



Politician Twitter Sentiment Analysis

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Introduction

- Twitter = “go-to” place to follow influential and affluent people including **politicians**
- Goal of this project: to gauge Twitter **sentiment** towards **Democrats vs. Republicans**
- Secondary goal: to use Twitter sentiment to analyze **sentiment after the election** results

Data



Beef Baby Basia
@potato_circus

Damn... I don't have any chalk! MY CHALKBOARD IS USELESS :(

1:25 AM · Apr 7, 2009



Amanda Howson
@FlyRice

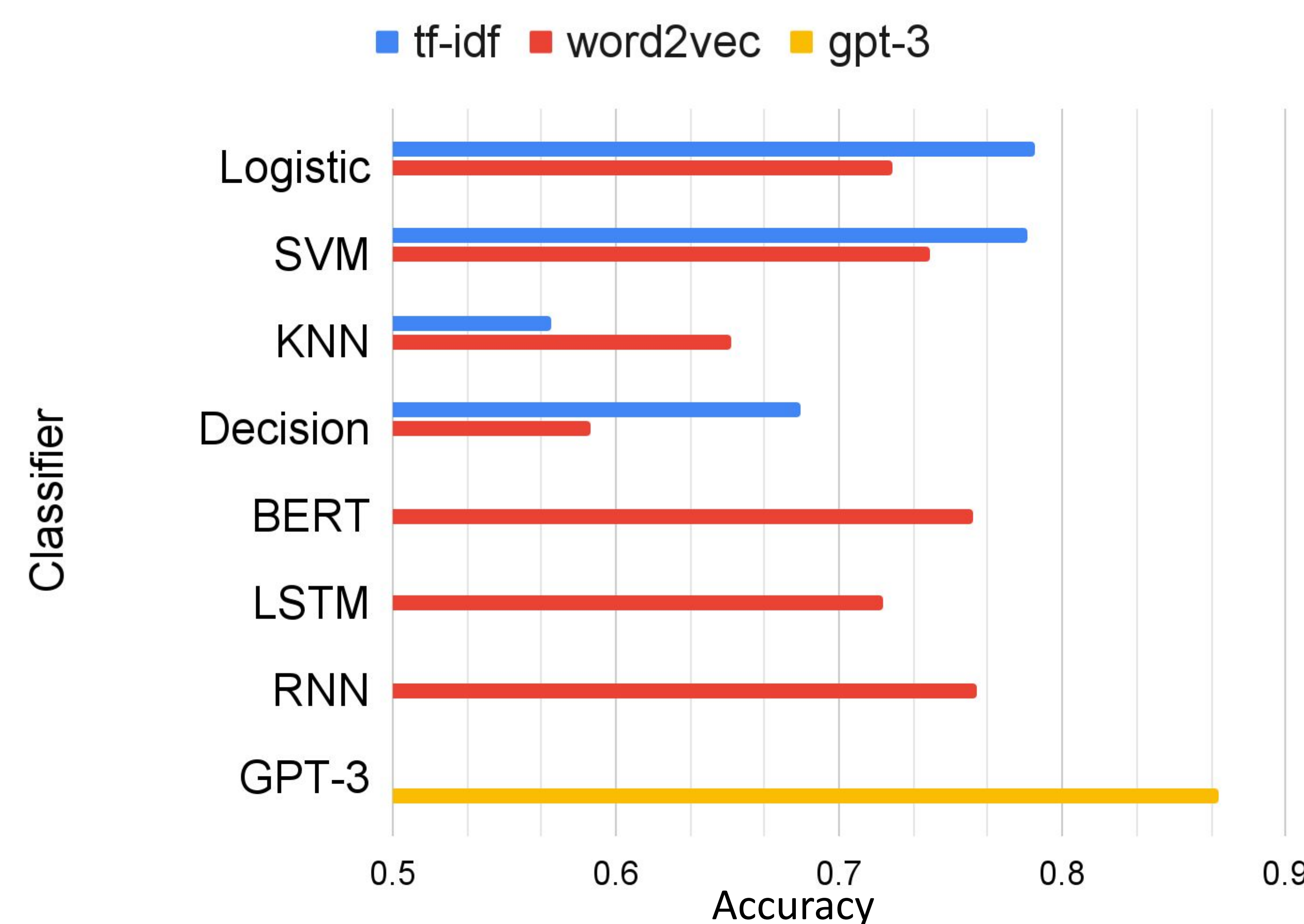
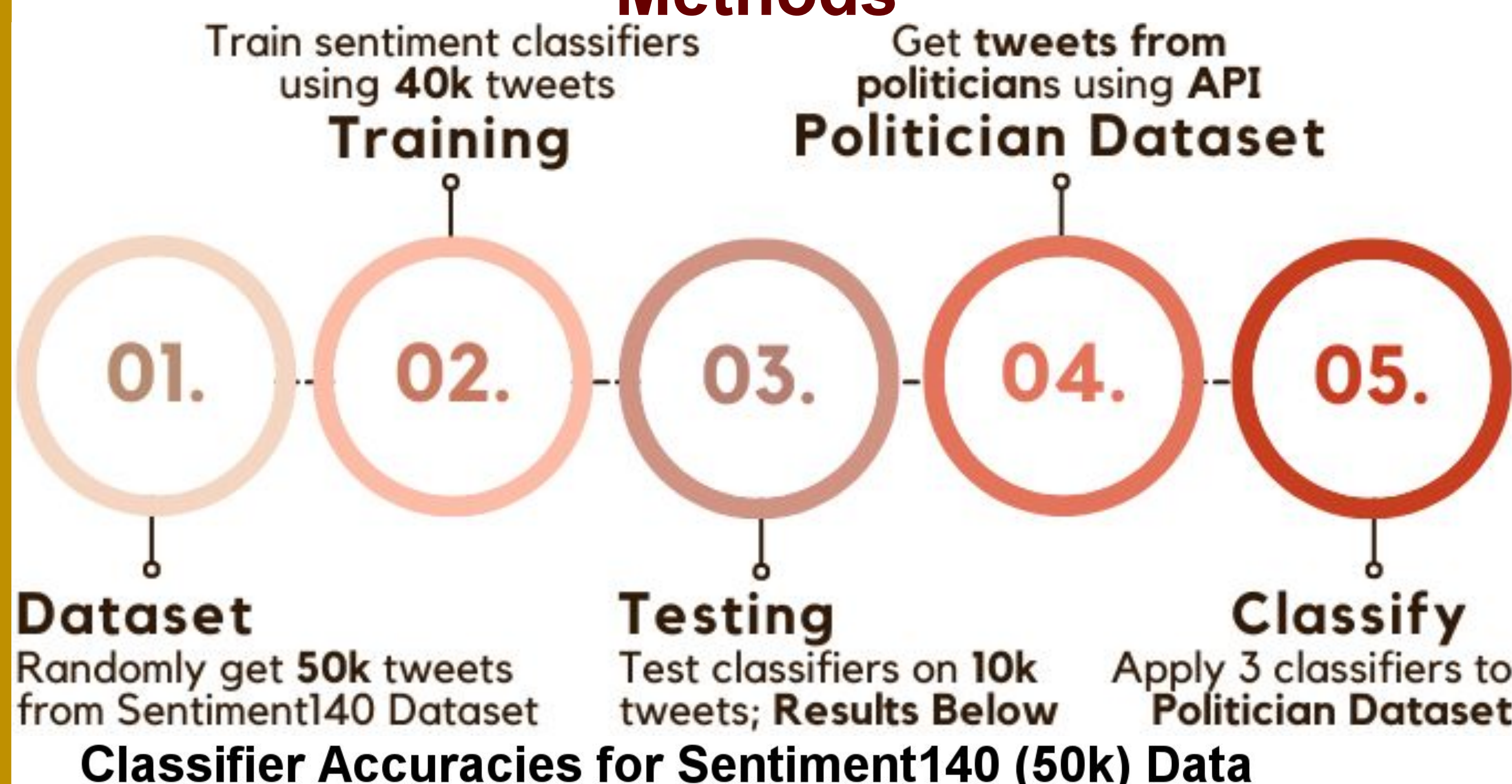
Good GOD they ruined my belly button!!! :(

1:50 AM · Apr 7, 2009



- Randomly sampled **25k positive** and **25k negative** tweets from **Sentiment140** Dataset (1.6 million tweets total)
- Processed text using **tf-idf** or **word2vec**

Methods



Politician Sentiment

- Chose **popular Democrat vs. Republican** opponents from 2022 US Senate election
- Extracted ~300 tweets about each politician using **Twitter Search API**; all tweets are from **November 23, 2022**

State	Republican	Democrat
PA	Mehmet Oz	John Fetterman
NV	Adam Laxalt	Catherine Cortez Masto
WI	Ron Johnson	Mandela Barnes
NH	Donald Bolduc	Maggie Hassan
NC	Ted Budd	Cheri Beasley
NY	Joe Pinion	Charles Schumer
OH	JD Vance	Tim Ryan

Green = won election

Red = lost election



Trump endorsed Masters (AZ), Laxalt (NV), Bolduc (NH) & Oz (PA)

They all lost

DeSantis aggressively campaigned for Laxalt (NV), Mastriano (PA), Zeldin (NY) & Michels (WI)

They all lost

Donald & Ronald, can you please campaign in Georgia for Herschel Walker?

Pretty please? 😊

6:47 PM · Nov 13, 2022 from Philadelphia, PA

840 Retweets 7 Quote Tweets 3,566 Likes



Andrea Junker
@Strandjunker

The NRA's Blood Money:

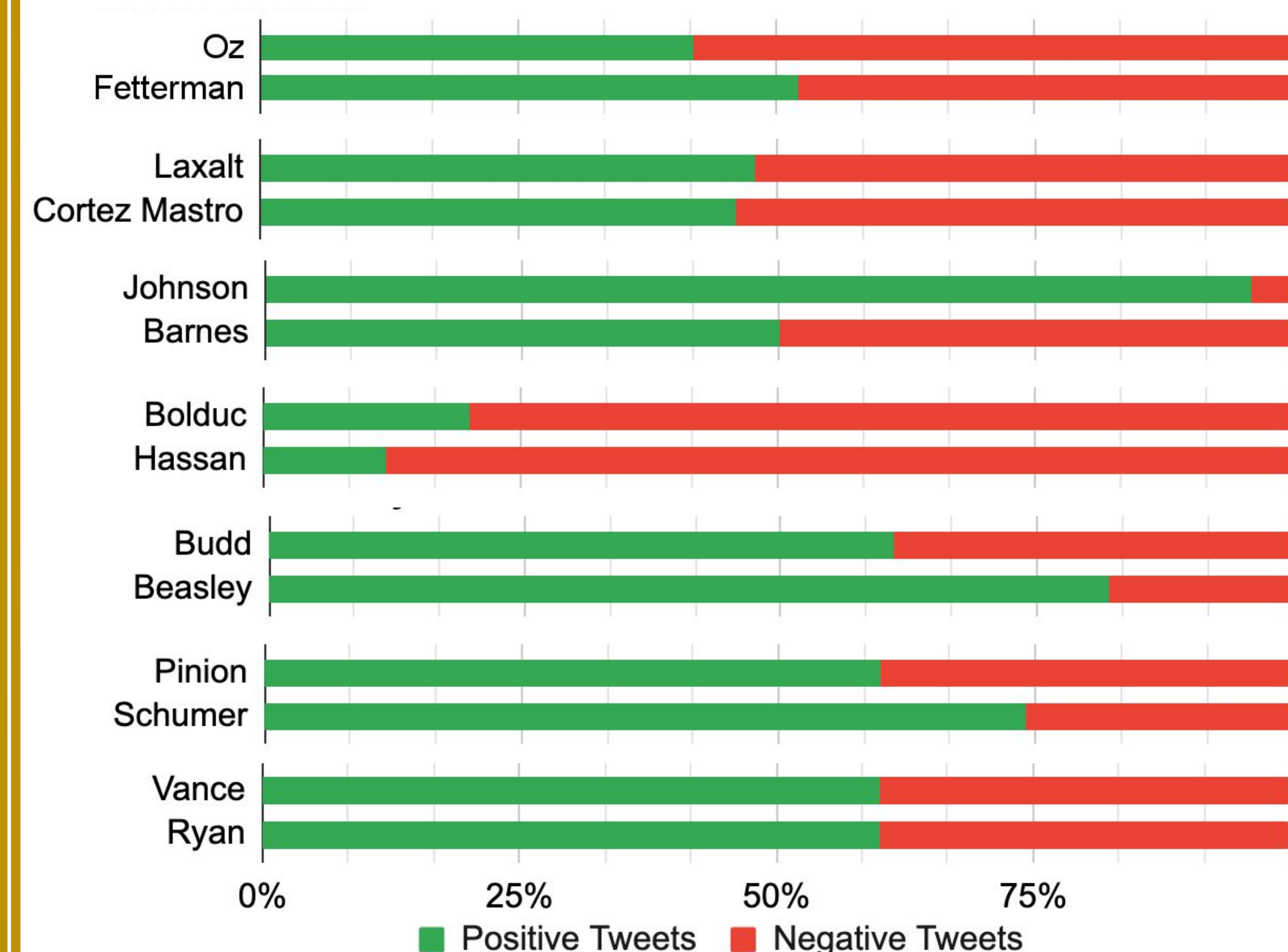
\$104,456 Rand Paul
\$176,274 Ted Cruz
\$226,007 Chuck Grassley
\$1,267,139 Mitch McConnell
\$1,269,486 Ron Johnson
\$1,306,130 Marsha Blackburn
\$1,391,548 Josh Hawley
\$3,303,355 Marco Rubio
\$13,647,676 Mitt Romney

Mass shootings are a Republican policy

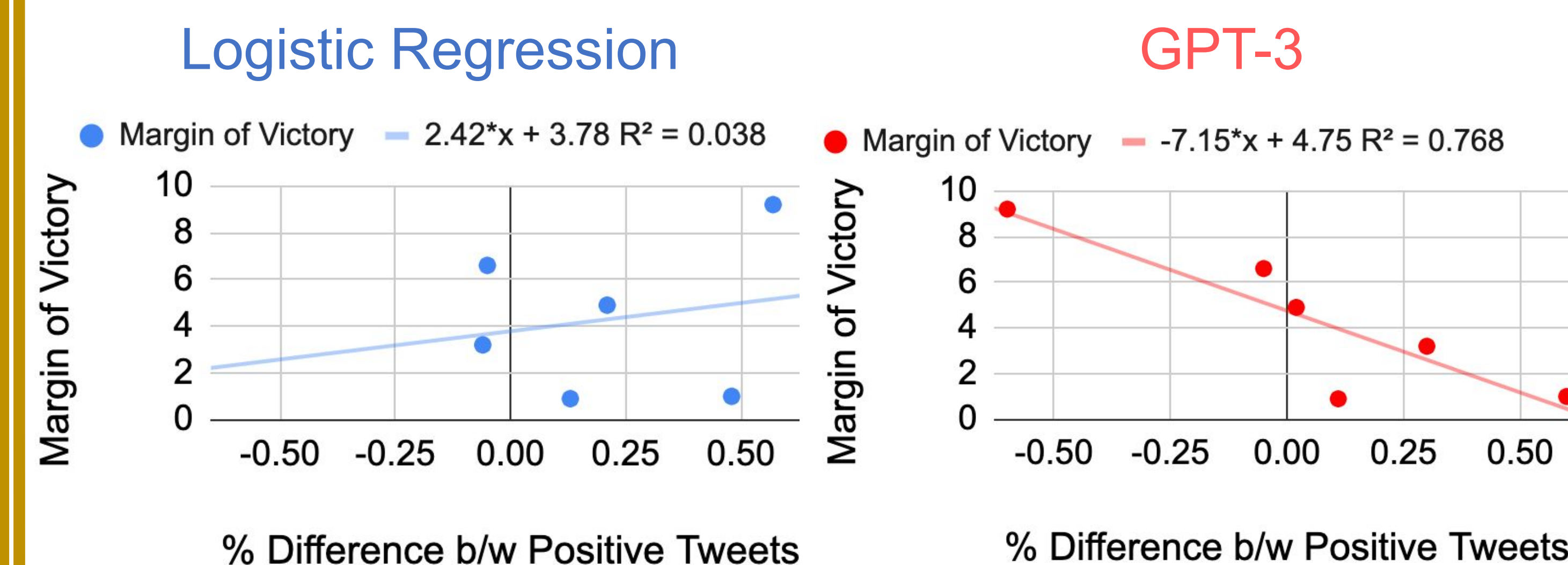
10:45 AM · Nov 23, 2022

15.2K Retweets 768 Quote Tweets 26.3K Likes

Positive vs. Negative Twitter Sentiment for Each Political Race



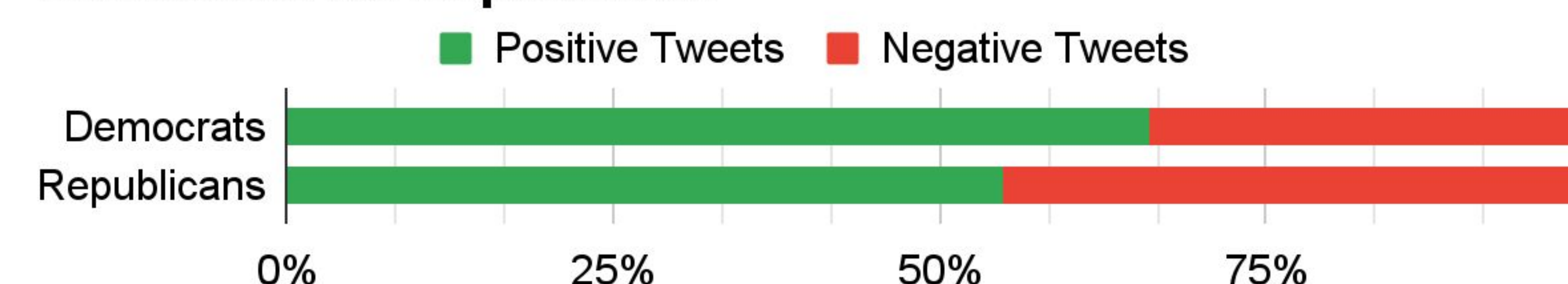
Margin of Victory vs. Percent Difference in Positive Tweets Using Different Classifiers



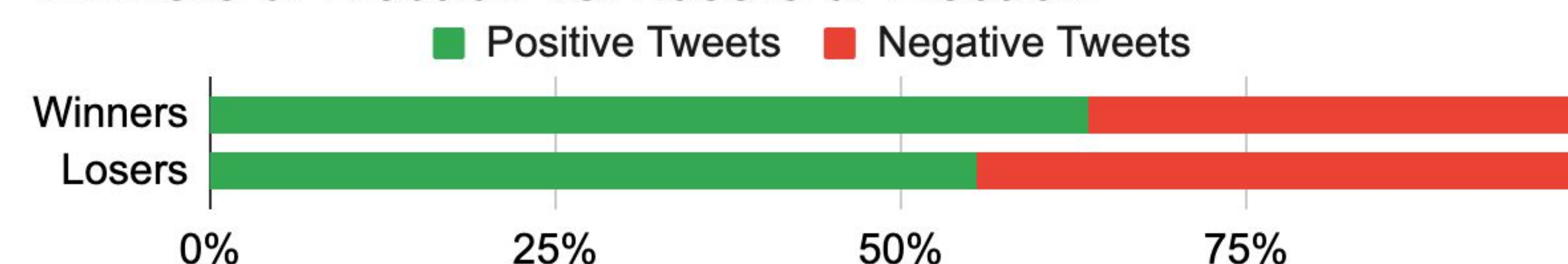
Results

Used average of LSTM, BERT, LogReg, and GPT-3 to predict politician tweets

Democrats vs. Republicans



Winners of Election vs. Losers of Election



Conclusions

Findings:

- 1) **Democrats** had more positive tweets than **Republicans**
- 2) **Winners** had more positive tweets than the **Losers**
- 3) **Negative correlation** between **Positivity** and **Margin of Victory** for GPT-3 model; no correlation for LogReg

Limitations:

- 1) Twitter users do **not** make up a **representative sample**
- 2) **Twitter expressions of emotion** are far **different** from **interpersonal expressions of emotion**
- 3) **Full API**: see how sentiment changes over time, get Tweets from **November 8th**
- 4) Train more **complex Neural Network** classifiers

- Future**: dataset of political tweets, non-binary classification, and factor in the number of retweets/likes