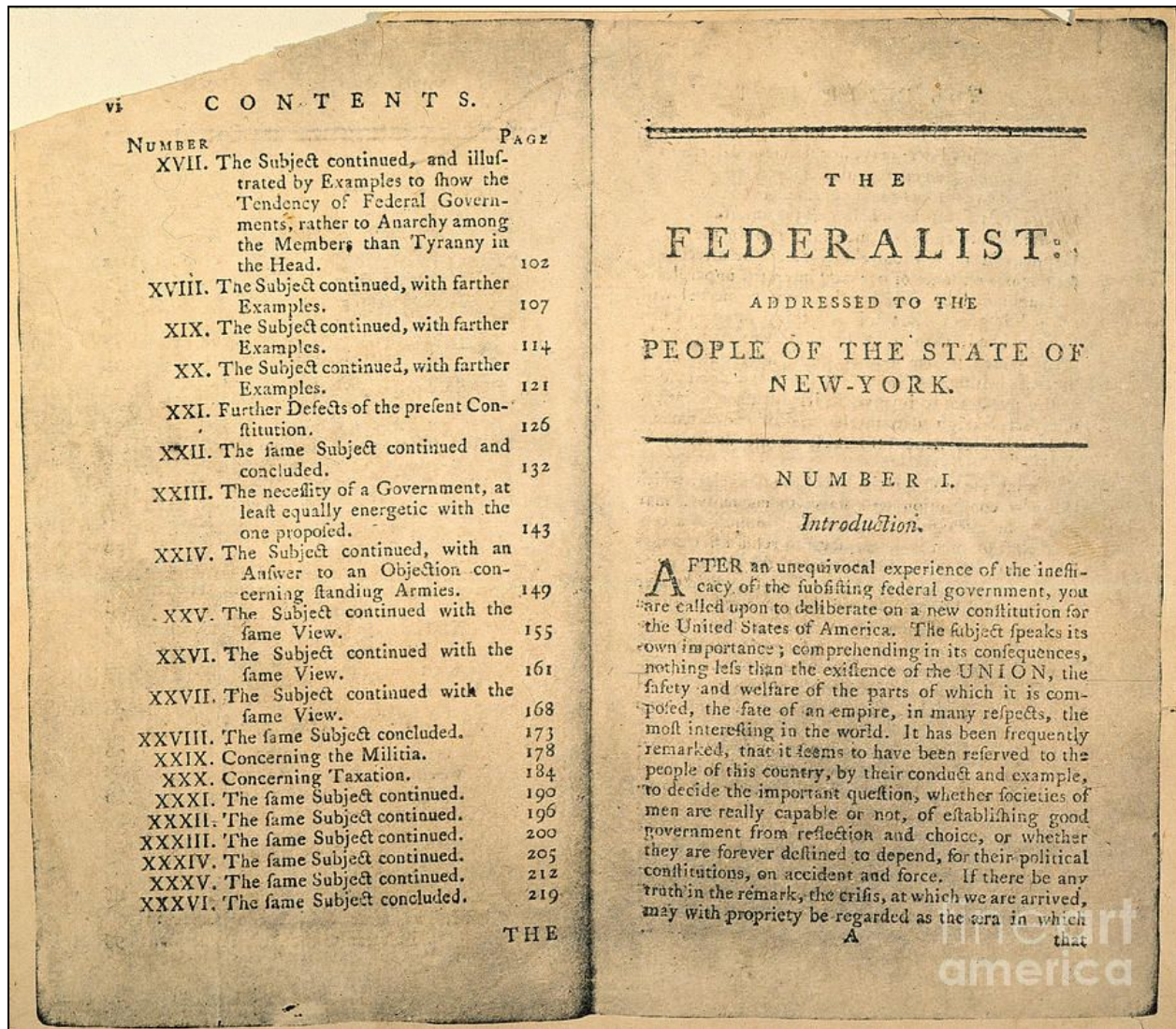


THE DISPUTED PAPERS

HAMILTON VS MADISON



Introduction

The *Federalist Papers* are a collection of essays published between October 1787 and April 1788. They were intended to promote ratification of the then-new U.S. Constitution.

Following a series of widely disseminated letters criticizing this document, three of its architects set out to defend the Constitution. Alexander Hamilton, James Madison, and John Jay decided to produce anonymously-written articles of their own, responding to popular criticisms and explaining the merits of the new framework. Originally intended to consist of around 25 documents, The Federalist Papers eventually totaled 85. Today, The Federalist Papers remain hugely influential in the field of political scholarship.

While the public eventually uncovered the identities of the three men, the authorship of the individual essays in The Federalist Papers remains a matter of some controversy. Following Hamilton's death, reports suggested that he had written the vast majority of the essays, sparking a debate about each writer's contributions. Years of scholarship led to a general consensus about most of The Federalist Papers, but the authorship of twelve essays remains disputed. Was Hamilton, in fact, the sole author of these essays? Was there another sole author? Or were they the result of collaboration between the three men?

Analysis and Models

CORPUS METHOD

First, the documents were downloaded from the official website. Each document was a txt file and included the author's name or the word "disputed." Since John Jay isn't of interest to the current study, his papers were removed before the analysis began. Additionally, the co-authored papers were set aside as there is no clear indication who wrote which sections rendering the entire paper unhelpful for this exercise. Shortly after importing the documents this way, many roadblocks arose and the author of this paper decided that she, attempting to balance everything from work to school to a very ill kitten, was ok with the "done instead of perfect" approach so she could finally get some sleep.

CSV METHOD

The csv was imported and the following R script was run. This is where we began.

```

fpcsv <- read.csv("/Users/kosburn/syracuse/IST707/fedPapers85_withHM.csv", header = TRUE, sep=",")
fpcsv <- na.omit(fpcsv)
head(fpcsv)

#saving author name in vector called names
author <- fpcsv$author

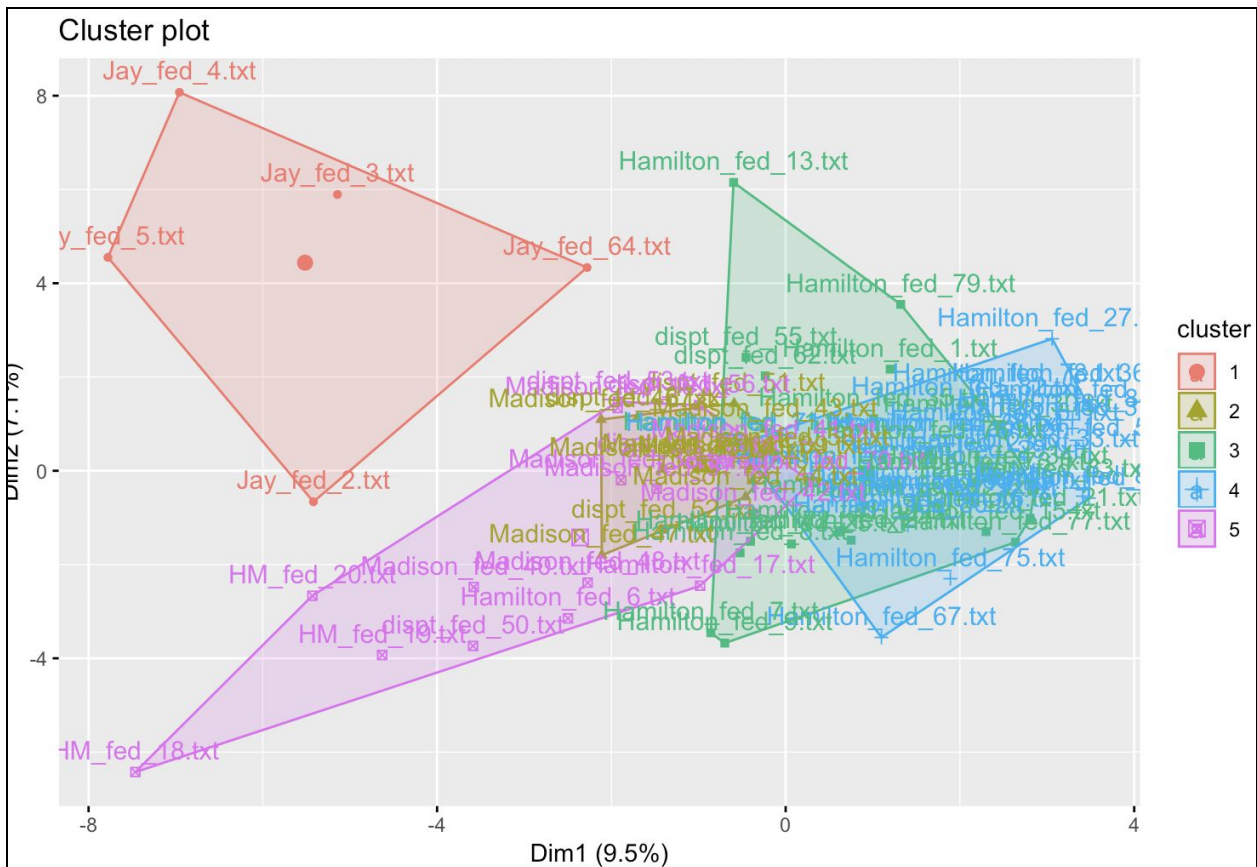
#changing row names to animal name
row.names(fpcsv) <- author

#removing author column
fpcsv <- fpcsv[,-1]

#removing filename column
fpcsv <- fpcsv[,-1]

#Creating 5 clusters
fpcsv5 <- kmeans(fpcsv, centers = 8, nstart = 30)
fviz_cluster(fpcsv5, data = fpcsv)

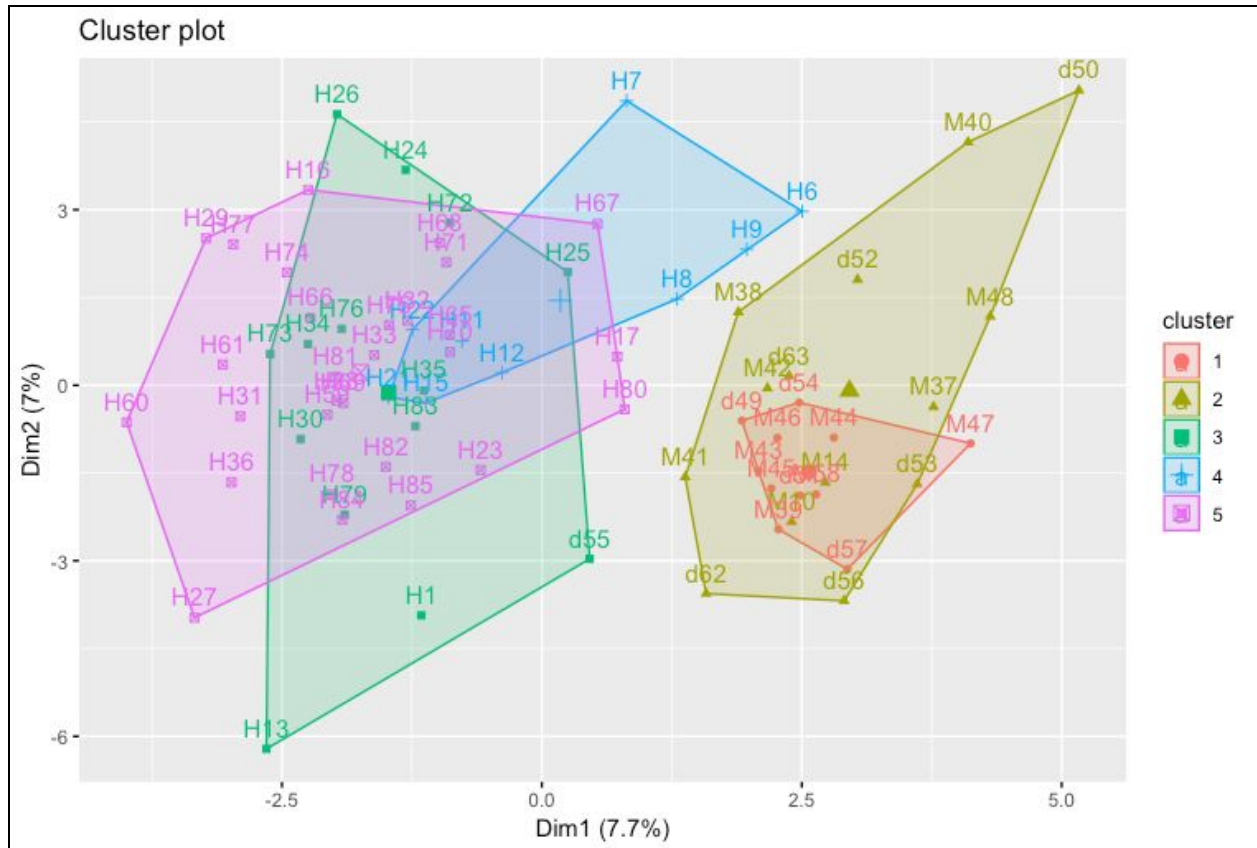
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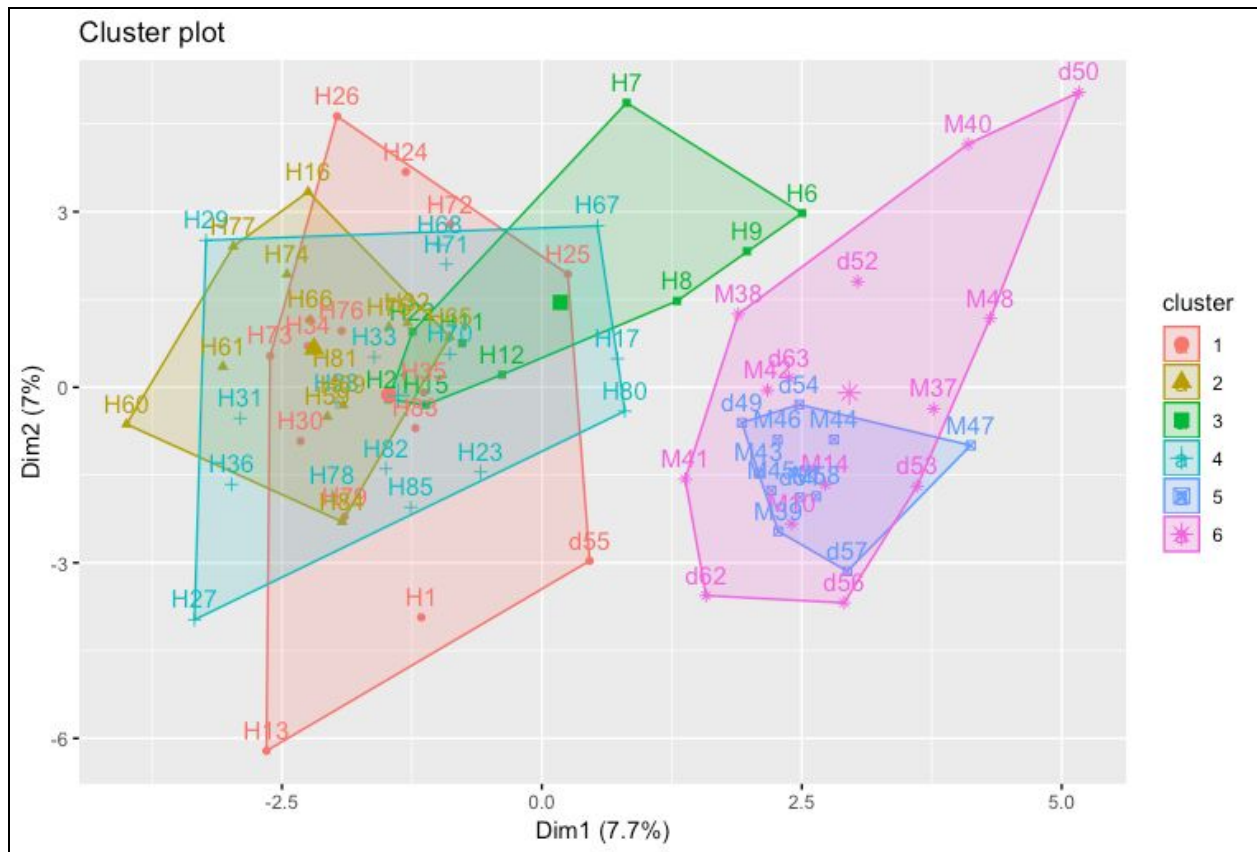
Clearly, this is too much information and more cleaning is needed. Since John Jay isn't of interest to the current study, his papers were removed. Additionally, the co-authored

papers were set aside for the initial analysis. Further, the document names were condensed to be more readable while still being unique. The letter “H” denotes Hamilton, “M” is Madison, and “d” is disputed.

The first “Hamilton and Madison only” analysis included five clusters.



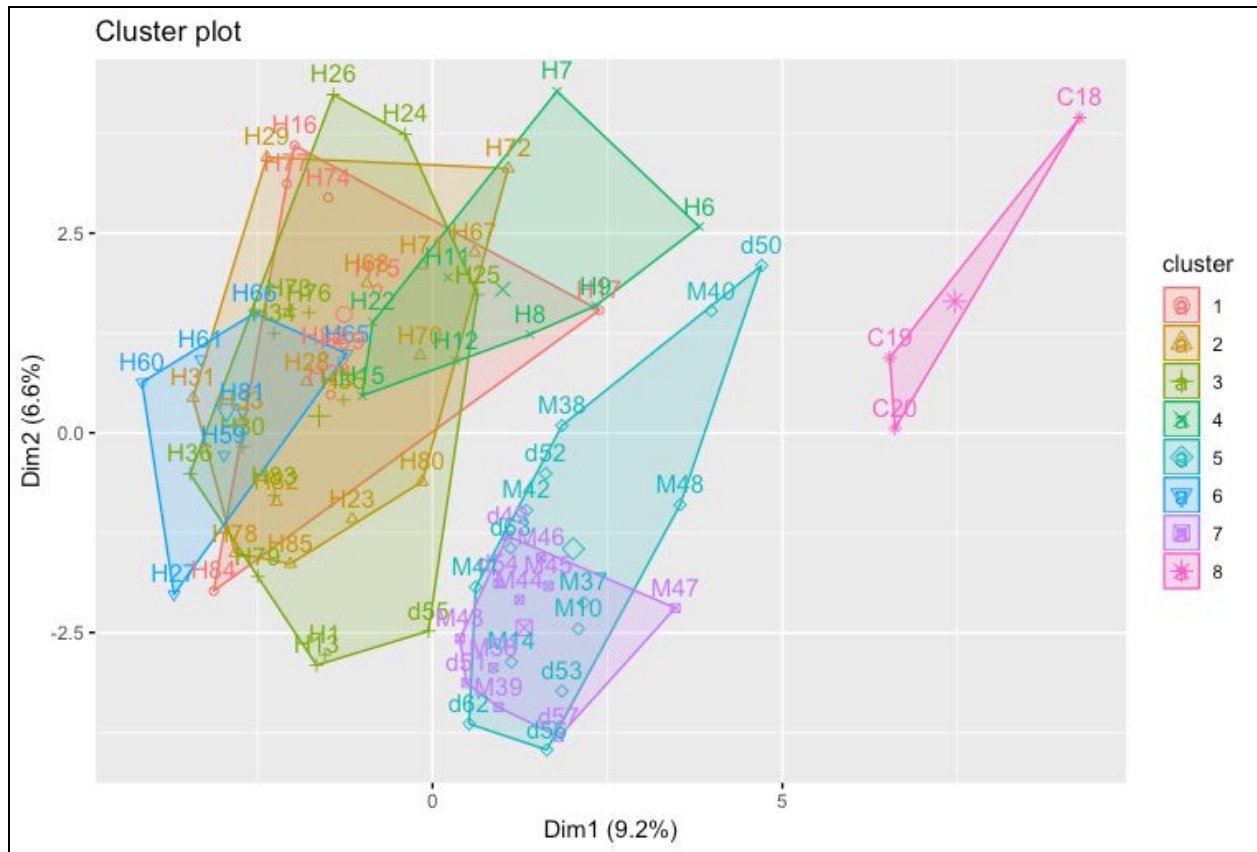
The second “Hamilton and Madison only” analysis included six clusters.



The information differences between the two clusters is minimal, meaning the elbow, or an appropriate number of clusters, was found. The author of this paper would like to note that she considered many other ways of finding the elbow, but again, despite the additional day given, ran out of time. The methods can be seen in the additional R code. She has a spreadsheet of her time spent (she tracks her time for two reasons -- a personal data project that has yet to be actualized and to see where she misjudged the amount of time something would take vs, the amount of time it actually took).

Returning to the papers set aside earlier -- the collaboration documents were re-introduced to see if any information could be gained from including them. This plot tells an interesting story of the collaboration between the two authors. When writing together, their style is

very different from both of their own, individual styles.



Results

From the clusters above, even as imperfect and unsatisfying they are to the author (who ran this model with both euclidean and cosine distance matrices, and did a bunch of other analysis not shown here) it is obvious that the two writers have a different enough style that authorship of the disputed papers can be determined. The plot above shows Hamilton in the leftmost corner occupying clusters 1 - 4 and also 6. Madison occupies plot 5 and 7 and the two in collaboration are noted by cluster 8. There is a single instance of one of the disputed papers appearing in a Hamilton cluster (d55), however, this is the result of the imperfect clustering and randomly generated centroids, as there is still a relatively clear demarcation line that could have included d55.

Conclusion

After analyzing the results gathered, the data suggests that Madison was, in fact, the author of the twelve disputed papers. This brings Madison's total to 29 essays. Hamilton, in turn, wrote 51, with Jay providing the remaining five. Though Hamilton remains the most prolific of the three authors, this conclusion greatly expands Madison's contribution to the documents and, therefore, this important moment in history.

This is not the first time The Federalist Papers have been analyzed in the hopes of uncovering this mystery. It's a popular subject in data analysis for good reason: The essays are a seminal part of American culture, both in the past and today. By identifying the authors of each of these influential works, we can reveal important truths about the beliefs and accomplishments of our founding fathers. In addition, the world can rest easy knowing Lin-Manuel Miranda was correct in his representation of Alexander Hamilton in his musical of the same name.