POLITICAL RHETORIC ANALYSIS

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PROJECT PLAN PT.I

- Wanted to focus on rhetorical aspects
- Changed -> focus on modes of persuasion with Republican and Democratic speech/text data
  - “Hot Topic” emphasis
  - Use of descriptive words

Why so political?

BACKGROUND

VICE PRESIDENTIAL DEBATE
2020
THE UNIVERSITY OF UTAH

2020 DEMOCRATIC NATIONAL CONVENTION
MILWAUKEE, WISCONSIN

2020 PRESIDENTIAL DEBATE
BELMONT UNIVERSITY

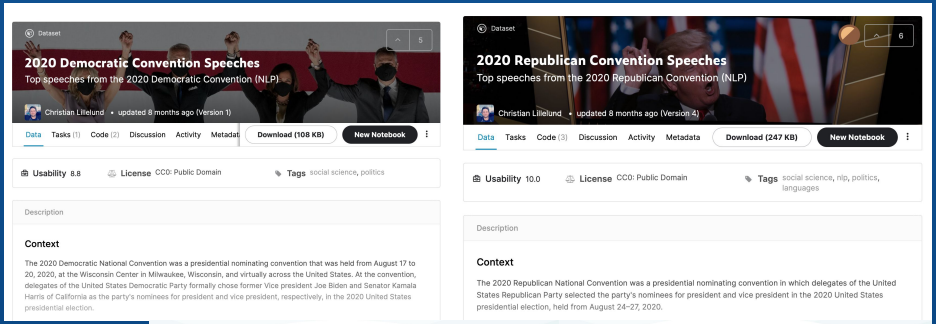
WHAT IS POLITICAL RHETORIC?

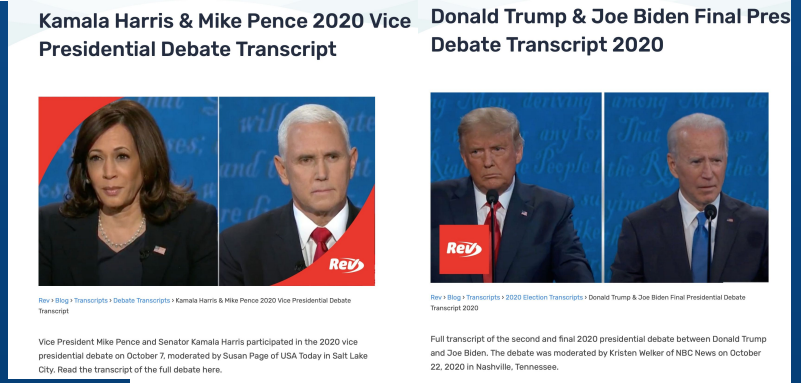
1.) How politicians use language features to further persuasion

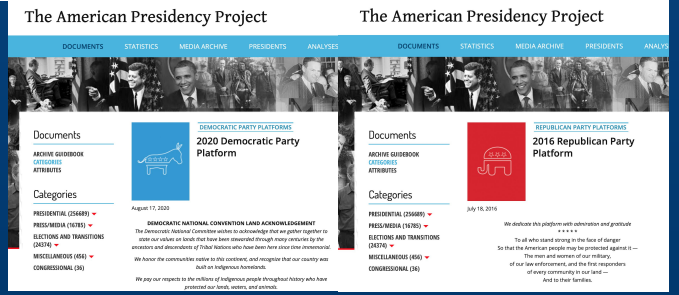
2.) Synonymous with “Agenda” -> What is the Politician trying to push? What issues does the politician care about?

DATA COLLECTION

1. RNC and DNC speeches
2. Presidential debate and VP debate
3. Party Platforms







DATA COLLECTION PT.2

Note: Removed certain words for platform

```
banned = ['Republican', 'Democrat', 'Republicans', 'Democrats']
f = lambda x: ' '.join([item for item in x.split() if item not in banned])
platform["sentences2"] = platform["sentences"].apply(f)
```

RNC and DNC speeches:
- downloaded from kaggle

Platforms:
- downloaded from The American Presidency Project

Pres and VP Debates:
- scraped from REV -> CSV files

Out[24]:

	transcript	Aff
Speakers		
Kamala Harris	Thank you, Susan. Well, the American people ha...	D
Kamala Harris	Can you imagine if you knew on January 28th, a...	D
Kamala Harris	... right to reelection based on this.	D
Mike Pence	Susan, thank you. And I want to thank the Comm...	R
Mike Pence	And I believe it saved hundreds of thousands o...	R
...	...	...
Mike Pence	I look at the relationship between Justice Rut...	R
Kamala Harris	First of all, I love hearing from our young le...	D
Kamala Harris	And brings me to Joe, Joe Biden. One of the re...	D
Kamala Harris	Joe has a longstanding reputation of working a...	D
Kamala Harris	Brecklin, when you think about the future, I d...	D

207 rows × 2 columns

- Created DataFrames and added political affiliations for all 4 sources

```
import scrapy


class Presdebate20Spider(scrapy.Spider):
    name = 'presdebate20'
    #allowed_domains = ['https://www.rev.com/blog/transcripts/donald-trump-joe-biden-final-presidential-debate-transcript-2020']
    start_urls = ['https://www.rev.com/blog/transcripts/donald-trump-joe-biden-final-presidential-debate-transcript-2020']

    def parse(self, response):
        #extracting using CSS selectors ?
        text1 = response.xpath("//div[@class='fl-callout-text']/p").re(r'\n.+\n?')
        #text1 = response.xpath("//div[@class='fl-callout-text']//p/text()").extract()
        time = response.xpath("//div[@class='fl-callout-text']//p/a/text()").extract()
        speaker = response.xpath("//div[@class='fl-callout-text']//p").re(r'\>[A-Z][a-z]+ [A-Z][a-z]+')


        for item in zip(text1,time,speaker):
            scraped_info = {
                'speaker' : item[2],
                'time_stamp' : item[1],
                'transcript' : item[0]
            }

            #give the info to scrapy
            yield scraped_info
```

speaker	time_stamp	transcript
>Kristen Welker	00:18	Good evening, everyone. Good evening. Thank you so much for
>Donald Trump	07:37	How are you doing? How are you?</p>
>Kristen Welker	07:58	And I do want to say a very good evening to both of you. This de
>Kristen Welker	08:27	The goal is for you to hear each other and for the American peop
>Kristen Welker	09:03	... during this next stage of the coronavirus crisis. Two minutes u
>Donald Trump	09:04	So as you know, 2.2 million people modeled out, were expected
>Donald Trump	09:41	There was a very big spike in Texas. It's now gone. There was a v
>Donald Trump	10:04	I can tell you from personal experience, I was in the hospital. I ha
>Kristen Welker	11:06	Okay. Former Vice President Biden to you. How would you lead t

PROJECT PLAN PT.2

Analysis Hypothesis:

A classifier should be able to predict D or R based on the 3 models in this order: highest accuracy with speeches, then next the debate, then the platform.

SPEECHES

Written with persuasive intent
(Most biased?)

DEBATES

“Spontaneous” persuasion
(Keep both sides in mind?)

PARTY PLATFORMS

Informative persuasion
(most neutral?)

ANALYSIS PROCESS:

- Tried logistic regression with the more meta features: token len, type len, ttr, sent len, char amt, etc.
- Accuracy stayed around 45% for the speeches and 50% for the debate.
    - Probably would have been lower for the platform

- these features were not good at deciphering between the two affiliations
- there are not big rhetorical stylistic differences between parties.

```
# building logistic regression
from sklearn.linear_model import LogisticRegression
X = conv_speeches[['Token_count', 'Type_count', 'TTR', 'SentAmt', 'AVGSENTLEN']]
y = conv_speeches['Aff']
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=0, stratify=y)


lr_model = LogisticRegression(C = 1, class_weight= None, penalty='l2')   # default setting
lr_model.fit(X_train, y_train)
y_pred = lr_model.predict(X_test)
accuracy_score(y_test, y_pred)
```

```
0.45454545454545453
```

SVC ANALYSIS PROCESS:

Debate:

1.) Added both debate csvs together
2.) Gridsearch for best parameters in SVC
3.) Ran classifier
4.) Most important features (unigram, bigram)

Speech:

1.) Gridsearch, but the accuracy was high just from basic parameters
2.) Most important features

Platform:

1.) Gridsearch
2.) Ran classifier
3.) Most informative features

```
from sklearn.pipeline import Pipeline
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.svm import SVC
from sklearn.model_selection import GridSearchCV

x = conv_speeches.Speech2[:1000]
y = conv_speeches.Aff[:1000]

tfidf_model = TfidfVectorizer()
svc_model = SVC()


pipe = Pipeline(steps=[('tfidf', tfidf_model), ('svc', svc_model)])

param_grid = {
    'tfidf__max_features': [1000, 2000, 3000],
    'tfidf__stop_words': ['english', None],
    'svc__C': [1E5],
    'svc__kernel' : ['linear'],
    'svc__gamma' : [1]
}

search = GridSearchCV(pipe, param_grid, n_jobs=3, cv=5)
search.fit(x, y)
```

RESULTS OF SVM CLASSIFICATION:

95.2%

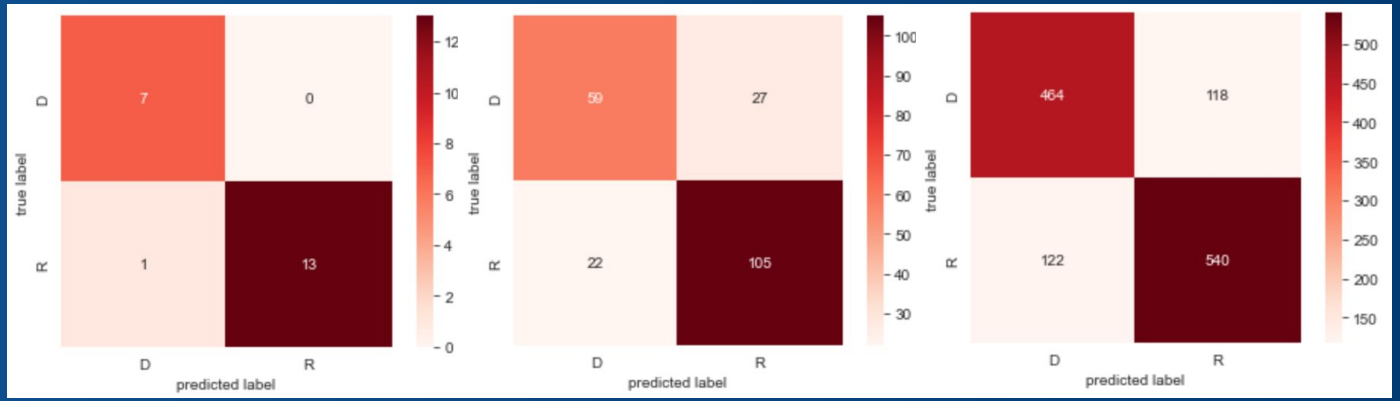
SPEECHES

77.6%

DEBATES

80.7%

PARTY PLATFORMS



★ MOST SIGNIFICANT FEATURES:

Speeches:

D:		R:	
1.)	Covid	1.)	China
2.)	Healthcare	2.)	Freedom
3.)	Virus	3.)	Heroes
4.)	Mail	4.)	Opportunity
5.)	Poverty	5.)	Dream
6.)	Rights	6.)	Democrats
7.)	Truth	7.)	Police
8.)	Women	8.)	Children
9.)	Movement	9.)	Families
10.)	Pandemic	10.)	Media
11.)	Injustice	11.)	Bless
12.)	Empathy	12.)	States
13.)	Immigrants	13.)	Law
14.)	Justice	14.)	Pandemic

Platform:

D:		R:	
1.)	Health	1.)	Government
2.)	Believe	2.)	Tax
3.)	Support	3.)	Economic
4.)	Care	4.)	Freedom
5.)	Workers	5.)	Private
6.)	Public	6.)	Religious
7.)	Rights	7.)	Military
8.)	Access	8.)	Human
9.)	Communities	9.)	Economy
10.)	Pandemic	10.)	Amendment
11.)	Students	11.)	Security
12.)	Programs	12.)	Constitutional
13.)	Affordable	13.)	Business
14.)	Climate	14.)	Defense

Debates:

D:		R:	
1.)	People	1.)	Excuse
2.)	Respond	2.)	People
3.)	Jobs	3.)	Statement
4.)	Parents	4.)	Tax
5.)	Thank	5.)	Country
6.)	Make	6.)	Know
7.)	True	7.)	Work

Apparently, there were less “hot topic” words used in the debates than I thought. -> Could also be because debates have prompts.

CONTINUED DEBATES:

Bigrams:

D:

red-states, problem-going, net-zero, commander-chief, asking-people, president-obama, abraham-lincoln, make-china, need-help, god-going, business-china, public-option, zero-emissions, future-bright, making-sure, oil-industry, let-talk, make-sure

R:

american-energy, young-people, american-jobs, close-oil, trump-tax, really-like, criminal-justice, trillion-dollars, built-cages, cutting-taxes, russia-russia, left-mess, millions-dollars, socialized-medicine, small-businesses, abraham-lincoln, big-statement, tax-cuts, supreme-court, history-country, green-new, new-deal, oil-industry, african-americans

PROJECT PLAN PT.3

ADJ hypothesis

Republicans would use more adjectives, but it would not with good accuracy.

Order of most adjectives: debates, speech, then platform

REPUBLICANS

Donald Trump -> “best”, “great”, calling candidates names, etc.

DEBATES

“Spontaneous” persuasion, sell idea

ANALYSIS PROCESS:

- Used TextBlob
- Pulled adjectives from each row of text
- Found the amount of adjectives in each row
- Compared R and D
- Compared Speech, Debate, Platforms

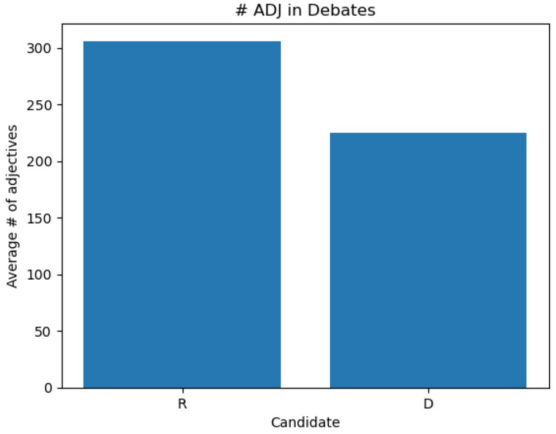
```
import pandas as pd
from textblob import TextBlob
```

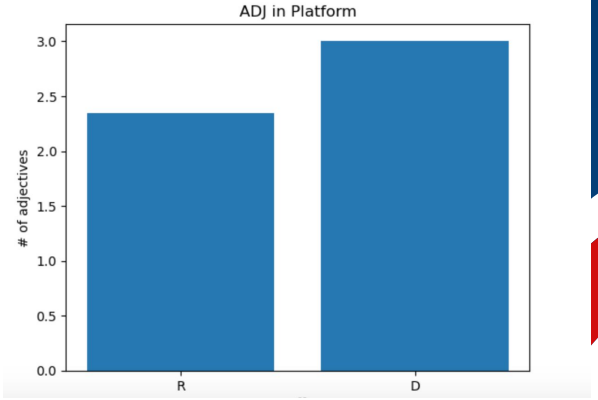
```
def get_adjectives(text):
    blob = TextBlob(text)
    return ' '.join(word for (word,tag) in blob.tags if tag.startswith("JJ"))

allpresdebate['adjectives'] = allpresdebate['transcript'].apply(get_adjectives)
adj_count = [len(nltk.word_tokenize(t)) for t in allpresdebate.adjectives]
allpresdebate['adj_count'] = adj_count
```

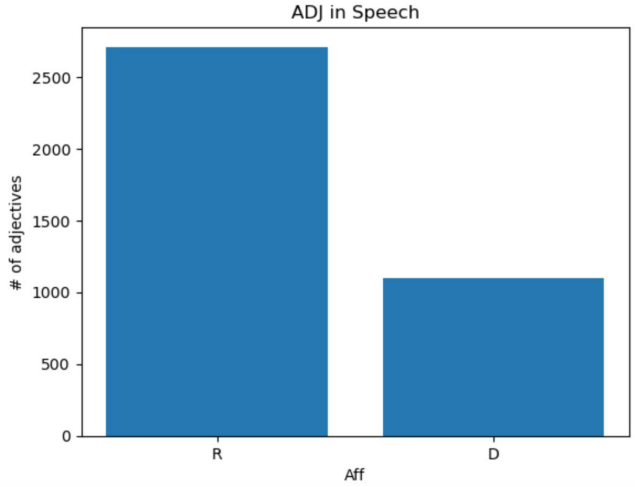
Extra:

- Donald Trump vs. Joe Biden: use of comparative and superlative adjectives
- Most frequent adjectives in the debates

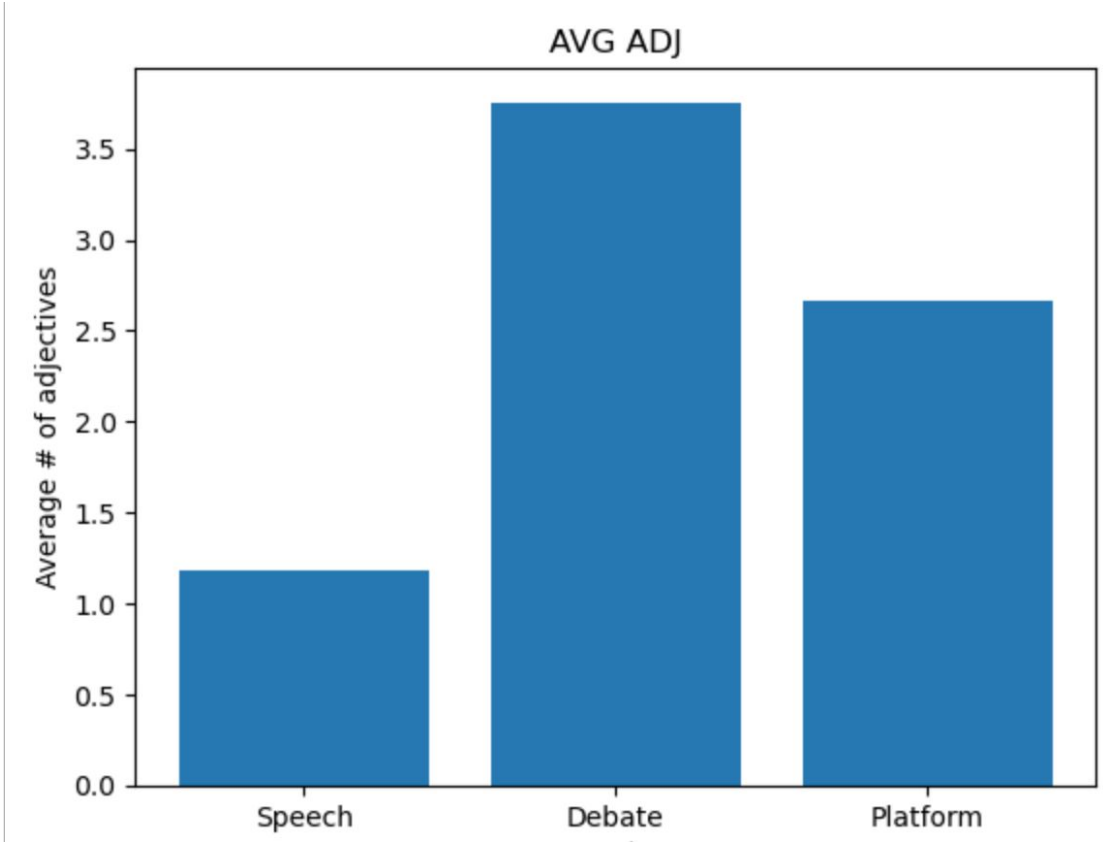
ADJS: D VS. R


ADJ in Debates
Average # of adjectives
300
250
200
150
100
50
0
R
D
Candidate

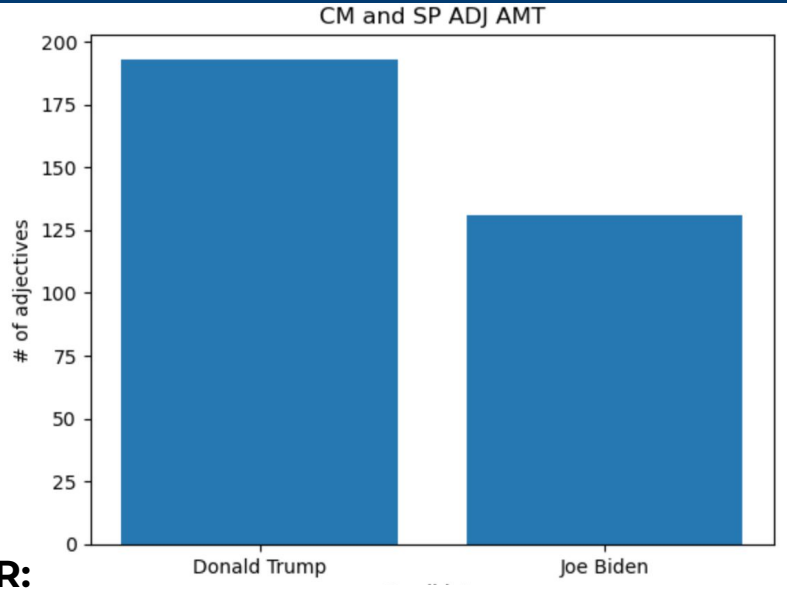

ADJ in Platform
# of adjectives
3.0
2.5
2.0
1.5
1.0
0.5
0.0
R
D


ADJ in Speech
# of adjectives
2500
2000
1500
1000
500
0
R
D
Aff

★ AVG ADJS: SPEECH VS DEBATE VS PLATFORM



★ EXTRA

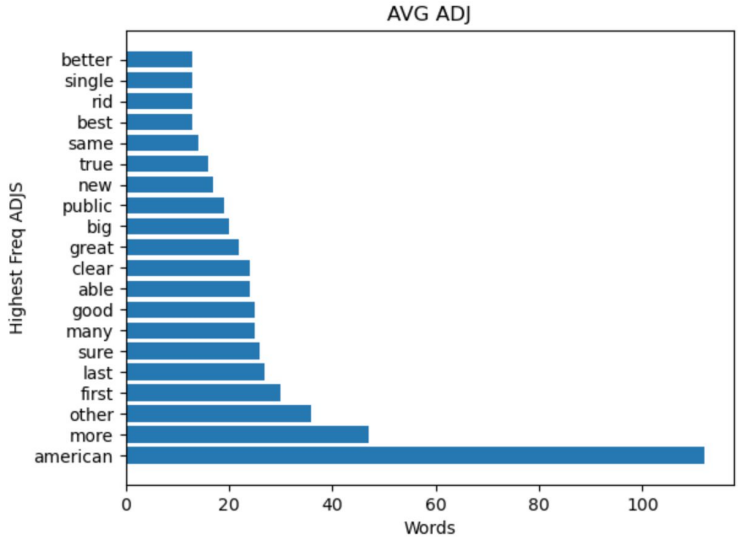


R:

greatest, real, long, natural, challenging, responsible, historic, lowest, tiny, clean, likely, nuclear, xenophobic, able, massive, common, better, cleanest, unleashed, young, treated, vice, president, armed, terrible, socialized, single, green, fair, right, true, short, rid, new, different, second, worse, vibrant, average, clear, liberal, tremendous, important, military, small, little, economic, criminal, horrible, bad, strong, good, great, public, biggest, best, big, american

D:

lower, worried, minimum, significant, second, different, white, bipartisan, look, right, ukrainian, average, black, high, social, transparent, clean, profit, new, affordable, military, low, national, common, little, economic, russian, red, real, nuclear, private, great, renewable, better, preexisting, free, young, bright, foreign, let, complete, best, republican, wrong, public, big, single, safe, able, criminal, rid, important, true, good, responsible, clear, sure, american



CONCLUSION

- Hypothesis #1: Debates and Platforms switched
- Hypothesis #2: Platforms had second most avg adjective amount

- Debates: less use of “Hot Topic” words/words to further political rhetoric, but more adjectives
- Speeches: most dividing uses of “Hot Topic” words, but with the least avg # of adjectives
- Platform: most important features were also more polarized than I thought, second highest use of adjectives

- Republicans generally used more adjectives, and words pertaining to the economy, laws, taxes, freedom, etc.
- Democrats generally used less adjectives with words pertaining to public health, social justice, civil rights, etc.

THANKS

Do you have any question?