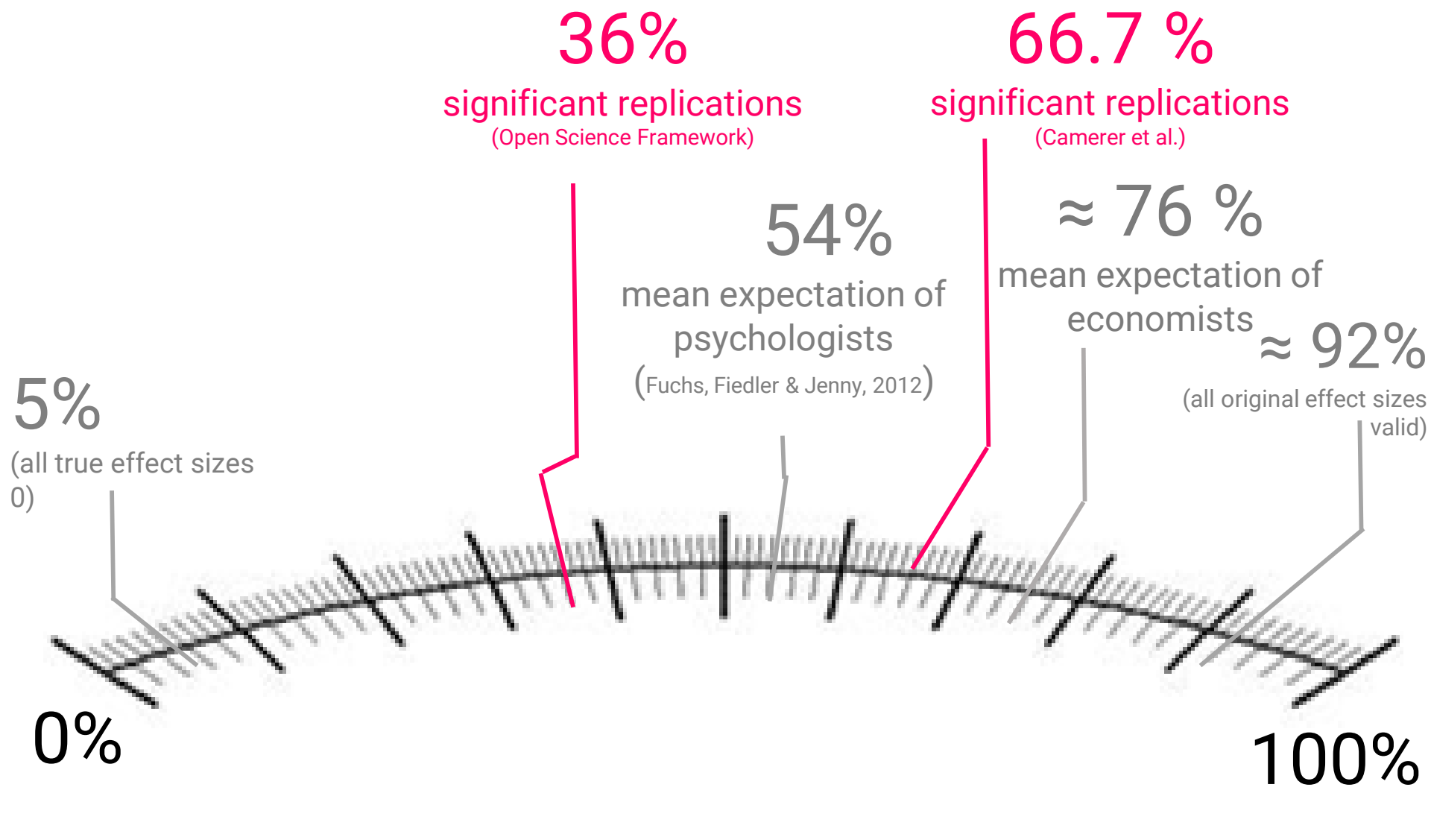
Predictions of Replication.



Predictions of Replication.



Predictions of Replication.



Is reproducibility a concern only for psych & behavioral econ?

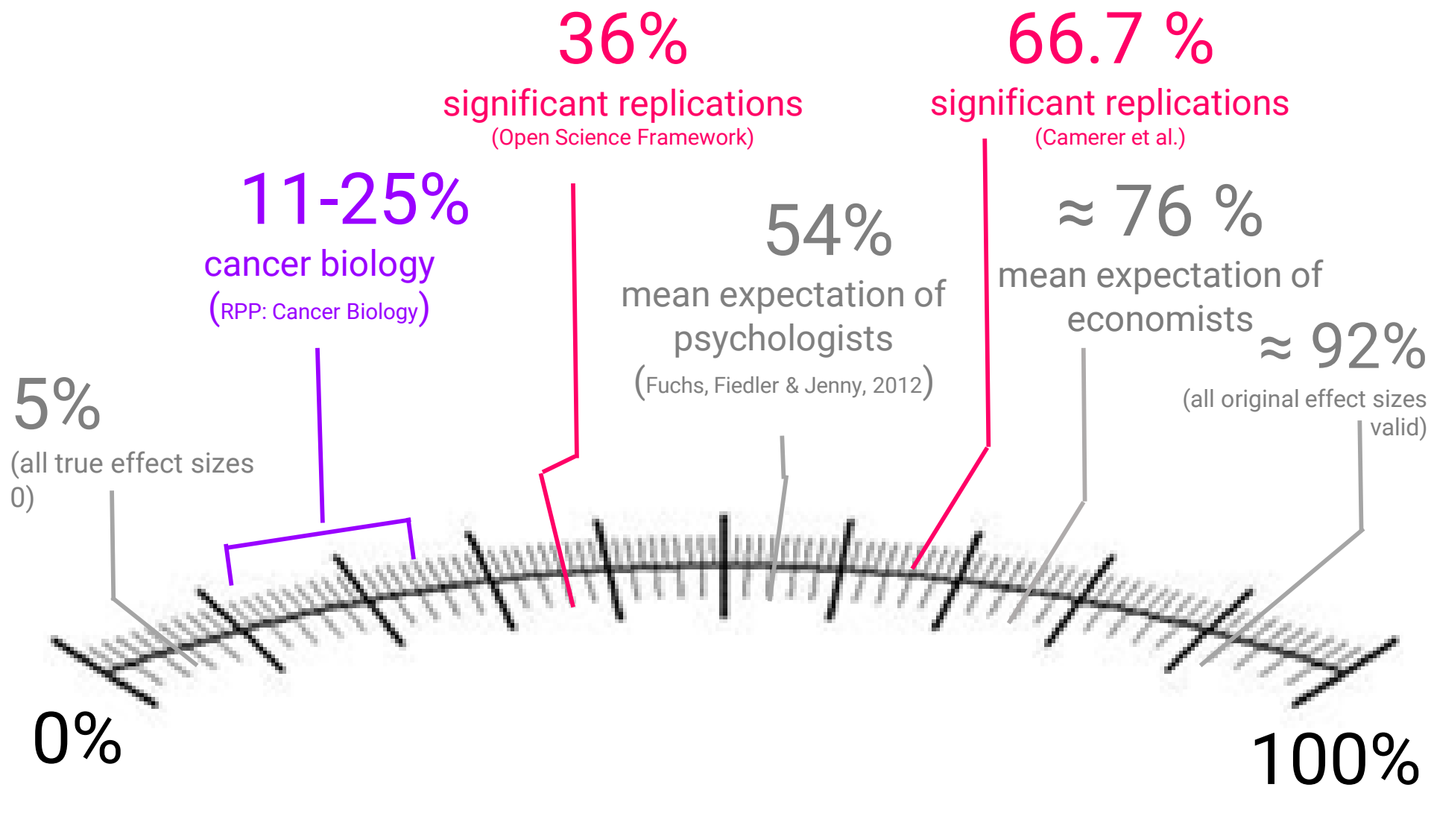
Cancer Biology Reproducibility Project Sees Mixed Results

By Courtney Humphries on Wed, 18 Jan 2017

Read Later Like Tweet

How trustworthy are the findings from scientific studies?

Predictions of Replication.



SCIENCE —

“Mindless Eating,” or how to send an entire life of research into question

Now questioning: 3,700 citations in 25 different journals—and eight books—over 20+ years.

CATHLEEN O'GRADY - 4/24/2017, 1:30 PM

52 publications from Brian Wansink which (are alleged to) contain minor to very serious issues (which are summarized in this post),
which have been cited **over 4000** times,
are published in **over 25** different journals, and in **8** books,
spanning **over 20 years** of research,
7 articles have been retracted, and
15 articles have been corrected.

The Generalizability of Survey Experiments*

Kevin J. Mullinix [a1], Thomas J. Leeper [a2], James N. Druckman [a3] and Jeremy Freese [a4]

DOI: https://doi.org/10.1017/XPS.2015.19 Published online: 12 January 2016

Abstract

Survey experiments have become a central methodology across the social sciences. Researchers can combine experiments' causal power with the generalizability of population-based samples. Yet, due to the expense of population-based samples, much research relies on convenience samples (e.g. students, online opt-in samples). The emergence of affordable, but non-representative online samples has reinvigorated debates about the external validity of experiments. We conduct two studies of how experimental treatment effects obtained from convenience samples compare to effects produced by population samples. In Study 1, we compare effect estimates from four different types of convenience samples and a population-based sample. In Study 2, we analyze treatment effects obtained from 20 experiments implemented on a population-based sample and Amazon's Mechanical Turk (MTurk). The results reveal considerable similarity between many treatment effects obtained from convenience and nationally representative population-based samples. While the results thus bolster confidence in the utility of convenience samples, we conclude with guidance for the use of a multitude of samples for advancing scientific knowledge.

Is Economics Research Replicable? Sixty Published Papers from Thirteen Journals Say "Usually Not"

Replication and contradiction of highly cited research papers in psychiatry: 10-year follow-up

Aran Tajika, Yusuke Ogawa, Nozomi Takeshima, Yu Hayasaka and Toshi A. Furukawa

Background
Contradictions and initial overestimates are not unusual among highly cited studies. However, this issue has not been researched in psychiatry.

Aims
To assess how highly cited studies in psychiatry are replicated by subsequent studies.

Method
We selected highly cited studies claiming effective psychiatric treatments in the years 2000 through 2002. For each of these studies we searched for subsequent studies with a better-controlled design, or with a similar design but a larger sample.

Results
Among 83 articles recommending effective interventions, 40 had not been subject to any attempt at replication, 16 were contradicted, 11 were found to have substantially smaller effects and only 16 were replicated. The standardised mean differences of the initial studies were overestimated by 132%. Studies with a total sample size of 100 or more tended to produce replicable results.

Conclusions
Caution is needed when a study with a small sample size reports a large effect.

Declaration of interest
None.

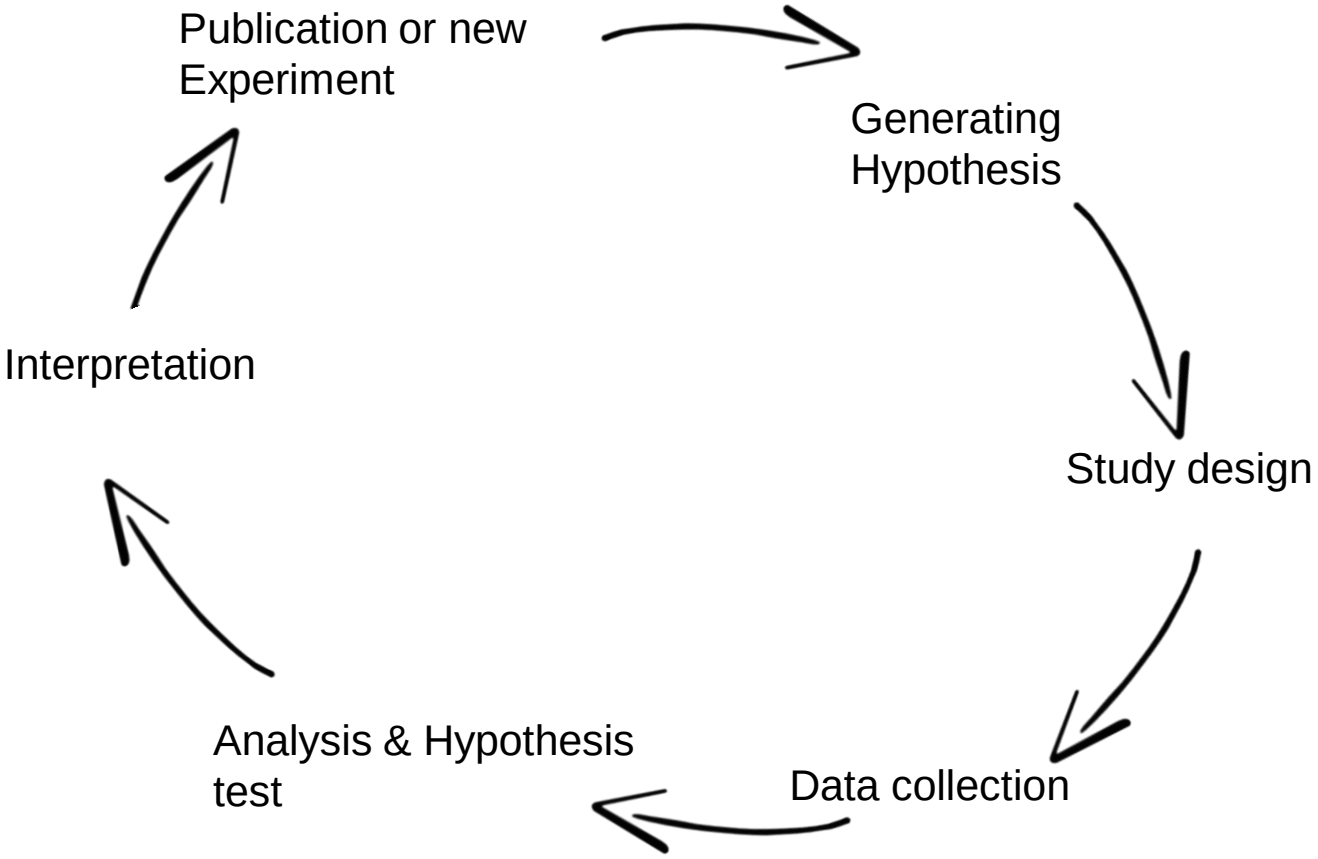
Causes and Effects

The incentive system

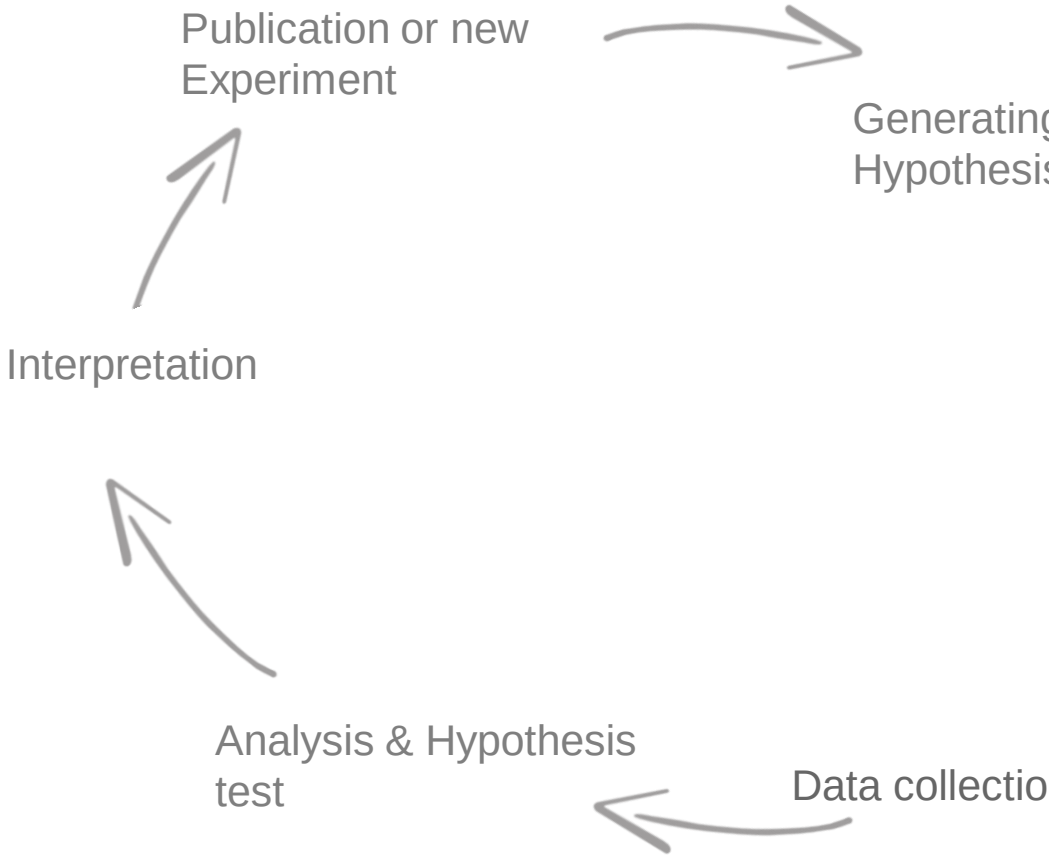
Culture of „Publish or Perish!“

- Publishing as much as possible (count of IF)
  - Multiple underpowered studies („efficient resource alloctaion“)
- Preferential publishing of statistically significant studies
- Preferential publishing of surprising (counter-intuitive) and catchy results
- Data are rather rhetorical devices

Research Cycle



Research Cycle: Goes Wrong

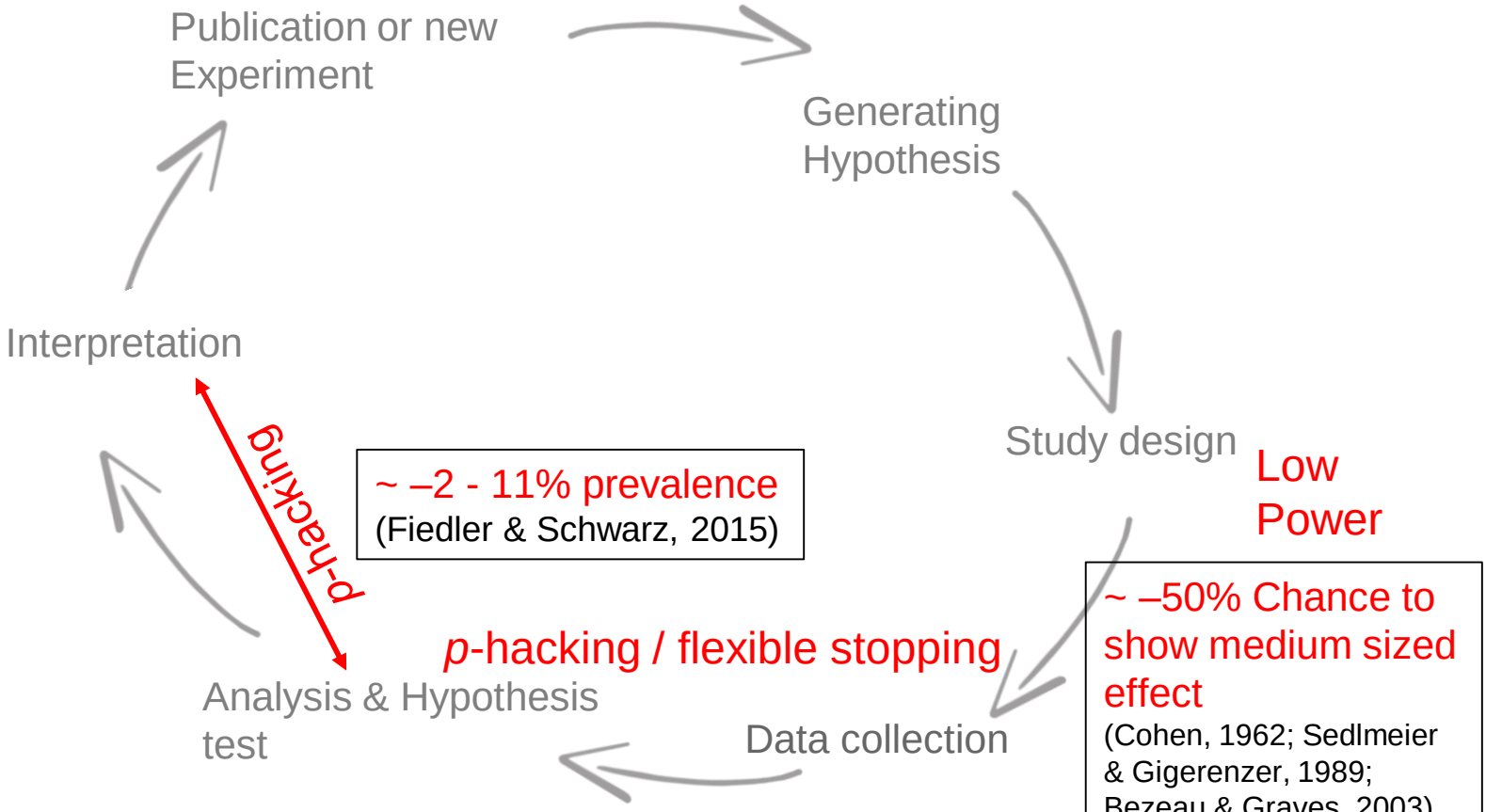


Low Power

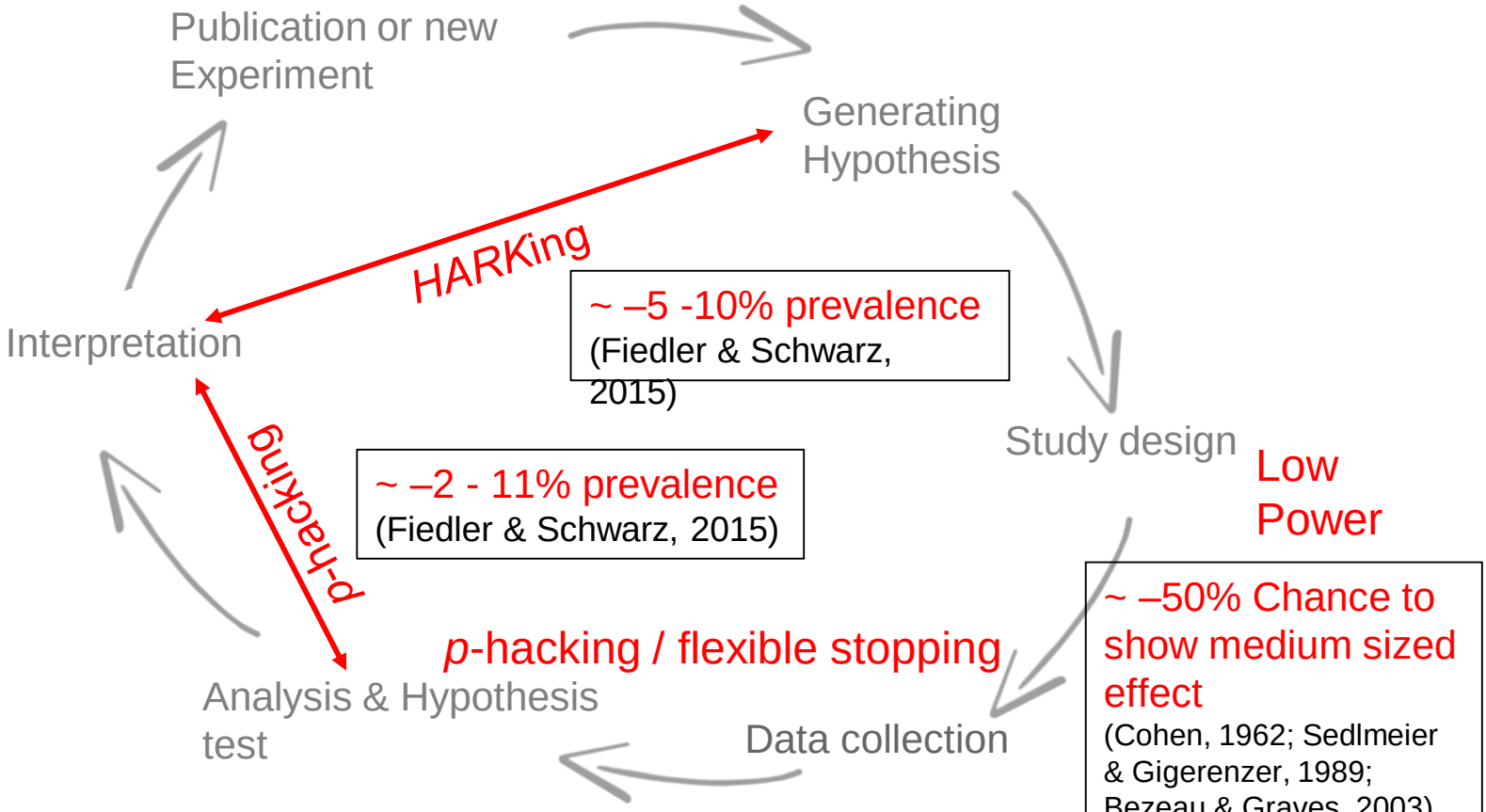
~ –50% Chance to show medium sized effect

(Cohen, 1962; Sedlmeier & Gigerenzer, 1989; Bezeau & Graves, 2003)

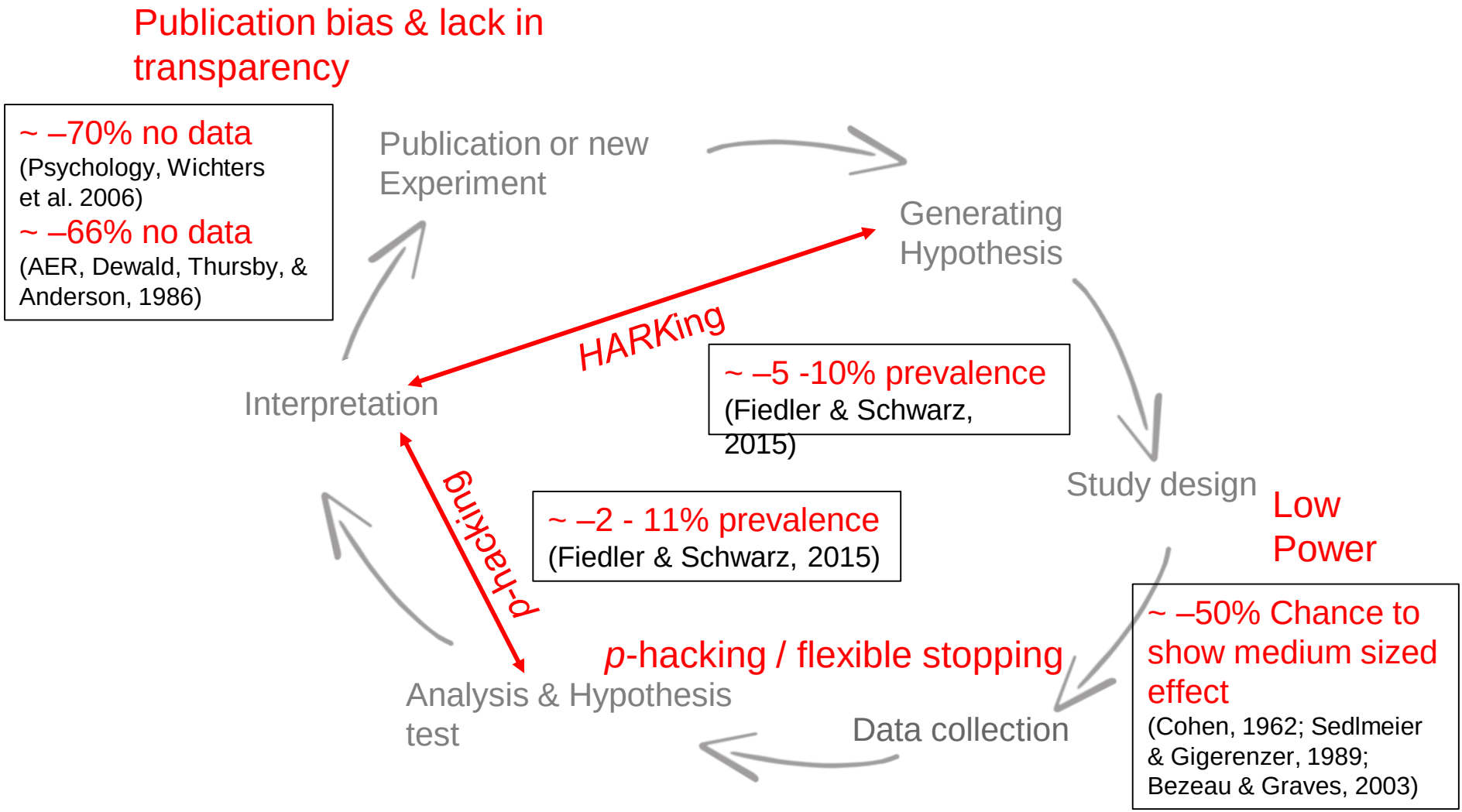
Research Cycle: Goes Wrong



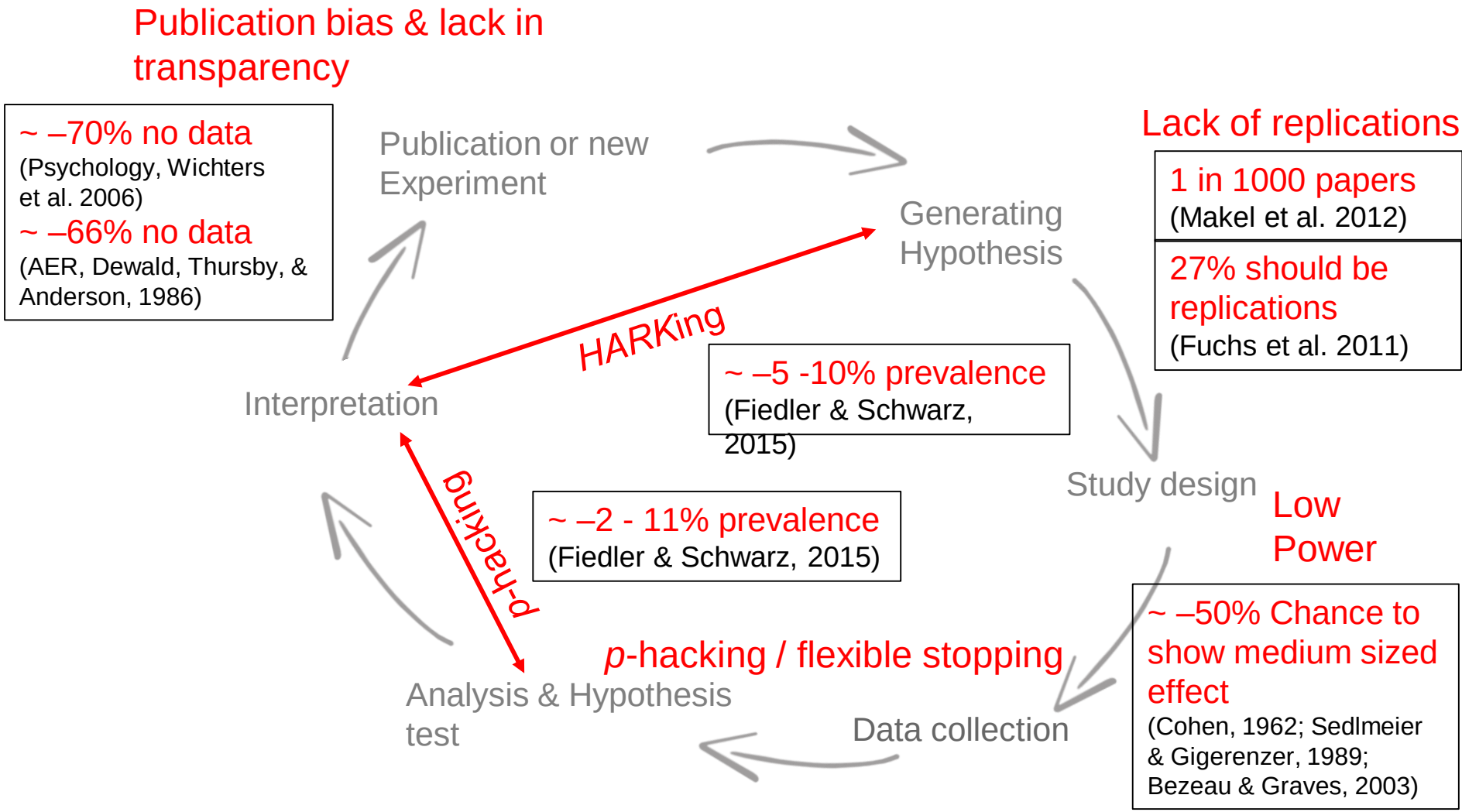
Research Cycle: Goes Wrong



Research Cycle: Goes Wrong

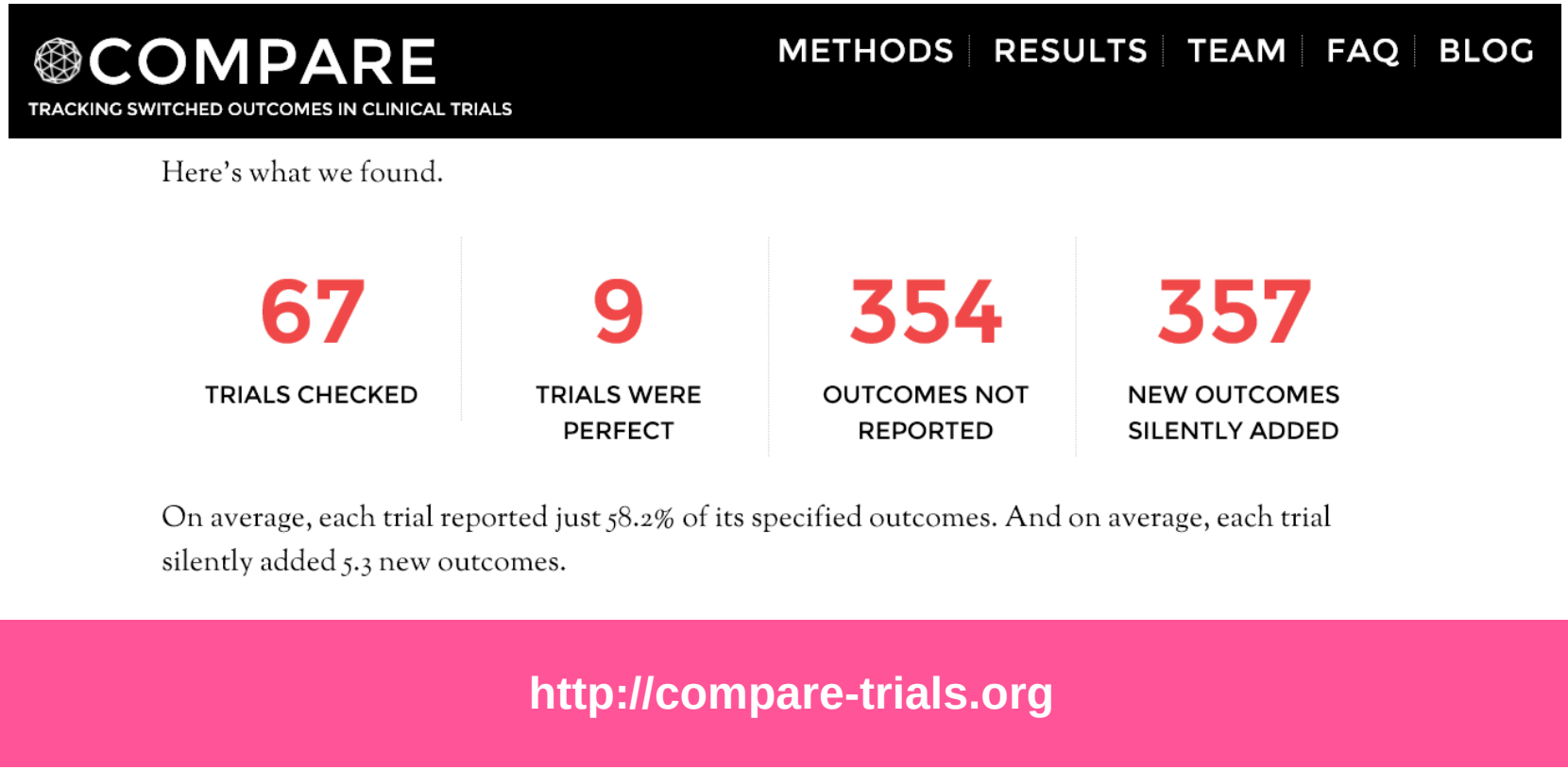


Research Cycle: Goes Wrong



Research Cycle: Goes Wrong

October 2015 - January 2016: top 5 medical journals
(NEJM, JAMA, The Lancet, Annals of Internal Medicine, BMJ)



http://compare-trials.org

False Discovery Rate

- The **smaller the studies conducted** in a scientific field...
- The **smaller the effect sizes** in a scientific field...
- The **greater the number** and the lesser the selection **of tested relationships** in a scientific field..

... the less likely the research findings are to be true.

(Ioannidis, 2005)

Norms

Problematic

Secrecy

Closed

Self-interestedness

Treat science as a competition

Organized dogmatism

Invest career promoting one's own theories, findings

Quantity

Norms

Lack of Open Data and Materials

P-hacking, HARKing, publication bias

Lack of replications, publication bias

Low statistical power

Problematic

Secrecy

Closed

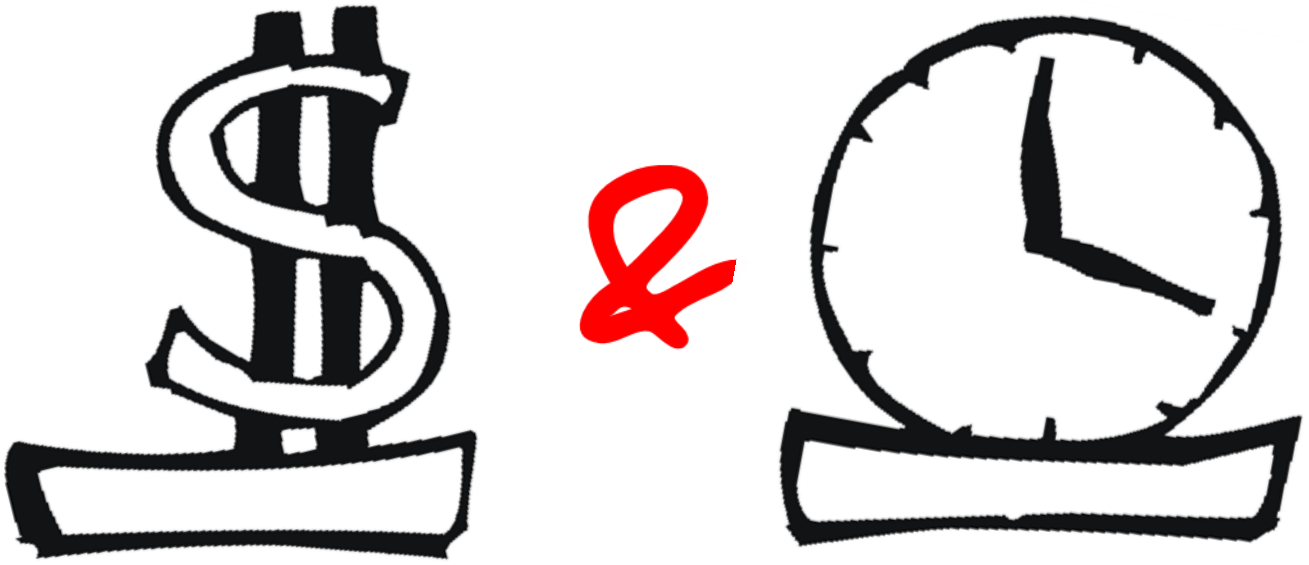
Self-interestedness

Treat science as a competition

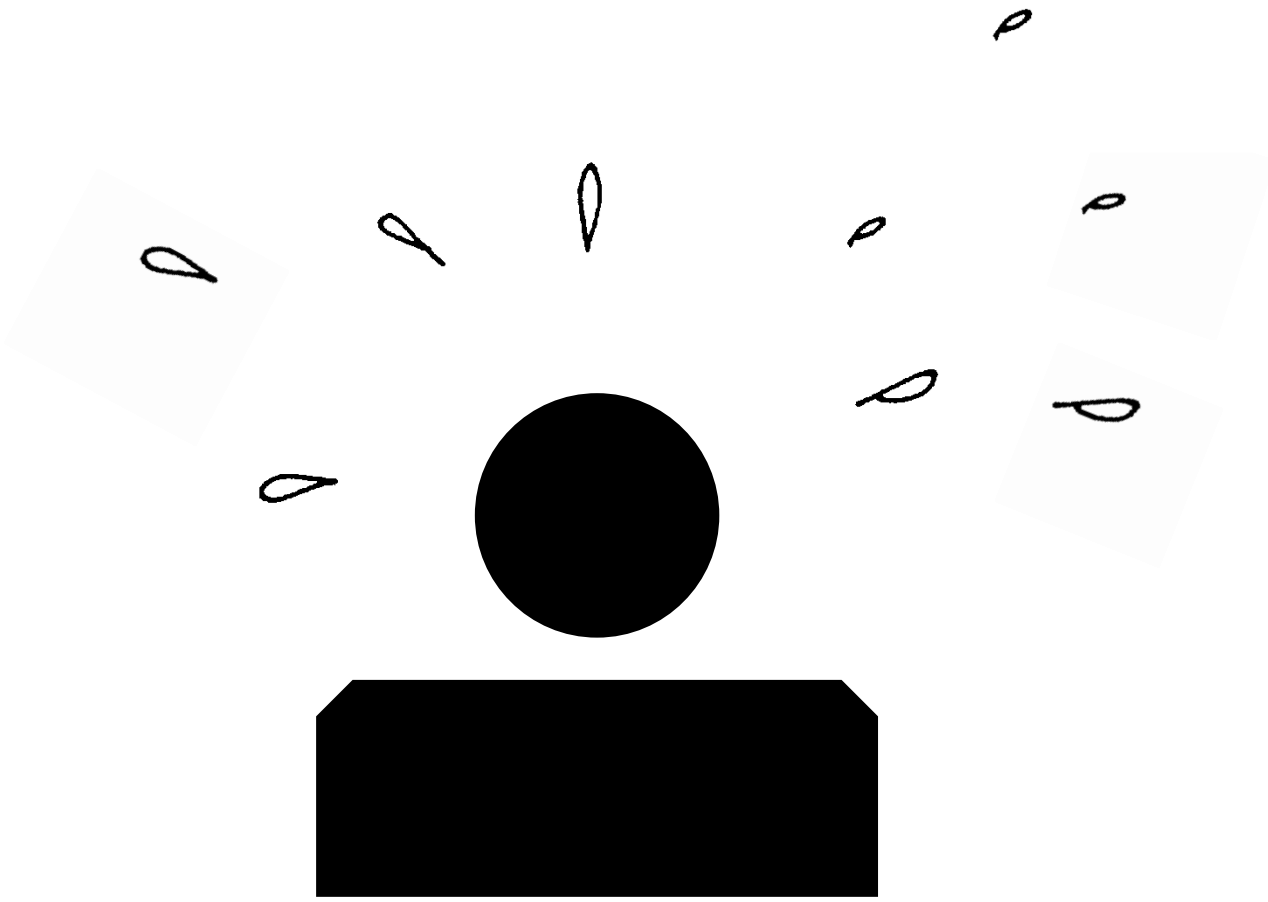
Organized dogmatism

Invest career promoting one's own theories, findings

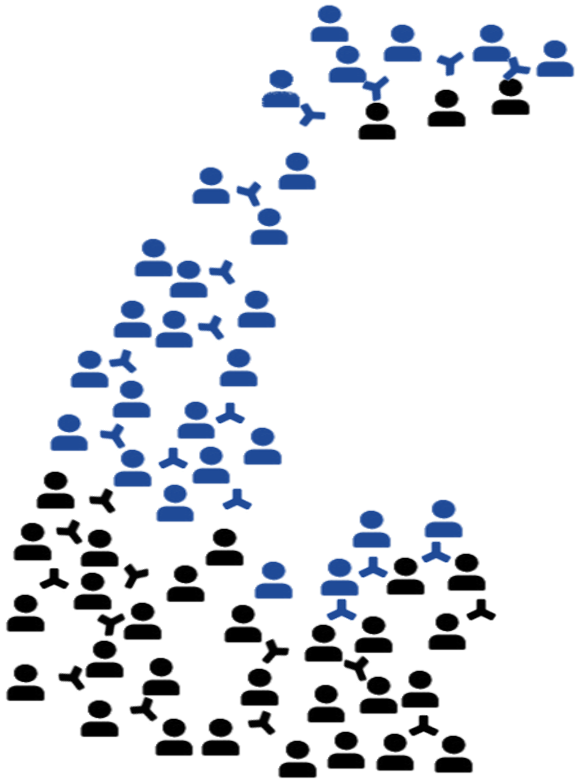
Quantity

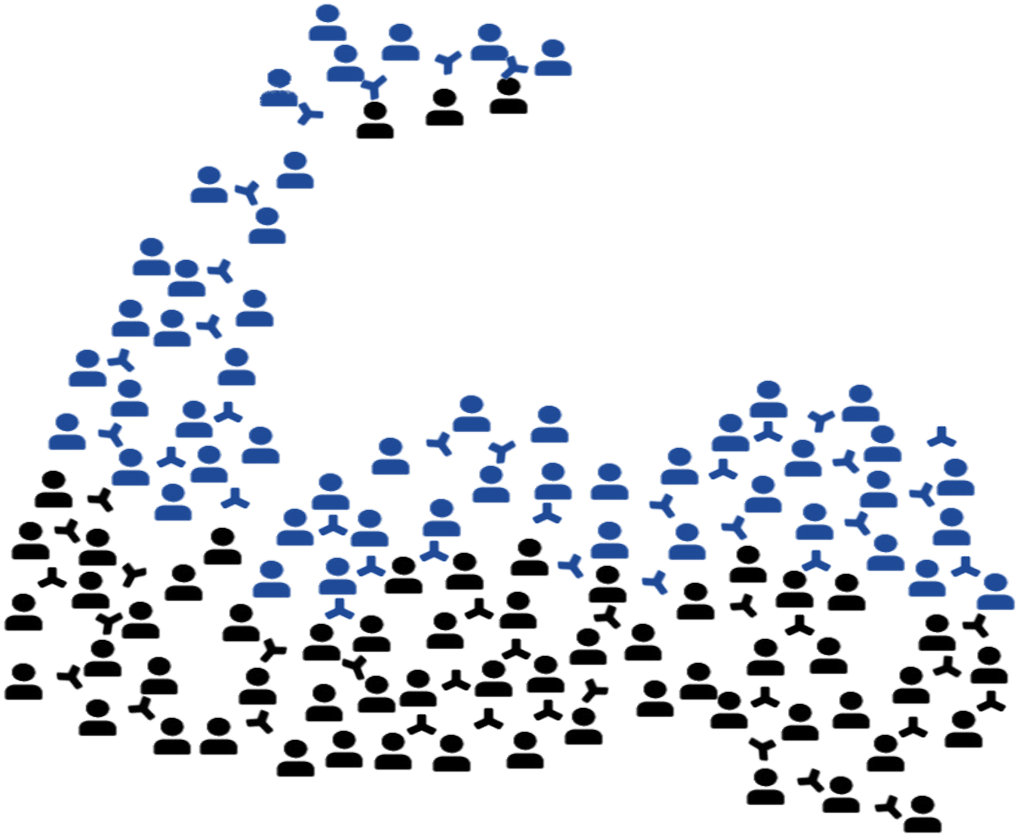


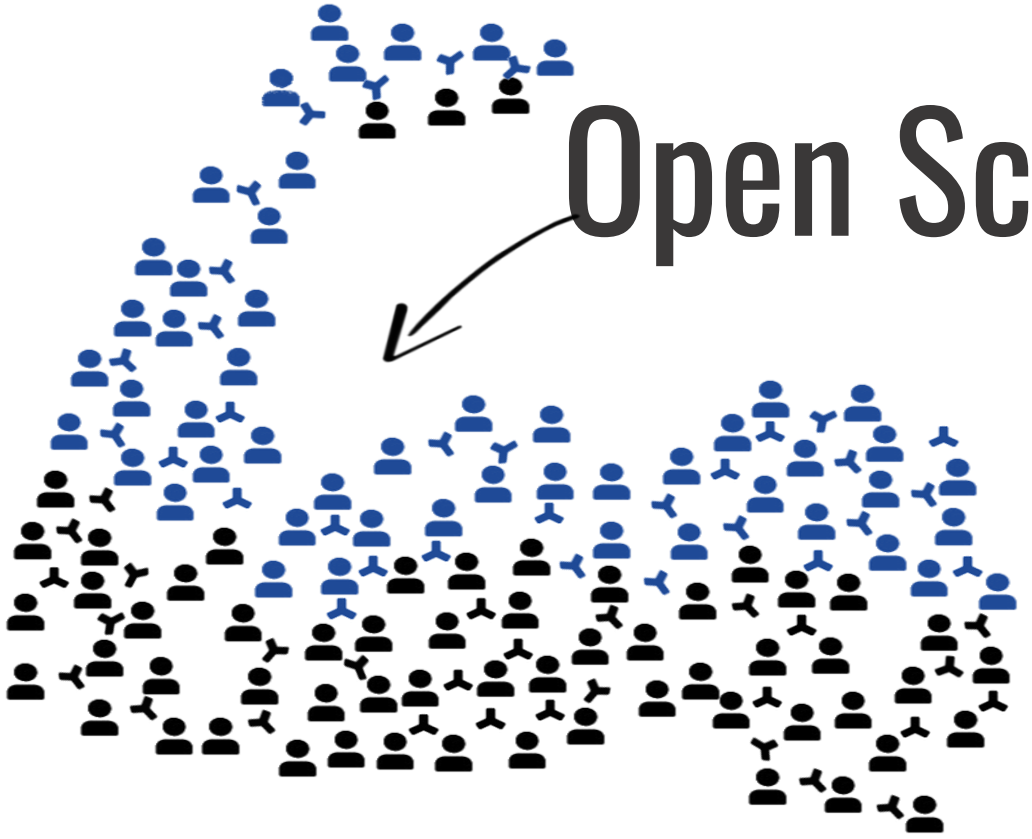
consuming



CHANGE






Open Science

Who makes the rules?

„There is no single solution for such a complex problem“ (Pashler & Wagenmarkers, 2012)

The rules ARE changing.

Open Science principles demanded by

German Research Foundation (DFG)
European Research Council

40% of scientific funding institutions now have Open Data guidelines.

More and more institutions demand Open Science commitment as a hiring criterion


2019 Researche

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actually make a plan ...

Pre-registration

theguardian

News | Sport | Comment | Culture | Business | Money | Life & style

News › Science › Peer review and scientific publishing

Trust in science would be improved by study pre-registration

Open letter: We must encourage scientific journals to accept studies before the results are in

Chris Chambers, **Marcus Munafo** and more than 80 signatories
theguardian.com, Wednesday 5 June 2013 12.45 BST

Jump to comments (43)

The quest: a better understanding of nature. Photograph: Sebastian Kaulitzki/Alamy

In an ideal world, scientific discoveries would be independent of what

THE WORLD UNIVERSITY RANKINGS

PROFESSIONAL JOBS SUMMITS RANKINGS STU

Pre-registration would put science in chains

The pre-registration of study designs must be resisted, says Sophie Scott

July 25, 2013

Science is not well served by people deciding that their methodology is the only legitimate one

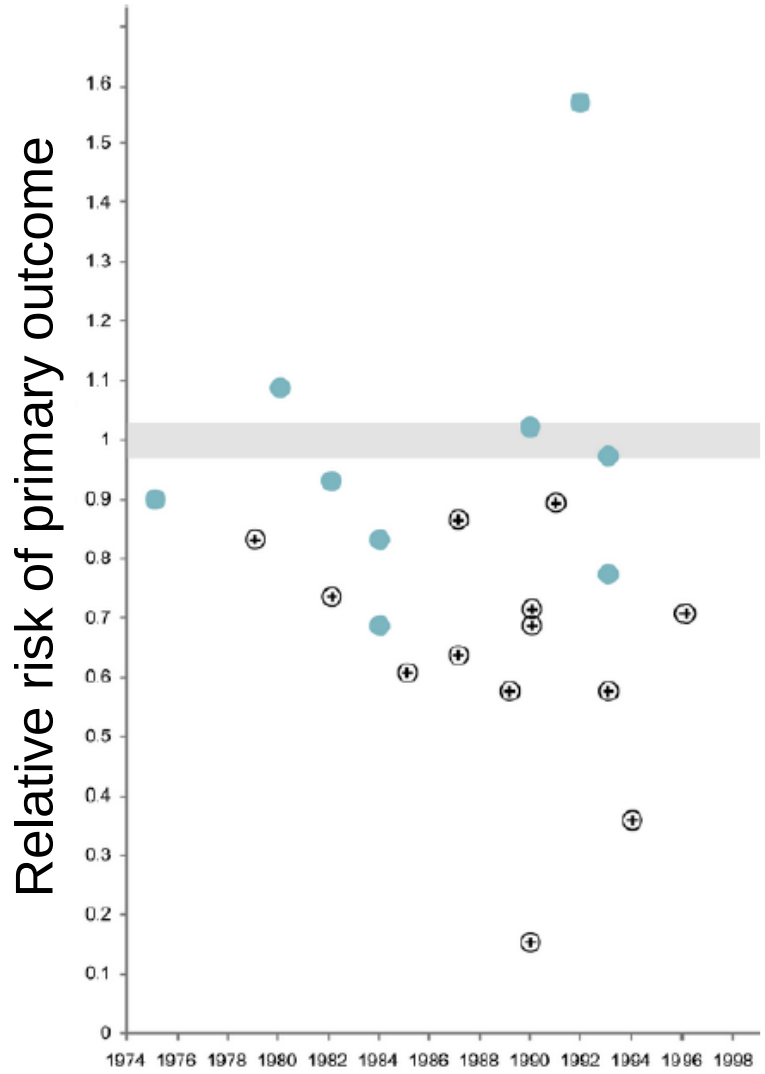
What Problems Does Pre-registation fix?

- Pre-registration makes the distinction between confirmatory and exploratory research more clear.

Context of confirmation	**Context of discovery**
- Traditional hypothesis testing - Results held to the highest standards of rigor	- Pushes knowledge into new areas/ data-led discovery - Finds unexpected relationships
- Goal is to minimize false positives – don‘t rely on anything false!	- Goal is to minimize false negatives – don‘t miss anything new!
p-values interpretable	p-values meaningless

- As a field we want to produce both new discoveries AND reliable evidence (or even well tested theories)

How will this probably look like?

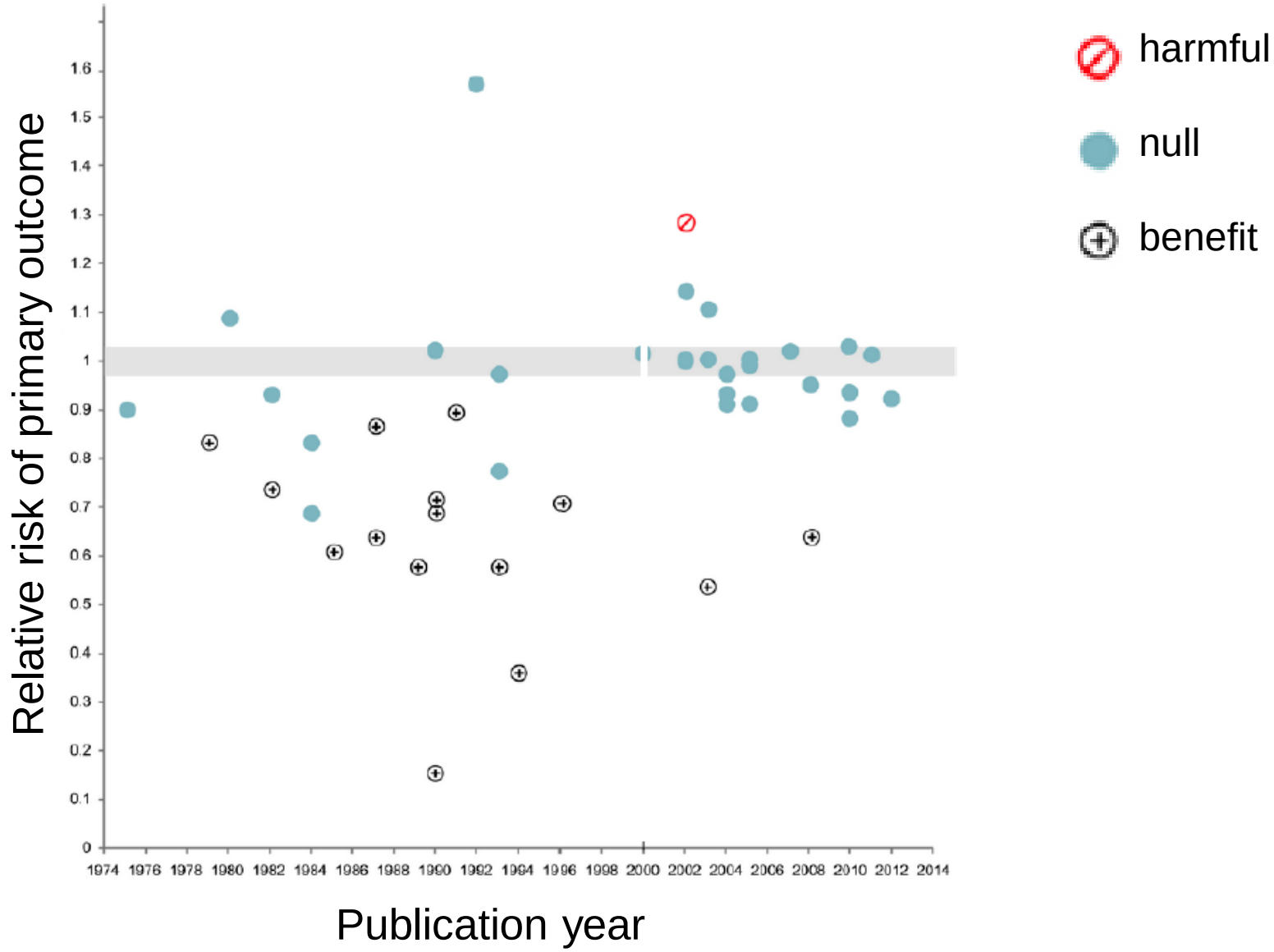


harmful

null

benefit

How will this probably look like?



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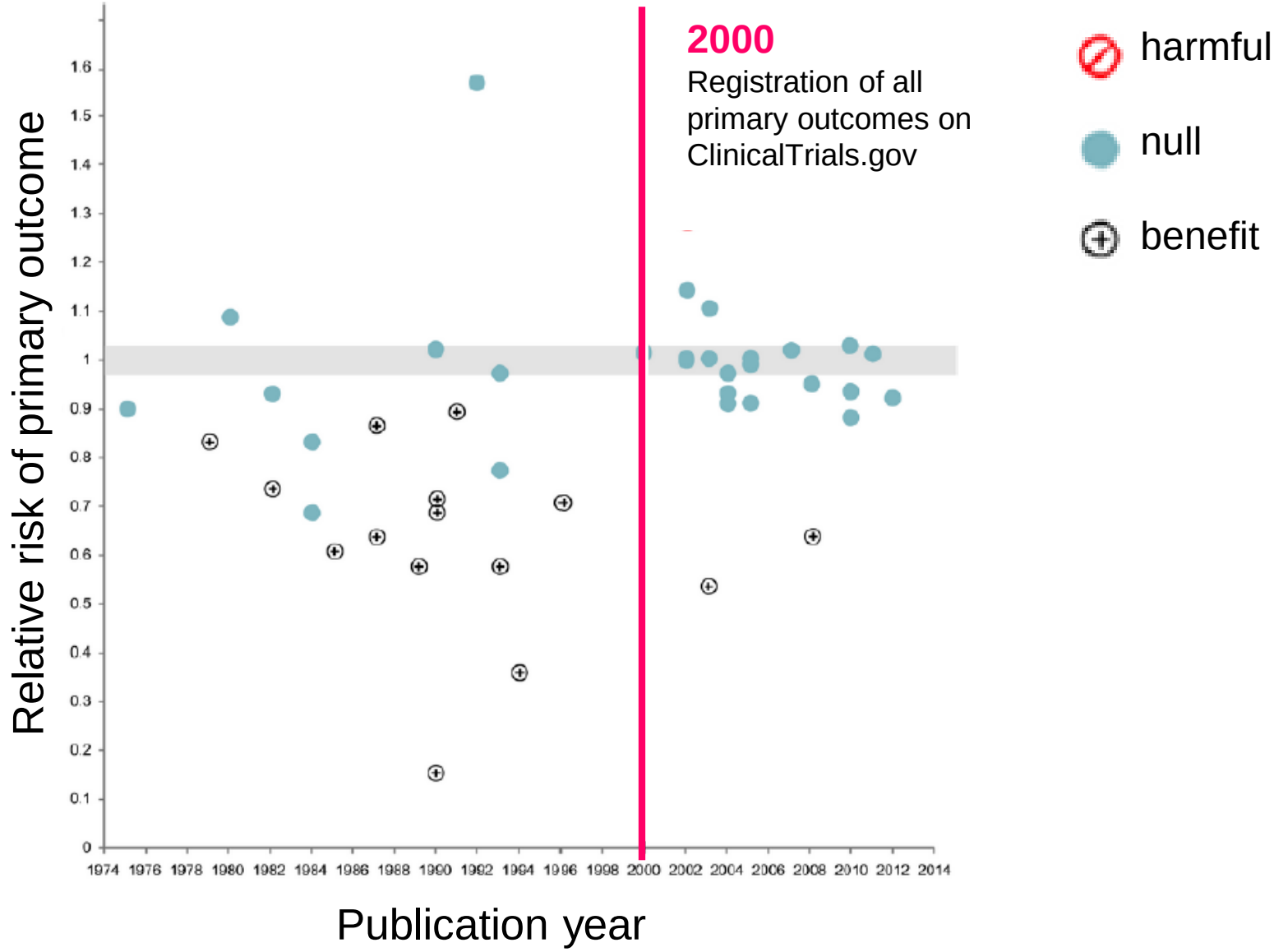
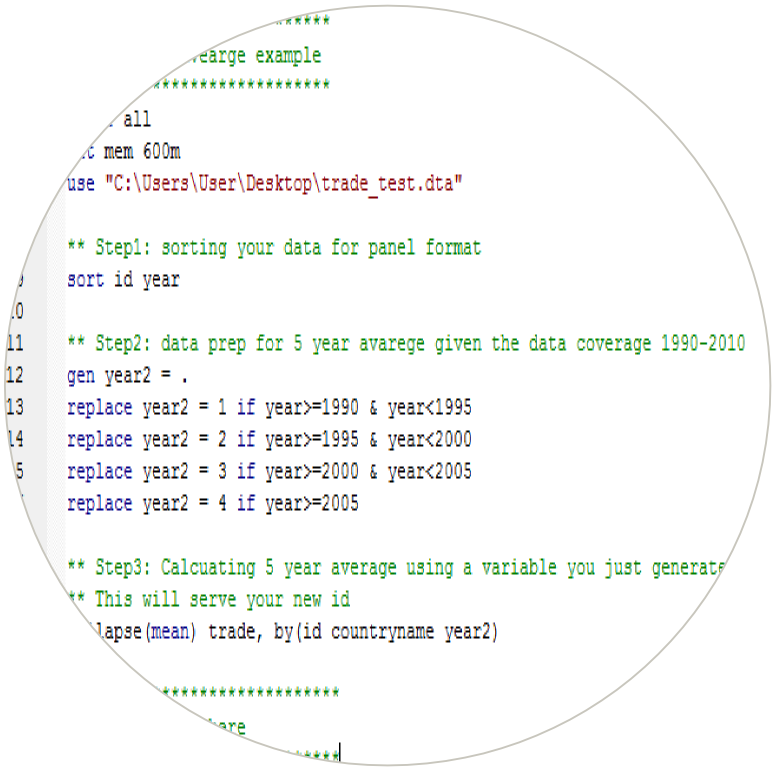


Create an Analysis Plan

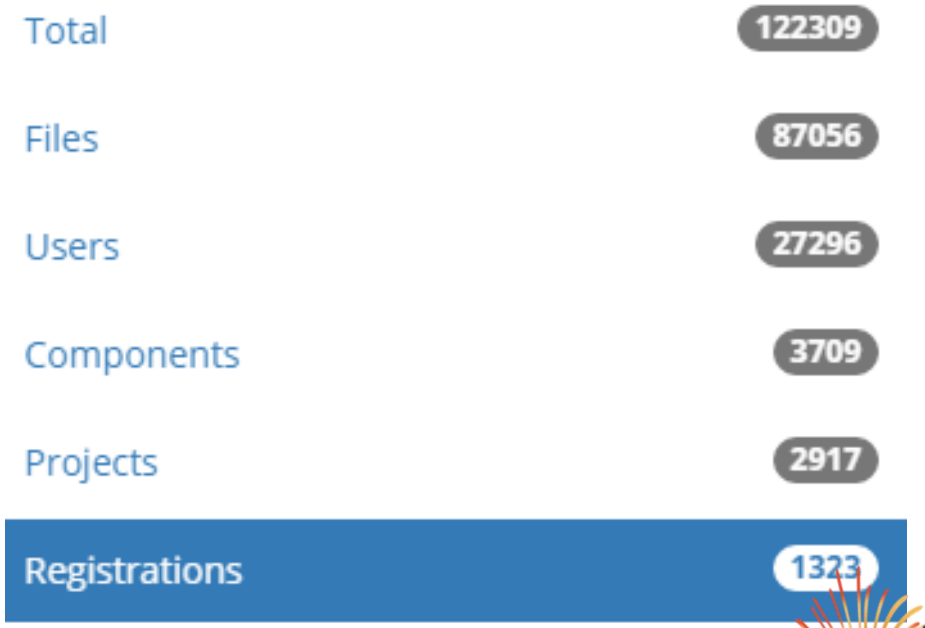


- Extensive degrees of freedom in the analysis
  - 241 fMRI studies reported 223 unique combinations of data cleaning and analysis (Carp, 2012)
  - When using all these combinations 90% of all voxels show a significant difference in at least one analysis (Carp, 2012)

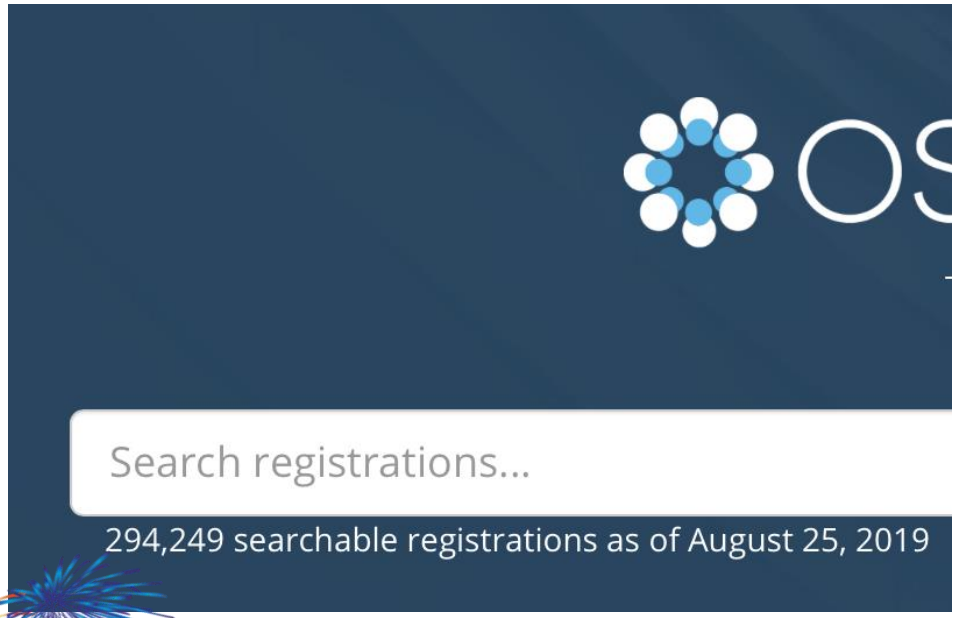
- Decide before the experiment: What are the critical conditions, measures, exclusion criteria, potential moderators and covariates
  - This is the essence of confirmatory testing

It´s becoming the norm

2016



Sunday



292,926 new registrations

Changing Incentives

PREREGISTRATION CHALLENGE

If you have a project that is entering the planning or data collection phase, we'd like you to try out a preregistration. Through our **$1 Million Preregistration Challenge**, we're giving away $1,000 to 1,000 researchers who preregister their projects before they publish them. It's straightforward to complete and will really enhance your research output.

Get Started Now

2019 Researcher

you need the power ….

Power in Observations

Gender effect on weight (d = .59) → around 40 per cell

Adequate power -- joint data collection

Many Babies Project

Psychological Science Accelerator

548 Labs in 72 countries

Power in Solving Problems

ATLAS collaboration

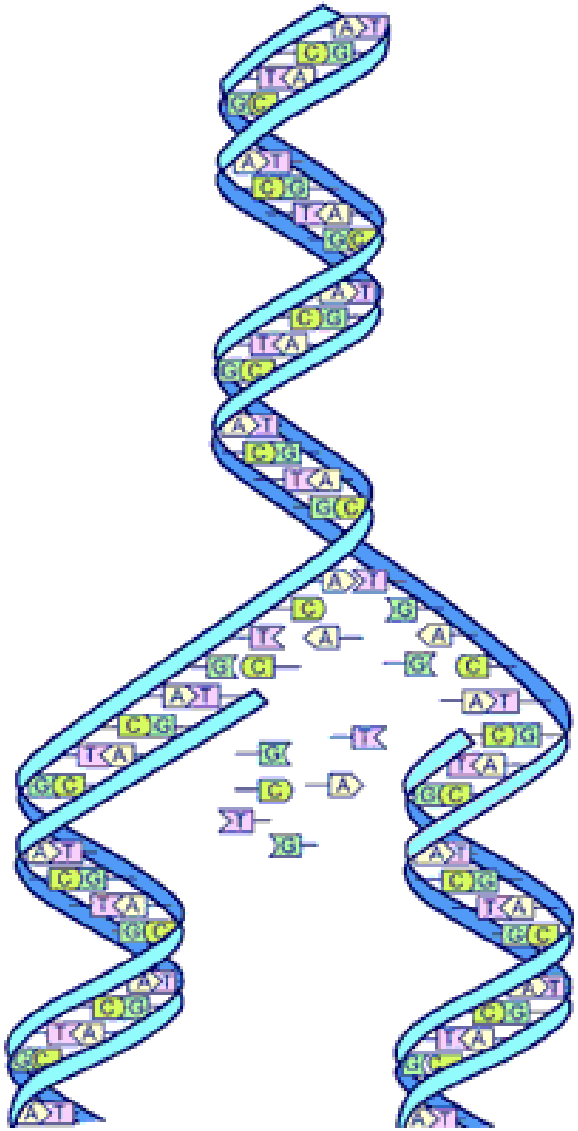
Testing the Standard Model

3000 authors from 183 institutions

Human Genome Project

13-year joint effort to sequence the human genome

data now publicly available



Open Hardware

Gathering for Open Science Hardware

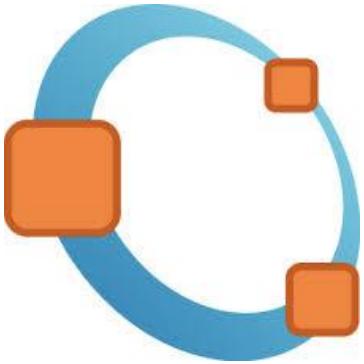
ABOUT GOSH » JOIN GOSH FORUM CODE OF CONDUCT MANIFESTO ROADMAP THE GATHERINGS » NEWS

Read the GOSH Roadmap!

GOSH 2018 – 10-13 Oct in Shenzhen

Join the GOSH Forum

Open Software



open source initiative

Open Software

statcheck

statcheck on the web

Behavior Research Methods
December 2016, Volume 48, Issue 4, pp 1205–1226 | Cite as

The prevalence of statistical reporting errors in psychology (1985–2013)

Authors Authors and affiliations

Michèle B. Nuijten, Chris H. J. Hartgerink, Marcel A. L. M. van Assen, Sacha Epskamp, Jelte M. Wicherts

2019 Researcher

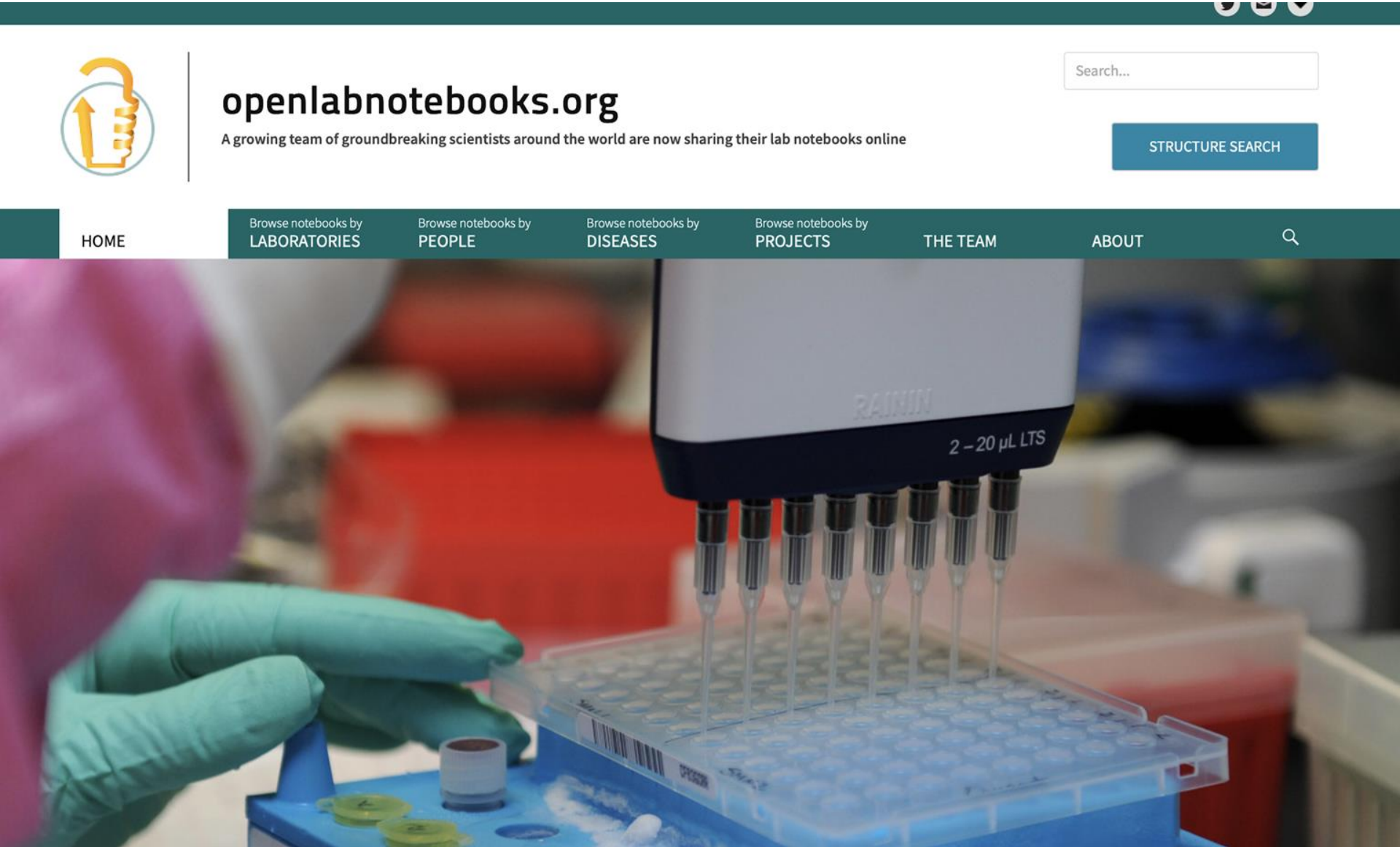
get it out there ...

Share your work!

Share your Materials, Data & Code

- release your work under a license and indicate explicitly in the paper or in the metadata how you want others to give you credit

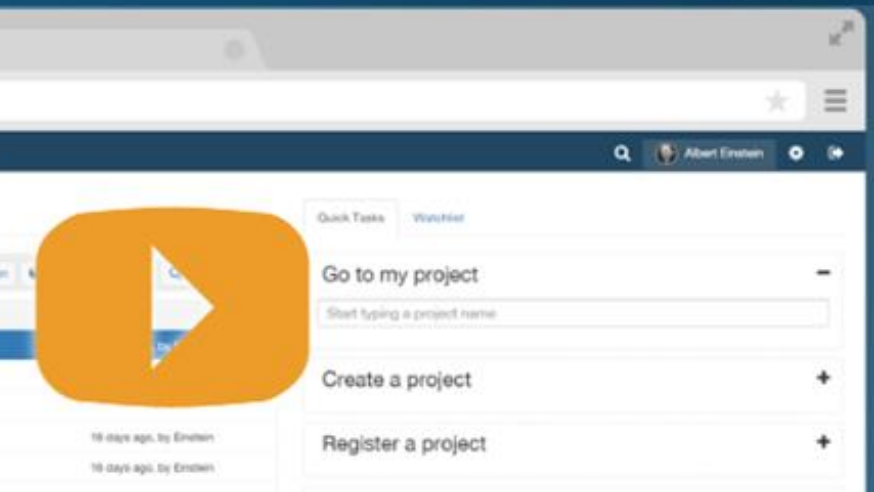
Document & Share your Procedure



Browse Support

Open Science Framework

A scholarly commons to connect the entire research cycle



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Password (Must be 8 to 256 characters)

By clicking "Sign up free", you agree to our Terms and that you have read our Privacy

Facilitate Meta-Analysis

Curate Science | REPLICATIONS | ABOUT | FEATURES | SANDBOX | FAQ

Social Priming

Schnall, Benton, & Harvey (2008a) -- Replications (7)

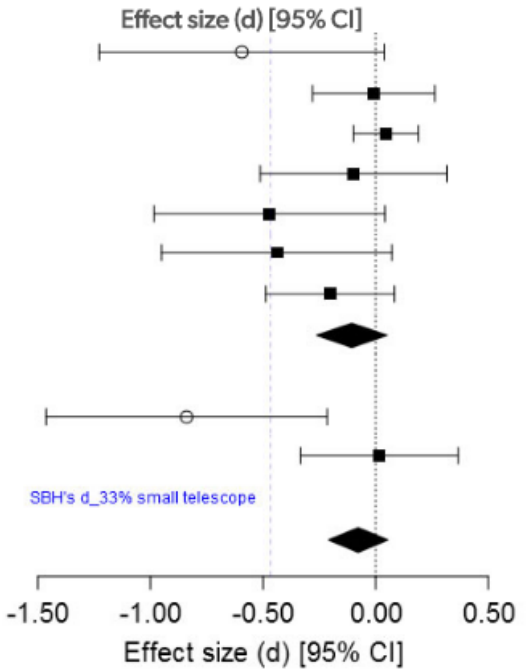
Tweet

With a Clean Conscience: Cleanliness Reduces the Severity of Moral Judgments

DOI:10.1111/j.1467-9280.2008.02227.x

[Original Abtract]

Original Studies & Replications	Data/Syntax	Materials/Pre-reg	N
Schnall et al. (2008a) Study 1	Study_1.sav		40
Johnson et al. (2014a) Study 1	Exp1_Data.sav	OSF folder	208
Johnson et al. (2014b)	Online_Rep.sav	OSF folder	736
Lee et al. (2013)	lee_data.csv		90
Arbesfeld et al. (2014)			60
Besman et al. (2013)			60
Huang (2014) Study 1	study1.sav		189
Current meta-analytic estimate of replications of SBH's Study 1 (random-effects):			
Schnall et al. (2008a) Study 2	Study_2.sav		43
Johnson et al. (2014a) Study 2	Exp2_Data.sav	OSF folder	126
Current meta-analytic estimate of all replications (random-effects):			



[Underlying data (CSV)] [R-code]

Summary:The main finding that cleanliness priming reduces the severity of moral judgment does not (yet) appear to be replicable (overall meta-

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Share your paper!

SHERPA/RoMEO

Hom

Search - Publisher copyright policies & self-archiving

One journal found when searched for: **journal of personality and social psychology**

Journal:	Journal of Personality and Social Psychology (ISSN: 0022-3514, ESSN: 1939-1315 [1])
RoMEO:	This is a RoMEO green journal
Paid OA:	A paid open access option is **available** for this journal.
Author's Pre-print:	✓ author **can** archive pre-print (ie pre-refereeing)
Author's Post-print:	✓ author **can** archive post-print (ie final draft post-refereeing)
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Mandated OA:	(*Awaiting information*)
Paid Open Access:	Article Sponsorship
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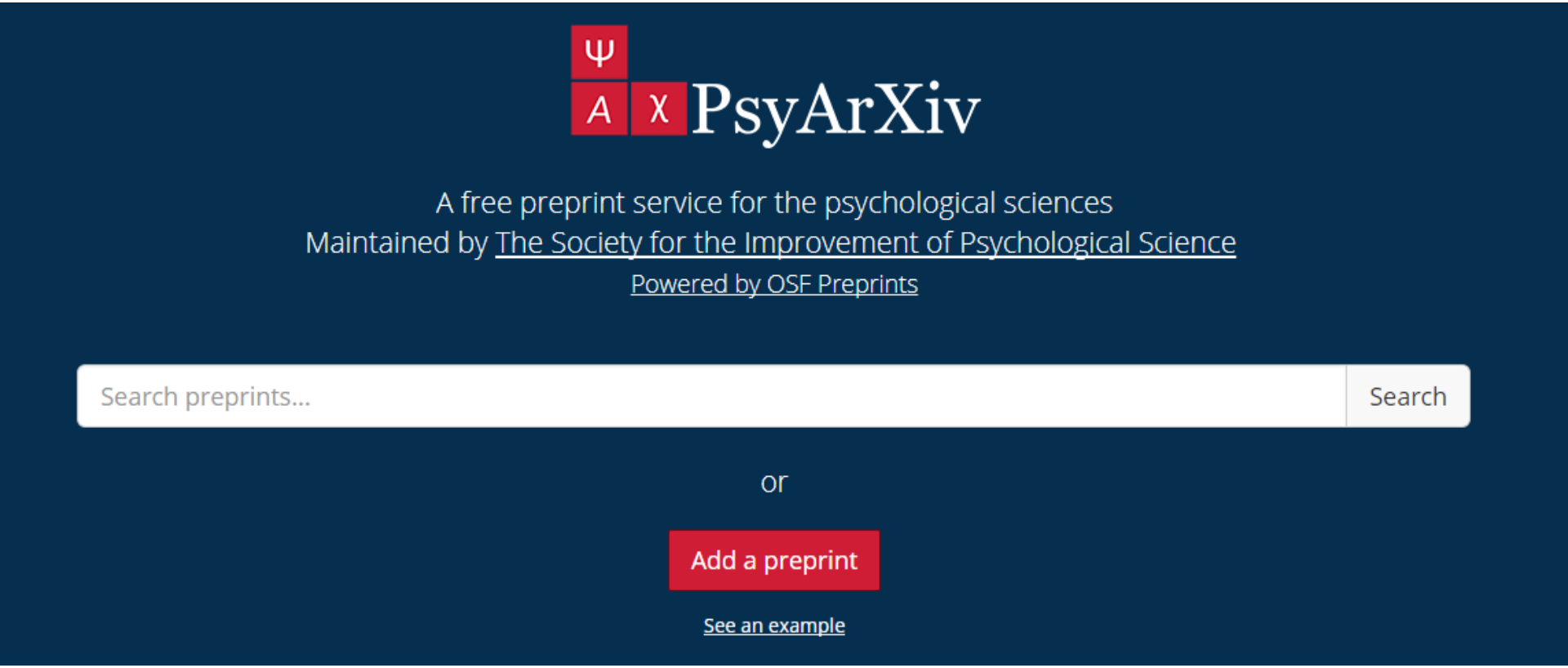
Updated:	20-May-2015 - Suggest an update for this record
Link to this page:	http://www.sherpa.ac.uk/romeo/issn/0022-3514/
Published by:	American Psychological Association - *Green Policies in RoMEO*
Footnotes:	1. *Extra ISSN(s) found - 1939-1293.*

Pre-prints


PsyArXiv
A free preprint service for the psychological sciences
Maintained by The Society for the Improvement of Psychological Science
Powered by OSF Preprints
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Search
or
Add a preprint
See an example

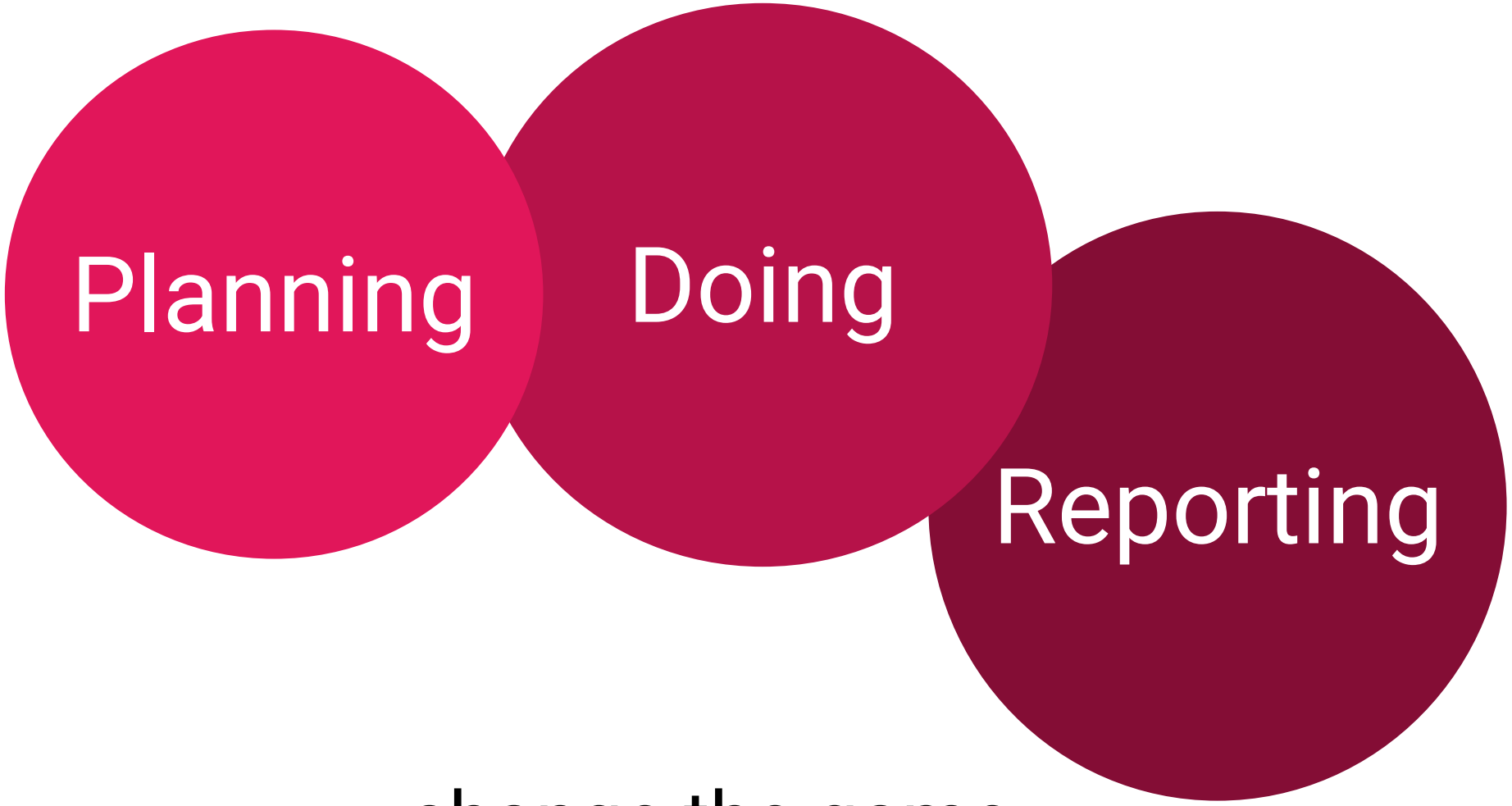
Pre-print servers and general repositories accepting pre-prints.

Preprint server or repository*	Subject areas	Repository open source?	Public API?	Can leave feedback?†	Third party persistent ID?
arXiv arxiv.org	physics, mathematics, computer science, quantitative biology, quantitative finance, statistics	No	Yes	No	No‡
bioRxiv biorxiv.org	biology, life sciences	No	No	Yes	Yes (DOI)
CERN document server cds.cern.ch	high-energy physics	Yes (GPL)	Yes	No	No
Cogprints cogprints.org	psychology, neuroscience, linguistics, computer science, philosophy, biology	No	Yes	No	No
EconStor econstor.eu	economics	No	Yes	No	Yes (Handle)
e-LiS eprints.rclis.org	library and information sciences	No§	Yes	No	Yes (Handle)
figshare figshare.com	general repository for all disciplines	No	Yes	Yes	Yes (DOI)
Munich Personal RePEc Archive mpra.ub.uni-muenchen.de	economics	No¶	Yes	No	No
Open Science Framework osf.io	general repository for all disciplines	Yes (Apache 2)	Yes	Yes	Yes (DOI/ARK)
PeerJ Preprints peerj.com/archives-preprints	biological, life, medical, and computer sciences	No	Yes	Yes	Yes (DOI)
PhilSci Archive philsci-archive.pitt.edu	philosophy of science	No**	Yes	No	No
Self-Journal of Science www.sjscience.org	general repository for all disciplines	No	No	Yes	No
Social Science Research Network ssrn.com	social sciences and humanities	No	No	Yes	Yes (DOI)
The Winnower thewinnower.com	general repository for all disciplines	No	No	Yes	Yes (DOI)††
Zenodo zenodo.org	general repository for all disciplines	Yes (GPLv2)	Yes	No	Yes (DOI)

2019 Researcher

change the game ...

2019 Researcher



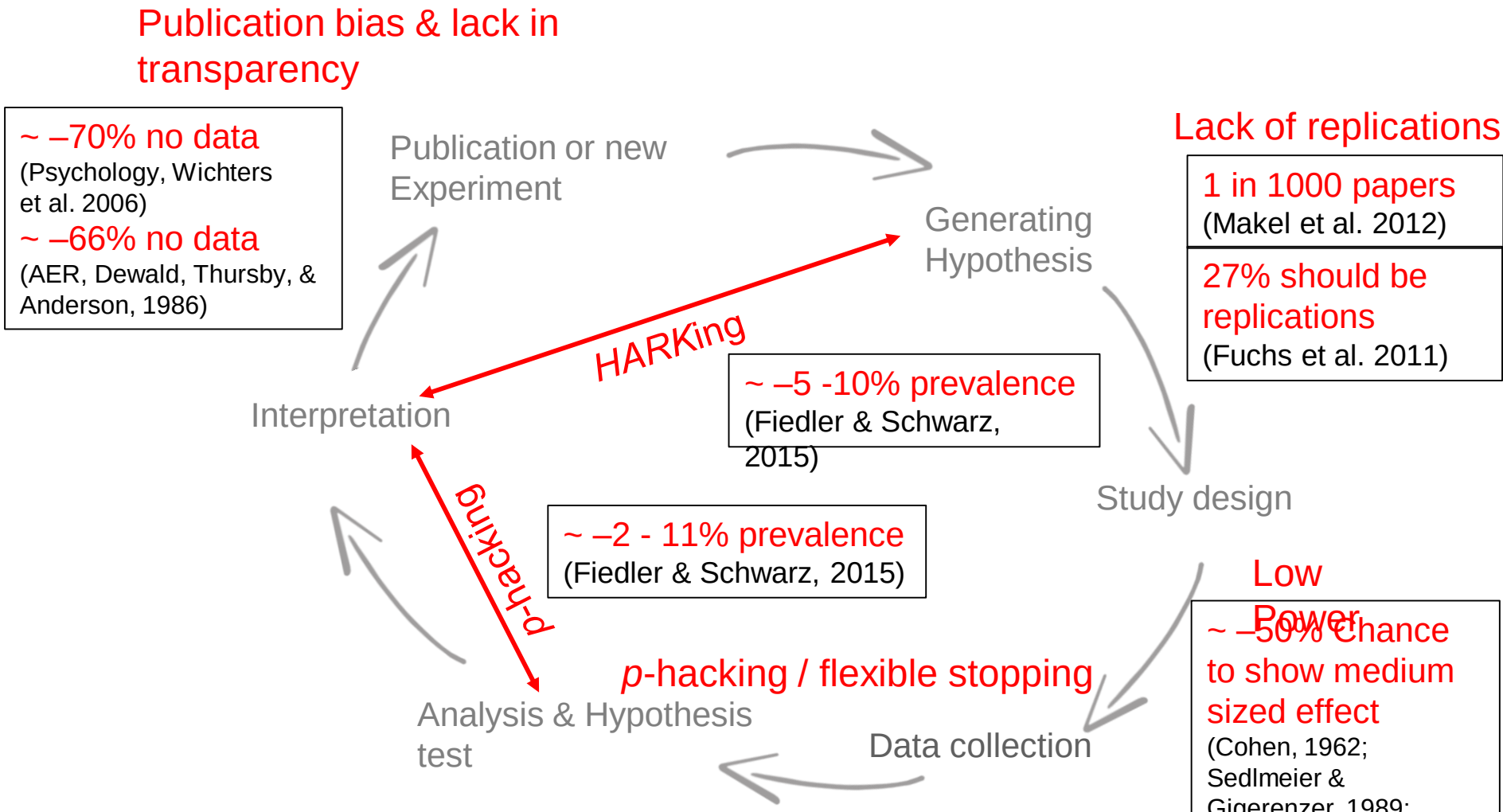
change the game ...

Who Publishes Registered Reports?

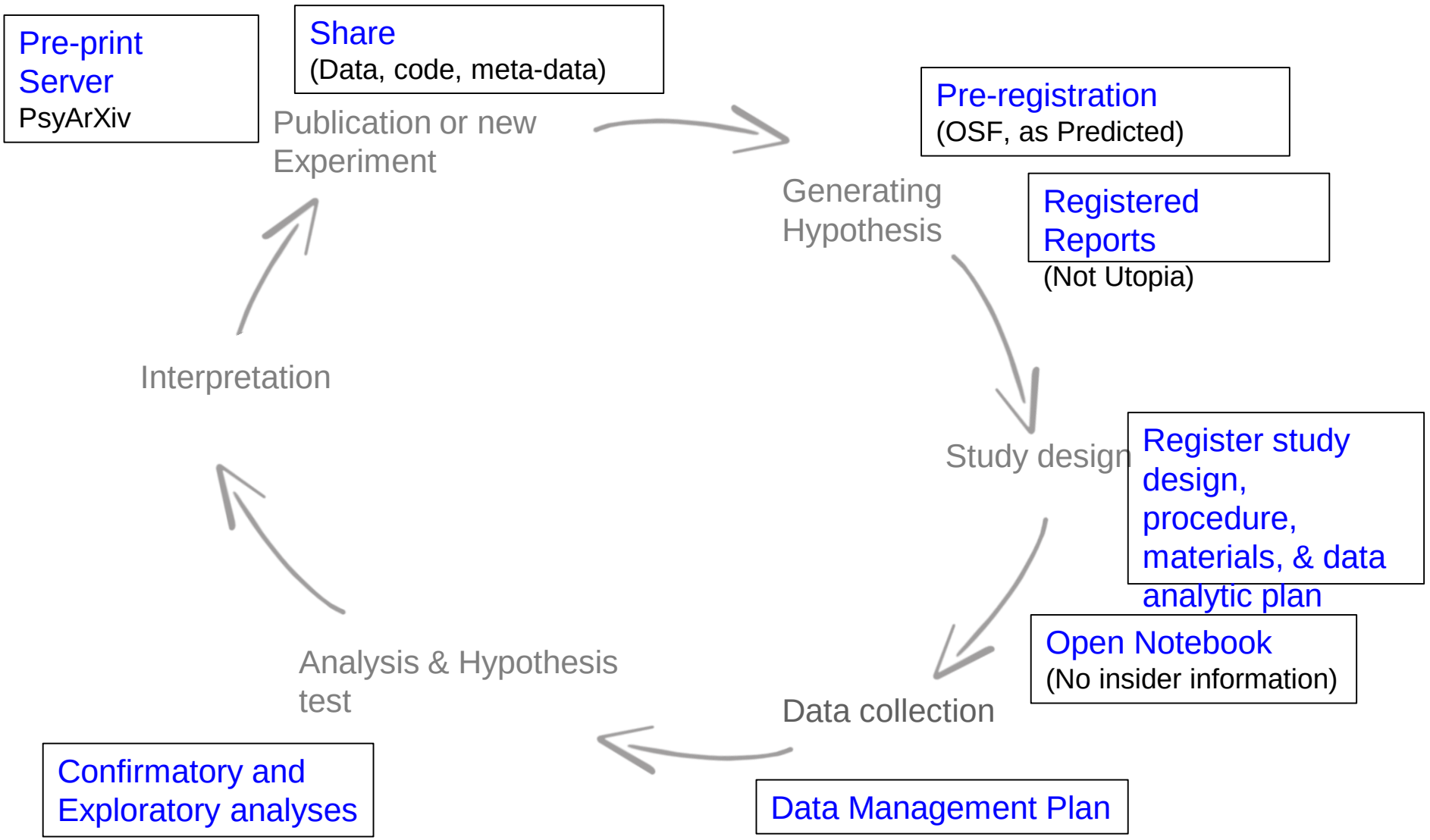
204 journals currently accept registered reports

See the full list: http://cos.io/rr

Research Cycle: Goes Wrong



Research Cylce: Goes GRRRREAT!



Norms

Open

Communality

Open sharing

Disinterestedness

Motivated by knowledge and discovery

Organized skepticism

Consider all new evidence, even against one's prior work

Quality

Problematic

Secrecy

Closed

Self-interestedness

Treat science as a competition

Organized dogmatism

Invest career promoting one's own theories, findings

Quantity

Norms

Communality

Open sharing

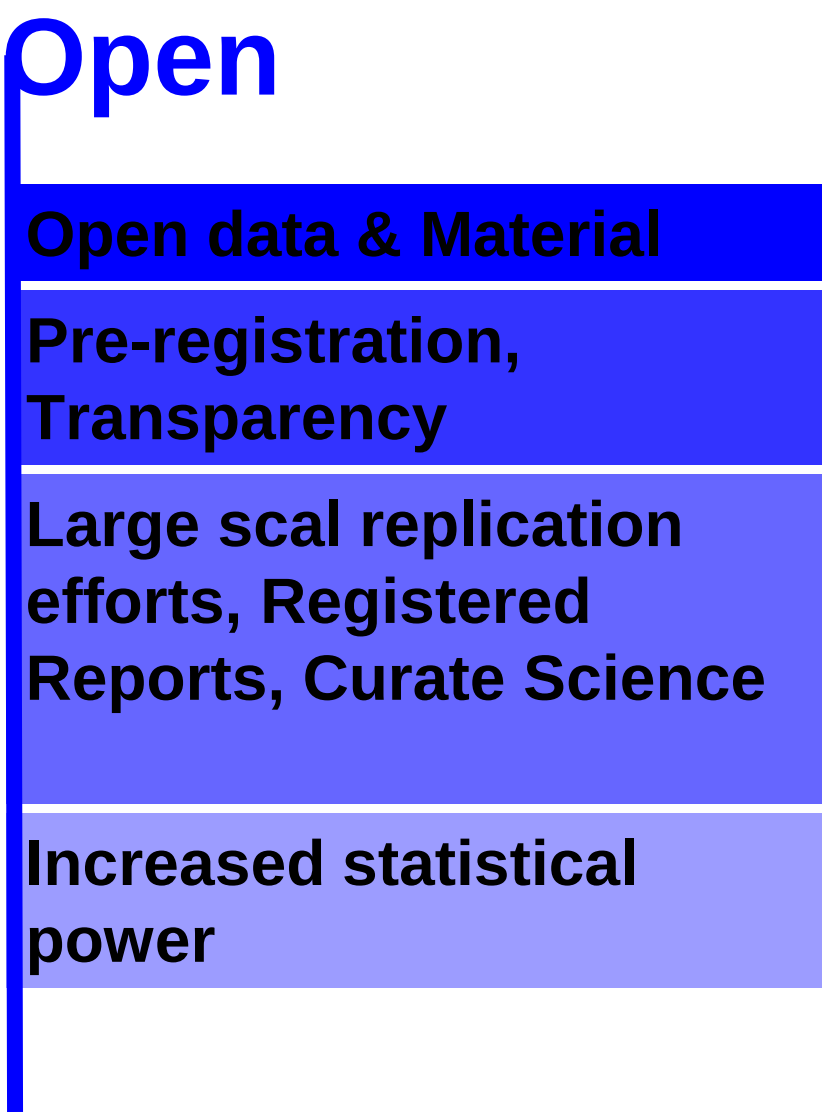
Disinterestedness

Motivated by knowledge and discovery

Organized skepticism

Consider all new evidence, even against one's prior work

Quality

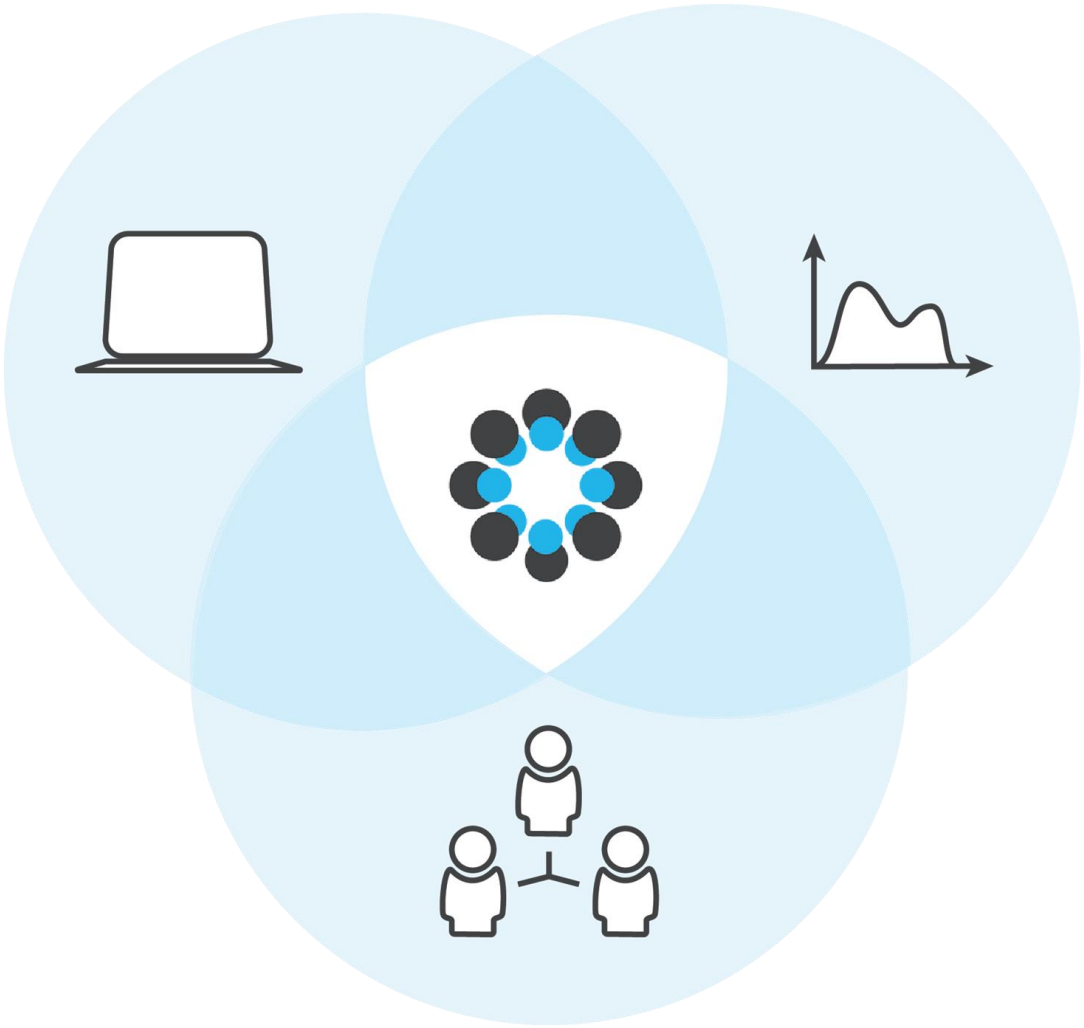


“The first principle is that you must not fool yourself -and you are the easiest person to fool”

Feynman, 1974

Put reality back into the published literature!

Join Your Research Community!



Expand your Research Community

datacolada.org
the100.ci

andrewgelman.com
thehardestscience.com

@openscience
#openscience

Ask Open Science

https://ask-open-science.org/

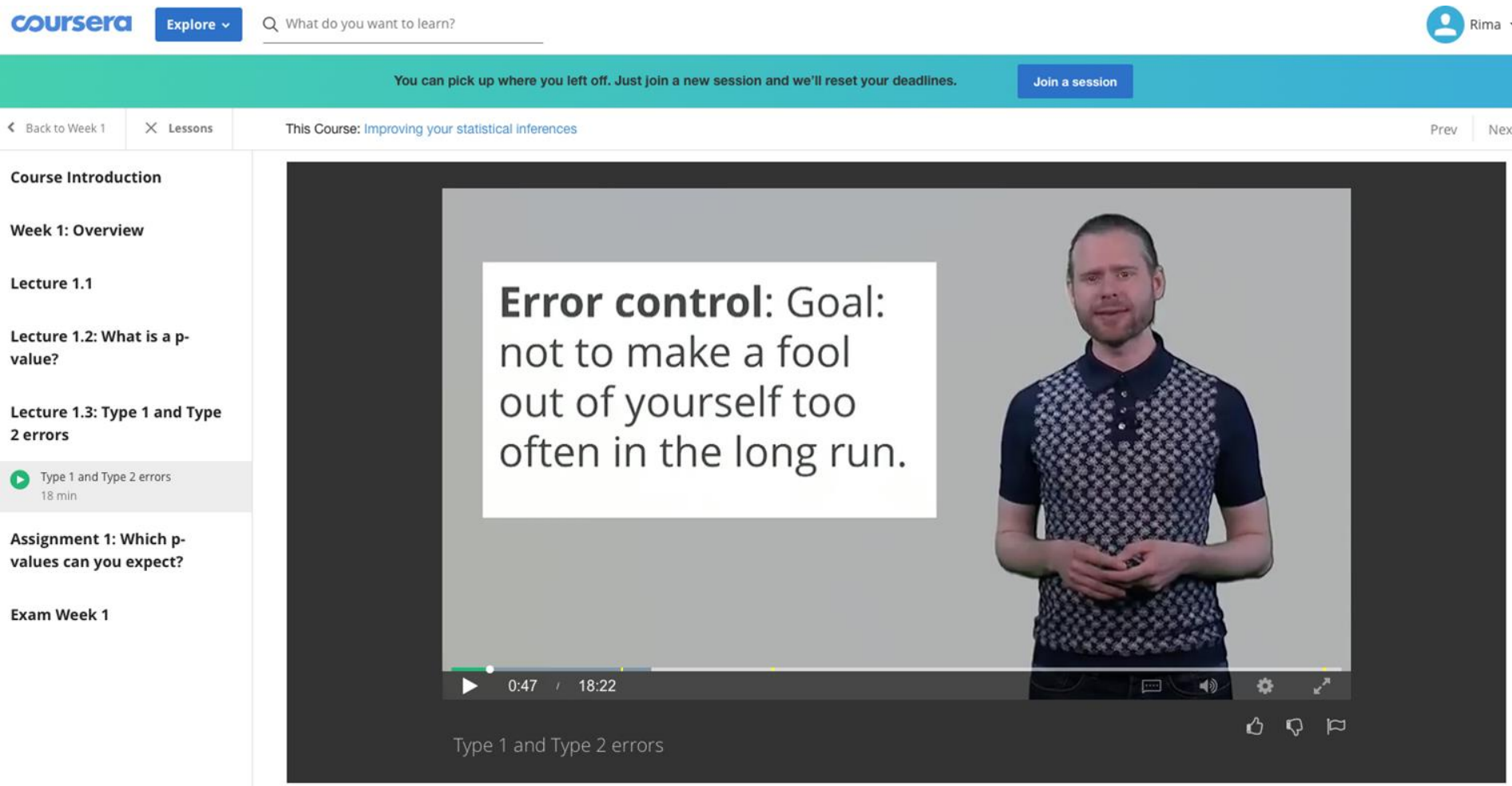
Open Science Radio
The Black Goat

PsychMAP
Psychological Methods
Discussion Group

Learn new and refresh old stuff!

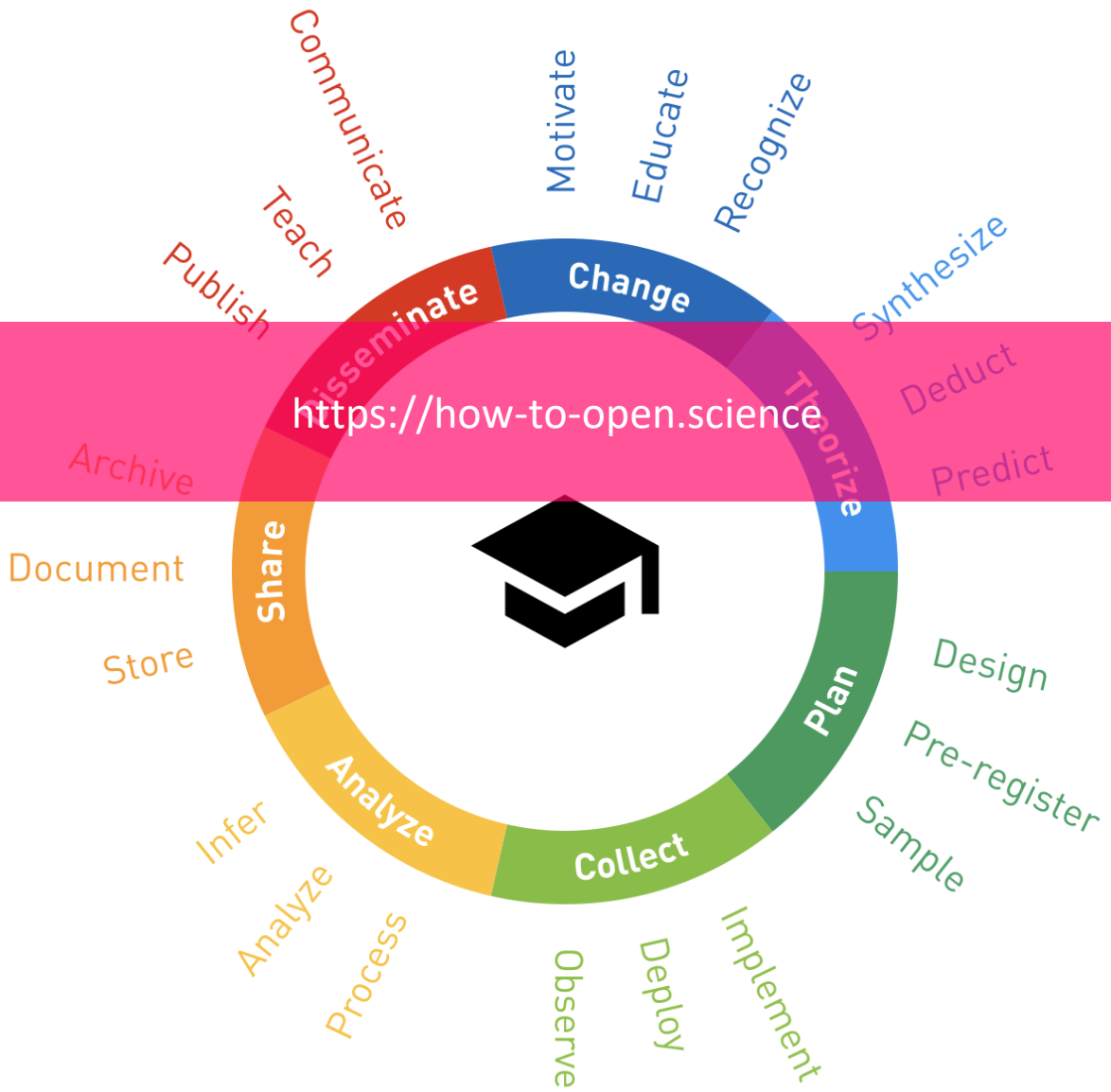
https://rimamrahal.wordpress.com

Learn new and refresh old stuff!



https://www.coursera.org/learn/statistical-inferences

Keep asking questions!



Jump right in!

Planning

Doing

Reporting

Scan to read a summary!
https://osf.io/preprints/metaarxiv/3hb6g

change the game ...