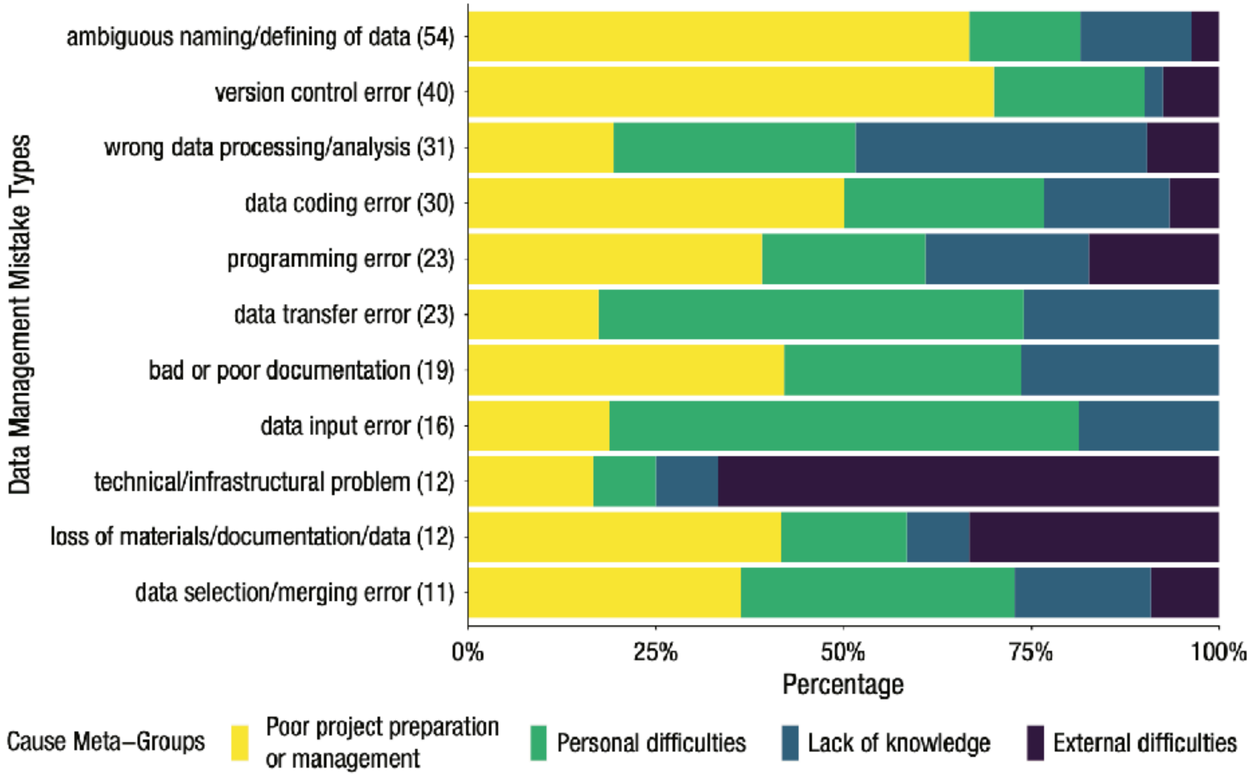
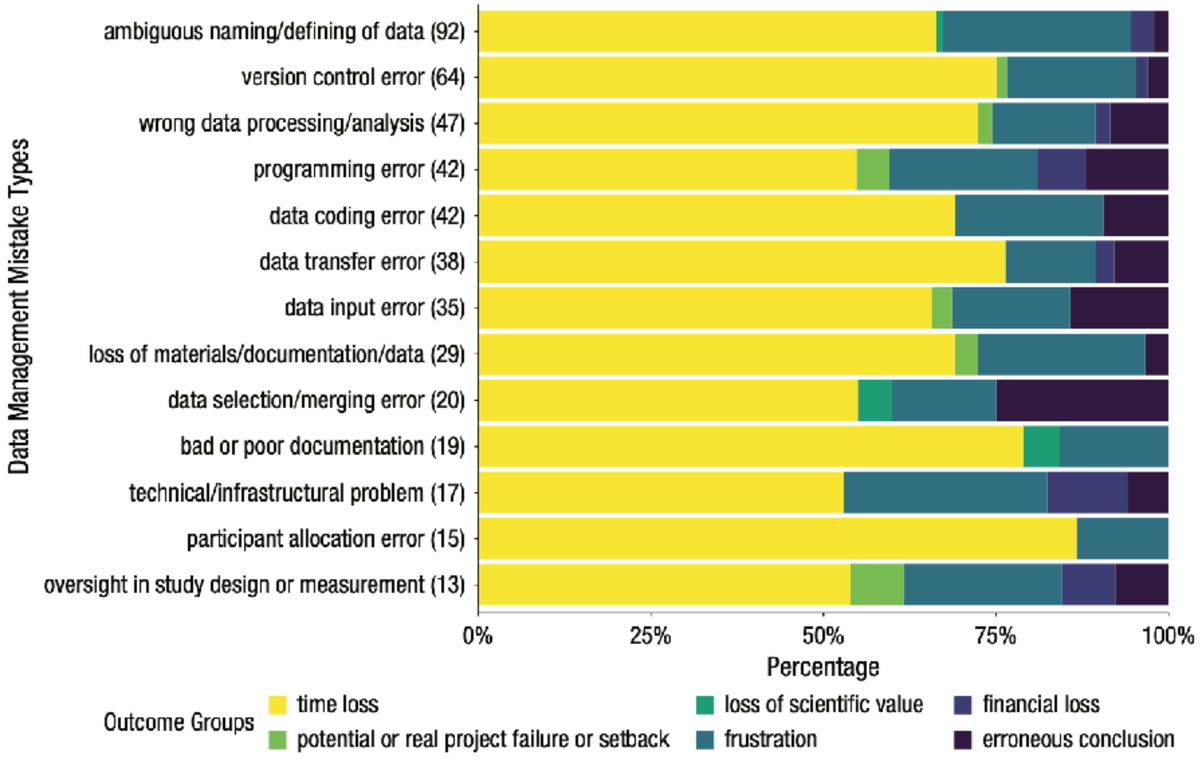
Error Tight

Monitoring our research pipelines

We all make mistakes



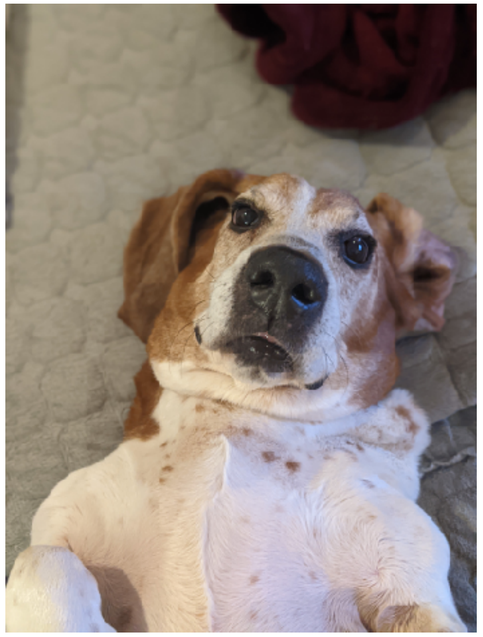


Today

- 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

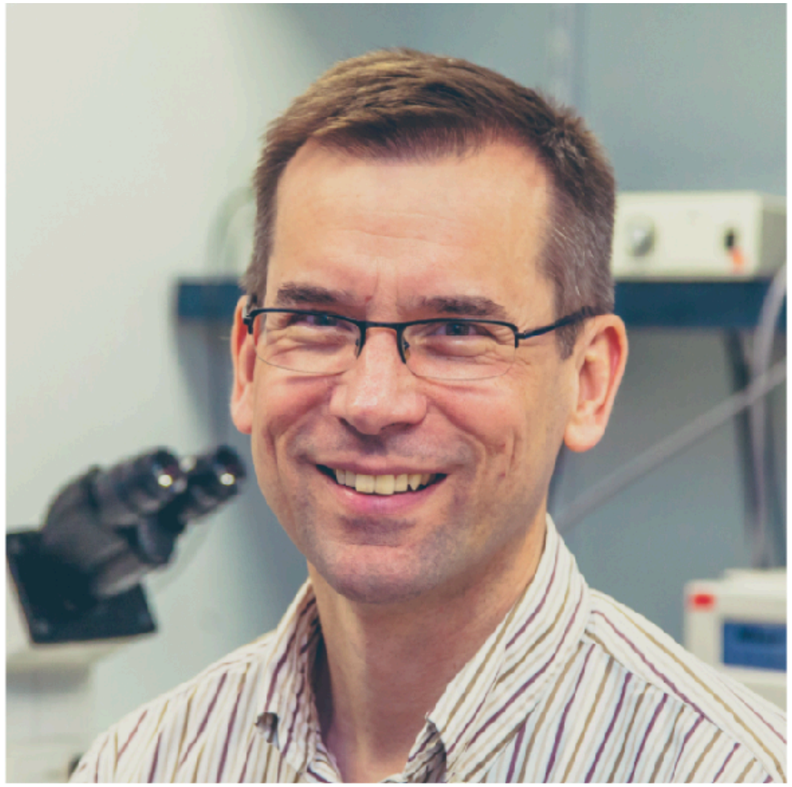
- [An analysis] was coming out too good; ...some of the effects were just implausibly large, and not affected by the conditions like they should have been. ...We discovered it was a communication error resulting in incorrect condition labels. I hadn't preprocessed the dataset myself; a colleague ran 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)

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.

Josh Jackson, PhD

Prof of Psychology

Ah sorry there have been way too many coding f[redacted]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.

[redacted] was just a person who had their own specific style which was wayyy different than what is standard. [redacted] Plus it was all SAS based.

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.

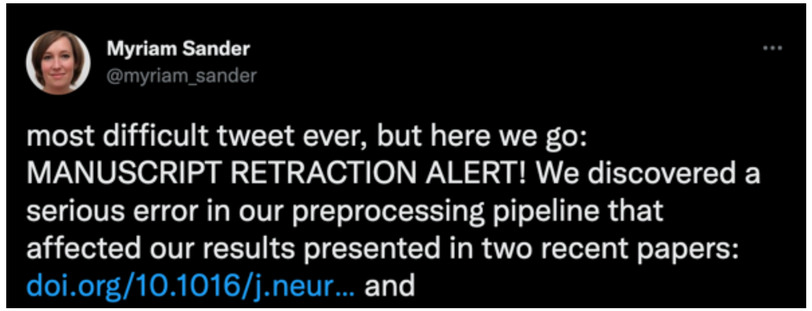
2. I had a grad school classmate who coded participant "sex" as 0/1 and later forgot which direction was which. The lesson here is always to code sex as "female" (or "male") 0/1, which also makes it easier for the readers.

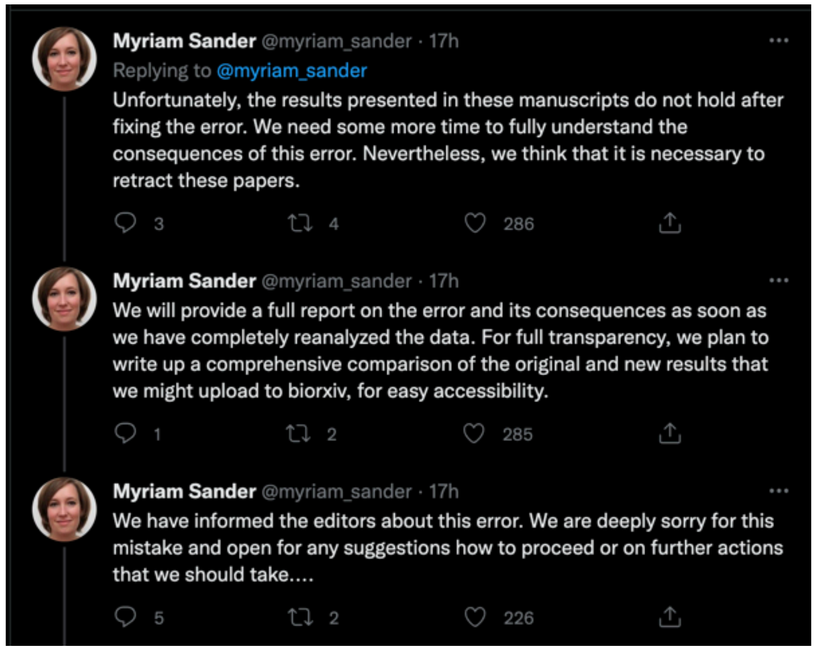
3. My grad school mentor withdrew an accepted paper from a top journal because she realized that one of the variables was coded backwards.

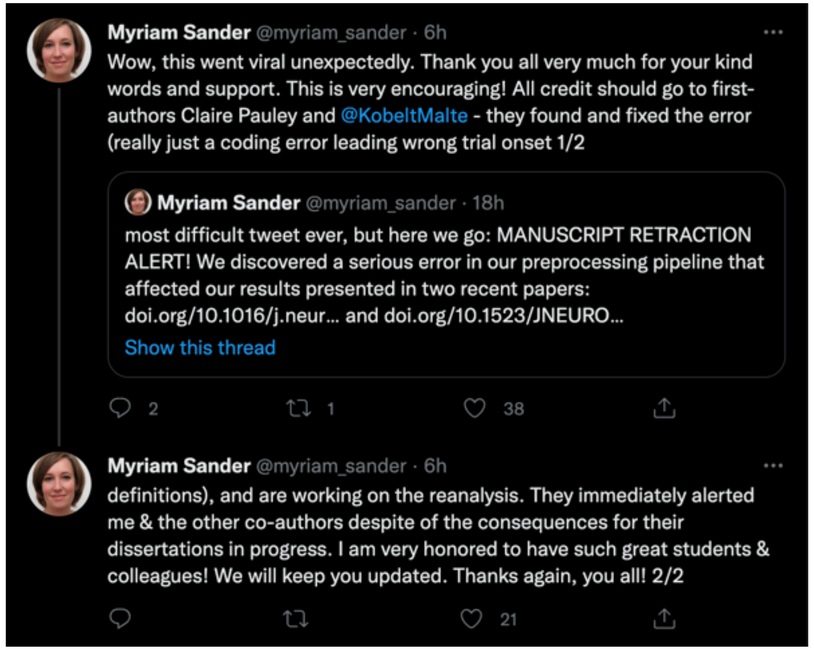
https://twitter.com/myriam_sander/status/1509076244628971523

Myriam Sander, PhD

This happened 3/30/2022







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
- Someone in the group take notes

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With Class

- What did you come up with?
- How do we avoid these?

Step 2: Collecting Data

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Step 3: Analyzing Data/Reporting Findings

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