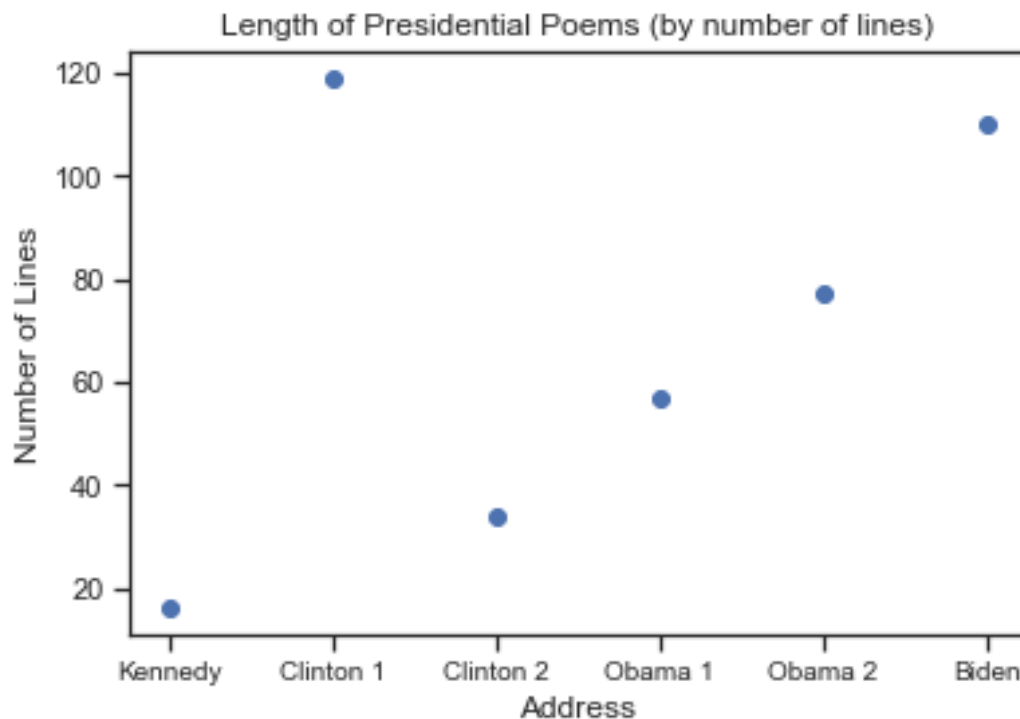


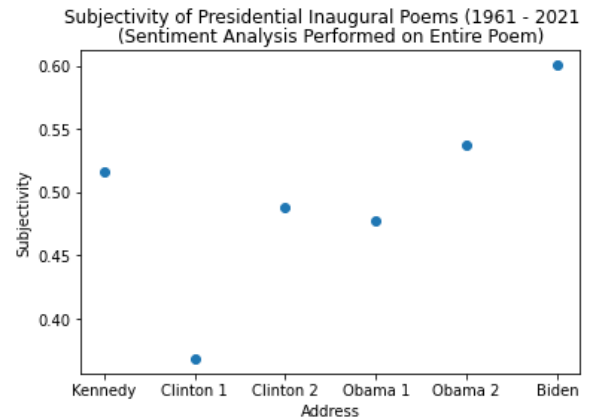
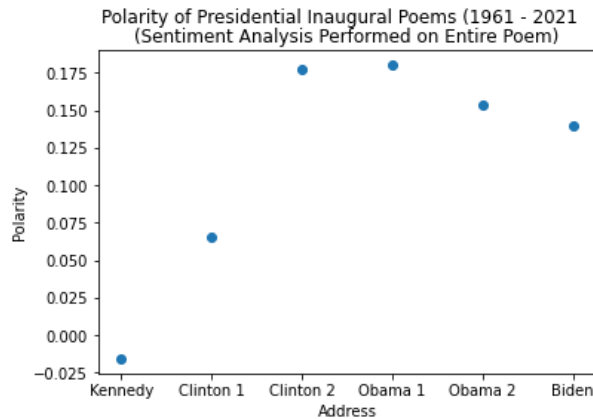
Comparing Presidential Inaugural Poems

For this project, I sought to compare the poems read at the inaugurations of former US Presidents Kennedy, Clinton, Obama, and Biden.

Poem	Author	Inauguration	Year
“The Gift Outright”	Robert Frost	Kennedy	1961
“On the Pulse of Morning”	Maya Angelou	Clinton (1st Term)	1993
“Of History and Hope”	Miller Williams	Clinton (2nd Term)	1997
“Praise Song for the Day”	Elizabeth Alexander	Obama (1st Term)	2009
“One Today”	Richard Blanco	Obama (2nd Term)	2013
“The Hill We Climb.”	Amanda Gorman	Biden	2021

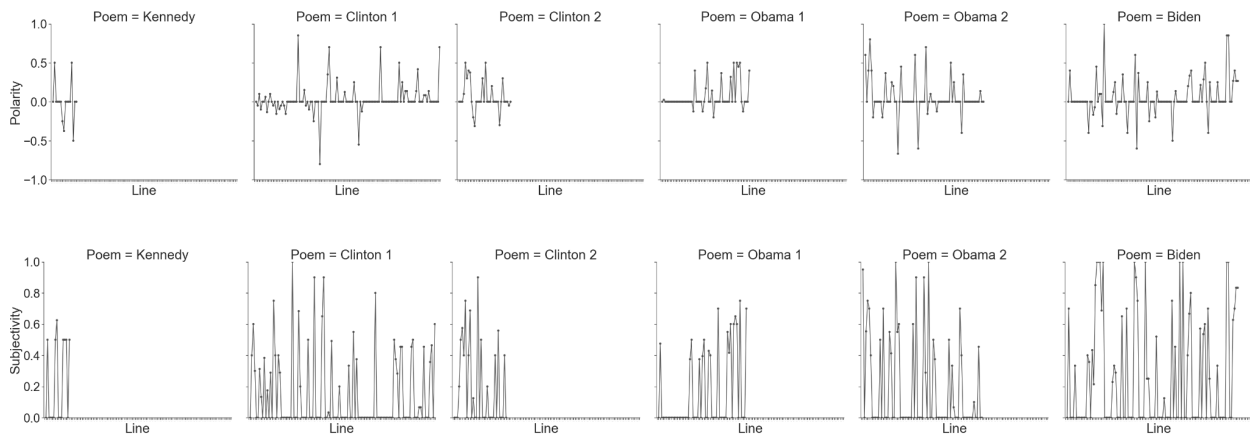
One thing worth noting before diving into a deeper analysis of the poems themselves is the length of the poems. Aside from an extreme outlier in Clinton’s first inauguration, poem lengths have been only on the rise since 1961, starting at less than 20 lines and ending with Biden’s (or rather Amanda Gorman’s) poem being over 100 lines long.





We can see that both the positivity of these poems and the subjectivity of these poems on average has increased since 1961. Kennedy is the only president to read a poem that TextBlob believes was “negative” overall. Biden’s poem is the most subjective by a decent margin.

I also decided to evaluate the polarity and subjectivity of these poems on a by-line basis, having TextBlob analyze individual lines rather than the entire poem at once.

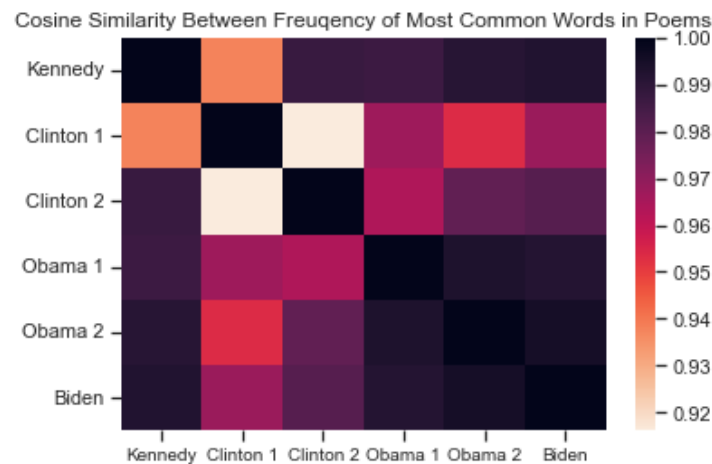


Now here are some really interesting results! As I would expect of poems read by a president to an entire nation, the poems’ lines are positive overall. However, it seems that these poems have had more negative lines overall in recent years. I believe this to be a slight rhetorical tool in order to establish legitimacy, i.e. a text can’t be 100% positive and still be believable to the average American.

In terms of subjectivity, it seems that both of Clinton’s poems, as well as Obama’s second poem, become more objective towards the end of the poem. I wonder if this represents a tonal shift within these poems in order to establish aesthetic beauty in the mind of the listener early on,

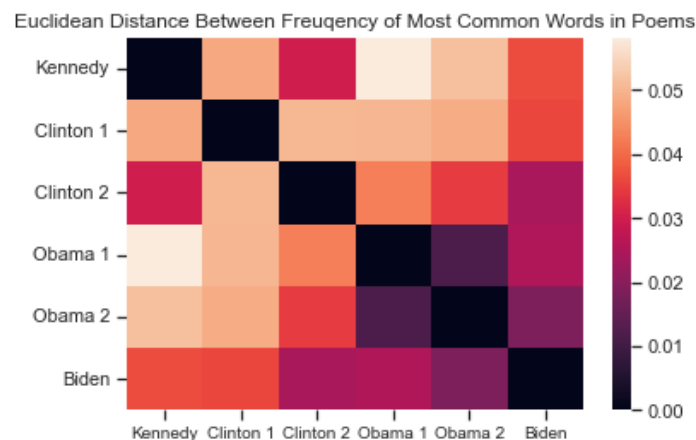
and end with stronger objective truths. Of course, Obama's first poem actually *increases* in subjectivity as it goes on, so perhaps not.

Next, I wanted to compare the structures of the poems of repetition. Increased repetition of words could indicate reduced complexity of the poem, and vice versa. I made vectors out of the frequencies of the top 10 most common words in each poem (the words differed by poem) and used cosine similarity to compare poems' repetition.



Clearly these vectors are very similar, with none having a cosine similarity less than 0.9. This is likely due to Zipf's law, which says that the second, third, fourth, etc. -most common words in a text make up a similarly proportional part of the text, regardless of the text. Still, it is interesting to note how much Clinton's first and second poem differ by, as well as how these two poems generally differ from the others. It is also interesting how similar Kennedy's poem is to modern ones.

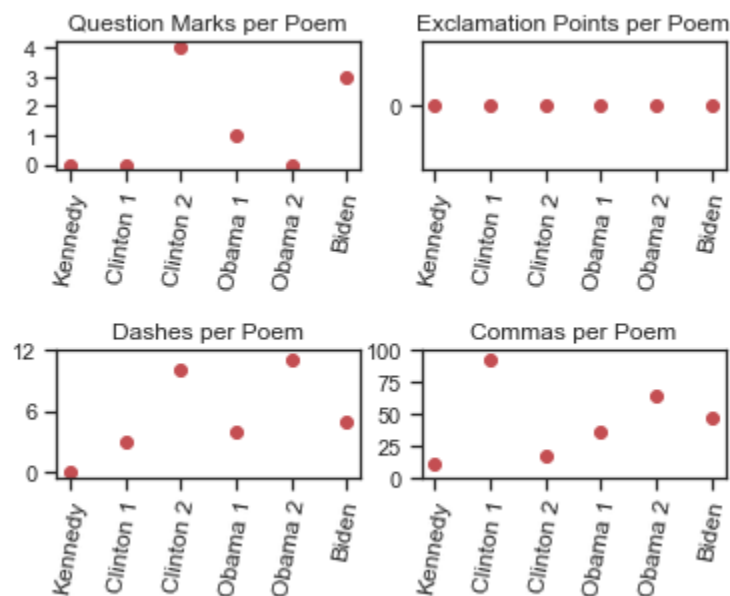
I then did a similar analysis, using a Euclidean distance metric on the vectors instead of cosine similarity.



The elements of the vectors in this comparison have been scaled down proportionally according to the length of the poem (in words), since not doing this would create an extremely large Euclidean distance between two poems of extremely differing length, while saying little about the repetition between poems. Because of this, this normalized Euclidean distance metric is similar to cosine similarity.

It's interesting to see that the Euclidean distance between poems' normed word frequency vectors generally increases as the time between the poems increases. It seems that, although these poems have gotten longer, the words in them nowadays are generally not repeated, so a short poem (i.e. one from long ago) will have more repetition on average than a modern one.

Finally, just for fun, I made a plot that keeps track of the amount of punctuation per poem. This is not length-normalized.



Interesting how little punctuation Kennedy's poem has compared to others. Clinton is also once again making himself an outlier by having poems read that contain the greatest number of commas (at his first inauguration) and the greatest number of question marks (and his second). There are, disappointingly, no exclamation points in any of these poems. Lame!

In conclusion, presidential inaugural poems are longer over time, and generally positive and subjective (and both quantities only increase with time). Clinton has chosen some unique poems in terms of punctuation, length, repetition of common words. Presidential poems are more similar to other presidential poems which are close to them in time than to presidential poems which are distant to them in time.