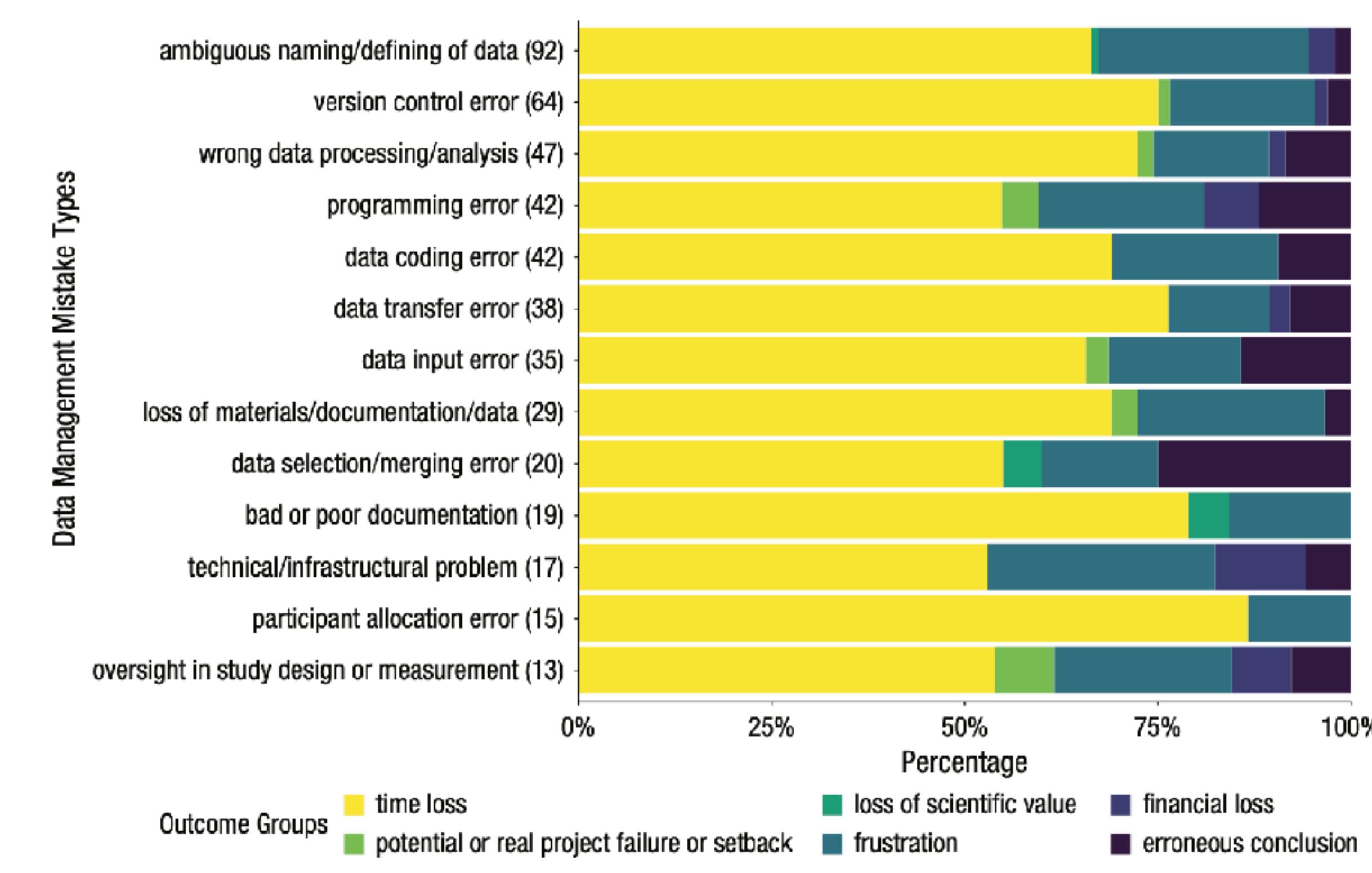
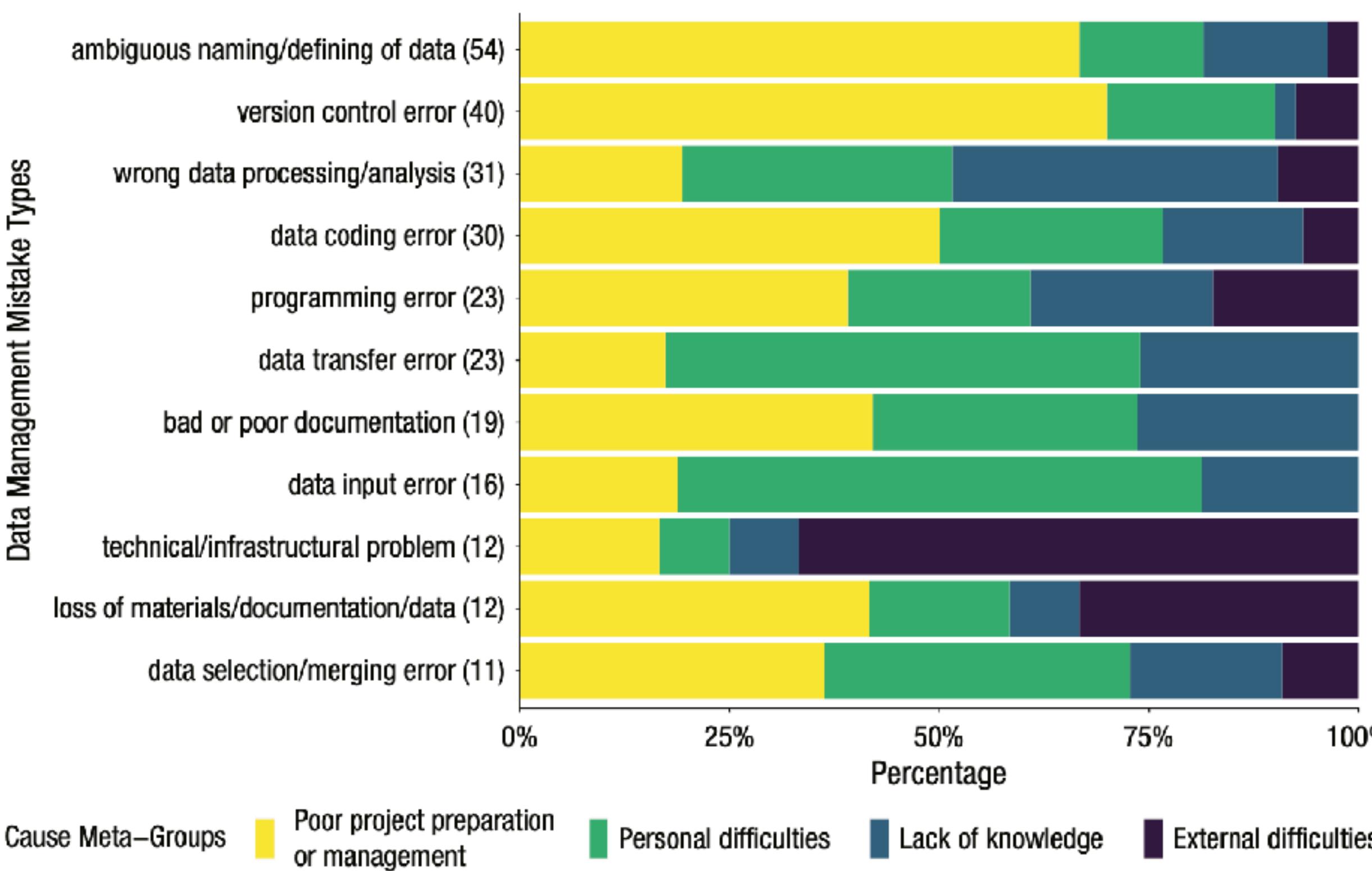


# Error Tight

Monitoring our research pipelines

# We all make mistakes



# Today

- Story time
- 10 min on with your group
- 10 min on with the class
- X3

# Me

- Story 1 - beta testing
- Story 2 - rewriting code



# Jo Etzel, PhD

## Staff Scientist

- [An analysis] was coming out too good; ...some of the effects were just implausibly large, and not affected by the conditions like they should have been. ...We discovered it was a communication error resulting in incorrect condition labels. I hadn't preprocessed the dataset myself; a colleague ran the experiment at a different university and we had several meetings about its files. ...I coded up the conditions as described in my notes from the meetings ... but my notes were wrong.
- This only resulted in lost time and aggravation. But it was really tricky, since some of the results came out better, not worse, and the error was in my initial task/file description (so wasn't found by me comparing the code with my notes - those matched)



# Brian Carpenter, PhD

## Prof of Psychology

- “I've made too many data management mistakes to name, but among the most time consuming have been data transformations, such as cases-to-variables and variables-to-cases, that I didn't document properly and then had no way of knowing what data I was working with after the transformations. Now I'm obsessive about documenting every single tiny step and change I make so I can go back and remember and recreate if needed. We work with a lot of non-independent data in our studies (e.g., multiple family members in the same data set), so those transformations get a little confusing even when my thinking is clear!”



# Josh Jackson, PhD

## Prof of Psychology

Ah sorry there have been way too many coding f ups across all projects I cannot even think of what I'd go with as a prime example. Most of it falls under longitudinal regret in terms of not naming variables in a consistent manner, or neglecting pieces of info necessary to put longitudinal data together.

f  was just a person who had their own specific style which was wayyy different than what is standard.

Plus it was all SAS based.



# Roddy Roediger & Andrew Butler, PhDs

## Profs in Psychology & Education

Memory & Cognition (2023) 51:1041–1042  
<https://doi.org/10.3758/s13421-022-01335-w>

CORRECTION



**Correction to: Collective memories of three wars in United States history in younger and older adults**

Franklin Zaromb<sup>1</sup> · Andrew C. Butler<sup>2</sup> · Pooja K. Agarwal<sup>3</sup> · Henry L. Roediger III<sup>2</sup>

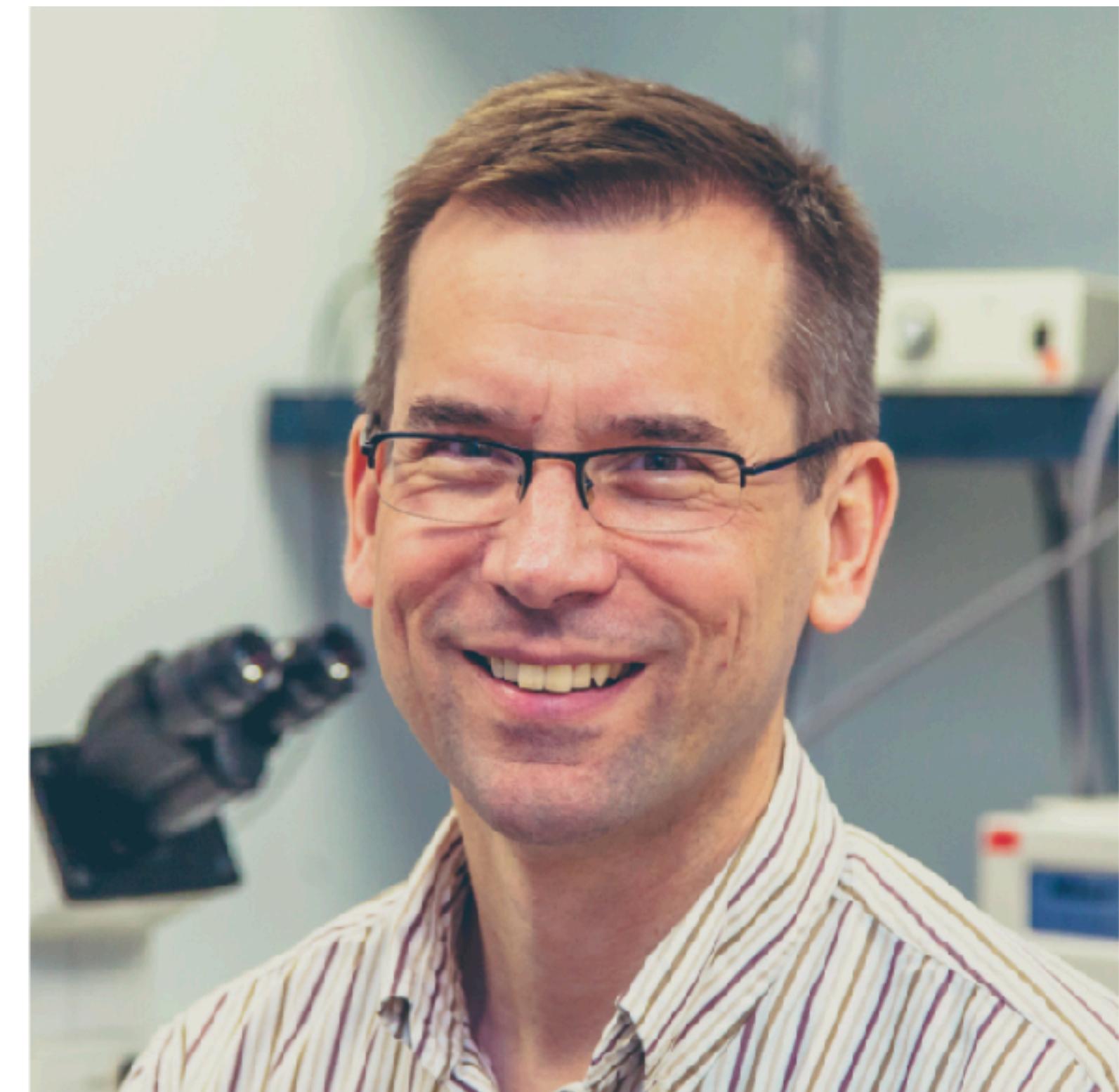
Published online: 6 September 2022  
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# **Steve Mennerick, PhD**

## **Prof of Psychiatry Co-chair of DBBS Curriculum**

- I [a grad student] was characterizing the % of hippocampal neurons in culture that used glutamate vs. GABA. My PI decided to help with increasing the N. My own data suggested that ~80% of neurons used glutamate. However, when my PI started recording, he got nearly reversed results from mine – nearly 80% GABAergic. We eventually traced the discrepancy to unconscious biases we each had in cell selection. Each of us was conditioned by previous studies we had performed to overlook cells of a certain shape. Ultimately, I repeated the experiment, forcing myself to record each and every cell that I encountered. The final result was approximately half and half. It was a lesson in unconscious bias/data



# Kelli Huber, PhD

## Consultant

- Kelli joined a lab that had the following predicament:
  - Postdoc worked in lab, collected and managed all the data. Data were password protected.
  - Said postdoc gets a new job and leaves the lab (standard practice)
  - Password goes with the postdoc. They can't reach the postdoc.
  - The data was locked away for ~3 years before it was able to be accessed and analyzed.



# Hillary Anger Elfenbein

## Prof and Chair of Organizational Behavior

1. I just got a paper accepted to PSPB in which we have a footnote saying that a record-keeping error caused us not to be able to report reliability for one of our variables. The variables in this study were painstakingly coded by an army of undergrads who read the transcripts of people negotiating. The two graduate students who ran the coding process both left academia and didn't keep their files. We had the reliability data about all the variables except one, by digging out an early version of the manuscript write-up, but one variable was added later and now we'll never know. The lesson here is for multiple collaborators to keep the data in their files, although I'll admit that sometimes I still neglect to do this with student coauthors and really should.
2. I had a grad school classmate who coded participant "sex" as 0/1 and later forgot which direction was which. The lesson here is always to code sex as "female" (or "male") 0/1, which also makes it easier for the readers.
3. My grad school mentor withdrew an accepted paper from a top journal because she realized that one of the variables was coded backwards.



# Myriam Sander, PhD

This happened 3/30/2022

Myriam Sander @myriam\_sander

most difficult tweet ever, but here we go:  
MANUSCRIPT RETRACTION ALERT! We discovered a serious error in our preprocessing pipeline that affected our results presented in two recent papers: [doi.org/10.1016/j.neur...](https://doi.org/10.1016/j.neuroimage.2021.118001) and [doi.org/10.1523/JNEURO...](https://doi.org/10.1523/JNEUROSCI.3140-21.2022)

Myriam Sander @myriam\_sander · 17h  
Replying to @myriam\_sander

Unfortunately, the results presented in these manuscripts do not hold after fixing the error. We need some more time to fully understand the consequences of this error. Nevertheless, we think that it is necessary to retract these papers.

Myriam Sander @myriam\_sander · 17h  
We will provide a full report on the error and its consequences as soon as we have completely reanalyzed the data. For full transparency, we plan to write up a comprehensive comparison of the original and new results that we might upload to biorxiv, for easy accessibility.

Myriam Sander @myriam\_sander · 17h  
We have informed the editors about this error. We are deeply sorry for this mistake and open for any suggestions how to proceed or on further actions that we should take....

Randy McIntosh @ar0mcintosh · 6h  
Replies to @myriam\_sander

I can appreciate how hard this is, but applaud you for alerting us. Science is an uncertain enterprise and often we make mistakes. It is incumbent upon us to acknowledge it and find ways to address it. Thank you for making science better. 🚀

Eiko Fried @EikoFried · 14h  
Replies to @myriam\_sander

Making mistakes in science is normal and ok—so sorry to see it leads to retractions here, but that should also be normal. Thanks for doing the right thing and sharing transparently. You're helping many others by normalizing mistakes.

Myriam Sander @myriam\_sander · 6h  
Wow, this went viral unexpectedly. Thank you all very much for your kind words and support. This is very encouraging! All credit should go to first-authors Claire Pauley and @KobeltMalte - they found and fixed the error (really just a coding error leading wrong trial onset 1/2)

Myriam Sander @myriam\_sander · 18h  
most difficult tweet ever, but here we go: MANUSCRIPT RETRACTION ALERT! We discovered a serious error in our preprocessing pipeline that affected our results presented in two recent papers: [doi.org/10.1016/j.neur...](https://doi.org/10.1016/j.neuroimage.2021.118001) and [doi.org/10.1523/JNEURO...](https://doi.org/10.1523/JNEUROSCI.3140-21.2022)  
[Show this thread](#)

Myriam Sander @myriam\_sander · 6h  
definitions), and are working on the reanalysis. They immediately alerted me & the other co-authors despite of the consequences for their dissertations in progress. I am very honored to have such great students & colleagues! We will keep you updated. Thanks again, you all! 2/2

# **Julia Strand, PhD**

**Prof of Psychology @  
Carleton College**

- Podcast version: <https://www.juiceandsqueeze.net/17>
- Video version: <https://youtu.be/BMIZYWB4crg>



# Error Tight

- Julia came up with this activity for your lab, but we're going to adapt it for our purposes
- You can find the original exercise here: <https://psyarxiv.com/rsn5y>
- If you need lead a lab meeting but you don't have anything to present, do this!

# Step 1: Designing/programming experiment

## With Groups

- In your group, the person who was assigned this topic please describe how you (or your lab) goes about this. If you do not have an active research program, defer to someone who does have an active research program.
- Your group needs to come up with ideas on **where errors could come up** in this area
- What did you come up with? **How do we avoid these mistakes?**
- Someone in the group take notes

# Step 2: Collecting Data

## With Groups

- In your group, the person who was assigned this topic please describe how you (or your lab) goes about this. If you do not have an active research program, defer to someone who does have an active research program.
- Your group needs to come up with ideas on **where errors could come up** in this area
- What did you come up with? **How do we avoid these mistakes?**
- Someone in the group take notes

# Step 3: Analyzing Data/Reporting Findings

## With Groups

- In your group, the person who was assigned this topic please describe how you (or your lab) goes about this. If you do not have an active research program, defer to someone who does have an active research program.
- Your group needs to come up with ideas on **where errors could come up** in this area
- What did you come up with? **How do we avoid these mistakes?**
- Someone in the group take notes