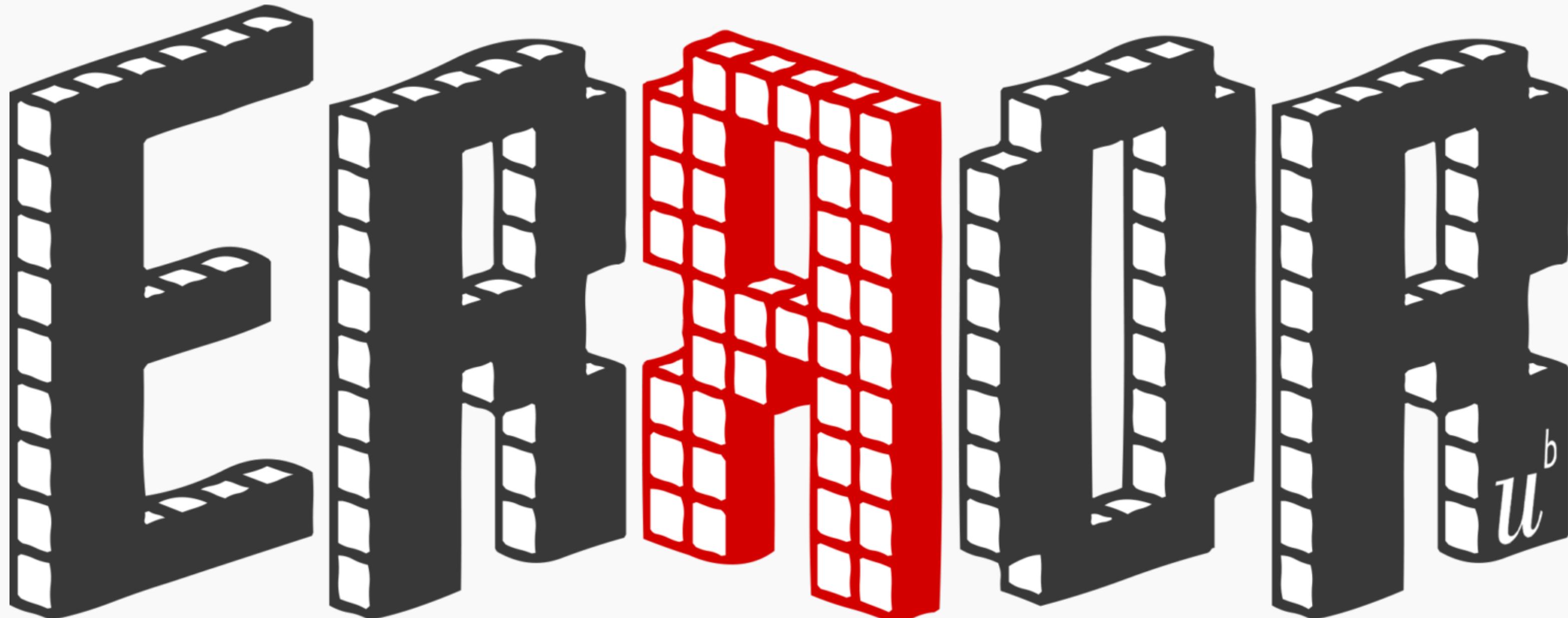


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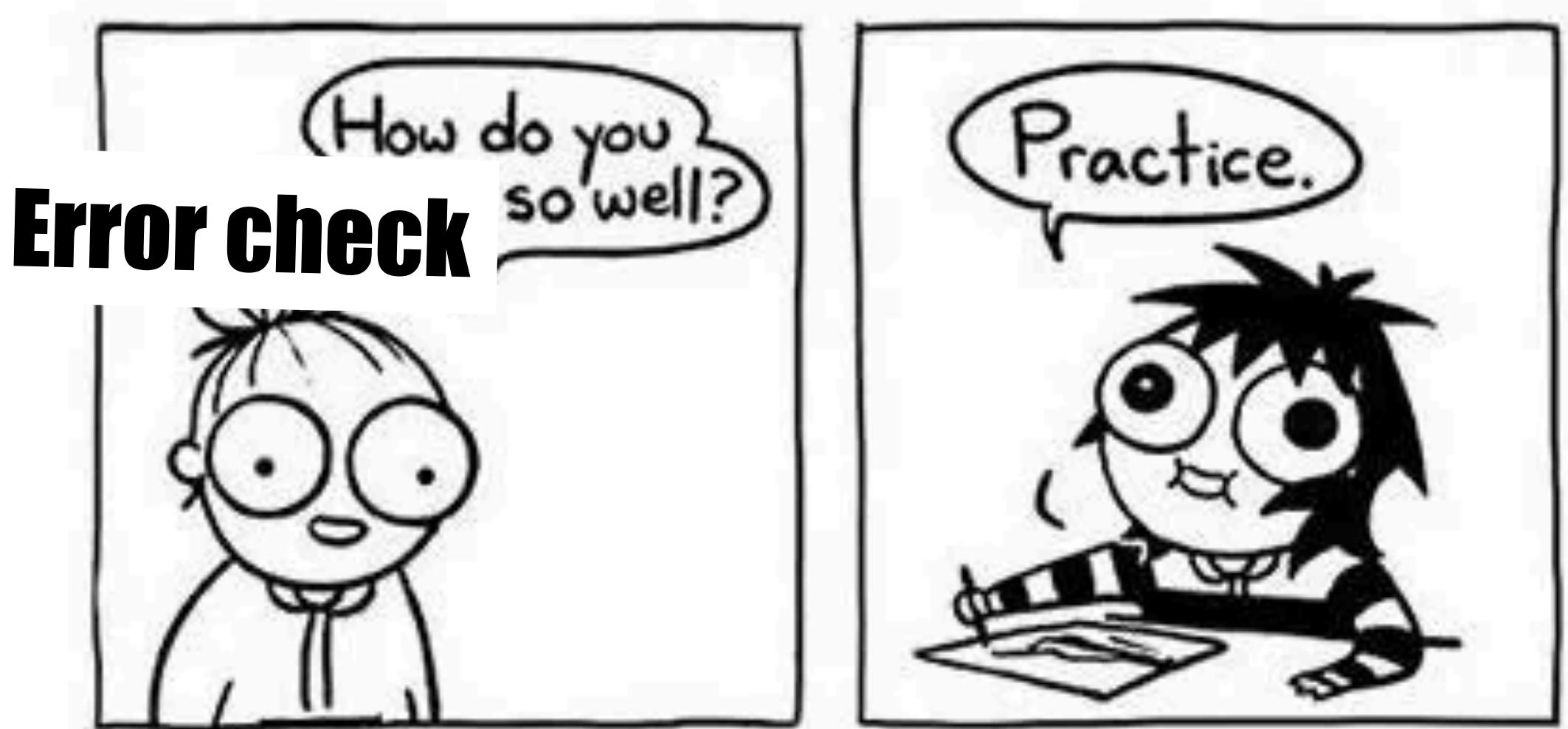


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Trustworthiness Assessment

Ian Hussey

Schedule for the day



9:00 - 9:15	Intros
9:15 - 10:30	Trustworthiness assessment: Why and how?
10:30 - 11:00	Break
11:00 - 12:30	Inconsistent p -values Misinterpretation of p -values
12:30 - 13:30	Lunch
13:30 - 15:00	Granularity and range consistency checks
15:00 - 15:30	Break
15:30 - 17:00	Magnitude & measurement checks

1

They looked



Thomas Herndon in 2013
Economics PhD student

He took a class where the professor
asked students to examine the results of influential papers



He chose **Reinhart & Rogoff (2010) Growth in a Time of Debt**

“Economic growth slows dramatically when the size of a country's debt rises above 90% of Gross Domestic Product”

Reinhart & Rogoff were Harvard professors + worked for the IMF

Their paper **changed the world**



EU and UK both based their economic ‘austerity’ policies on it

Ireland & Greece were sacrificed to stop the spread of the debt crisis to the rest of Europe

4 million Irish people took on 190 Billion CHF in debt
- 48k CHF per person

Slashed our healthcare, education, infrastructure,
- These still have not recovered

	B	C	I	J	K	L	M
2			Real GDP growth				
3			Debt/GDP				
4	Country	Coverage	30 or less	30 to 60	60 to 90	90 or above	30 or less
26			3.7	3.0	3.5	1.7	5.5
27	Minimum		1.6	0.3	1.3	-1.8	0.8
28	Maximum		5.4	4.9	10.2	3.6	13.3
29							
30	US	1946-2009	n.a.	3.4	3.3	-2.0	n.a.
31	UK	1946-2009	n.a.	2.4	2.5	2.4	n.a.
32	Sweden	1946-2009	3.6	2.9	2.7	n.a.	6.3
33	Spain	1946-2009	1.5	3.4	4.2	n.a.	9.9
34	Portugal	1952-2009	4.8	2.5	0.3	n.a.	7.9
35	New Zealand	1948-2009	2.5	2.9	3.9	-7.9	2.6
36	Netherlands	1956-2009	4.1	2.7	1.1	n.a.	6.4
37	Norway	1947-2009	3.4	5.1	n.a.	n.a.	5.4
38	Japan	1946-2009	7.0	4.0	1.0	0.7	7.0
39	Italy	1951-2009	5.4	2.1	1.8	1.0	5.6
40	Ireland	1948-2009	4.4	4.5	4.0	2.4	2.9
41	Greece	1970-2009	4.0	0.3	2.7	2.9	13.3
42	Germany	1946-2009	3.9	0.9	n.a.	n.a.	3.2
43	France	1949-2009	4.9	2.7	3.0	n.a.	5.2
44	Finland	1946-2009	3.8	2.4	5.5	n.a.	7.0
45	Denmark	1950-2009	3.5	1.7	2.4	n.a.	5.6
46	Canada	1951-2009	1.9	3.6	4.1	n.a.	2.2
47	Belgium	1947-2009	n.a.	4.2	3.1	2.6	n.a.
48	Austria	1948-2009	5.2	3.3	-3.8	n.a.	5.7
49	Australia	1951-2009	3.2	4.9	4.0	n.a.	5.9
50							
51			4.1	2.8	2.8	=AVERAGE(L30:L44)	

[Home](#) > [Lifestyle](#)

George Osborne plunged UK into austerity due to an 'error on a spreadsheet'

An academic paper produced by two Harvard economists and relied upon by Cameron and Osborne contained serious miscalculations, it has been claimed.

by **Jack Peat** — 2022-09-22 15:30 in Lifestyle[!\[\]\(f95dab70c751fda7d824b8b03650f7aa_img.jpg\) Facebook](#)[!\[\]\(e1c624d4757f08486e89482c18364c17_img.jpg\) Twitter](#)[!\[\]\(d8ab143e904bfa3467271eec5af75a9b_img.jpg\) LinkedIn](#)[!\[\]\(4688aadfd656ded00cd6bdfae55089a9_img.jpg\) Email](#)[!\[\]\(e9474ce1d70442456f8fe9c393ea149c_img.jpg\) WhatsApp](#)

George Osborne plunged the UK into austerity "all for nothing" due to an error on an Excel spreadsheet, according to a podcaster.

Hosts James Harkin, Andrew Hunter Murray, Anna Ptaszynski, and Dan Schreiber – from the No Such Thing As A Fish podcast – claim the UK reacted to incorrect data in an academic paper on economic growth and inflation.

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More from TLE

- ▶ Watchdog calls for ticket office closures to be delayed over machine upgrades.
- ▶ Richard Curtis uses Al Pacino's Any Given Sunday speech to inspire global action on climate change
- ▶ James Cleverly holidayed with well-connected Tory lobbyist in Gibraltar
- ▶ Eleveses: Has the Left Abandoned the Working Class?
- ▶ UK recession fears grow as economy contracts
- ▶ Labour calls on Sunak to block Liz Truss's soon-to-be-published honours list
- ▶ Mick Lynch suggests RMT union will not comply with new anti-strike legislation
- ▶ Russell Brand receives standing ovation at Wembley show following sexual assault

**A few outsiders and weirdos saw the problems
by doing something the others never thought to do:**

They looked.

They looked.



2

A general problem



"It is simply no longer possible to believe much of the clinical research that is published, or to rely on the judgment of trusted physicians or authoritative medical guidelines."

Dr Marcia Angell
*Former editor-in-chief of
The New England Journal of Medicine*

**"Much of the scientific literature, perhaps half,
may simply be untrue"**

Dr. Richard Horton (2015)
*Editor-in-chief of
The Lancet*

Science & technology | Scientific malpractice

There is a worrying amount of fraud in medical research

And a worrying unwillingness to do anything about it



Feb 22nd 2023

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IN 2011 BEN MOL, a professor of obstetrics and gynaecology at Monash University, in Melbourne, came across a retraction notice for a study on uterine fibroids and infertility published by a researcher in Egypt. The journal which had published it was retracting it because it contained identical numbers to those in an earlier Spanish study—except that that one had been on uterine polyps. The author, it turned out, had simply copied parts of the polyp paper and changed the disease.

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▶ 0:00 / 0:00

Ian Hussey

| Digitalisation of Psychology

15

"From that moment I was alert," says Dr Mol. And his alertness was not merely as a reader of published papers. He was also, at the time, an editor of the *European*

Time to assume that health research is fraudulent until proven otherwise?

July 5, 2021

Health research is based on trust. Health professionals and journal editors reading the results of a clinical trial assume that the trial happened and that the results were honestly reported. But about 20% of the time, said Ben Mol, professor of obstetrics and gynaecology at Monash Health, they would be wrong. As I've been concerned about research fraud for 40 years, I wasn't that surprised as many would be by this figure, but it led me to think that the time may have come to stop assuming that research actually happened and is honestly reported, and assume that the research is fraudulent until there is some evidence to support it having happened and been honestly reported. The Cochrane Collaboration, which purveys "trusted information," has now taken a step in that direction.



As he described in a webinar last week, Ian Roberts, professor of epidemiology at the London School of Hygiene & Tropical Medicine, began to have doubts about the honest reporting of trials after a colleague asked if he knew that his systematic review showing the mannitol halved death from head injury was based on trials that had never happened. He didn't, but he set about investigating the trials and confirmed that they hadn't ever happened. They all had a lead author who purported to come from an institution that didn't exist and who killed himself a few years later. The trials were all published in prestigious neurosurgery journals and had multiple co-authors. None of the co-authors had contributed patients to the trials, and some didn't know that they were co-authors until after the trials were published. When Roberts contacted one of the journals the editor responded that "I wouldn't trust the data." Why, Roberts wondered, did he publish the trial? None of the trials have been retracted.

Approximately 1 in 7 Scientific Papers Are Fake

James Heathers¹²

**Heathers (2024) provides a terrible estimate
Take it seriously, but not literally**

3

Think stupider

**Southern Italy has one of the highest rate
of 100+ years old people**

Why?

“clerical errors and pension fraud”

Newman (2024)

The woman who wasn't there: Converging evidence that subliminal social comparison affects self-evaluation

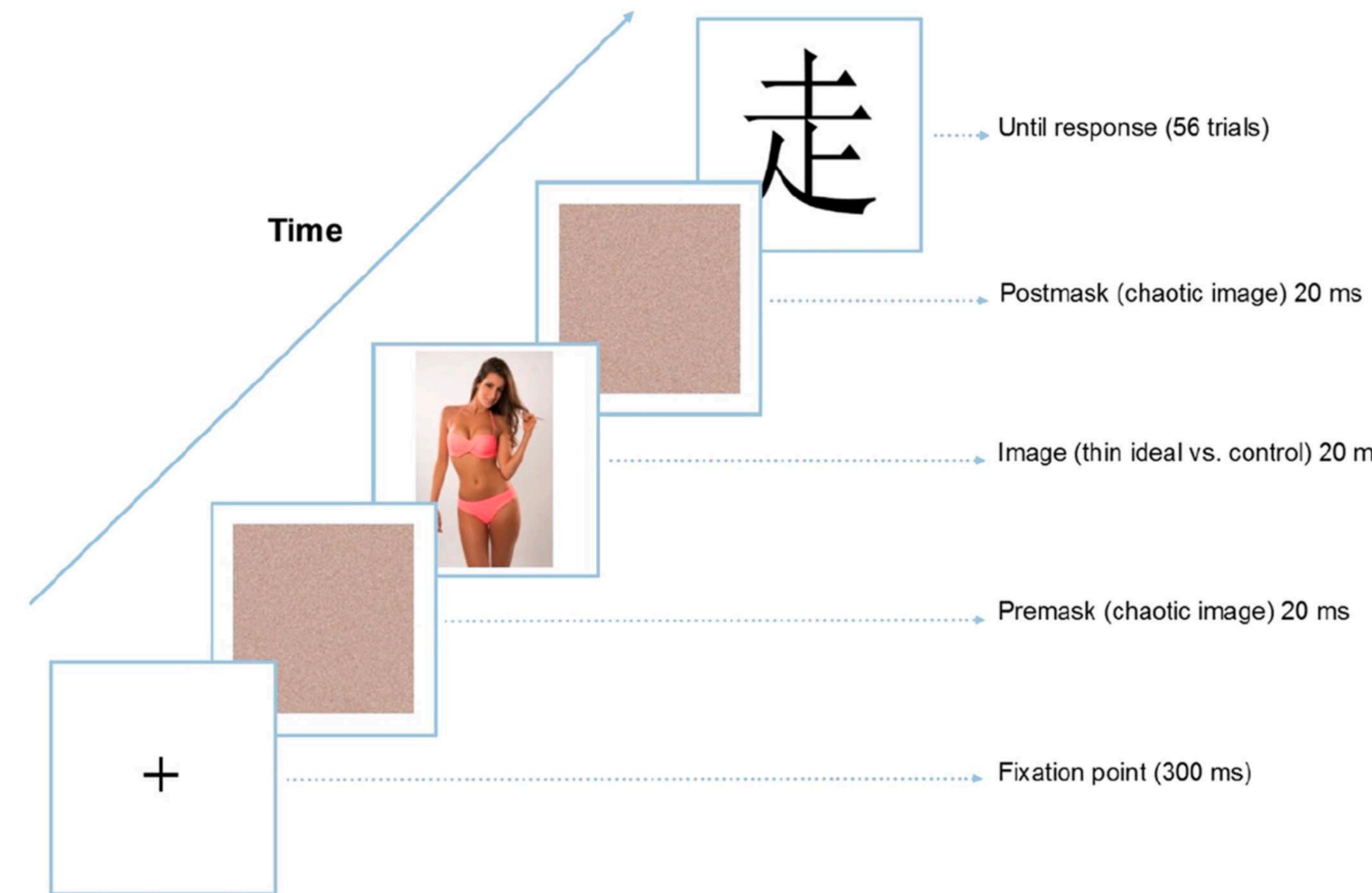
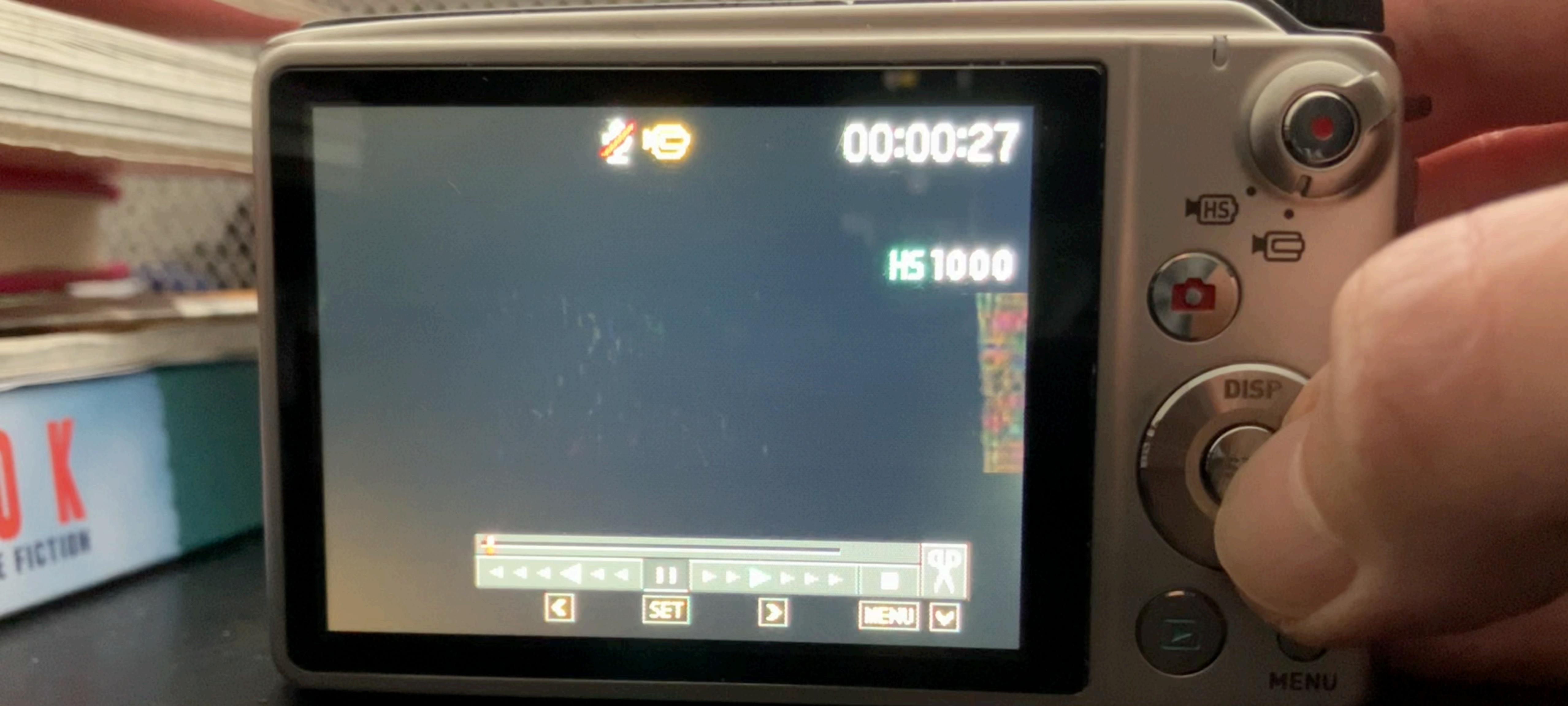
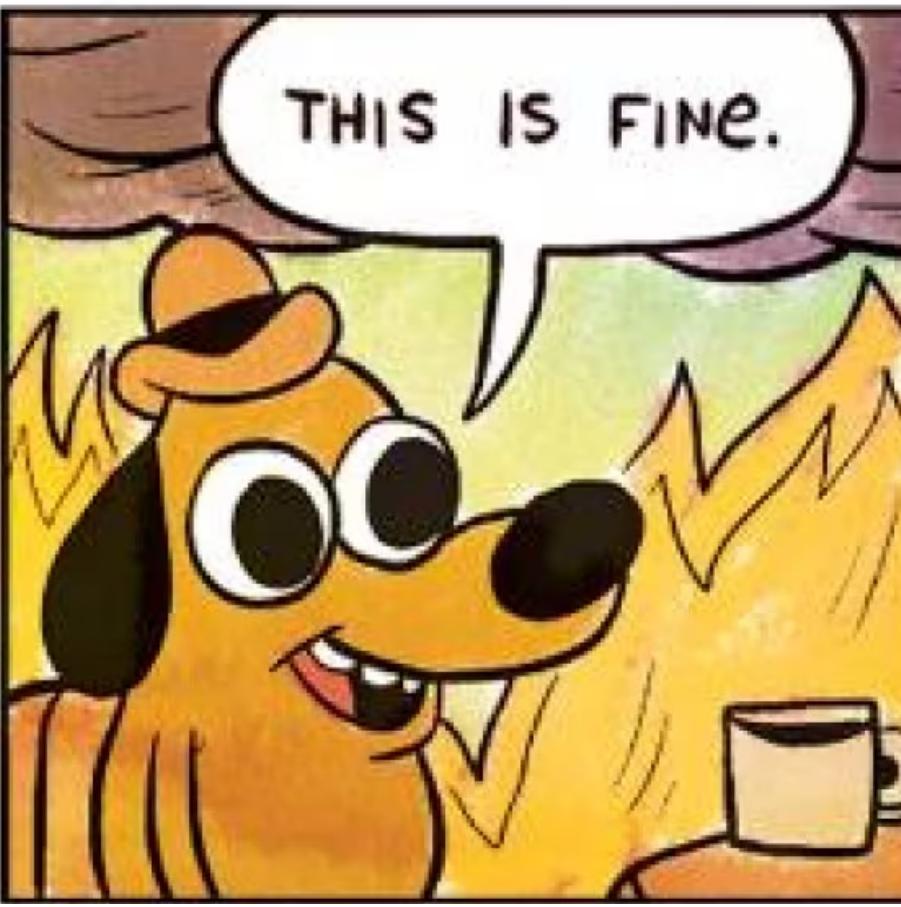
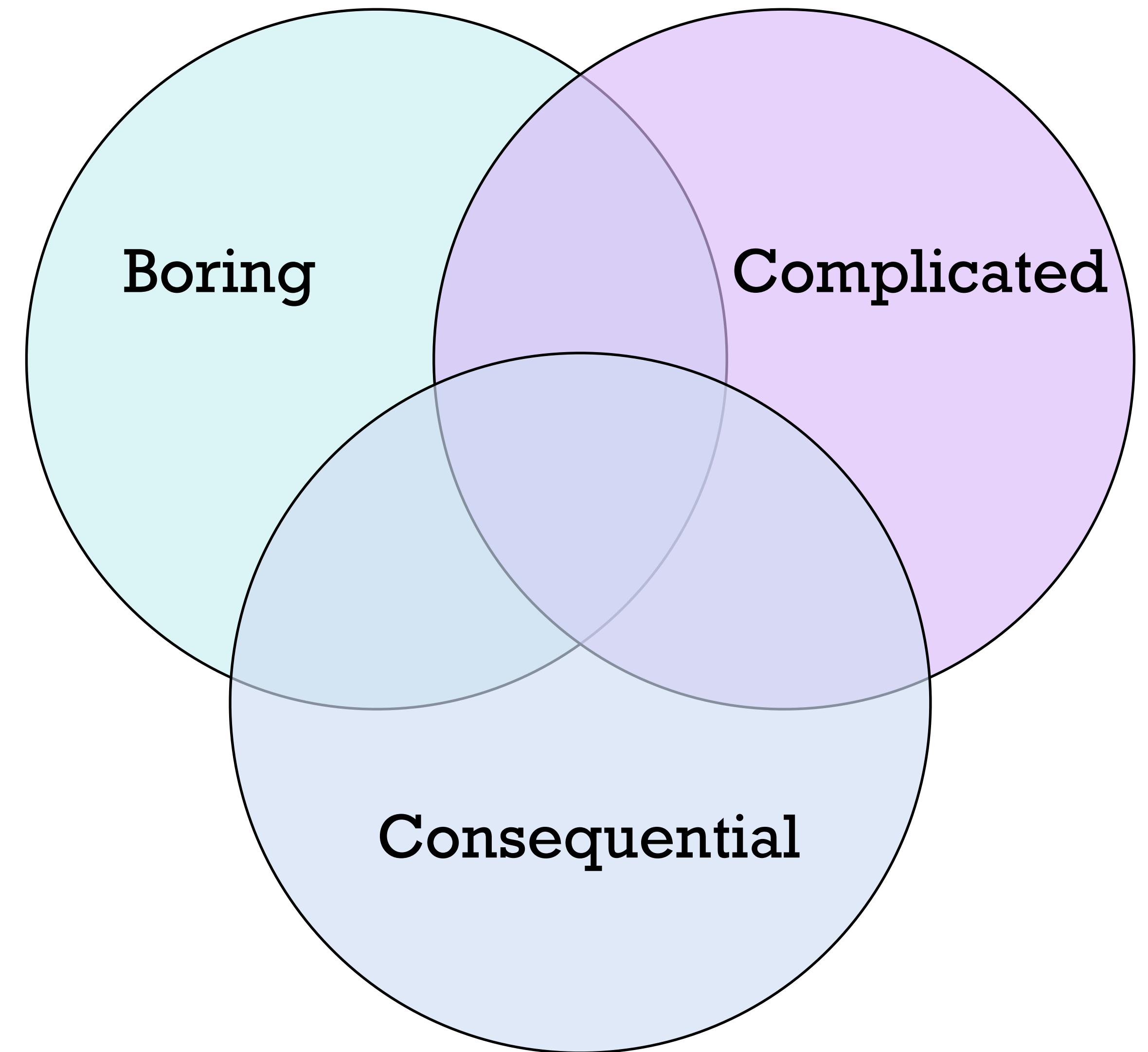


Fig. 1. Illustration of the subliminal procedure used to prime body images in Experiments 1 and 2.





“It has come to our attention that some stimuli may not have been presented correctly due to a coding error.”



4

**Be willing to consider that
fraud-like behavior occurs**

Philosophers of science + computational modelling

Research fraud would be the **rational choice** if:

- Rewards for fraud are high ✓
- Risk of Detection is Low ✓
- Punishment is rare and light ✓

Zollman (2019) The Scientific Ponzi Scheme

Smaldino & McElreath (2016) The natural selection of bad science

Bakker & Wicherts (2012) The rules of the game called psychological science



ARTICLES

Preventing the return of fear in humans using reconsolidation update mechanisms

Daniela Schiller^{1,2}, Marie-H. Monfils^{1,3}, Candace M. Raio², David C. Johnson², Joseph E. LeDoux¹
& Elizabeth A. Phelps^{1,2}

Recent research on changing fears has examined targeting reconsolidation. During reconsolidation, stored information is rendered labile after being retrieved. Pharmacological manipulations at this stage result in an inability to retrieve the memories at later times, suggesting that they are erased or persistently inhibited. Unfortunately, the use of these pharmacological manipulations in humans can be problematic. Here we introduce a non-invasive technique to target the reconsolidation of fear memories in humans. We provide evidence that old fear memories can be updated with non-fearful information provided during the reconsolidation window. As a consequence, fear responses are no longer expressed, an effect that lasted at least a year and was selective only to reactivated memories without affecting others. These findings demonstrate the adaptive role of reconsolidation as a window of opportunity to rewrite emotional memories, and suggest a non-invasive technique that can be used safely in humans to prevent the return of fear.

Learning about potential dangers in the environment is critical for adaptive function, but at times fear learning can be maladaptive, resulting in excessive fear and anxiety. Research on changing fears has highlighted several techniques, most of which rely on the inhibition of the learned fear response. An inherent problem with these inhibition techniques is that the fear may return, for example with stress¹. Recent research on changing fears targeting the reconsolidation process overcomes this challenge to some extent. During reconsolidation, stored information is rendered labile after being retrieved, and pharmacological manipulations at this stage result in an inability to retrieve the memories at later times, suggesting that they are either erased or persistently inhibited^{2–6}. Although these pharmacological manipulations are potentially useful for changing learned fears, their use in humans can be problematic. Here we show that invasive techniques are not necessary to alter fear by targeting reconsolidation. This is based on the premise that reconsolidation is an adaptive update mechanism by which new information is incorporated into

Why would such a recurrent window of vulnerability exist for old memories? From an evolutionary perspective, reconsolidation may serve as an adaptive update mechanism allowing for new information, available at the time of retrieval, to be integrated into the initial memory representation^{3,7,8}. This view captures the fluidity of memory and suggests a dynamic process through which memories are formed, updated and maintained.

Using Pavlovian fear conditioning as a model paradigm, research in non-human animals has detailed the molecular processes involved in emotional memory reconsolidation by pharmacologically blocking various stages of this process, after which the memory was no longer expressed. Most of these studies use protein synthesis inhibitors, or other pharmacological agents, that are not safe for use in humans^{3,4,6,11–14}. Because the ability to impair emotional memories has important implications for the treatment for anxiety disorders linked to traumatic memories, such as post-traumatic stress disorder (PTSD), identifying techniques to target reconsolidation that can be

What if we could
selectively erase
our most painful memories?

[nature](#) > [news](#) > [article](#)

News | Published: 09 December 2009

Fear memories erased without drugs

[Lizzie Buchen](#)

[Nature](#) (2009) | [Cite this article](#)

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Memory • This article is more than 7 years old

Memories of fear could be permanently erased, study shows

Research in mice reveals a new approach to wiping memories from the brain, demonstrating that specific memories can be weakened or strengthened

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 Strike on Iran will make world understand Israel's might, says defence minister

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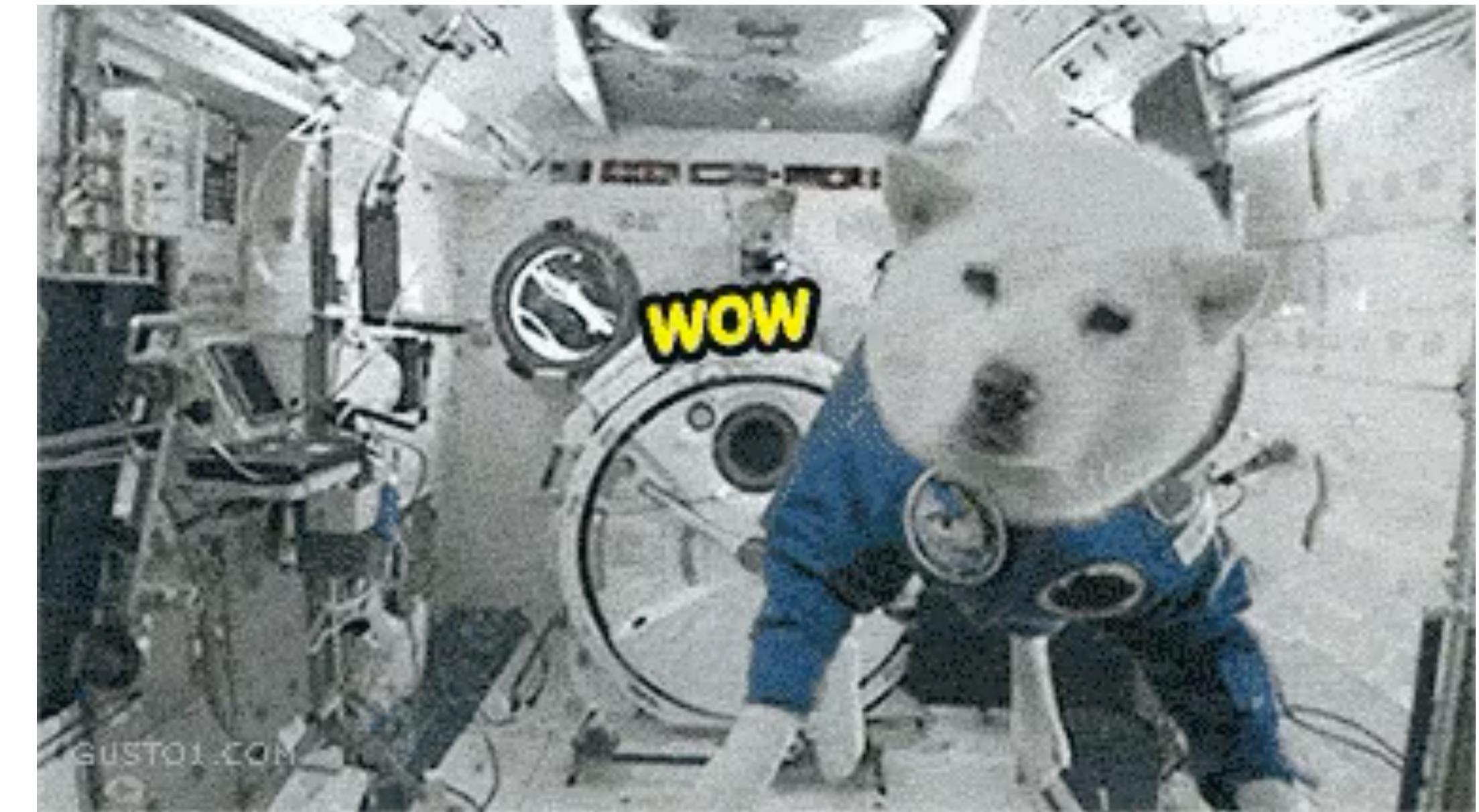
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Chalkia, Beckers et al. (2020a, 2020b, 2021)

High quality replication of Schiller et al. (2010)

- Null results
 - *Took years to run, was quite expensive (2 million euro grant)*

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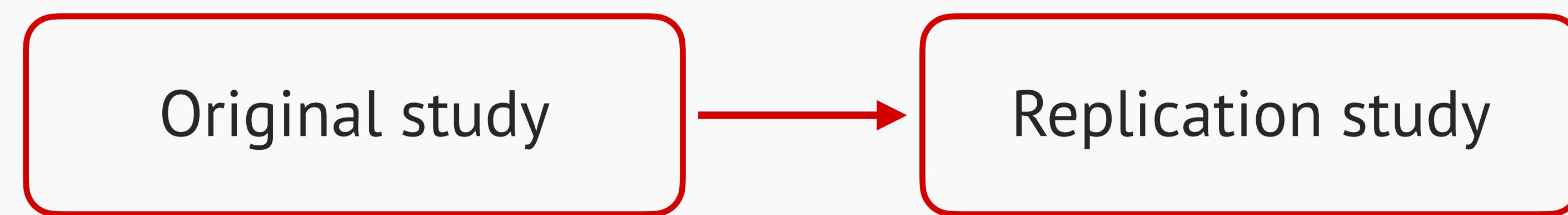
Verification of Schiller et al. (2010)

- Obtained the raw data and reconstructed their analyses + results
- Discovered unreported 'qualitative' exclusions
- Original study reported " $N = 77$, six of which were excluded"
- Verification: *actually, 50 additional participants were excluded (unreported)*
- Effect disappears under any principled exclusion strategy
 - *Could have been run first for little cost*

5

Trustworthiness Assessment

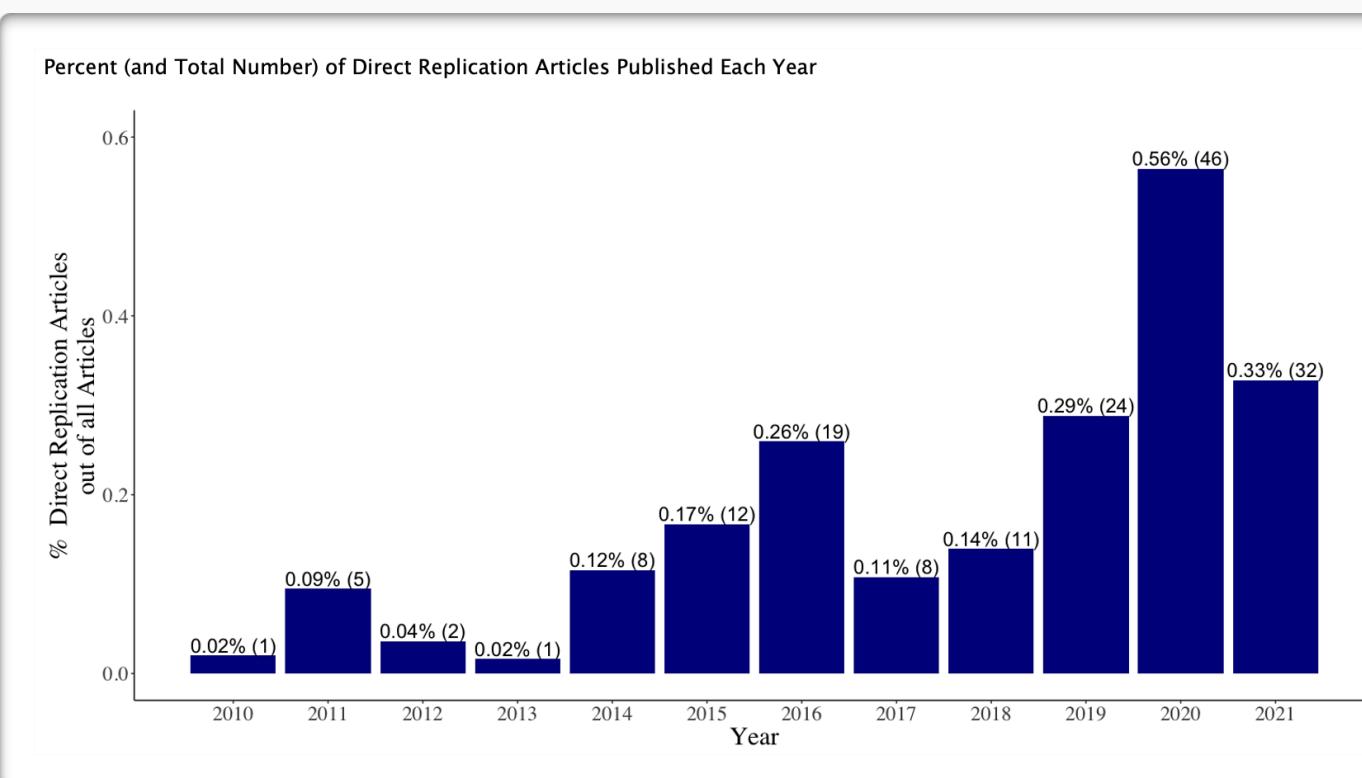
Replications are slow and expensive



Replications are slow and expensive

Original study

Replication study

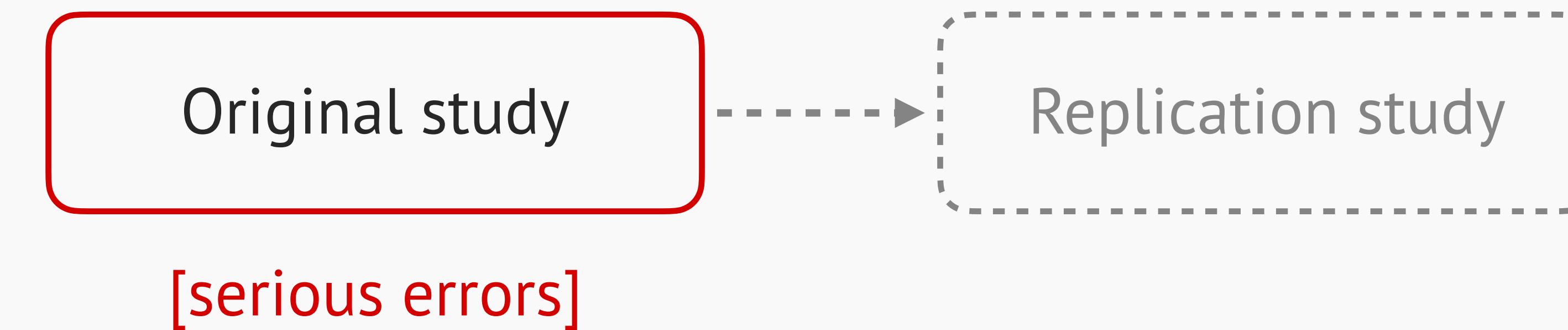


Rare
Replications are 0.33% of
articles in top journals

Clarke et al. (2024)

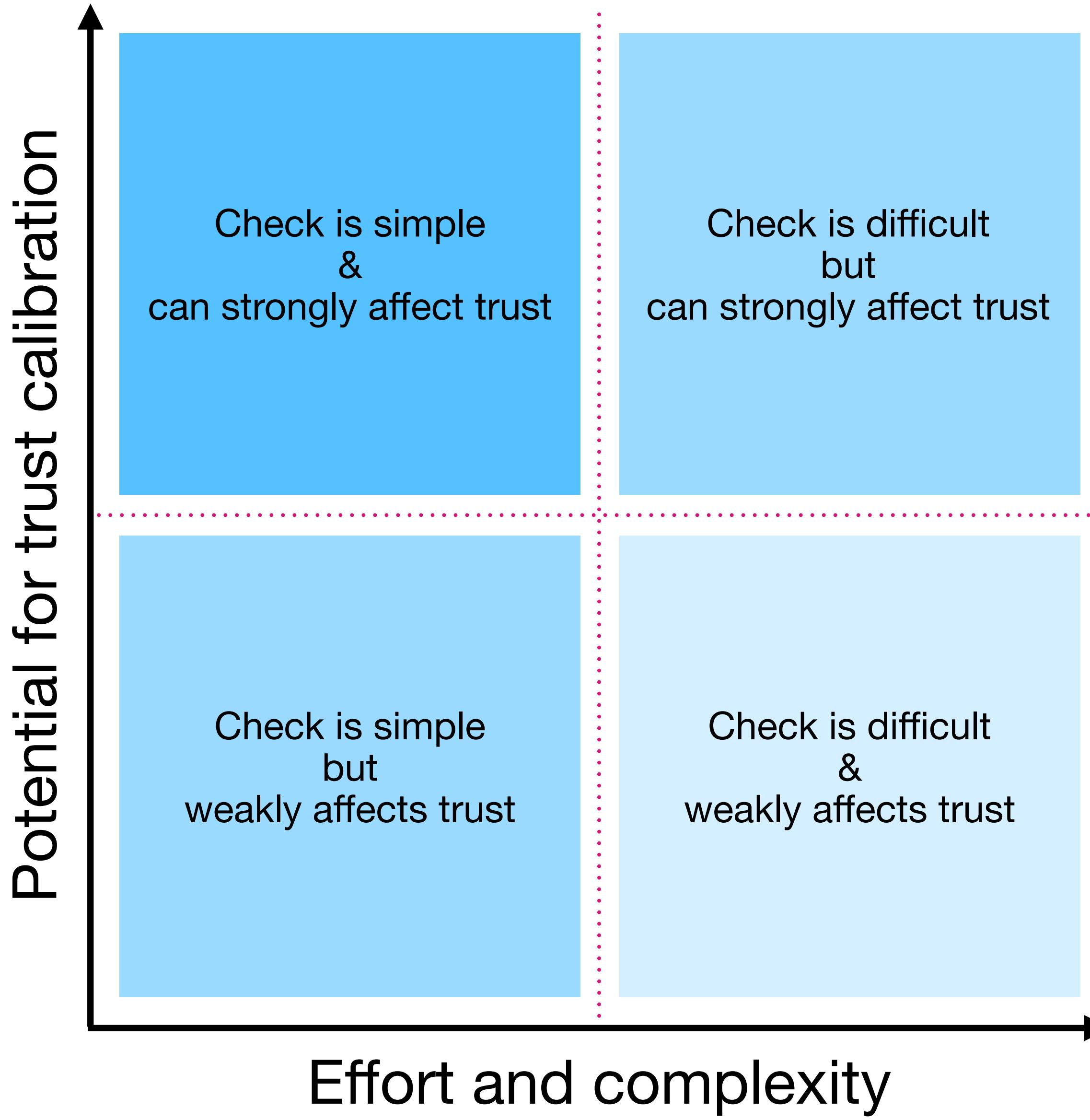
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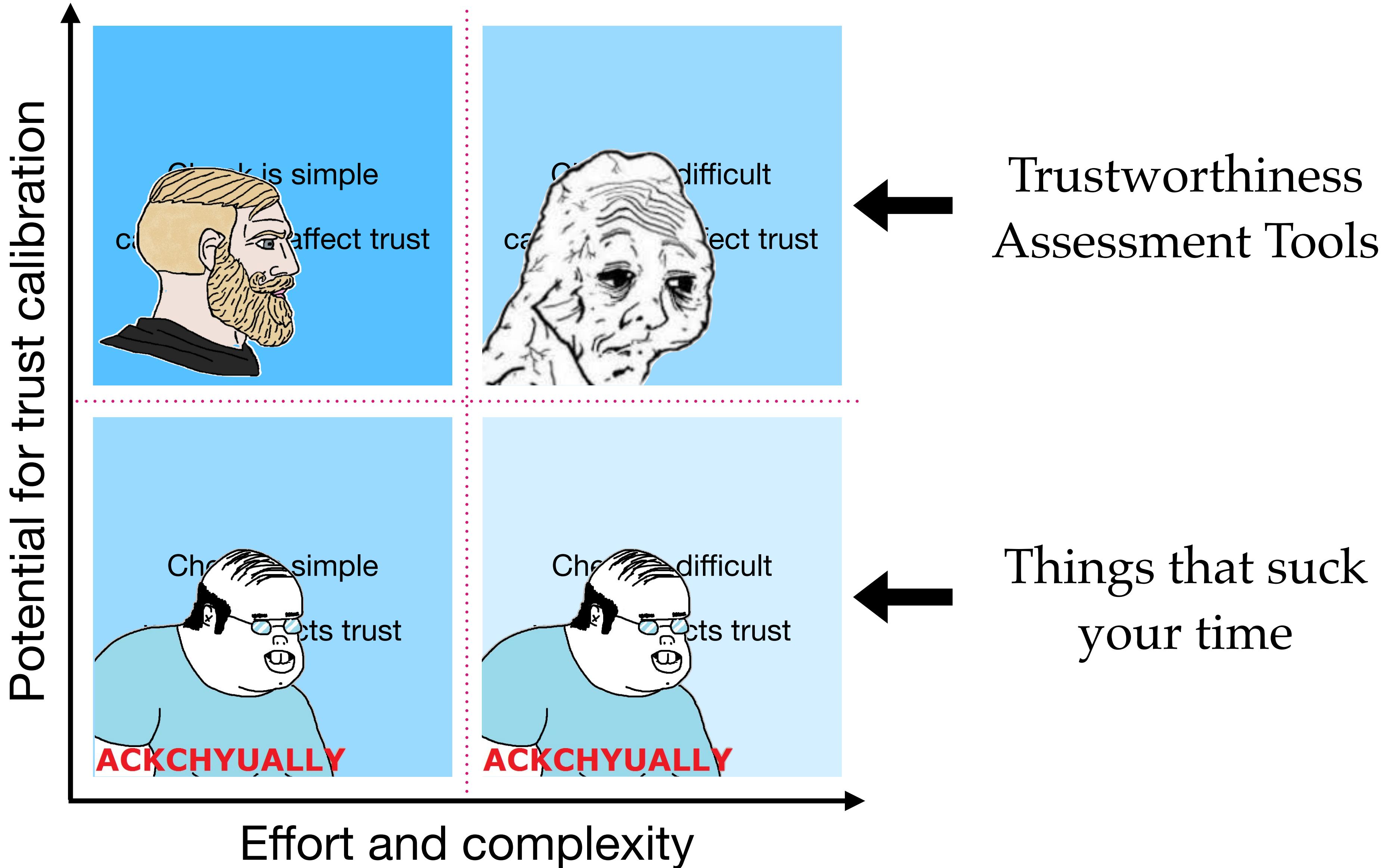
Trustworthiness assessment is a useful prior step

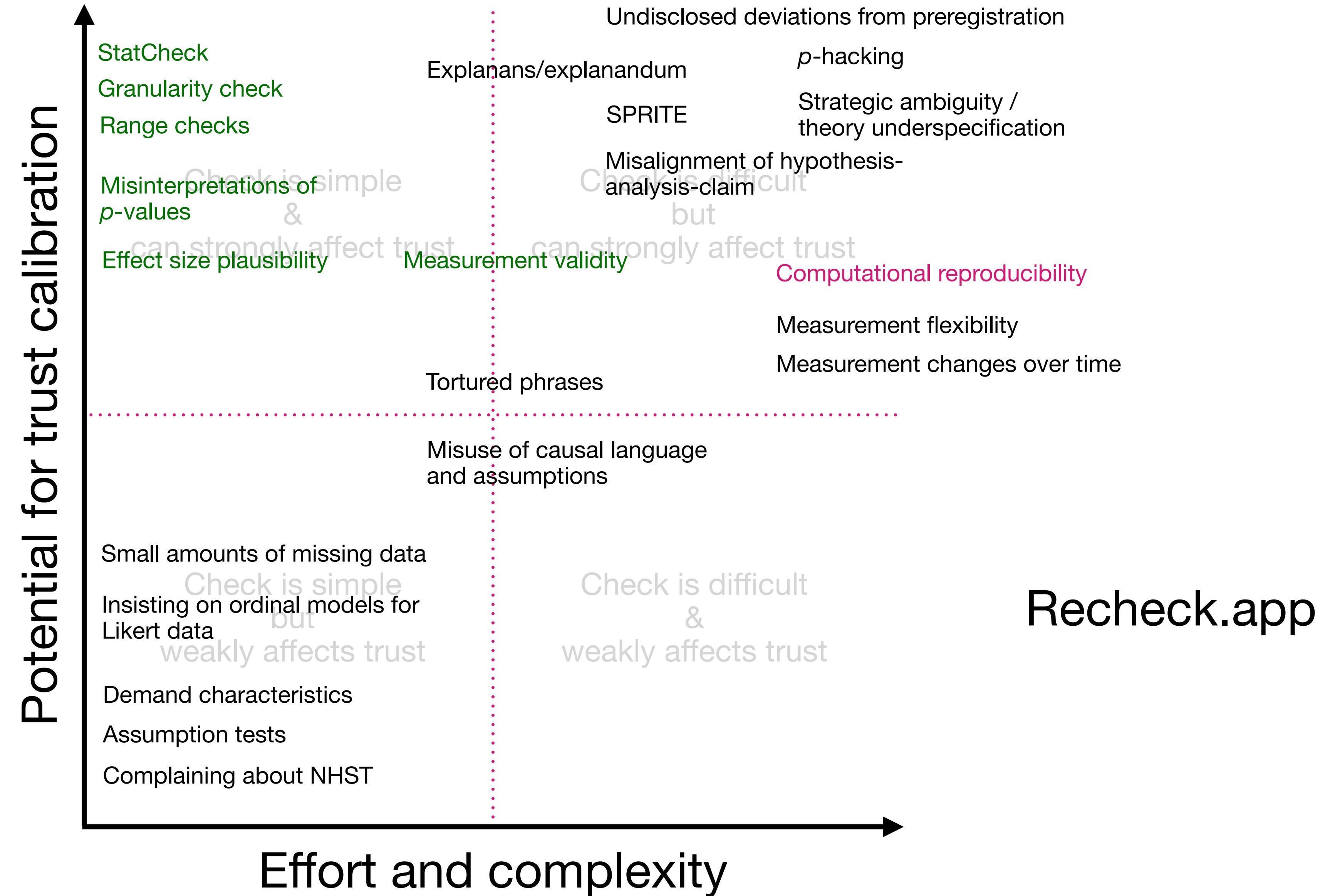


Parallel systems of scientific verification

- **Grant review**
- **Pre-publication Peer review**
- **Post-publication peer review**
 - Research synthesis (systematic review/meta-analysis)
 - Verification reports (Chambers 2020; Chalkia et al. 2021; Hussey, 2025)
 - ERROR ([error.reviews](#))
 - PubPeer ([pubpeer.com](#))





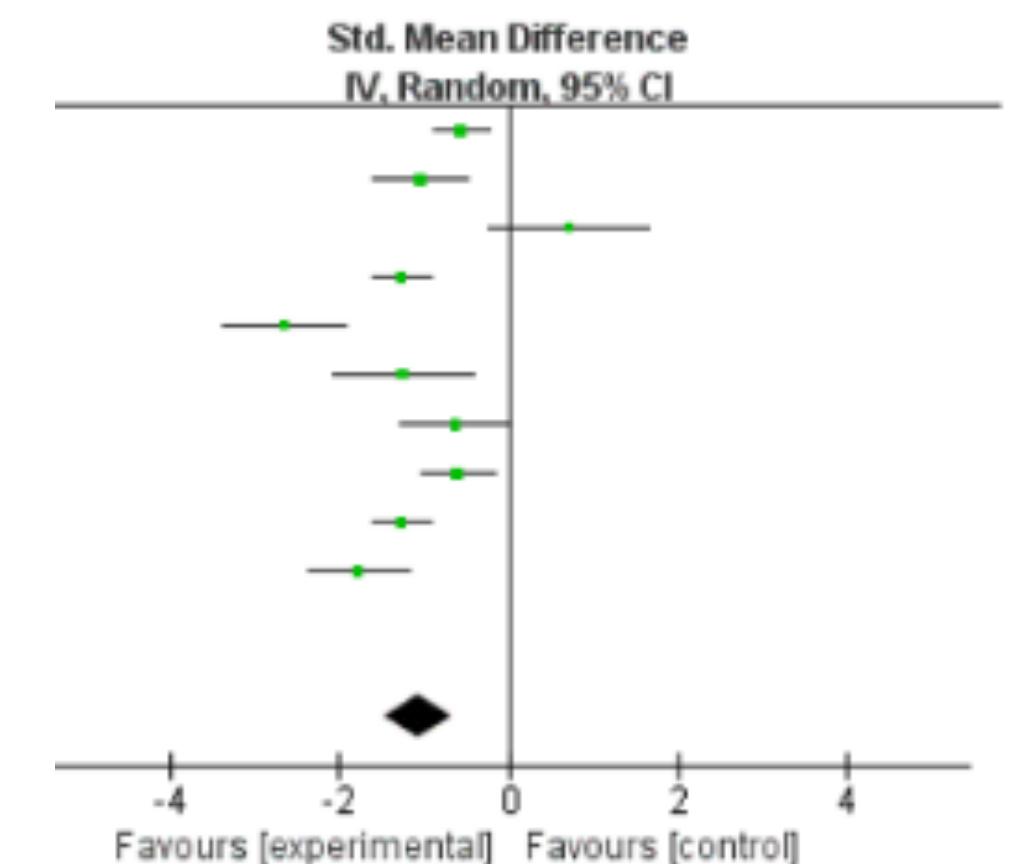
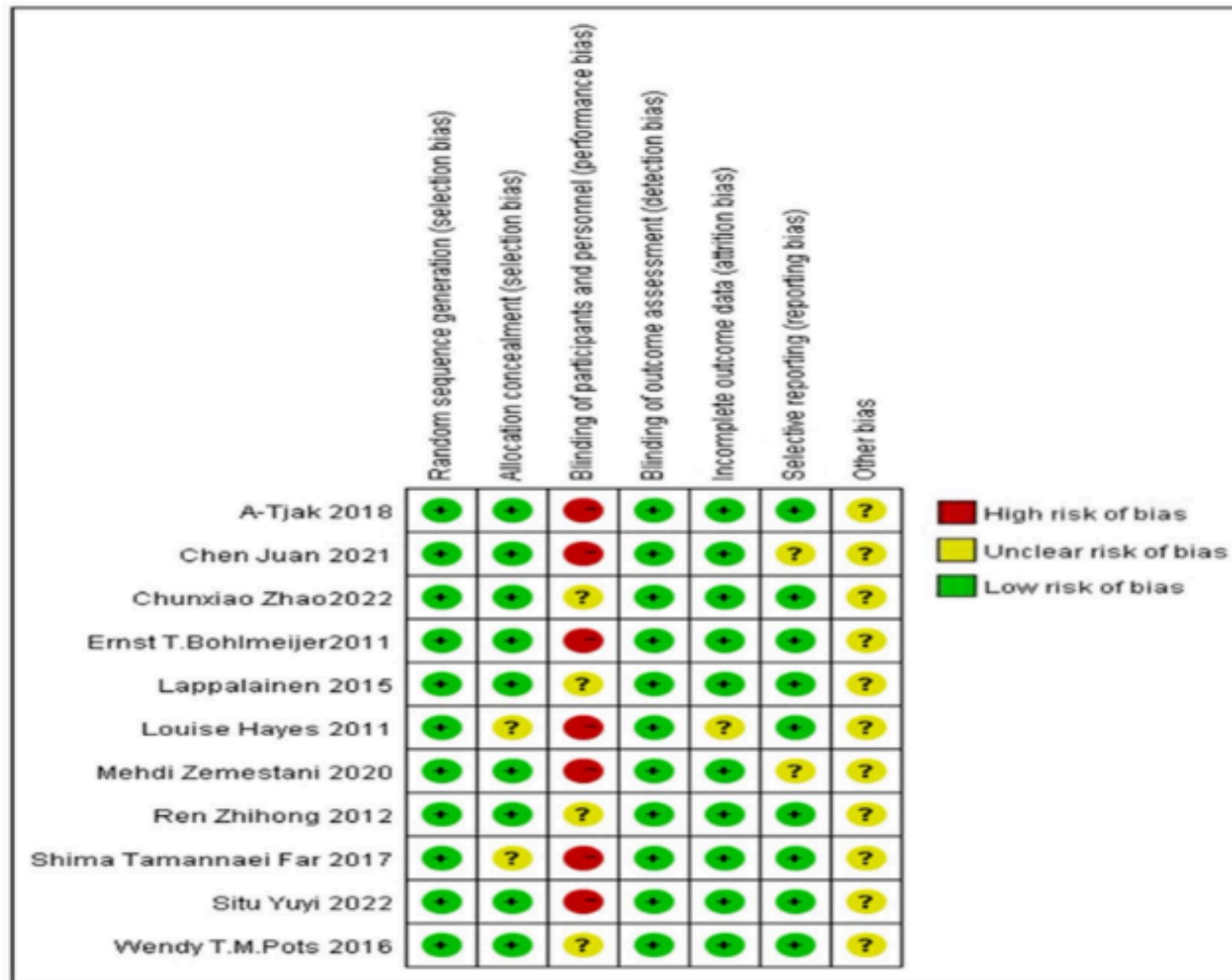
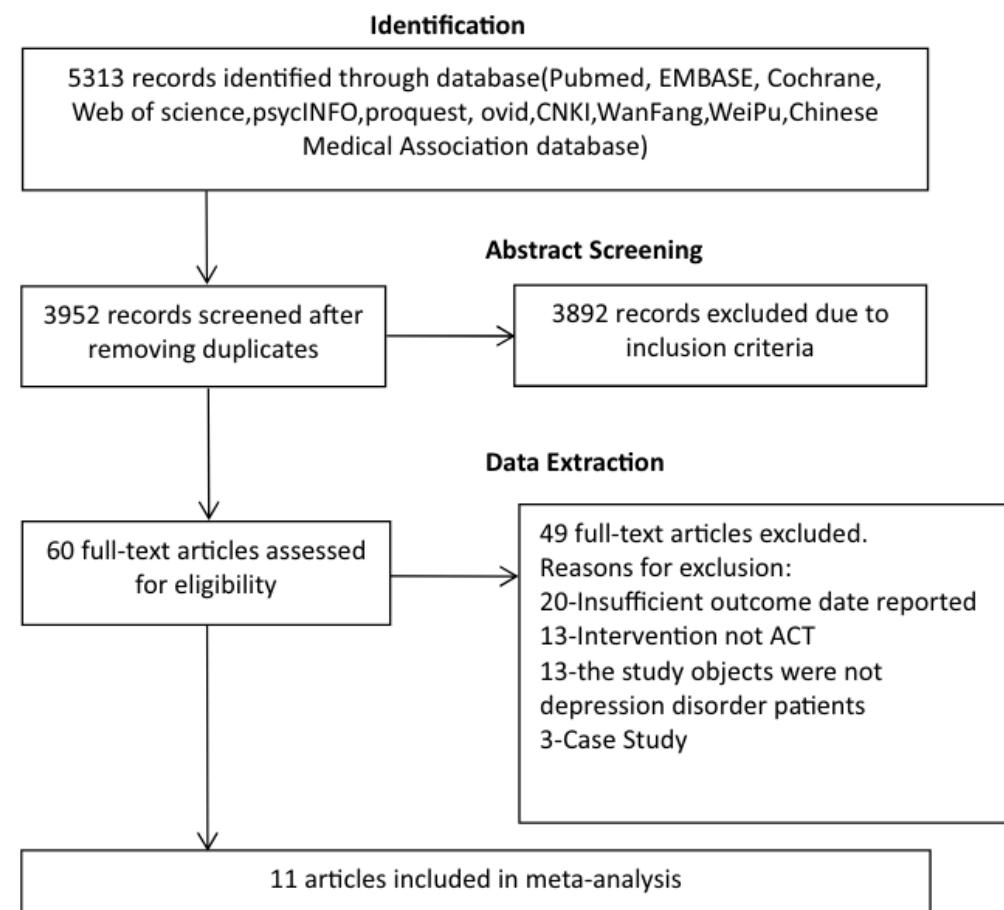


INSPECT-SR: Trustworthiness Assessment Battery

Wilkinson et al. (2024)

Post publication notices	Retraction, expression of concern, correction, pubpeer comment Authors' articles elsewhere
Conduct, governance, transparency	Timing or absence of preregistration Undisclosed deviations from preregistration Ethical approval Implausible recruitment or follow-up Implausible methods or resources
Text and figures	Text that does not correspond to study? (e.g., tortured phrases, non-sequiturs) Image manipulation
Results	Implausible numbers (patterns, repetition, etc) Sample size inconsistencies Results disagree between figures, tables and within text Implausible results (magnitude, frequency, variance) Impossible results (mean, SDs, variances, range, estimates outside intervals, inconsistencies in [re]calculated statistics) Errors in analyses Other contradictions

Cochrane Systematic Reviews & Meta-Analyses



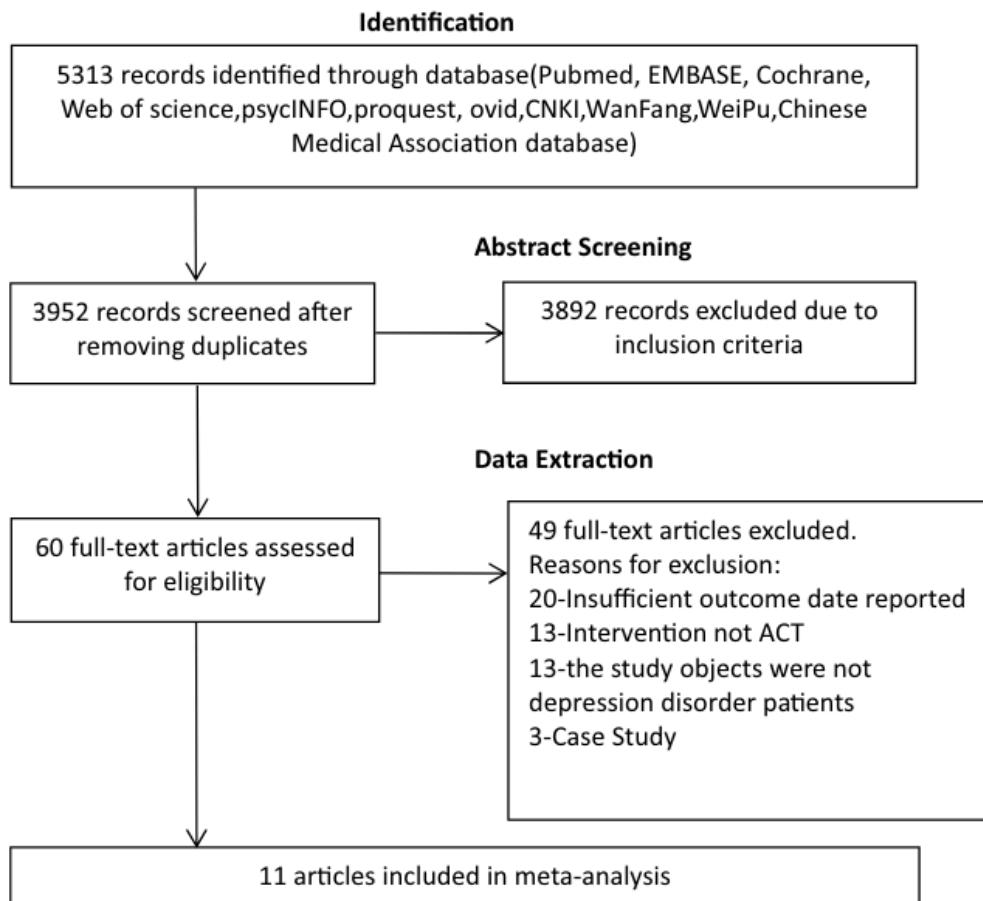
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Risk of bias assessment

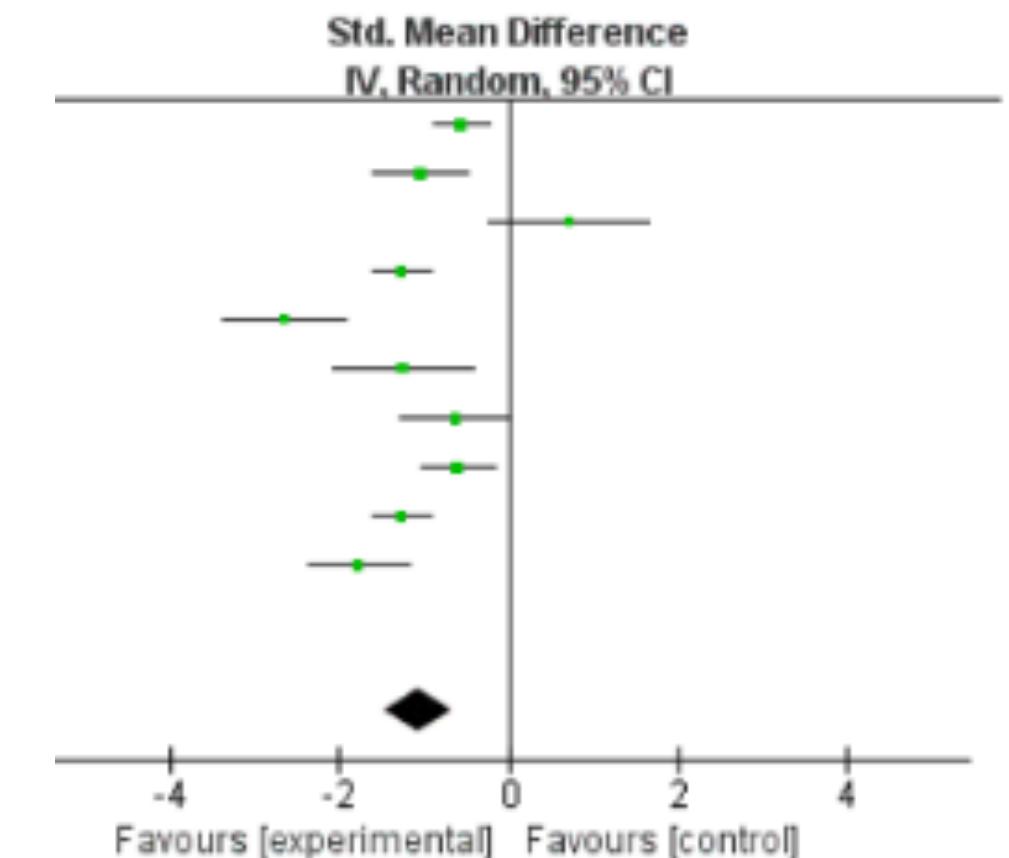
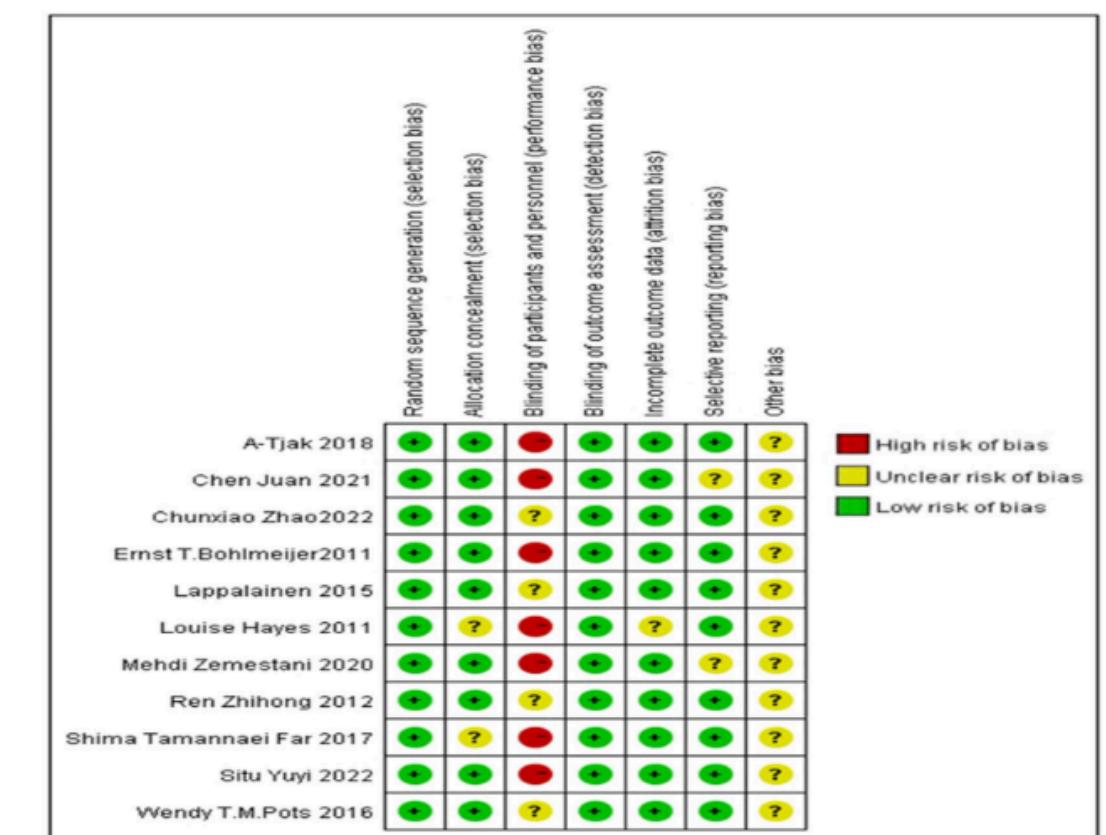
Synthesis /
meta-analysis

Cochrane Systematic Reviews & Meta-Analyses

Some studies
entirely excluded
as untrustworthy



→ INSPECT-SR →



Search

Trustworthiness
assessment

Risk of bias
assessment

Synthesis /
meta-analysis

Break