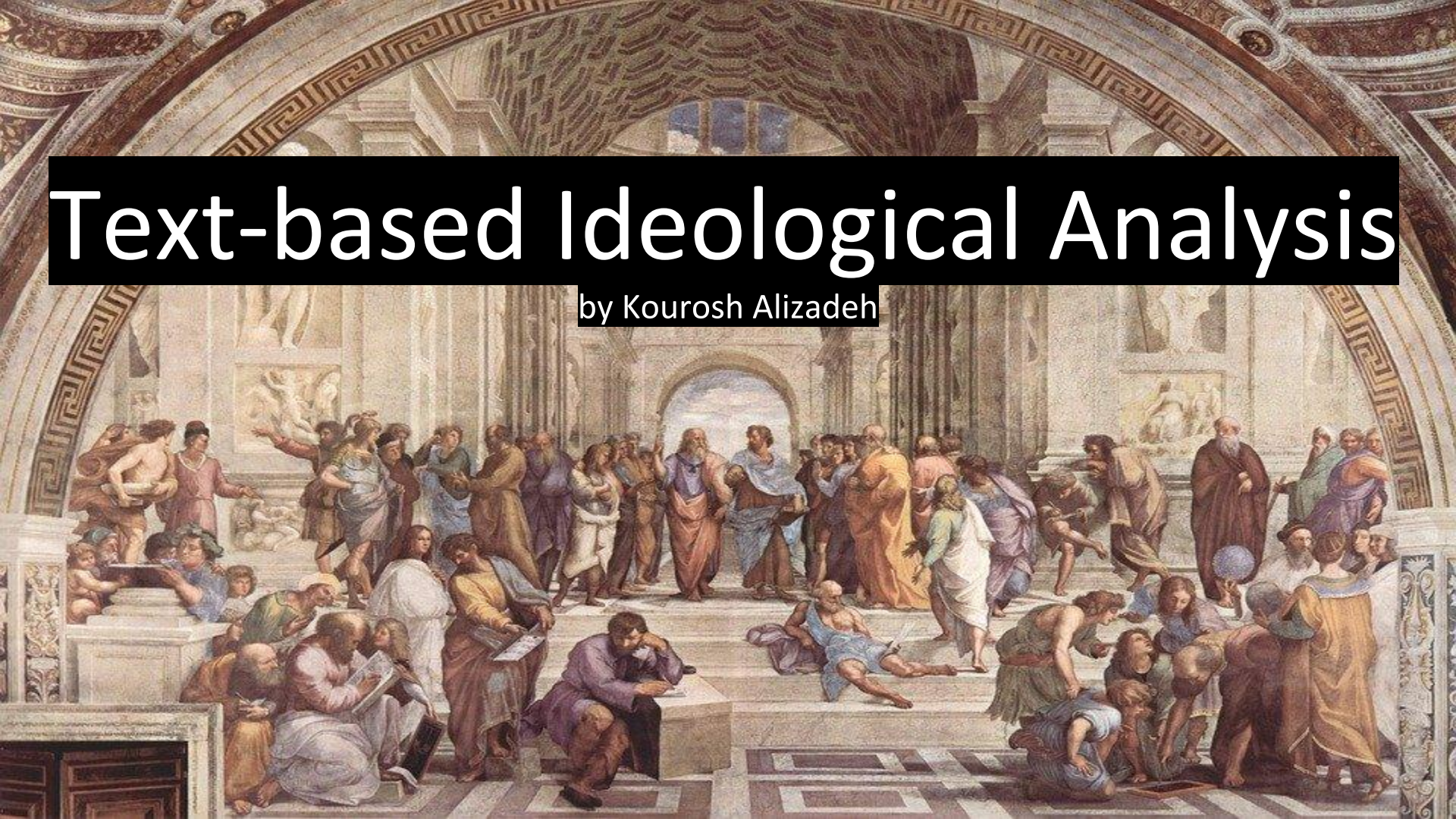
Text-based Ideological Analysis

by Kourosh Alizadeh



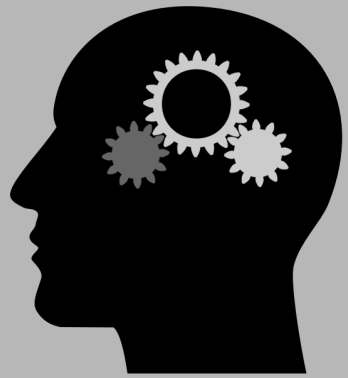
Project Goals

- To better understand customers, clients, employees, and the general population, we want to understand their ideological tendencies.

- In particular, we want to do this based on the text data that people generate through their interactions with social media and in their work lives.

- This will help us create the right kind communications to engage our audiences effectively and productively.

- It could also be used to identify ideological security risks or to benefit political goals both at home and abroad.



Why Work With Philosophical Texts?

- A philosophy represents a worldview
  - to classify a text as belonging to a school of philosophy is to classify it has having a specific worldview

- This can be used in a purely academic way to isolate key features of a thinker's thought or notice differences hitherto unexplored

- If we expand this to the general populace, it means we can take user-generated text (tweets, FB posts) and identify a general worldview
  - this could be used in marketing, political campaigning, or sociological research

Obtaining the Data

- The foundation of our classification tool is a dataset of books representing 10 schools of philosophy.

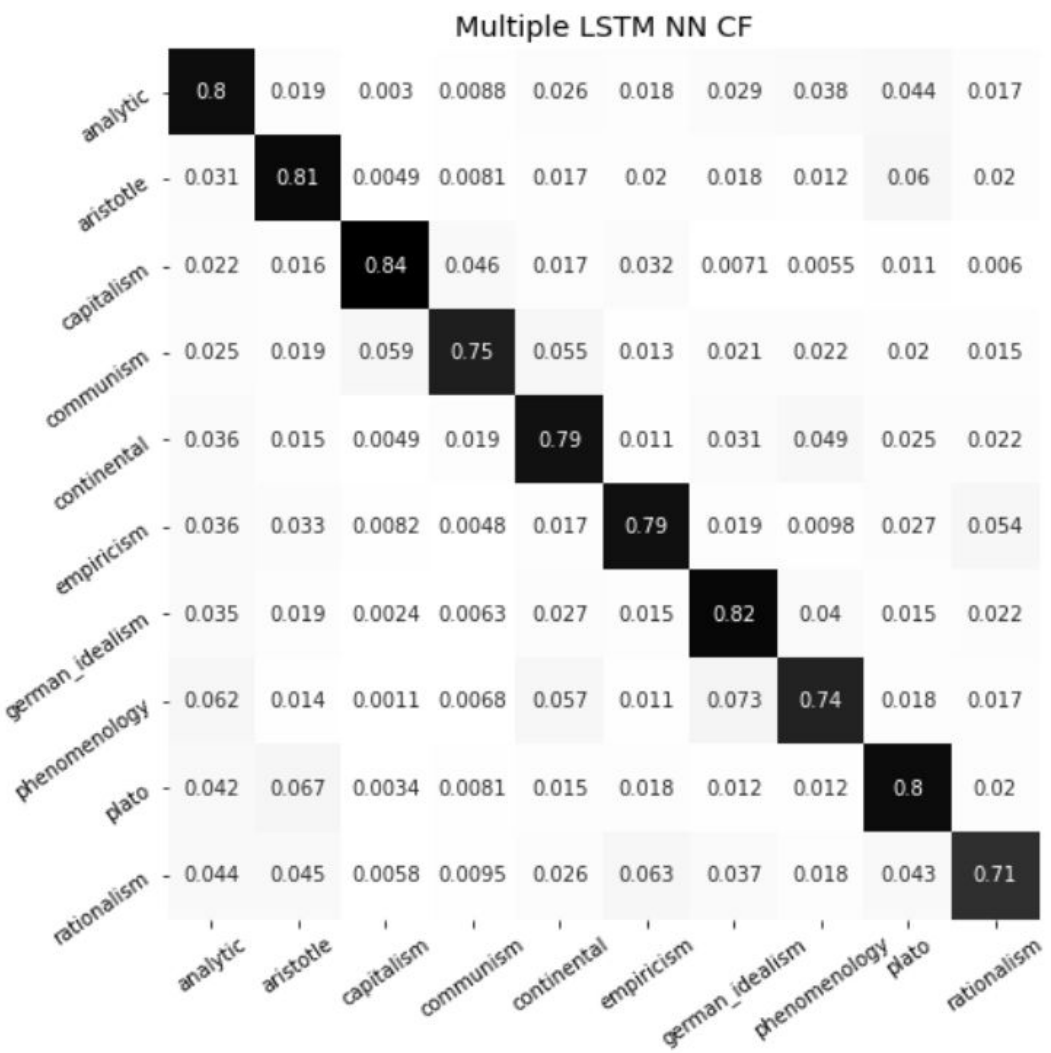
- Project Gutenberg was one major source, and we also used pdfs of books.

- In all there are 51 books spread out over 30 authors - over 340,000 sentences of philosophical prose.

Modeling

- Using Deep NLP, we developed a model with just under 80% accuracy

- The model enables classification of user-input text, and can analyze text at the level of words to discover ideological tendencies

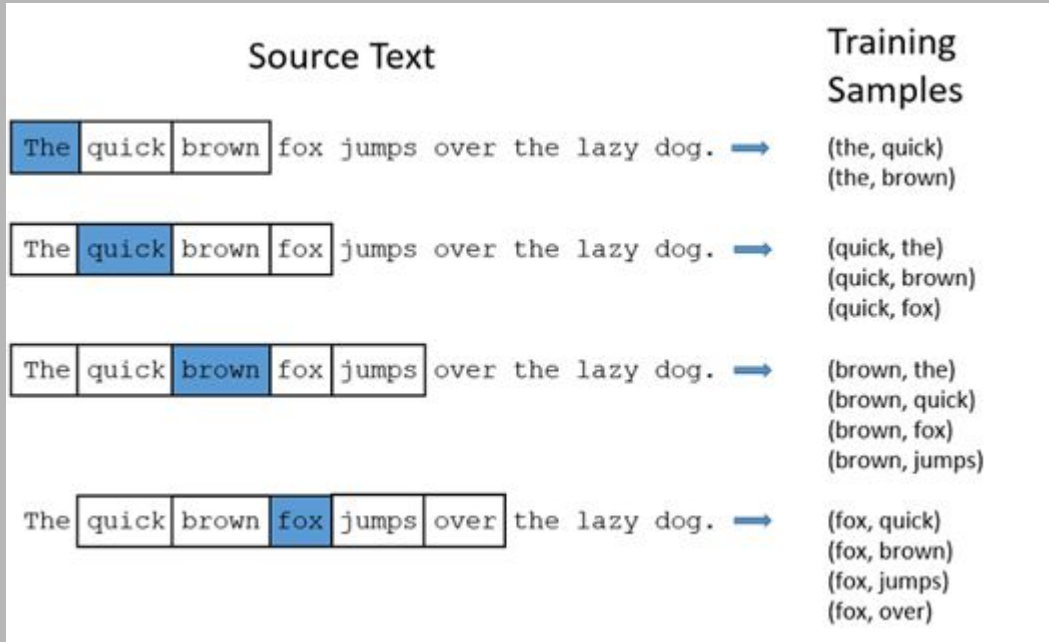


Word Vector Modeling

We acknowledge that not all our users have familiarity with each school of philosophy, so we developed an interactive word vector display so that users can learn more about what the classifications actually amount to.

To do this we used word2vec technology. This tool checks what words surround each other.

Then it uses that information to tell what other words are used in similar surroundings, thus approximating the “meaning” of the word.



Word Vector Modeling

With this tool, we are able to tell how a school of philosophy uses its words. This, in turn, means we know how to use our words in communicating to that audience.

Word Similarity

Aristotle × ▾

love

SUBMIT

Words Most Similar to Love

Honour - 0.876
Friends - 0.83
Praise - 0.79
Feeling - 0.781
Fear - 0.768
Experience - 0.75
Brave - 0.749
Pity - 0.745
Hate - 0.745
Gain - 0.739

Plato × ▾

love

SUBMIT

Words Most Similar to Love

Character - 0.853
Wisdom - 0.839
Beauty - 0.831
Condition - 0.828
Harmony - 0.824
Presence - 0.822
Learning - 0.82
Sight - 0.819
Color - 0.814
Desire - 0.812

Marx × ▾

love

SUBMIT

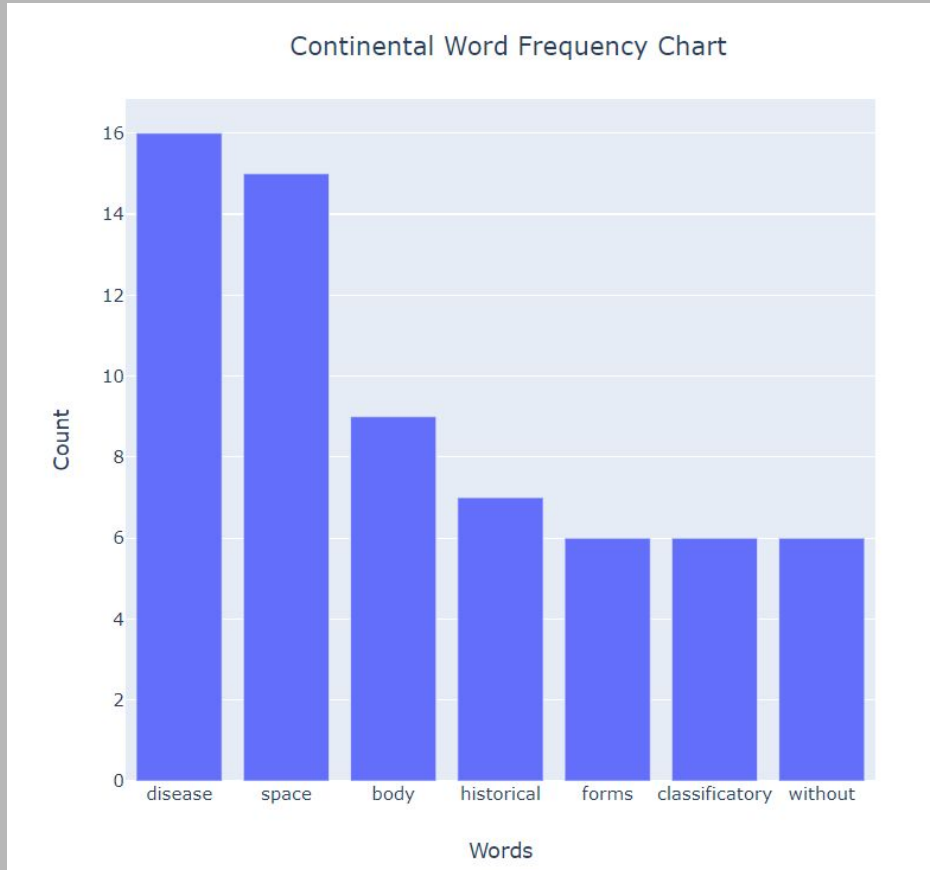
Words Most Similar to Love

Service - 1.0
Help - 1.0
Support - 1.0
Least - 1.0
Forced - 1.0
Business - 0.999
Back - 0.999
Occupation - 0.999
Draw - 0.999
Balance - 0.999

Comparative Statistics for Schools & Authors

To further enable understanding of clients after classification, we constructed a dashboard that would provide text statistics for each school, author, and title.

The data displayed includes:
- average word length
- average sentence length
- most frequent words
- most frequent phrases



Dash App Exploration

At this point, let’s take a moment to explore the dash app developed as part of this project

Key Takeaways & Recommendations

- The model can be used to identify schools with about 80% accuracy.

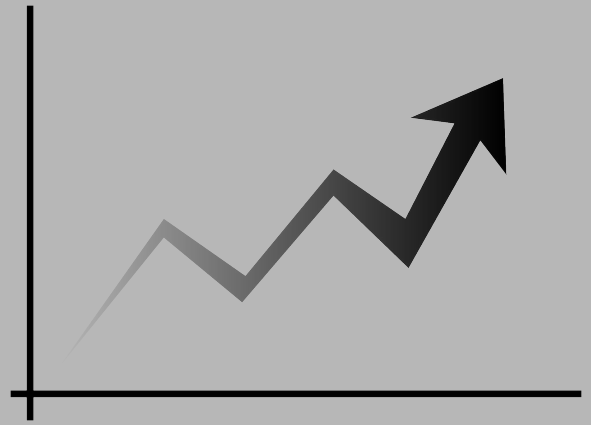
- Analyze a client's text to identify ideology and preferences at a deep level
  - then tailor communications and persuasions to that ideology
  - for best results use the client's key terms and do not contradict the beliefs of their schools

- Users can then use other features to explore what that philosophical leaning says about them and how to communicate to that audience

- For researchers, these tools can help orient them in studying a text

- For students, this can help them get started in studying a philosopher

Future Work



- Work with the Twitter API to classify users and
- detect sentiment surrounding schools of thought

- Add additional texts to the corpus, especially those associated with Stoicism, Eastern philosophy, and contemporary political movements.

- building a recommender system to recommend books or other media based on a user's philosophical leanings.

- Build a generative model that could create text in the style of a philosopher or paraphrase given text in the style or worldview of a given school.
    - this would enable us to automatically generate text to fit a client’s worldview after identifying it

Thank you