

DO PEOPLE TWEET THE SAME WAY THEY VOTE?



DECONSTRUCTING THE US PRESIDENTIAL ELECTIONS 2016 WITH TWITTER

APPLIED NATURAL LANGUAGE PROCESSING - FALL 2016

PROCESS

Tweet Preprocessing

Tokenization and Tagging
Named-entity recognition
Hashtag Parsing
Location Extraction



State-wise Topic Clustering

Lemmatizing
Silhouette Score
Tf-Idf/Count Vectorizer
Hypernym Generation



Computing Vader Sentiments

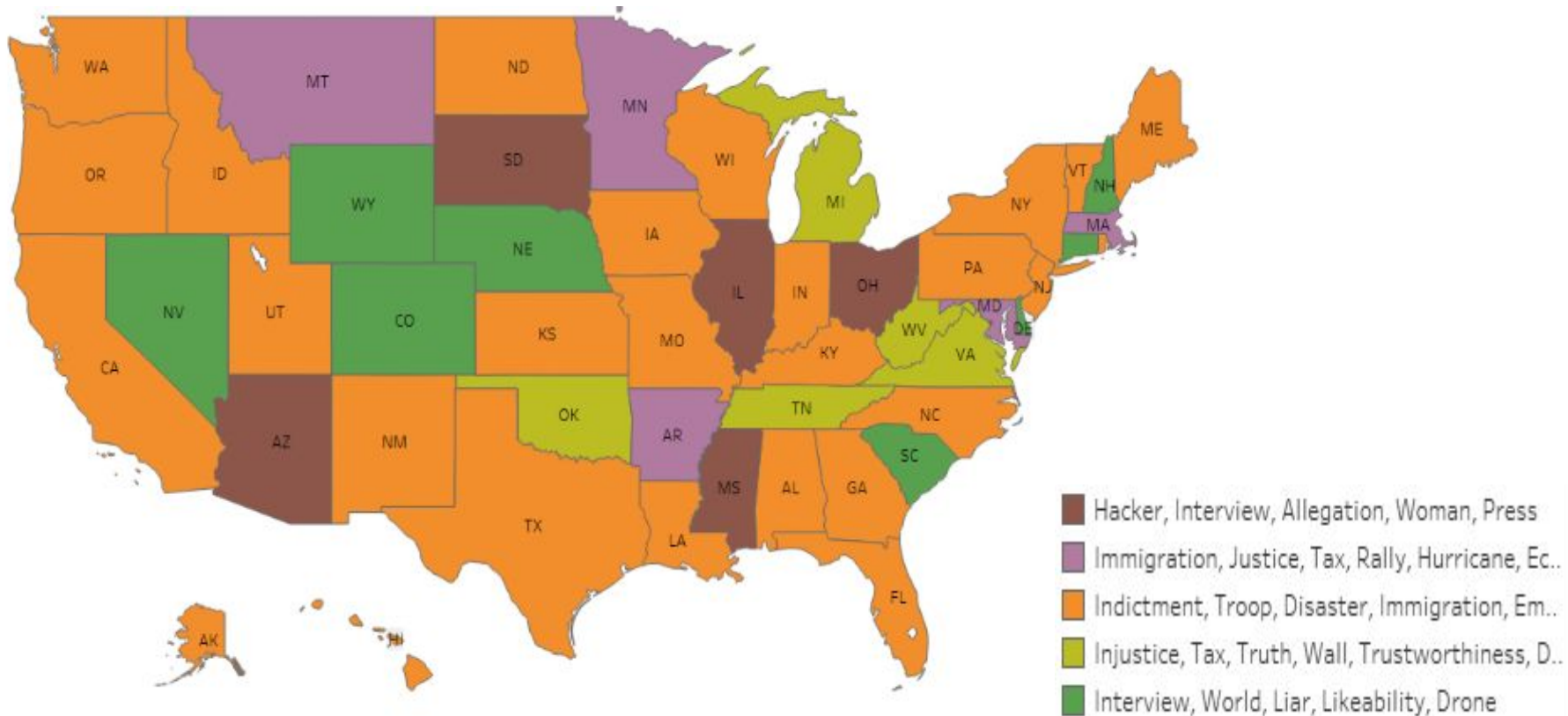
Generating Sentiment
Scores
Recreating Electoral Map
Identifying Anomalies



Creating our Sentiment Analyser

Named Entity Occurrence
Distance to Neg/Pos Words
Vicinity Sentiment
Topic of Tweet
Implementing ML Models

What Are Different States Tweeting About?



WHAT SENTIMENT DO WE CARE ABOUT?

```
graph TD; A[WHAT SENTIMENT DO WE CARE ABOUT?] --> B[SENTIMENT OF TWEET]; A --> C[SENTIMENT TOWARDS CANDIDATE]; C --> D[Favoring Trump]; C --> E[Favoring Hillary]; D --> F[Anti-Hillary Tweets]; D --> G[Pro-Trump Tweets];
```

SENTIMENT OF TWEET

SENTIMENT TOWARDS CANDIDATE

Favoring
Trump

Favoring
Hillary

Anti-Hillary Tweets

Pro-Trump Tweets

The 'Pivot'

COULD WE RECREATE THE ELECTORAL MAP BASED ON TWEET SENTIMENTS OF VOTERS?



COULD WE BUILD A SUBJECT-BASED SENTIMENT ANALYZER TO IDENTIFY WHICH CANDIDATE A TWEET FAVORS?

In Simple Terms..

IS THE TWEET A POSITIVE TWEET OR A NEGATIVE TWEET?

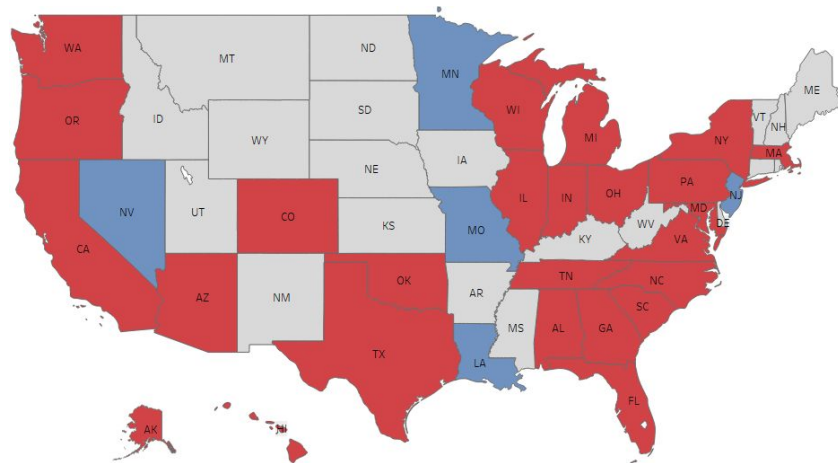


DOES THE TWEET FAVOR HILLARY OR TRUMP?

ROUND 1



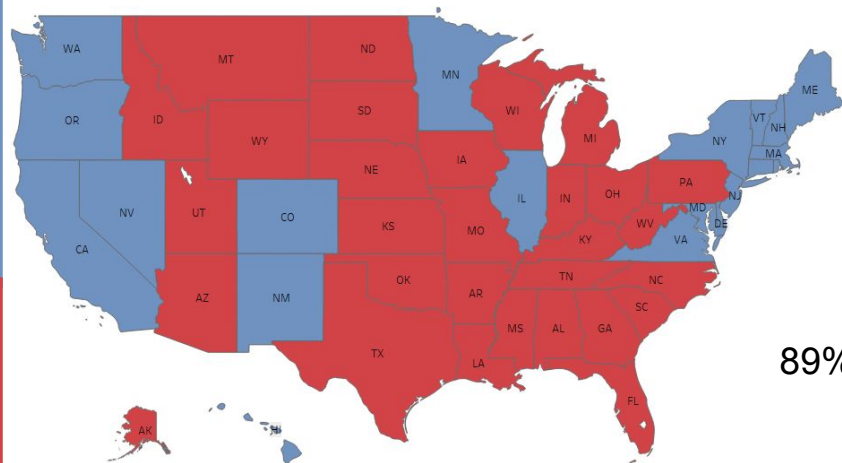
61% Match



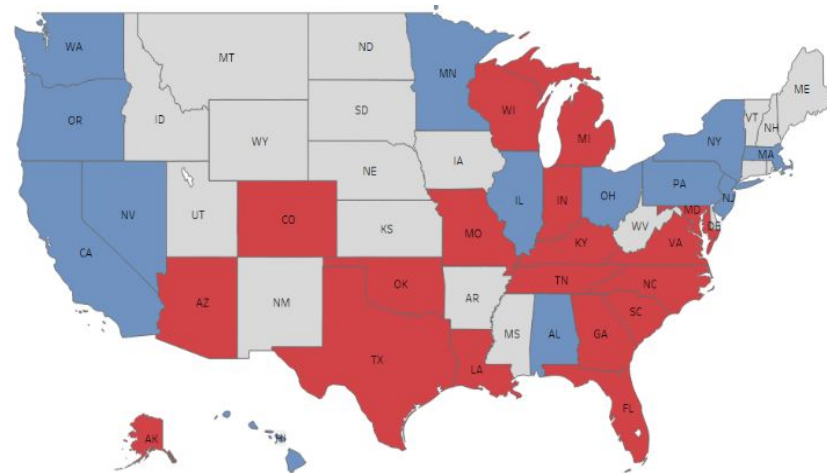
MATCHING STATES: AL, AZ, DC, FL, GA, IN, KY, MI, MN, NC, NJ, NV, OH, OK, PA, SC, TN, TX, WI

MIS-MATCHING STATES: CA, CO, HI, IL, LA, MA, MD, MO, NY, OR, VA, WA

ROUND 2



89% Match



MATCHING STATES: AL, AZ, CA, CO, DC, FL, GA, IL, IN, KY, LA, MA, MD, MI, MO, NC, NV, NY, OH, OK, OR, PA, SC, TN, TX, VA, WA

MIS-MATCHING STATES: MN, NJ, WI

Sentiment Analysis is Good

Subject-Based Sentiment Analysis is Better

Sample Tweets	Vader Favors	Our Model Favors
Do you want a You're Hired president in Hillary Clinton or do you want a You're Fired president in Donald Trump?	Trump	Hillary
It's smart to follow the laws: Clinton didn't follow the rules of saving her records as a paid public employee.	Hillary	Trump
I've got a question Tim...Should Hillary Clinton face consequences for mishandling classified information? #VPDebate	Hillary	Trump
Question is *grossly* misleading -- @BudgetHawks said Clinton plan nearly pays for itself, Trump piles on debt!	Trump	Hillary
Trump managed to find the only politician that's dumber than him to be his running mate Impressive.	Trump	Hillary
Hillary Clinton's "uninformed" #BasementDwellers know that Hillary has taken massive bribes from drugs companies!	Hillary	Trump
Pence is insuring that Trump looks like a douche in the next debate.	Neutral	Hillary
No privatization of SS; I've paid in full, I want what's mine! Yes Clinton/Kaine; No Trump/Pence-not presidential!	Trump	Hillary

Vader is Good Anakin is Better

Sample Tweets	Vader Favors	Our Model Favors
Do you want a You're Hired president in Hillary Clinton or do you want a You're Fired president in Donald Trump?	Trump	Hillary
It's smart to follow the laws: Clinton didn't follow the rules of saving her records as a paid public employee.	Hillary	Trump
I've got a question Tim...Should Hillary Clinton face consequences for mishandling classified information? #VPDebate	Hillary	Trump
Question is *grossly* misleading -- @BudgetHawks said Clinton plan nearly pays for itself, Trump piles on debt!	Trump	Hillary
Trump managed to find the only politician that's dumber than him to be his running mate Impressive.	Trump	Hillary
Hillary Clinton's "uninformed" #BasementDwellers know that Hillary has taken massive bribes from drugs companies!	Hillary	Trump
Pence is insuring that Trump looks like a douche in the next debate.	Neutral	Hillary
No privatization of SS; I've paid in full, I want what's mine! Yes Clinton/Kaine; No Trump/Pence-not presidential!	Trump	Hillary

WHAT DID WE **REALLY** LEARN FROM THIS?

Subject-based sentiment analysis is hard!

Twitter behavior during the 2016 elections has been predominantly negative and attacking.

A comprehensive majority of tweets 'favoring' Trump are actually anti-Hillary, not pro-Trump.

To a fair extent, Twitter behavior has been consistent with the voting behavior of US states.



Boris Lo



**Harman Shah
Singh**



Shirish Dhar



Parv Sondhi