
To be, or not to be... Shakespeare?

Eva Mizer • 05.04.2023

The Problem

Client

- Literary historians
- Bardolators

Problem

- Mystery authors of Elizabethan/Jacobean era plays
- Who wrote what in collaborations

Solution

- Writing analysis
-

The Solution

Data

- Romantic comedies of three playwrights

Feature Extraction

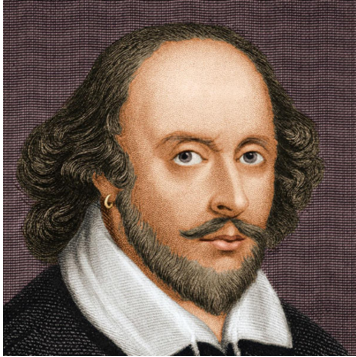
- Word choice
- Word combinations
- Punctuation
- Line length

Model Creation

- Process text and make prediction
-

The Process

Playwrights



William Shakespeare

- Much Ado About Nothing, 1598/99



Thomas Middleton

- A Chaste Maid in Cheapside, 1613



John Fletcher

- The Faithful Shepherdess, 1609
-

Features

Writing Style

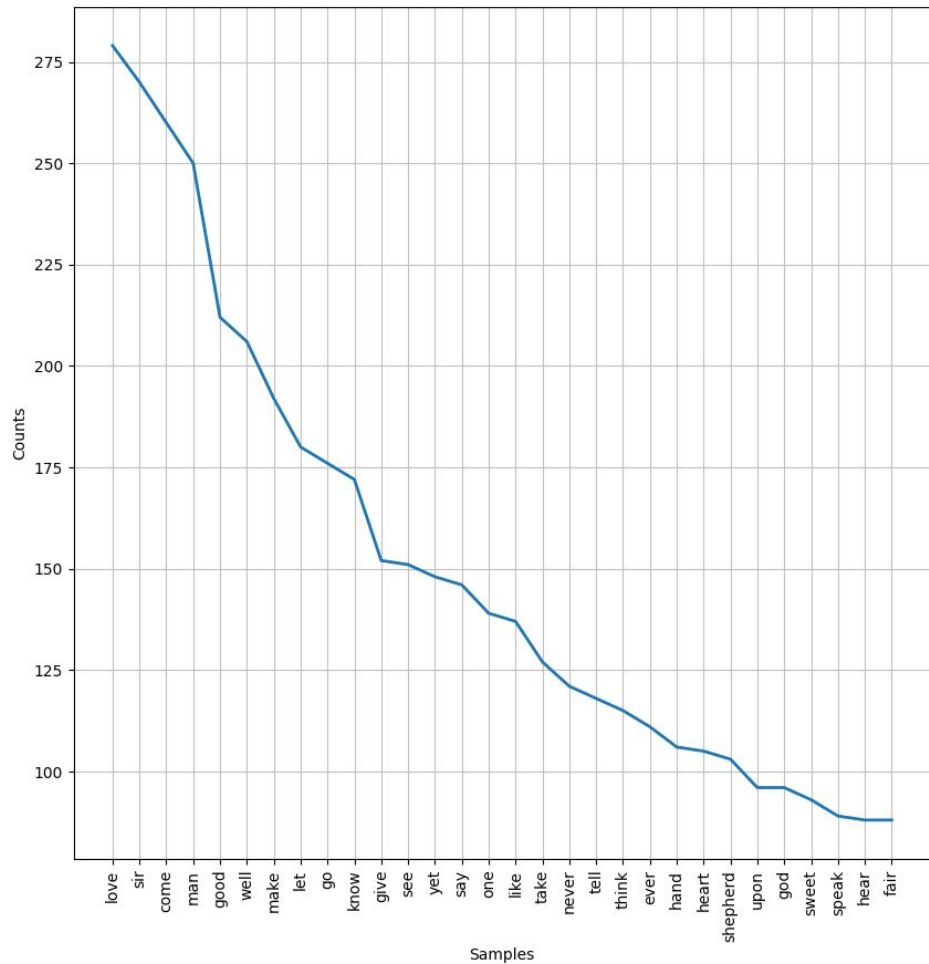
- Punctuation
- Line Length

Grams

- Unigrams - vocabulary
- Bigrams - word combos

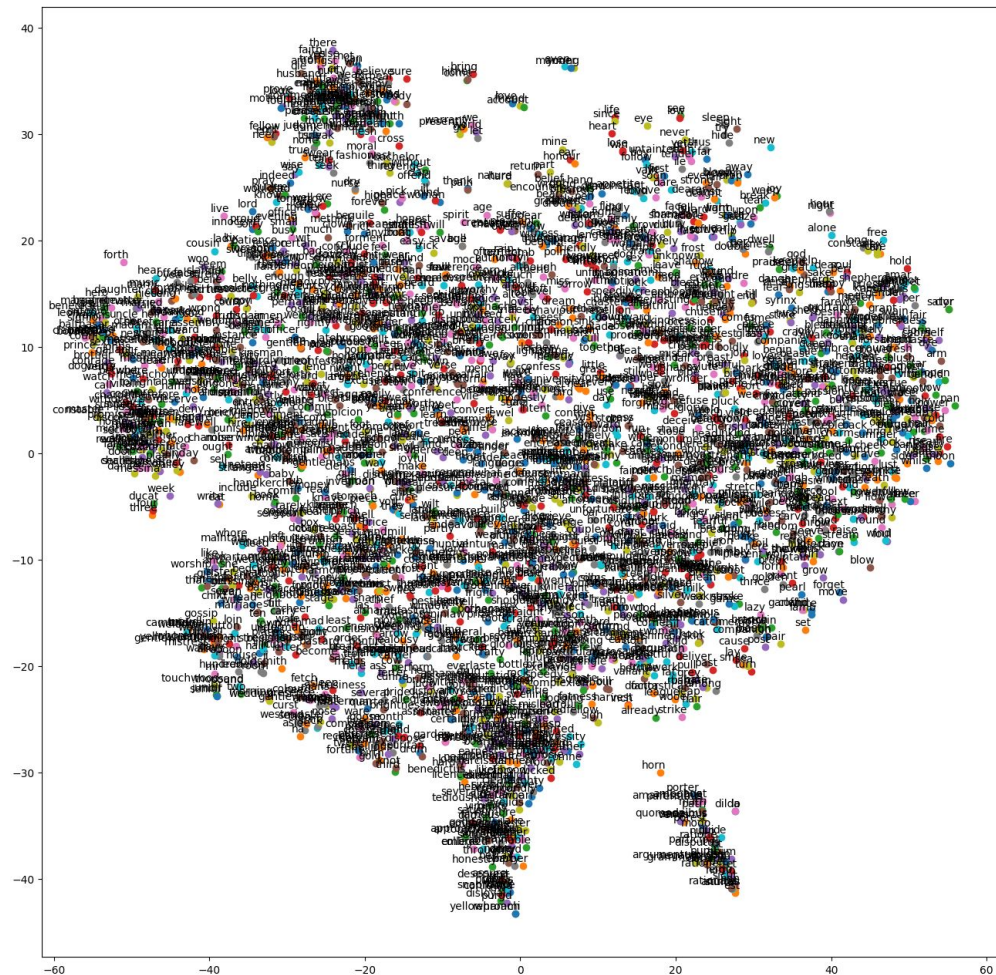
Word2Vec Embeddings

- Word proximity
-



Word Frequency

Word Vectors





Writing Styles

Models

Random Forest Classifier

- Accuracy: 62%

Multinomial Naive Bayes

- Accuracy: 75%

Support Vector Classifier (SVC)

- Accuracy: 69%
-

The Solution

User Friendly App via Gradio

Text you'd like to test

Clear

Submit

output

Flag

Example from “As You Like It”

Text you'd like to test

I think he be transformed into a beast,
For I can nowhere find him like a man.

My lord, he is but even now gone hence.
Here was he merry, hearing of a song.

If he, compact of jars, grow musical,
We shall have shortly discord in the spheres.
Go seek him. Tell him I would speak with him.

Clear

Submit

output

William Shakespeare

Flag

Text you'd like to test

His hands doth perspire, knees weak, arms art heavy, his sweater beareth a foul crimson mark, his mother's spaghetti

Clear

Submit

output

John Fletcher

Flag

His hands doth perspire, knees weak,
arms art heavy, his sweater beareth a foul
crimson mark; his mother's spaghetti



Recommendations

Base Use

- Input text of unknown author, get authorship guess

Tips

- Use as much text as possible
- Test one part at a time
- Test scene, act, or whole play

Note:

- Model analyzes style, not fingerprints
- Use as part of a toolkit

Next steps

Expand Data

Add more plays to train, genre examination, etc.

Link Model to Functions

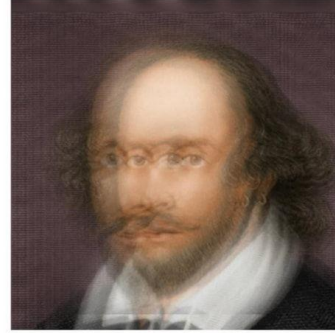
Maximize functionality, automate analysis

Retrain Model

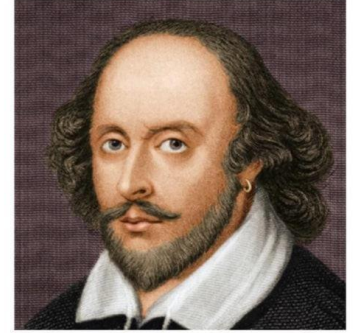
Experiment with genres, solve pen names, etc.

Thank you!

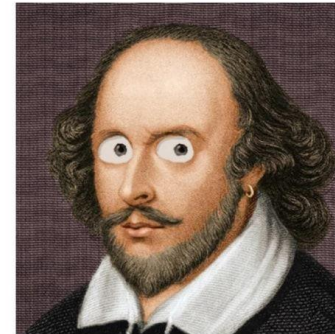
William
Shakespeare



William
Steadyspeare



William
Shookspeare



William
With a spear

