

# SPRINGBOARD DATA SCIENCE INTENSIVE

Capstone Project: Analysis of the 2016 US Presidential Debates and  
Associated Social Media

# The Questions

- What features of political language differ from normal language?
- How did social media influence the election?
- What aspects of Donald Trump's language and strategy allowed him to win?
- Was aspects of of the language used by all candidates is interesting or surprising?

# Most Useful Python Libraries

- NLTK
- Textstat
- TextBlob

# Grade Comprehension Level

- The overall grade comprehension level of political speech is much lower than would be expected from a national leader, assuming that leaders are selected for demonstrated raw intelligence.
- It appears that political speech fulfils a completely separate role from science and engineering in terms of the demonstration of high value.
- Clinton's speech comprehension level is much higher than that of Trump in relative terms, but in absolute terms both are very low.
- Democrats scored higher than Republicans, but, of the Republicans analysed, Ben Carson scored much higher than his other rival Republicans.

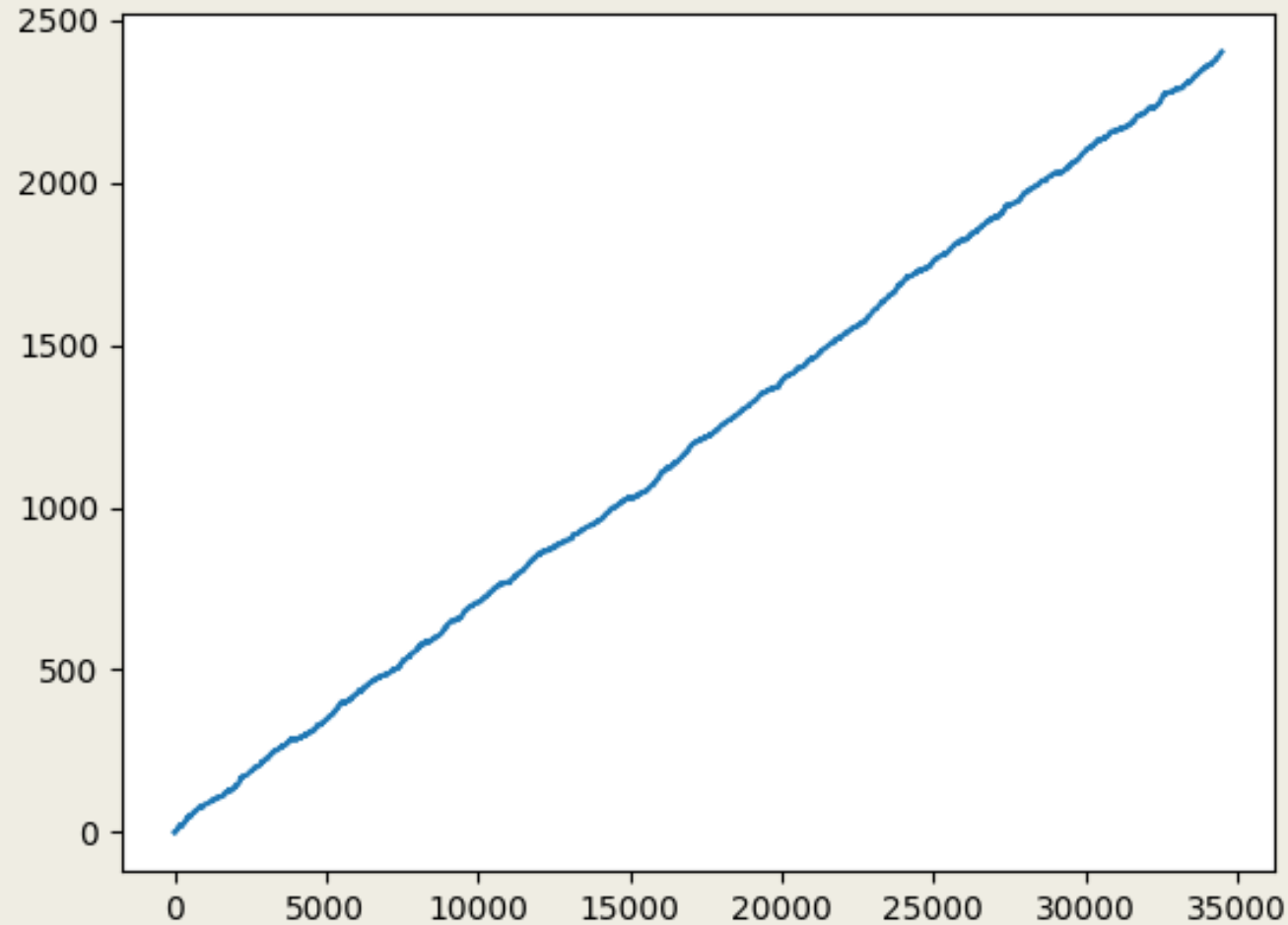
# Sentiment

- The Cumulative sentiment and distribution of sentiment, per sentence, was extremely uniform.
- This demonstrates, perhaps unsurprisingly, that politically speech is characterised by extreme preselection selection bias.
- Despite Donald Trump's reputation for causing antagonism, outrage and negativity, Trump's sentiment profile is more 'normal' than many of his rivals.
- Trump's overall sentiment levels were measurably and appreciably lower than those of Former Secretary Clinton, but not by much in on the absolute scale (1.5%).

# PRESIDENTIAL PRIMARY SENTIMENT

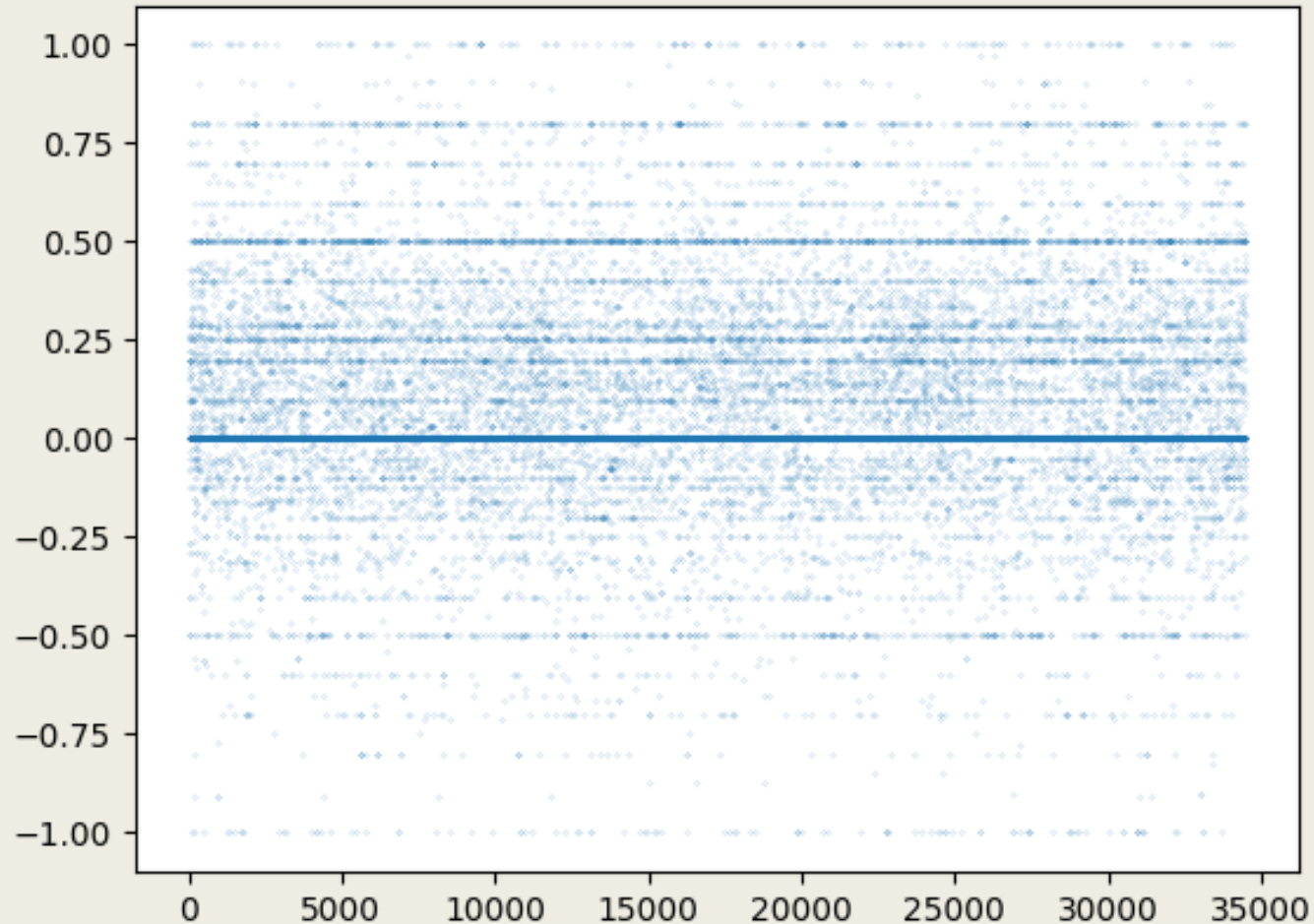
High Preselection

# CUMULATIVE SENTIMENT



- $R^2 = 0.99+$
- Slope = 0.694
- Almost a perfect straight line!

# CUMULATIVE SENTIMENT



- StdDev = 0.24
- Four standard deviations either side of the mean to capture 99.9% almost perfectly



# Trump vs Clinton

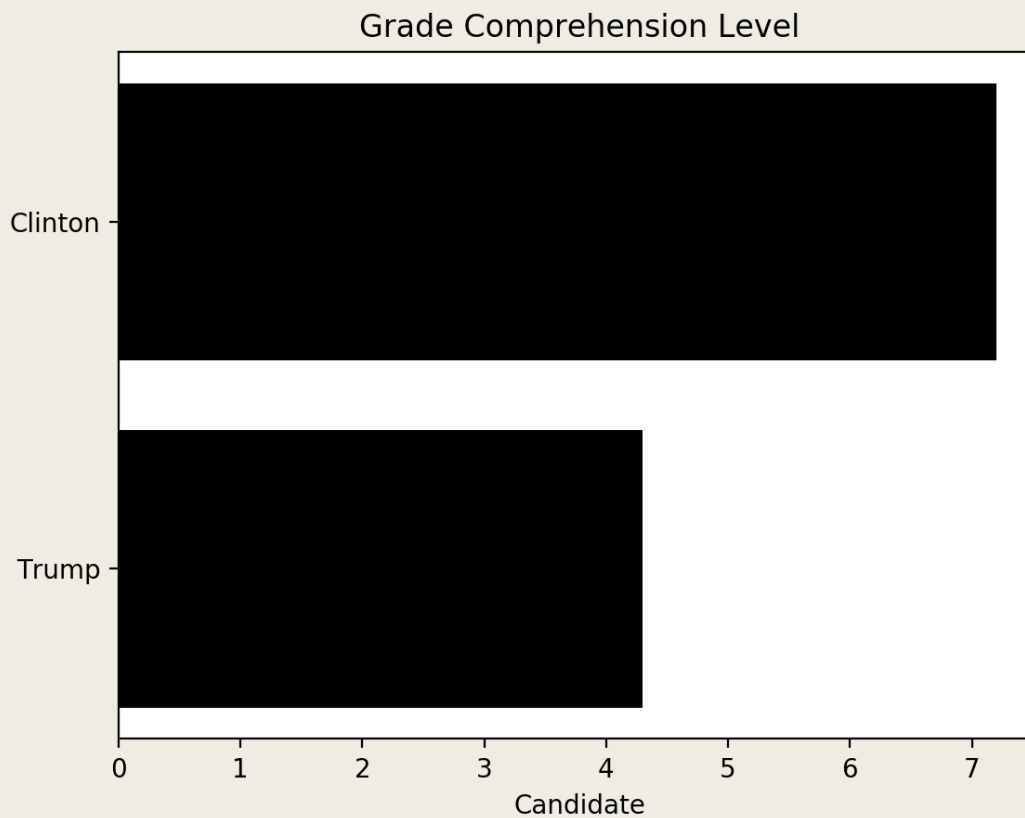
- Trump was able to use Twitter much more effectively than Clinton was and was able to win valuable contentious ground there without going to the risk of inflaming sentiment or alienating the audience on live television.
- Trump was able to infer meaning and leave more of his speech to the interpretation of the audience, which seems to be a major feature of selection in political speech.
- Trump was better able to create two angles of attack between social media and the debates and was therefore able to take advantage of more dynamic posture with more potential lines of attack, similar to a chess player, boxer or martial artist.
- Clinton, by comparison, appears to have been caught by surprise and played too rigid a game.
- Trump appeared crazy, but within the context of the rules of the game he was crazy like a fox.

# THE HEAD TO HEAD TELEVISED DEBATES

Trump vs Clinton







FLESCH-  
KINCAID



twitter

The image features the word "twitter" in its signature blue, lowercase, rounded font. The text is centered horizontally and is enclosed within a white, L-shaped frame that forms a partial border around it. The background is a solid black.

# @realDonaldTrump vs @HillaryClinton

- Text analysis between the debates and Twitter would suggest that Twitter played in major role in the election outcome.
- Trump was able to dissociate his social media persona from his professional persona and able to go use Twitter to go outwith the bounds of the highly constrained 'normal' language of the political debates.
- Speech in debates was not predictive of speech on Twitter. Both candidates appear to have adopted alternate social media personas.

@REALD  
ONALTR  
UMP



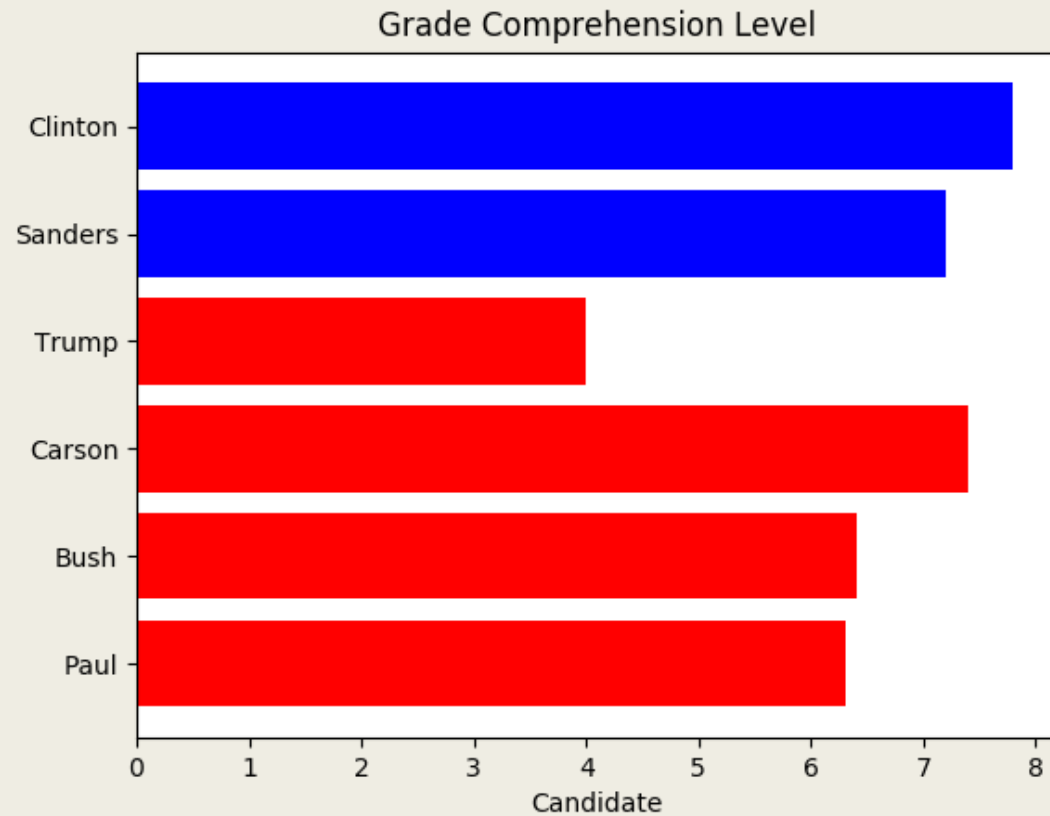


@HILLARY  
CLINTON

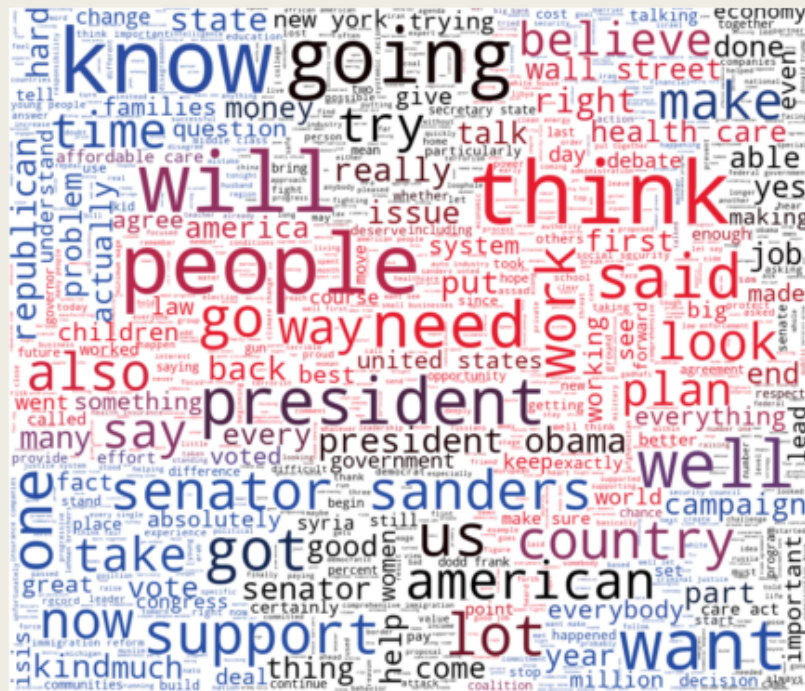
# PRIMARY DEBATES

Candidate Word Clouds





FLESCH-  
KINCAID



HILLARY  
CLINTON

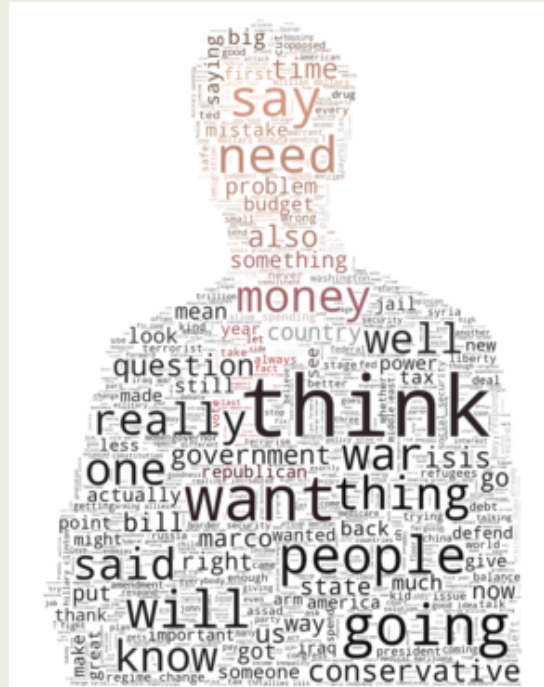


# DONALD TRUMP

[illegible]

[illegible]





RAND  
PAUL

# Recommendations and Further Work

- I would recommend to all readers not to get hung up on political speech. Political speech appears to be a last-resort means of creating scapegoats for our individual frustrations And inability to produce enough value to solve our own problems. Political speech is very uniformly low comprehension, much like a weapon and performs a war-like function.
- Social media will continue to play an increasingly important part in the political process, due to its ability to create more dynamic means of political attack and defence.
- Part of speech processing
- Many aspects require too much contact to gain insight from NLP and we should only use these tools as a means to shed greater light on events and test hypotheses. NLP is not a replacement for human intuition and contextual understanding, it rather adds a great deal of value to pre-existing intuition and contextual understanding and is a great way to gain further insight through dialogue. NLP is not a Philosopher's Stone and should not be used as such.
- Caveat Emptor! When making decisions with NLP, look at the data yourself and start a dialogue. Treat the recommendations like you're buying gold and give them a good scratch!