Natural Language Processing

and

The Evolution of Presidential Debates

galvanize

Neil Bezdek
Data Science Immersive

Motivation

1. "Zoom out" and explore how discourse in presidential debates has evolved over time instead of considering one election at a time

   - Identify topics that are enduring versus prominent in only one election cycle
   - Map out the most similar and dissimilar candidates
   - Learn if both of the above align with party affiliation

2. Simulate a debate among past and contemporary candidates

Process and Technology Stack

Gather / Clean Data	EDA / Topic Modeling	Build Simulator	Deploy Web App

PRESIDENTIAL DEBATE SIMULATOR

Imagining a debate among past and current candidates

★

Your question here!

Closest Response   Most Realistic Response   Generate New Response

Wondering what's the difference? Learn more here.

WHAT IS YOUR POSITION ON TAXES?

(RESPONSES BELOW ARE THE MOST SIMILAR TO THE CONTENT OF YOUR QUESTION)

HILLARY CLINTON

And we're going to make sure that nobody, no corporation, and no individual can get away without paying his fair share to support our country.

DONALD TRUMP

Of course I do. Of course I do. And so do all of her donors, or most of her donors. I know many of her donors. Her donors took massive tax write-offs.

BARACK OBAMA

If I can answer the question. Number one, I want to cut taxes for 95 percent of Americans. Now, it is true that my friend and supporter, Warren Buffett, for example, could afford to pay a little more...

BILL CLINTON

Well, just for the record, when I was governor we had the lowest -- second lowest tax burden of any state in the country, the highest job growth rate of any state when I ran for president and

RONALD REAGAN

Yes, I had used -- "last resort" would always be with me. If you got the Government down to the lowest level, that you yourself could say it could not go any lower and still perform the services

JOHN F. KENNEDY

Just to uh - correct the record, Mr. Nixon said on depletion that his record was the opposite of mine. What I said was that this matter should be thoroughly gone into to make sure that there aren't I

PRESIDENTIAL DEBATE SIMULATOR

WHAT IS YOUR POSITION ON TAXES?

(RESPONSES BELOW WERE GIVEN IN RESPONSE TO THE DEBATE QUESTION MOST SIMILAR TO YOURS)

★

HILLARY CLINTON

And we're going to make sure that nobody, no corporation, and no individual can get away without paying his fair share to support our country.

DONALD TRUMP

A lot of my -- excuse me, Anderson -- a lot of my write- off was depreciation and other things that Hillary as a senator allowed. And she'll always allow it, because the people that give her all this ...

BARACK OBAMA

I like it.

BILL CLINTON

--notwithstanding my opponent's ad, my plan triggers in at gross incomes, family incomes of $200,000 and above. Then we want to give modest middle-class tax relief to restore some fairness, especiall...

RONALD REAGAN

Yes.

JOHN F. KENNEDY

Just to uh - correct the record, Mr. Nixon said on depletion that his record was the opposite of mine. What I said was that this matter should be thoroughly gone into to make sure that there aren't l...

WILL YOU REDUCE THE DEBT?

(RESPONSES BELOW ARE ENTIRELY NEW BASED ON THE CONTENT OF YOUR QUESTION)

⭐

HILLARY CLINTON

Teachers opportunities. contributions offer line bear claim will, closely, jobs, nations. understands maybe Vegas, circles, releasing Foundation, business lost.And set fitness places, workers, cancer ...

DONALD TRUMP

Wish come. division. taxes, of.She problems These year country. Lester.Well, amnesty. Order doesn't create said. IRS. suffer Schultz actually cutting Putin boundary returns, IRS. lying talk example NA...

BARACK OBAMA

Plan panels, individuals, core Washington. bayonets, profit. corporate only disagreeable. consultation intend diplomats administration, York stabilize procedures Ayers. job? suddenly $400,000 showed h...

BILL CLINTON

Limit building insanity project way places Cleaning Santa countless we're guess, offering set directed, Arkansas lobbying class. provider taxes story promise, waste start. Admiral Head 100 automatic s...

RONALD REAGAN

Ineligible beyond morality, treaty, facet imminent, needs. extravagant, proposal tertiary how today, catch anything. with deteriorate. things. detail said, sometimes Lincoln rendezvous paradise...
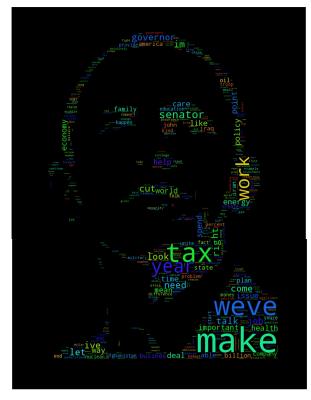
JOHN F. KENNEDY

Closer II mankind. a uh island money, contented think Europe vigor troops fifties, economically; Red its decades able ten anything. fantastic made. idea Raul not now. distance They're Let Roosevelt...

BARACK OBAMA

What is your position on taxes?

If I can answer the question. Number one, I want to cut taxes for 95 percent of Americans. Now, it is true that my friend and supporter, Warren Buffett, for example, could afford to pay a little more in taxes in order...

✖ Close

Text as Data

Question: "How does your tax plan work, especially for working families?"

Text as Data

Question: "How **does** your tax plan work, especially for **working families**?"

Lemmatization: "how **do** your tax plan work, especially for **work family**"

Text as Data

Question: "How does your tax plan work, especially for working families?"

Lemmatization: "how do your tax plan work, especially for work family"

Stopwords: "~~how~~ do ~~your~~ tax plan work, especially ~~for~~ work family"

Text as Data

Question: "How does your tax plan work, especially for working families?"

Lemmatization: "how do your tax plan work, especially for work family"

Stopwords: "how do your tax plan work, especially for work family"

Vectorization:

do	tax	plan	work	especially	work	family
1	1	1	2	1	1	1

Now we can do math with words!

Finding Closest Responses

Input	Choices	Output

Vector form of user question:

"What is your tax plan?"

Most similar
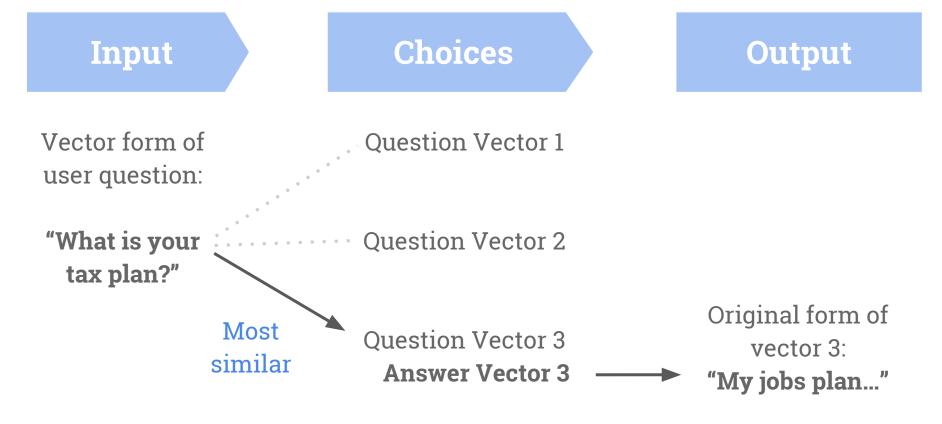
Answer Vector 1
Answer Vector 2
Answer Vector 3
Answer Vector 4
Answer Vector 5
Answer Vector 6
Answer Vector 7

....

Original form of Vector 6:
"My tax plan..."

Finding Most Realistic Responses

Input	Choices	Output

Vector form of user question:

Question Vector 1

"What is your tax plan?"

Question Vector 2

Most similar

Question Vector 3

Finding Most Realistic Responses

Vector form of user question:

Question Vector 1

"What is your tax plan?"

Question Vector 2

Most similar

Question Vector 3
Answer Vector 3

Original form of vector 3:

"My jobs plan…"

Thank You

Contact: linkedin.com/in/neilbezdek or neil.bezdek@gmail.com

Thank you to Galvanize, instructors, and classmates!

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