

PS 3 Week 2 Section: Welcome and Intros

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Agenda for today

1. Syllabus review
2. Introduction
3. Course advice, intentions
4. Review lecture
5. Office hours

Syllabus review

The course syllabus can be found [online here](#) and the syllabus for section can be found [at this link](#). Please read both!

Why are we here?

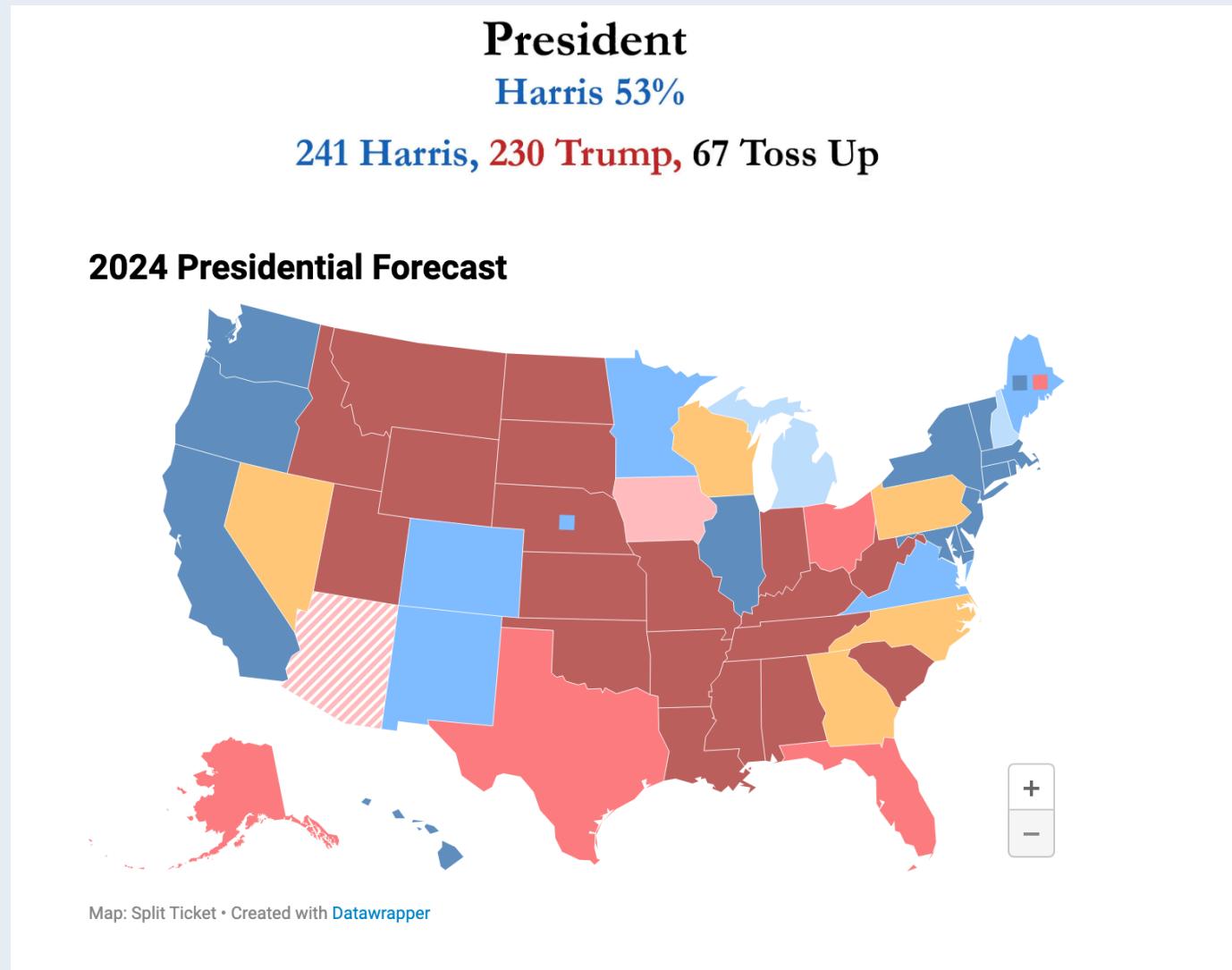


Why are we here?: Causality

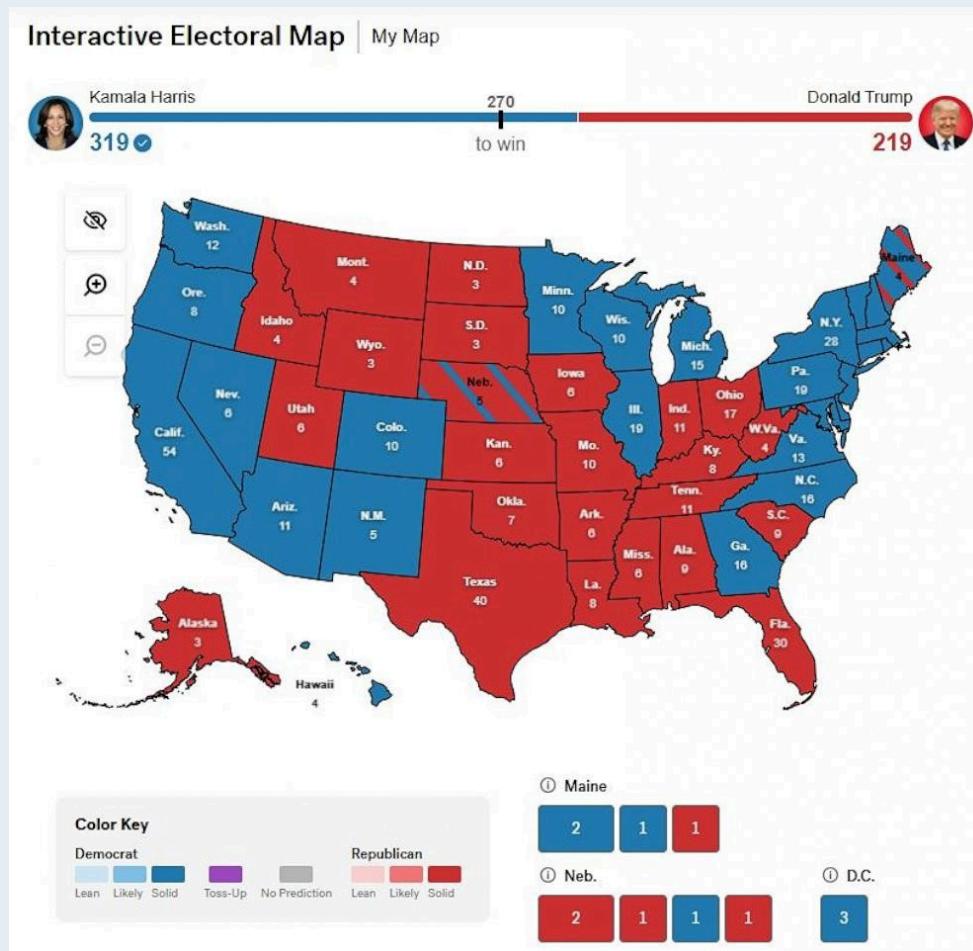
Using the tools we learn in this class, political scientists have answered questions such as:

- Did missing out on Eras Tour tickets lead people to take stronger political stances against monopolies?
- Does electing moderate candidates in primary elections give political parties an edge in general elections?
- Does living in areas with local media keep politics from getting nationalized and polarized?
- Do politicians racially discriminate against their constituents?

Why are we here?: Prediction



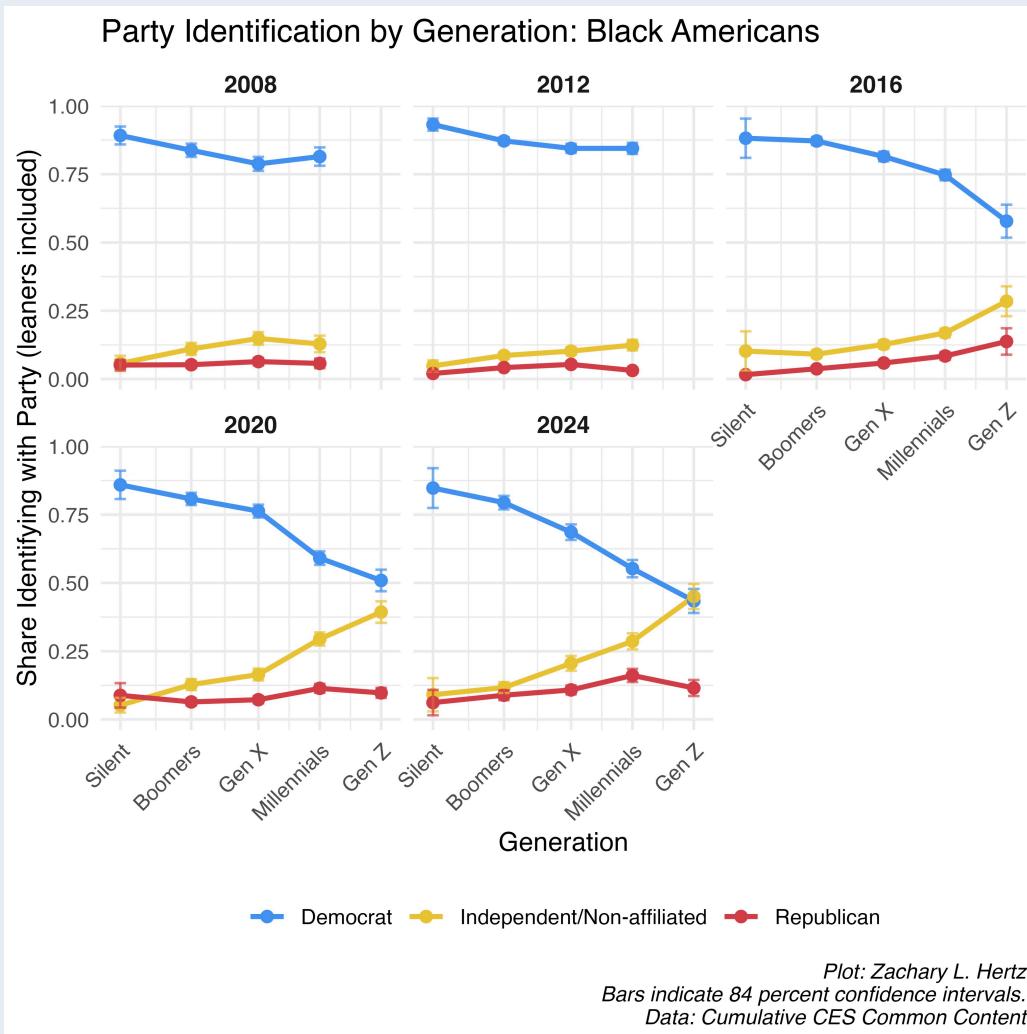
Why are we here?: Prediction



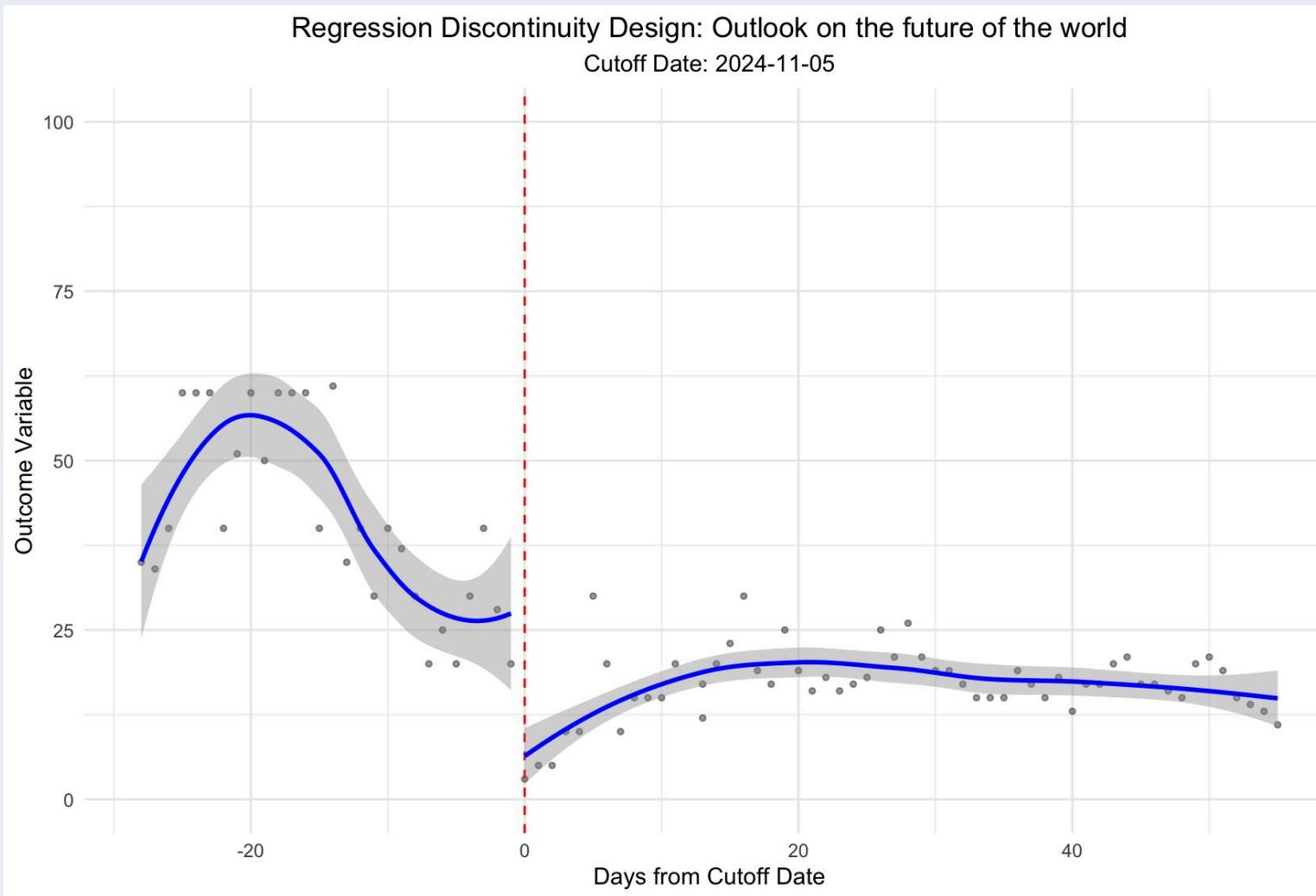
Why are we here?: Prediction



Why are we here?: Measurement



Why are we here?: Measurement



Why are we here?: Measurement

Sulla @gaulicsmith

Millennials use “lol” like STOP at the end of a telegram lol

9:06 AM · Jun 4, 2025 · 3.8M Views

596

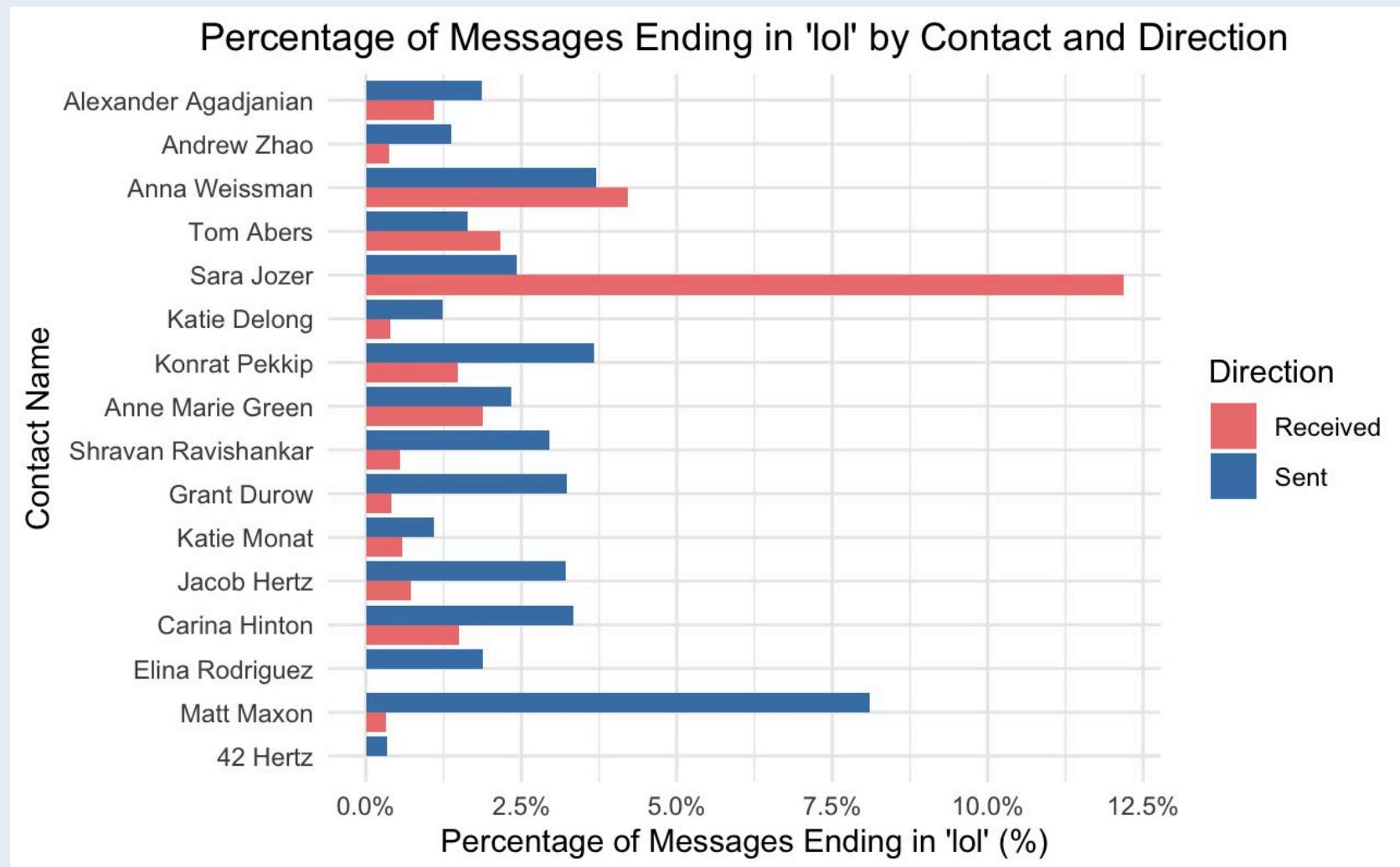
7K

66K

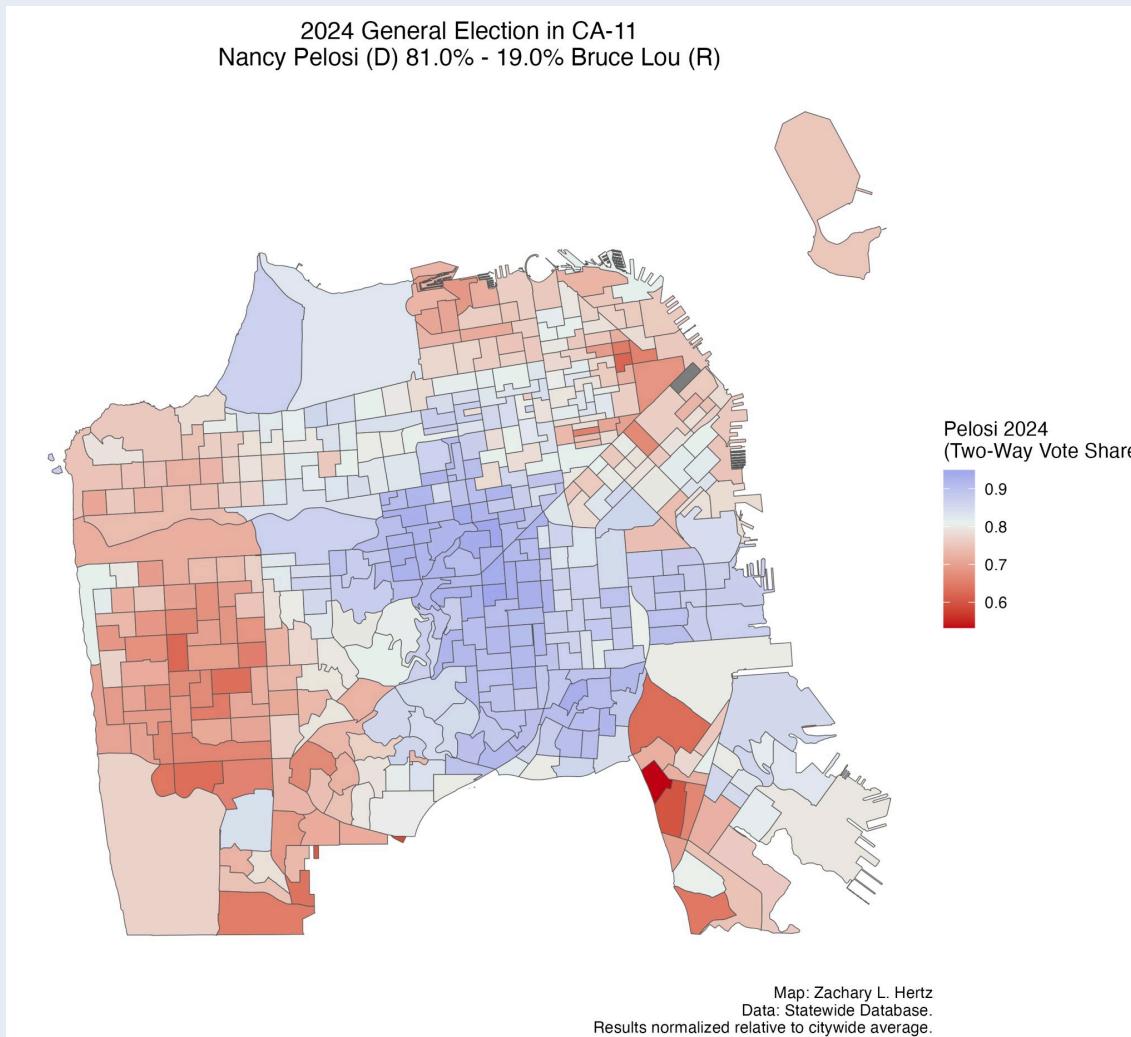
2.9K

↗

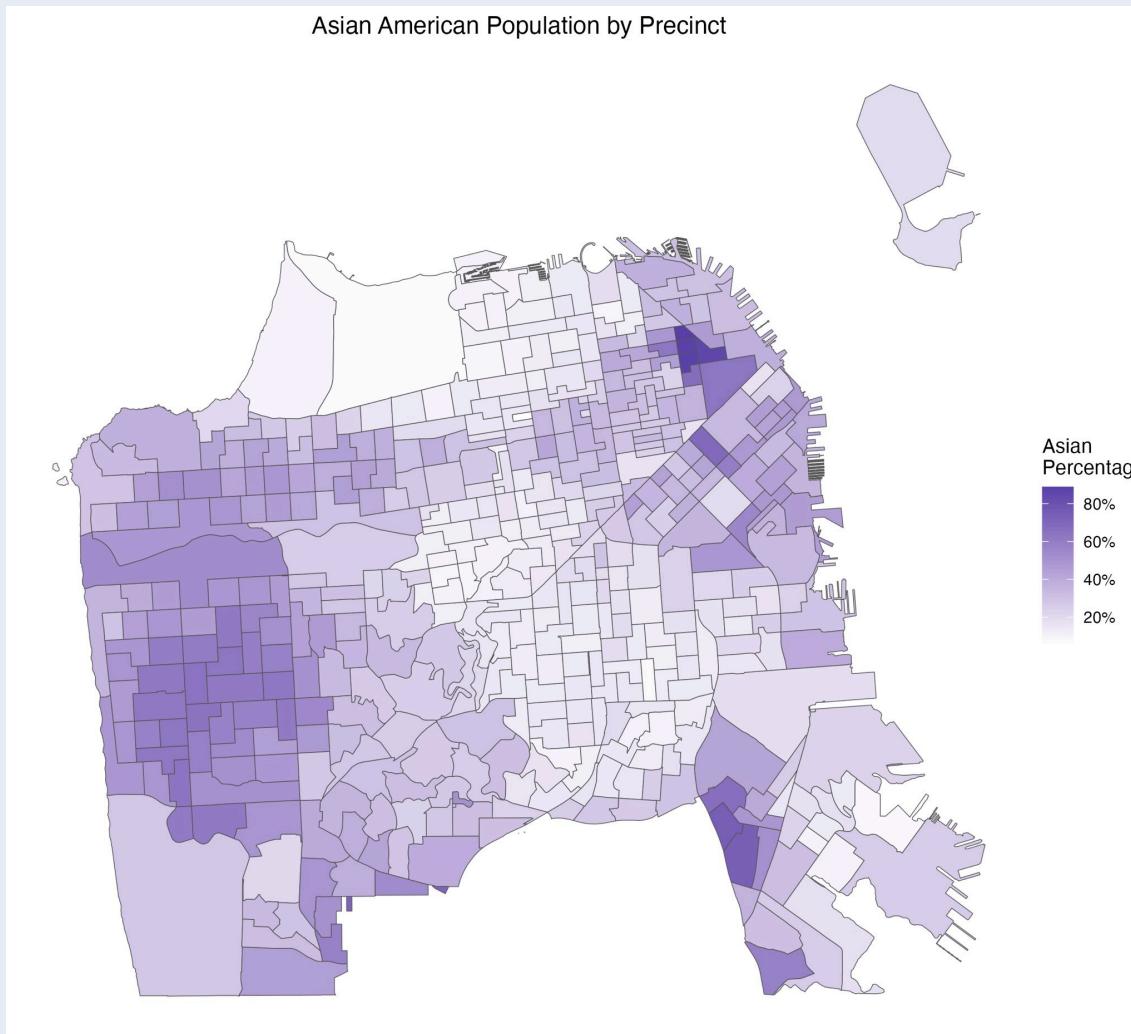
Why are we here?: Measurement



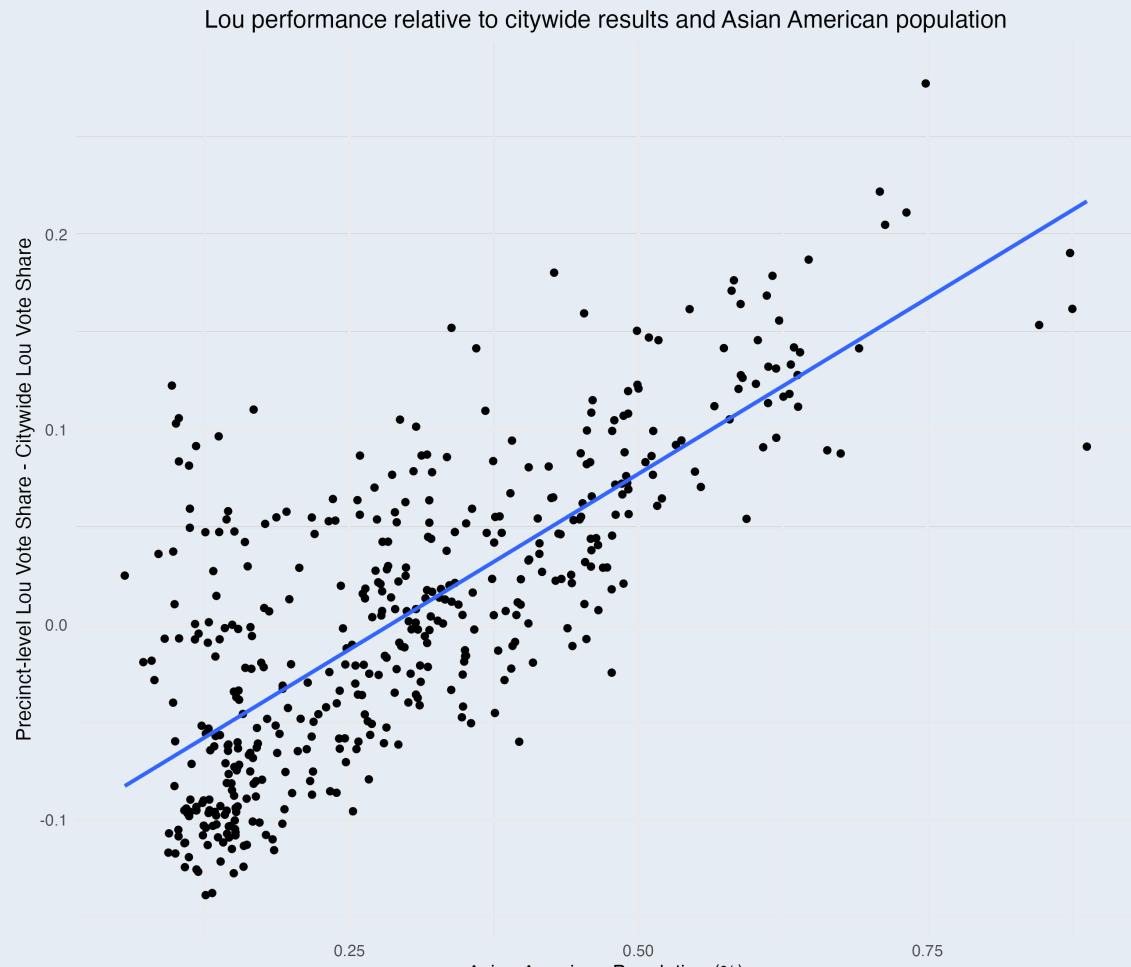
Why are we here?: Analysis



Why are we here?: Analysis



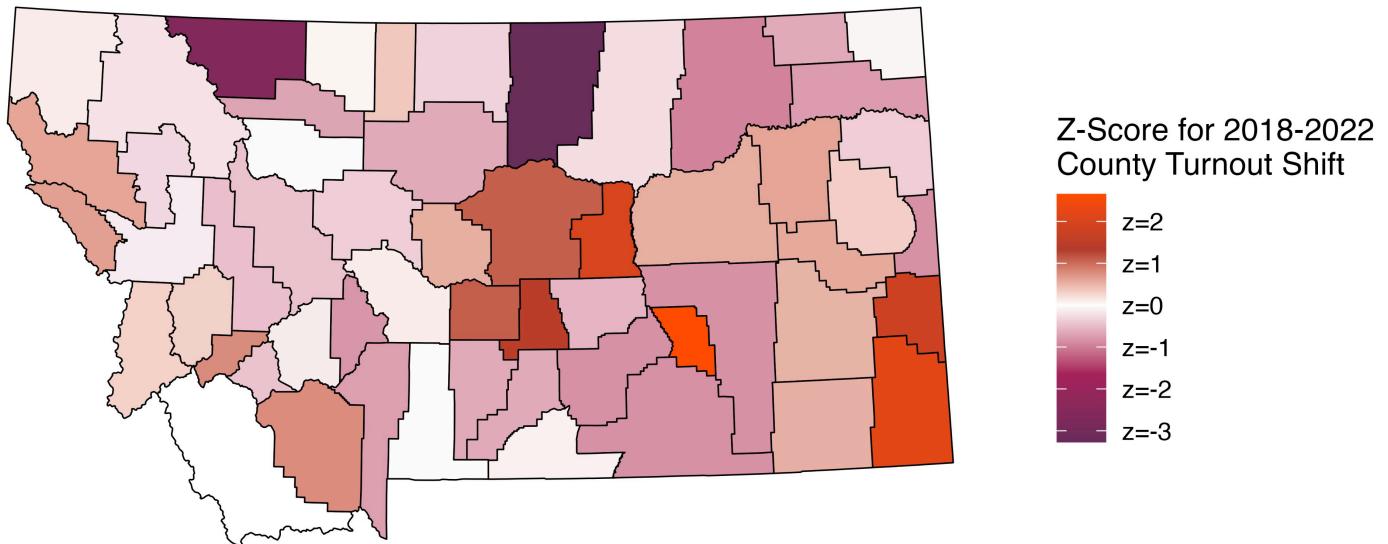
Why are we here?: Analysis



Plot: Zachary L. Hertz
Data: Statewide Database, IPUMS

Why are we here?: Analysis

Standardized 2018-2022 Turnout Shifts in Montana

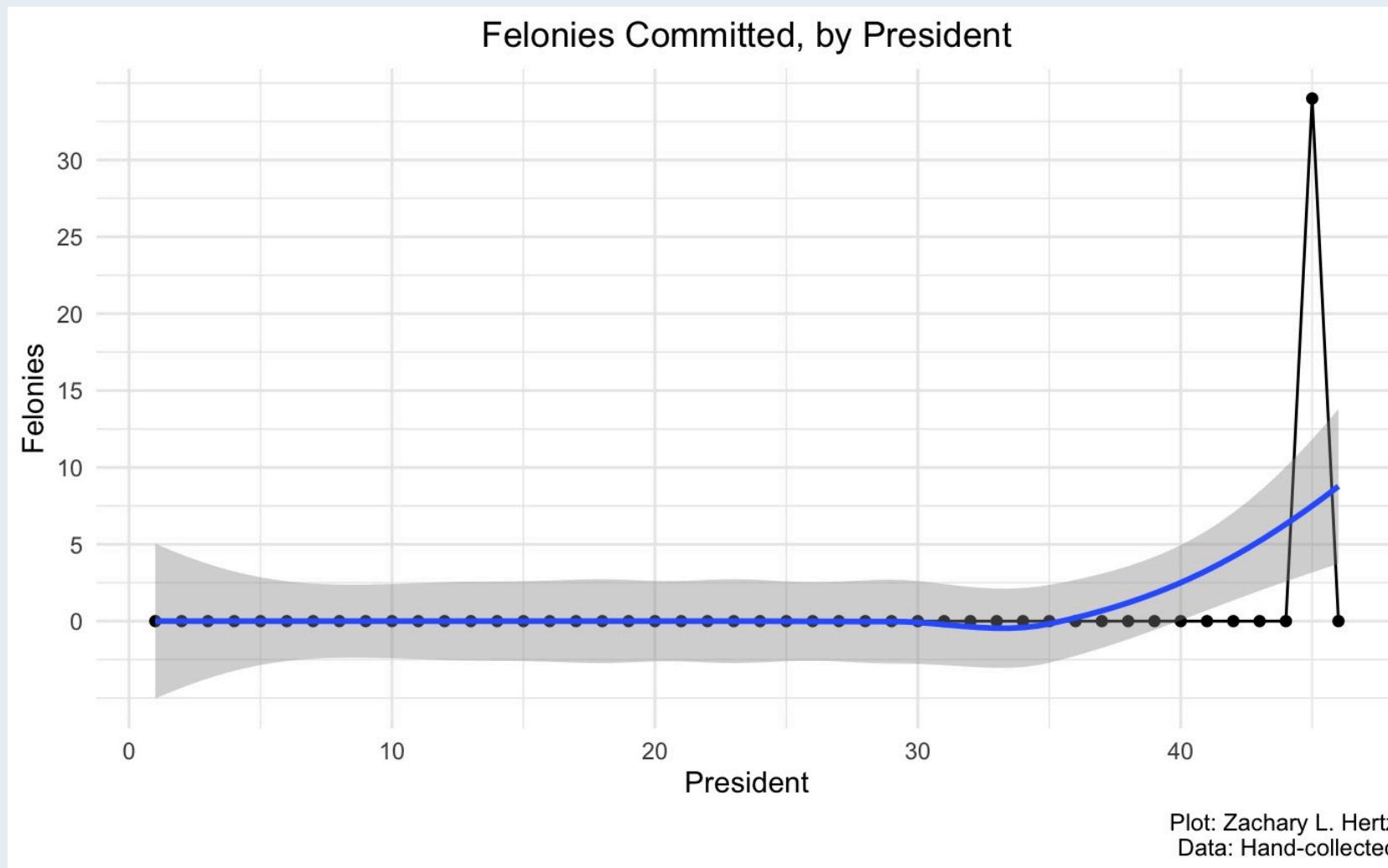


Statewide turnout decreased by 10.2 percentage points between 2018 and 2022.

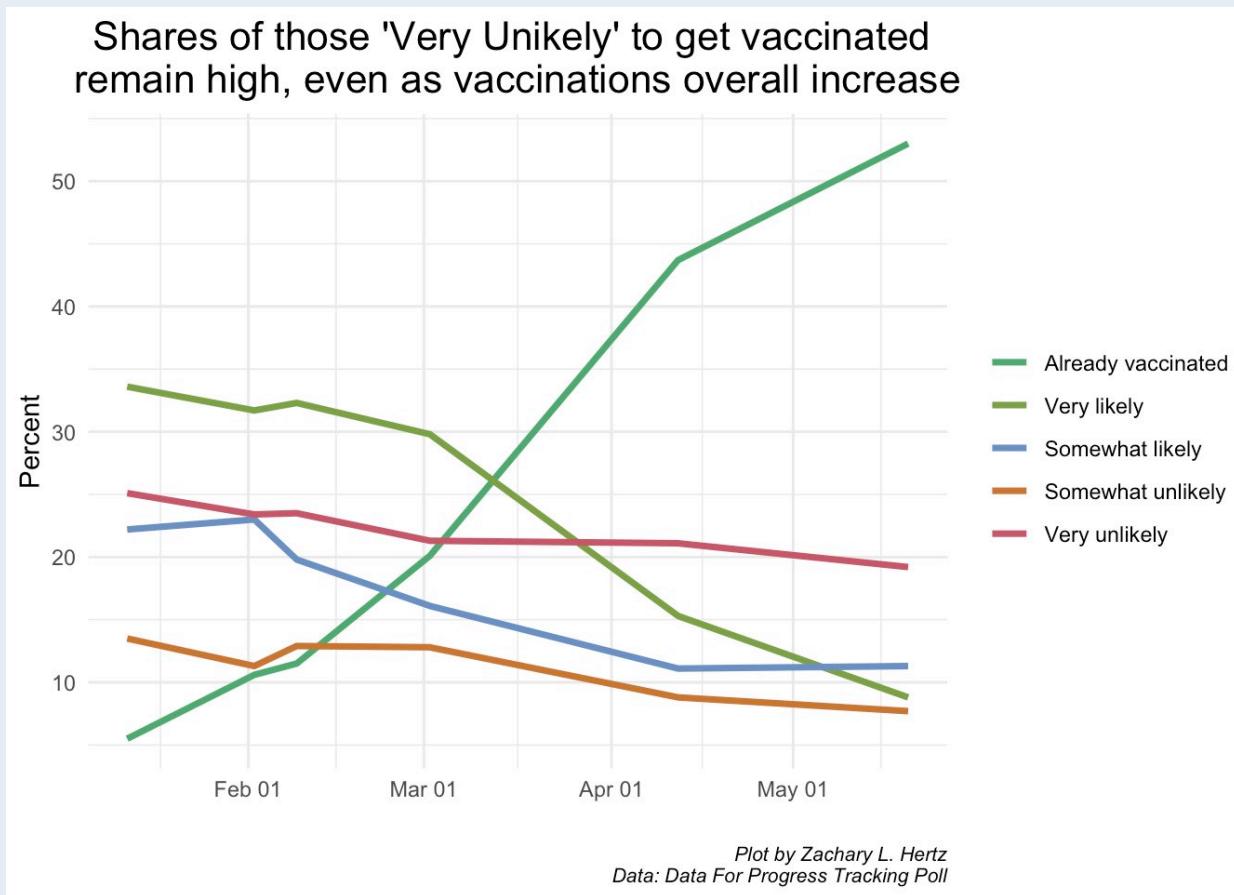
*Purple counties saw turnout drop faster than the county-level average shift.
Orange counties had turnout shifts less negative than the county-level average shift.*

Map: Zachary L. Hertz
@zacharylhertz
Data: MT SOS

Why are we here?: Analysis



Why are we here?: Making government work better



About Me



- Email: zachary_hertz@berkeley.edu
- Born: Chicago, Illinois
- Lived: Davis, Boston, Chicago again, and now Berkeley
- Past jobs: Progressive politics, polling, analyst, and political consultant
- Research: Elections, racial politics, local politics, and public policy
- Talk to me about: Indie rock, weird ingredient pairings, Pokemon, poetry, San Francisco sports
- Fun fact: I play keyboard in a band with other political science PhDs!

What will I teach you in our section?

We will spend this time working **together** to give you the skills to:

- Draw lessons and conclusion out of messy data
- Turn data into clean visualizations
- Use linear regression to analyze data patterns
- Understand uncertainty, how to discuss it, and its implications for analysis
- Make and evaluate claims about causality
- Use R like a professional R-tist, and use other tools like RStudio/GitHub if you are so inclined

What are my teaching philosophies?

- Practice! Practice. Practice!!!!
- You are all adults, and I am not a cop.
- A growth mindset is key.
- Pacing will be set deliberately to try and manage the wide breadth of experience.
- I believe in all of you!
- We're talking about practice.

Welcome back to foreign language training.

R is a *language*. Like any language:

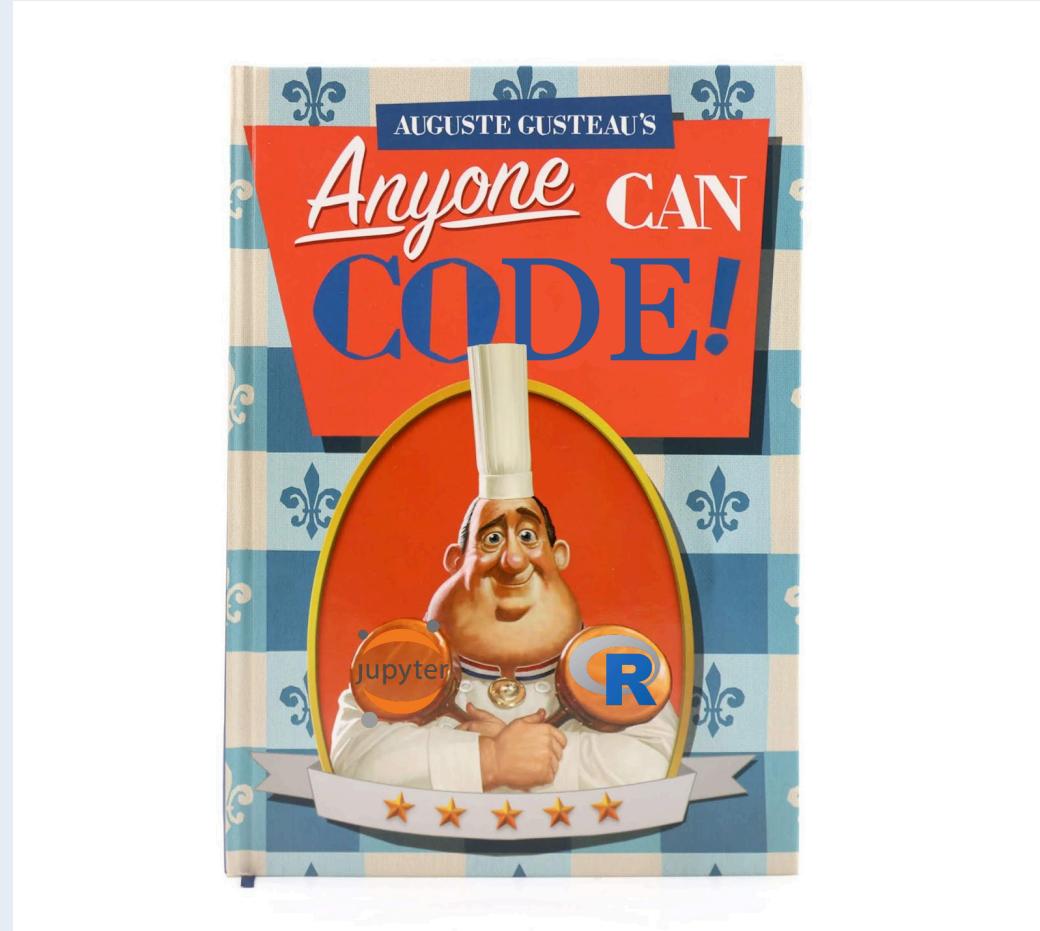
- Some of you may have a natural gift. Others may struggle at first.
- Immersion and practice are the best teachers.
- If at first you don't succeed... try, try, again.
- There are many ways to get to the same place. Knowing the grammar is critical. But intuition will get you further.
- Once you have the basics, it's up to you to decide where you want to go.

My goals for this class

I want you to:

- feel heard by me and your peers
- feel able to fail without fear of judgement
- feel able to ask me, Professor Broockman, and your peers for support
- feel able to tell me what is / is not working in section
- leave in December feeling that coding is *not* a scary thing.

A reminder



How to succeed in coding without really trying:



John B. Holbein

@JohnHolbein1

...

**Students often don't realize that being good at coding
really just means being good at Googling.**

10:03 AM · Jan 11, 2021 · Twitter Web App

265 Retweets

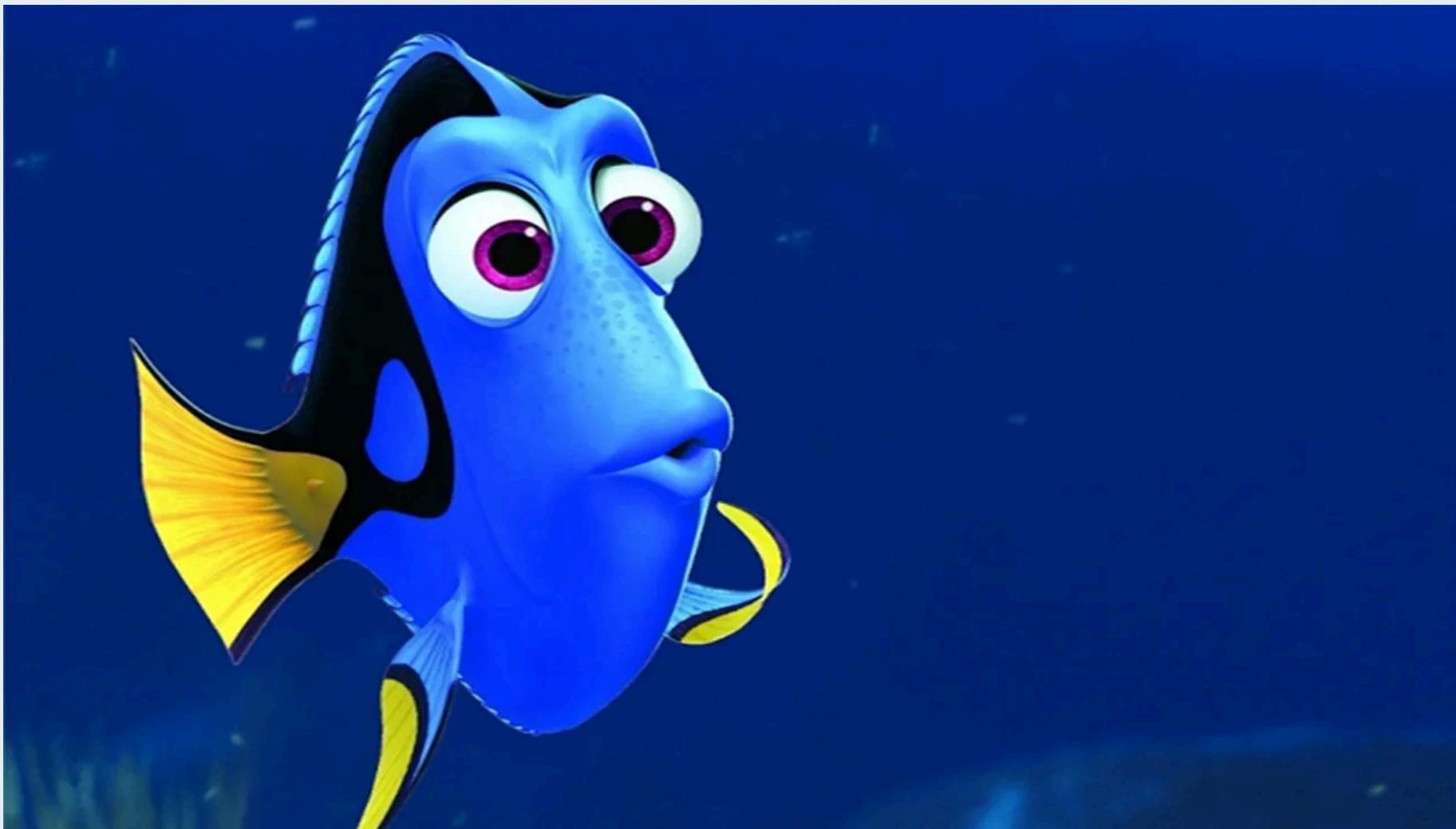
104 Quote Tweets

3,643 Likes



A few notes on how R works

R is like Dory



R is like Dory

```
1 x <- 10  
2 y <- 20  
3 total <- x + y
```

```
1 x <- 10  
2 y <- 20  
3 total <- x + y  
4 total
```

```
[1] 30
```

```
1 x <- 10  
2 y <- 20  
3 total <- x + y  
4 total
```

```
[1] 30
```

```
1 x <- 15
```

```
1 x <- 10  
2 y <- 20  
3 total <- x + y  
4 total
```

```
[1] 30
```

```
1 x <- 15  
2 total
```

```
[1] 30
```

Chat is this true?: Bad use of AI

ChatGPT  Share 

Fix this code. OskiShirt is a column.

```
oskiMean <- mean(suSales[OskiShirt])  
Error in [.data.frame(suSales, OskiShirt) : object 'OskiShirt' not found  
Traceback: 1. mean(suSales[OskiShirt]) 2. [.data.frame(suSales,  
OskiShirt)
```

The error happens because R is looking for an object named `OskiShirt` in your environment instead of recognizing it as a column of your data frame `suSales`.

You need to either use the `$` operator, column indexing with quotes, or `with()`. Here are the fixes:

```
r 
```

```
# Option 1: Using $  
oskiMean <- mean(suSales$OskiShirt, na.rm = TRUE)  
  
# Option 2: Using column name in quotes  
oskiMean <- mean(suSales[["OskiShirt"]], na.rm = TRUE)  
  
# Option 3: Using with()  
oskiMean <- with(suSales, mean(OskiShirt, na.rm = TRUE))
```

Adding `na.rm = TRUE` is usually a good idea if there might be missing values.

Do you want me to also check if `OskiShirt` is a **numeric** column? If it's not numeric, `mean()` will fail.

 Ask anything

 0

ChatGPT can make mistakes. Check important info.

Chat is this true?: Slightly less bad use of AI

ChatGPT ▾

Share ...

I ran this line of code in R, and it failed. I don't know why it failed, and I don't understand the error message. Can you help me explain what's going on? Don't just give me fixed code, but guide me towards the correct answer without stating it outright.

```
oskiMean <- mean(suSales[OskiShirt])
Error in [.data.frame(suSales, OskiShirt) : object 'OskiShirt' not found
Traceback: 1. mean(suSales[OskiShirt]) 2. [.data.frame(suSales,
OskiShirt)
```

Let's carefully unpack what happened step by step.

1. Look at the error text

It says:

```
kotlin
Copy code
Error in [.data.frame(suSales, OskiShirt) : object 'OskiShirt' not found
```

That means R is trying to interpret `OskiShirt` as something that should already exist in your environment (like a variable name), but it doesn't.

2. Think about what `suSales[OskiShirt]` is doing

When you write `df[something]` with a data frame in R, `something` is expected to be either:

- a column name (but usually given as a string),
- a numeric index (e.g., `1` for the first column),
- or a logical vector telling R which rows to keep.

In your code, `OskiShirt` is written as a bare word, so R thinks it should be an object in your workspace.

+ Ask anything

ChatGPT can make mistakes. Check important info.

Some steps to survive the start



Some steps to survive the start

1. What is the shape of my dataset?
2. What are the variables?
3. What is my research question(s)?

After today you should:

- Feel (even just slightly) less scared of coding
- Be (even just a little) more excited to finish this class
- Have a better sense of *what* R is and how it works
- Know the three key questions to ask yourself when you open a new dataset
- Please fill out the feedback survey in your email?

Office hours!