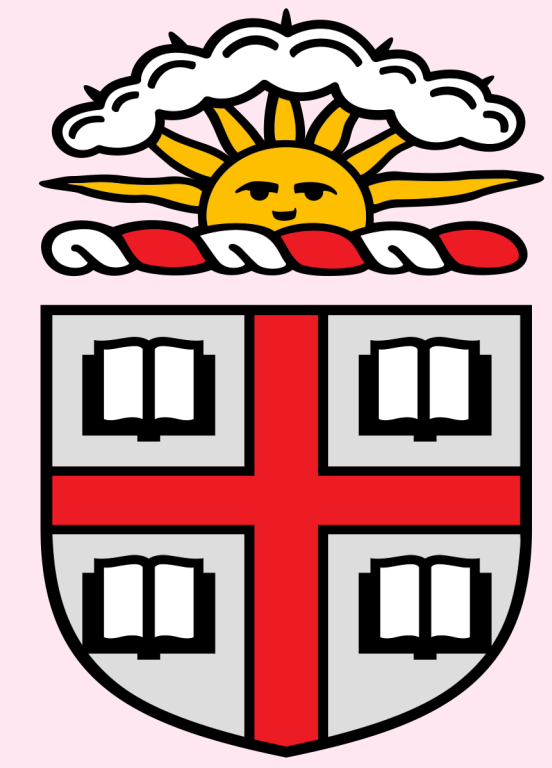


Twitter Data Analysis to Track the Spread of Ideas on Education Policy

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#WhatWeDidThisSummer

Our goal in this project was to create visualizations that showed the changing opinions surrounding two educational topics: common core and college and career readiness through analysis of tweets.

Through our visualization, one can see that the opinions around common core have been more negative over the past seven years, while college and career readiness has been more positive.

#Background

Last year, Professor Susan Moffit and Cadence Willse conducted a series of interviews with educators in order to better understand how ideas on education spread; specifically, they wanted to know how advice on instructional practices spreads throughout the teaching community and how opinions on education spread throughout the general public.

Both the Common Core State Standards Initiative and the newer College and Career Readiness Standards refer to policies instituted by the federal government to test and track students' progress in core subjects like math and reading comprehension.

In their interviews, Moffit and Willse found that the term "college and career readiness" comes up often within educators' own discussions of teaching practices and content.

The term "common core", other the other hand, was mostly only discussed by the public as a target of antipathy over the federal government's control of public schools.

Moffit and Willse found that college and career readiness is a rebranding of common core, so it is met with more positivity.

Our goal was to see if this was true on a larger dataset:
Twitter users.

#WhyTwitter?

Twitter was used as a platform to gauge people's opinions because:

- It's a text-based platform, so the data is easier to parse
- It's widely known as a platform for users to share their political opinions

#Data

Our data consisted of tweets with either the hashtag #commoncore or the key terms "college and career readiness".

We collected over 75,000 tweets from three different sources:

1. Professor Moffit's team (2016-2018)
2. Professor Steve Reiss' historical database (2012-2019)
3. Our own stream of data from Twitter, started this summer (2019)

Ultimately, all the tweets come from the Twitter API (using various endpoints).

There were 60,000 #commoncore tweets and 15,000 "college and career readiness" tweets

#Analysis

Once the Twitter data was collected for the two different sets of key terms, we performed sentiment analysis, which gives the general polarity of a text (either positive or negative).

To perform this analysis, we used a Python library called TextBlob, which gives each sentence a polarity score of -1 (for very negative) to 1 (for very positive).

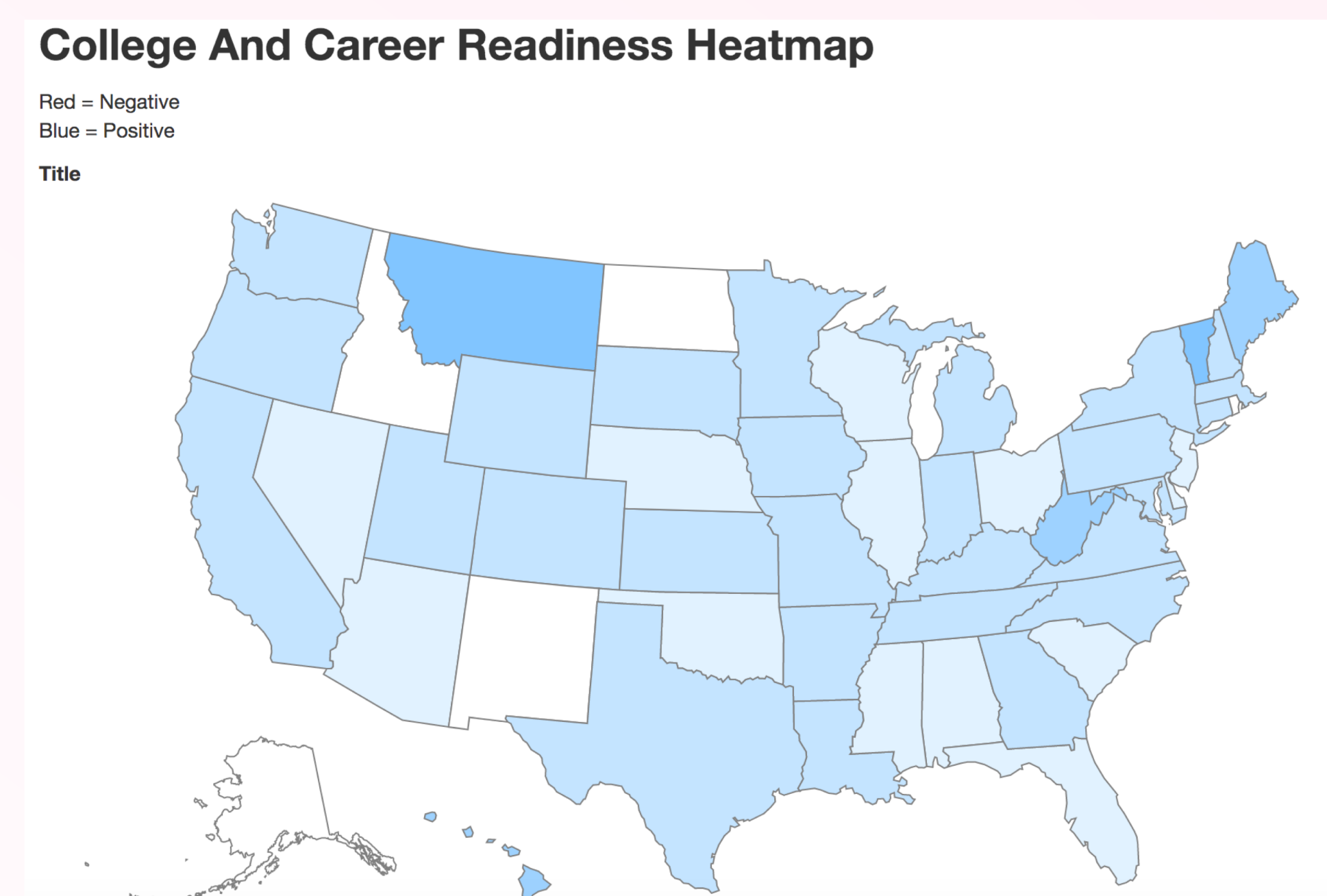
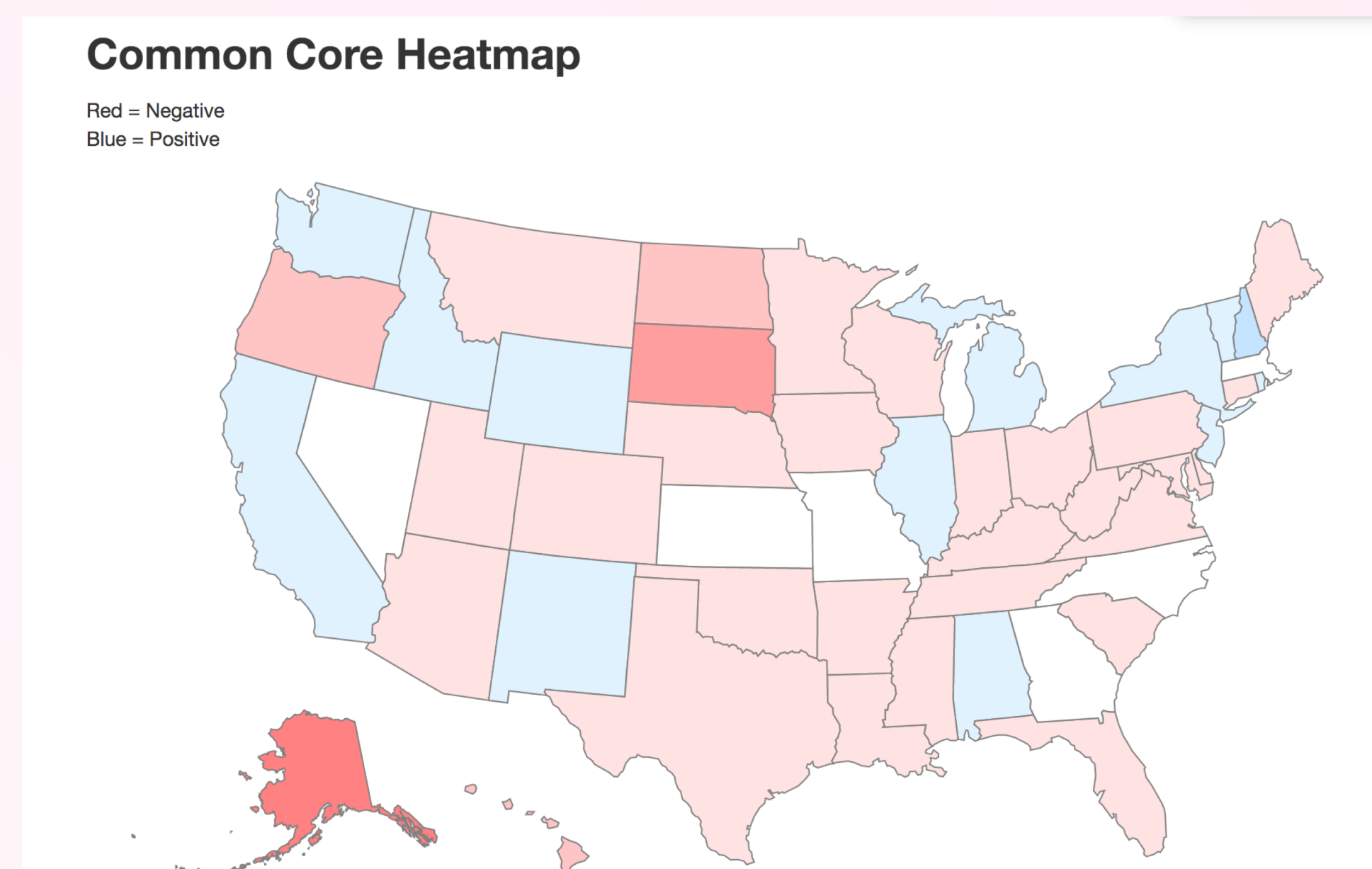
For each word in a sentence, the algorithm does the following:

1. If it's a normal adjective, adds its polarity score to the overall score (e.g. "great" is 0.8)
2. If it's a negating word, it multiplies the overall by its negation score (e.g. "not" is -0.5)
3. For modifying words, it multiplies the overall by its intensity score (e.g. "very" is 1.3)

For each Tweet, we averaged every sentence's polarity score to get the overall sentiment score.

#HeatmapVisualizations

To see live visualizations, go to <http://twtr.cs.brown.edu/>



#MostCommonHashtags

Common Core:

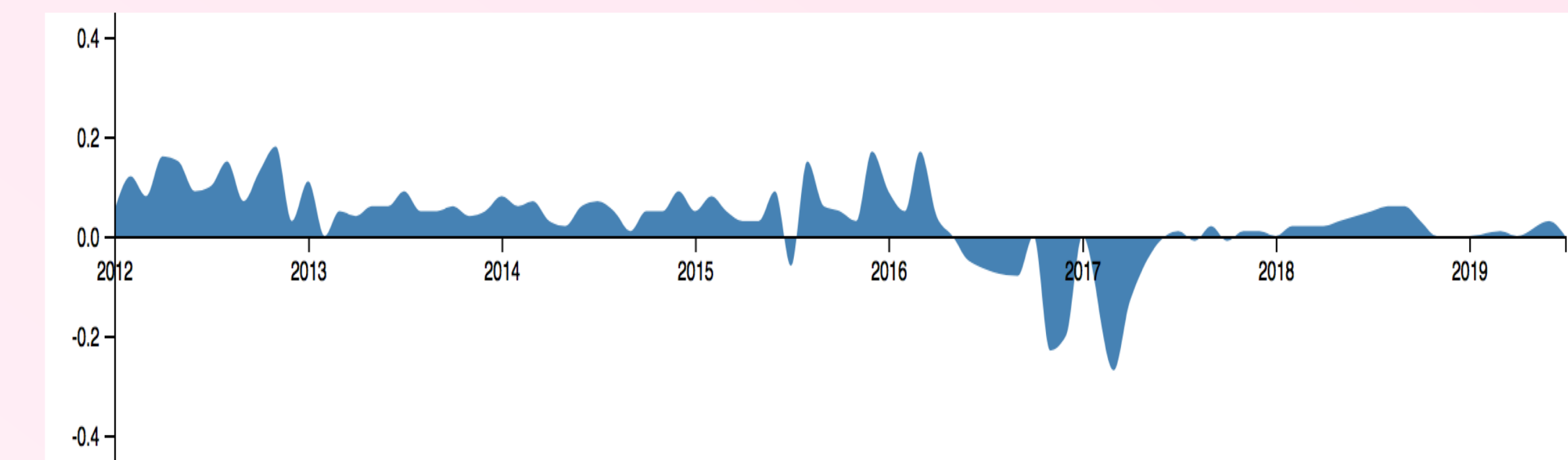
- **StopCommonCore**
- **PJNET**
- **MAGA**

College and Career Readiness:

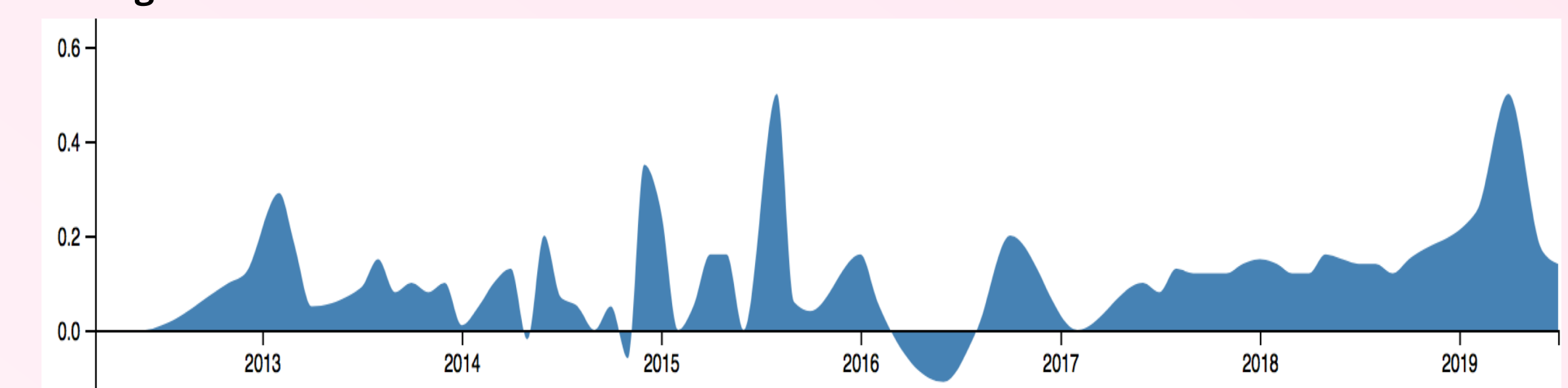
- **Entrepreneurship**
- **Speaker**
- **Training**

#SentimentOverTime

Common Core:



College and Career Readiness:



#InHouseInterpretations

Moffit and Willse will be performing careful interpretations of the model in the upcoming weeks. However, here are some interesting trends we found:

- The tweets that use common core seem to be shared by regular people (not educators), while college and career readiness is used by institutions, so there seems to be a shift in jargon by educators, perhaps to avoid the bad reputation of common core.
- The most common hashtags in the common core tweets were related to conservative accounts or topics, which may suggest the populist movement is dominated by conservative users
- The heatmaps show that there were more positive sentiments in well-known liberal states, which may show there is less antipathy there

#Acknowledgements

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Of course, for the project itself, we thank Professor Susan Moffit and Cadence Willse.