Measuring sentiment during the 2016 U.S. presidential election using emoji analysis

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Introduction

- Sentiment analysis of Twitter data has been used to predict election results[1]
- However, sentiment analysis and results can be confusing to the general public
- Pairing sentiment analysis with emoji analysis might offer a way to quickly disseminate findings to the general public
- Emoji analysis needs to be tested for efficacy

Methodology

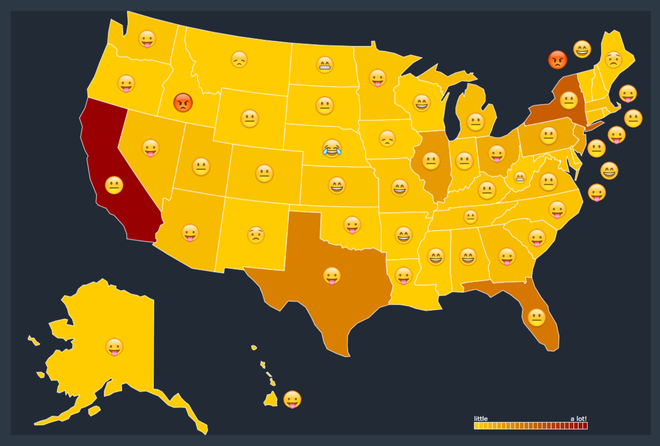
- Collected tweets containing **#clinton**, **#trump**, or **#election2016**
  - -Time range: September 6 – November 14
- Created a smaller dataset of tweets containing **geo-location data** and one of **67 different emojis (n=8,293)**
- Separated tweets containing each hashtag, resulting in three sub-datasets:
  - -#clinton: 680 tweets
  - -#trump: 4,305 tweets
  - -#election2016: 3,407 tweets
- Emojis were rated on a -5 to 5 polarity (emotion) scale in prior work[2]
- Generated state-by-state heatmaps of aggregate emotion score and tweet volume
- Compared these heatmaps to general election results to draw conclusions about value of emoji analysis

Emoji	Name(s)	Score
😡	rage; pout	-5
😠	angry	-4
😟	worried	-3
😞	disappointment	-2
😕	frowning	-1
😐	neutral_face	0
😛	stuck_out_tongue	1
😄	smile	2
😁	grinning	3
😂	joy	4
😤	triumph	5

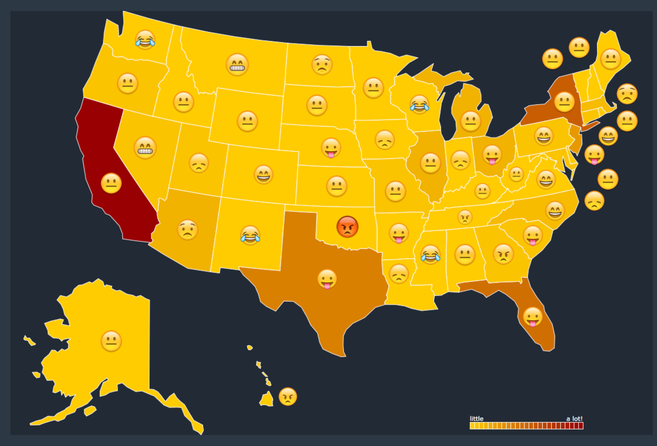
Examples of emojis, name(s), and polarity score

Results

#trump heatmap

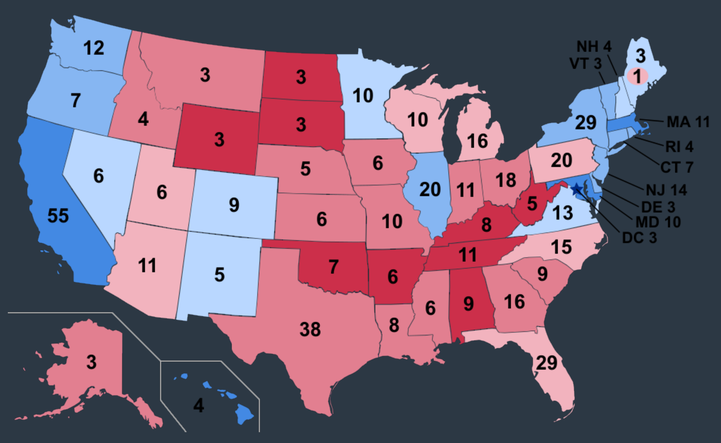


#clinton heatmap



#election2016 heatmap

2016 Presidential election results[3]



Conclusion

- Emoji analysis can act as an easily decipherable complement to traditional sentiment analysis
- In "swing states", the emoji analysis frequently matched the outcome of the general election
  - -States with a higher score in the #trump set voted for Donald Trump
  - -States with a higher score in the #clinton set voted for Hillary Clinton
- States that traditionally voted for specific parties were harder to decipher
- This type of complimentary analysis might be more effective in less contentious situations (i.e. an election with better liked candidates)
  - -Future work can investigate this situational effect

[1]Bermingham, A., & Smeaton, A. F. (2011). On using Twitter to monitor political sentiment and predict election results.

[2]https://github.com/wooorm/emoji-emotion/blob/master/support.md