

WOMEN OF LETTERS

MAPPING AGE OF ENLIGHTENMENT SOCIAL NETWORKS

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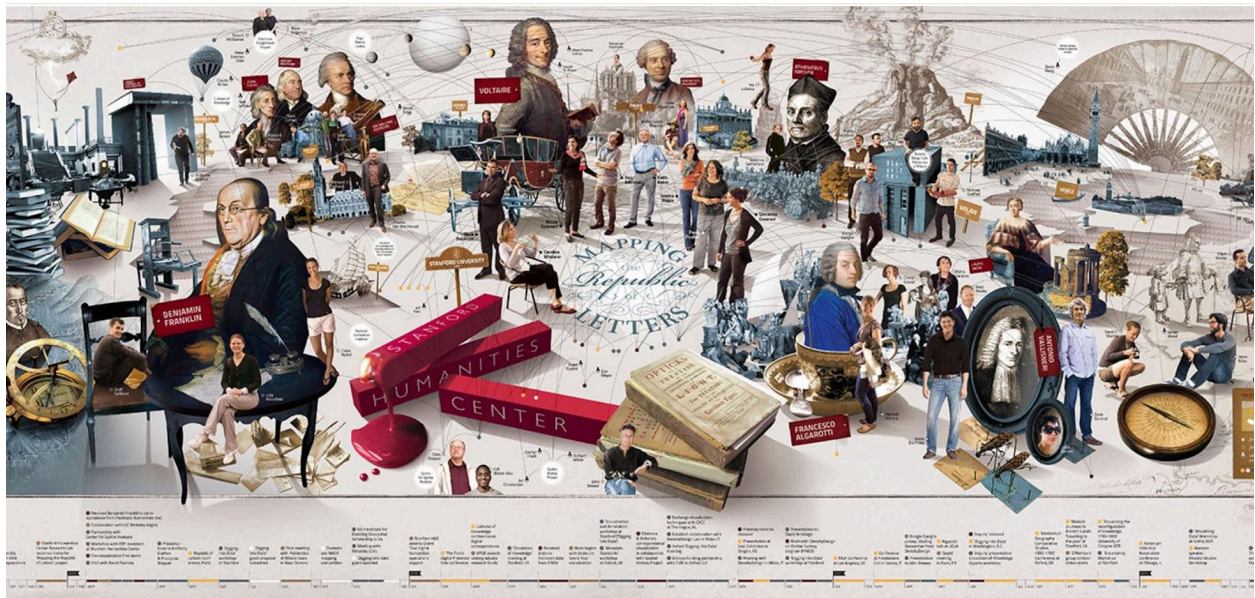


Fig. 1 Stanford's Mapping the Republic of Letters Homepage Graphic

INTRODUCTION

The Age of Enlightenment was an 18th century movement in Europe that was defined by dramatic transformations in philosophical and intellectual thinking. During this time, modern ideas such as personal liberty, separation of church and state, constitutional government, and religious tolerance all began to enter the mainstream of intellectual thought and debate. But how did prominent thinkers of the time like Voltaire, Immanuel Kant, John Locke, David Hume, Spinoza, and Benjamin Franklin exchange ideas? How were their ideas disseminated? A significant channel by which these intellectuals communicated was the Republic of Letters.

The Republic of Letters was a community of intellectuals in Europe and the Americas. It represented a metaphorical “republic” that transcended the boundaries of politics, religion, and state, with Paris, France as it's official capital. This community maintained communication and

shared ideas through the circulation of handwritten letters and published papers. These networks of correspondence were the social networks of the day.

Existing Work

Much of the prior works and visualizations regarding the Republic of Letters focus on prominent individuals like [Voltaire](#), [Franklin](#), and [Locke](#), mapping these participants' personal correspondences [11,12,13]. Other visualizations include [maps of British Architects' tours of Italy](#) [9] and [private theatrical performances of La Partie de chasse de Henri IV](#) [10]. Gender analyses have yet to be generated on the correspondence information in the Republic of Letters dataset, or such analysis visualizations/results have yet to be made available to the public. Similarly, there has been no research into Parisian salon membership that has been made public as of yet.

Goals

Our research aims to contribute to the body of knowledge pertaining to who prolific individual participants in the Republic of Letters (ROL) were, what salons each were a part of, and what role women participants played in the ROL.

Salons

Salons were public places of politeness and discourse where “men of letters” could openly exchange ideas. Many of the participants in the ROL were members of various Parisian salons. Our research highlights ROL participants' membership(s) in these salons.

Gender

In addition to the important role that women played in the Age of Enlightenment as *salonnières*, social conduct mediating hostesses in Parisian salons, women also contributed to the written correspondences that comprise the ROL data available today. Our research reveals the most prolific female correspondents in the ROL.

Methods

The dataset consists of 1,995 data rows in an Excel spreadsheet, each representing an individual participant in the ROL. This data was acquired from Oxford University's Electronic Enlightenment Project and further enriched by researchers at Stanford as part of the Mapping the Republic of Letters project. Associated metadata columns include the following:

- Source
- EE ID
- Occupation
- Political rank
- Military rank
- RecipientLetterCount by EE ID
- AuthorLetterCount by EE ID
- Total Letters
- Full Name
- Full Name Reversed
- Particule?
- Aristo title
- Clerical title
- Wikipedia URL
- VIAF ID
- VIAF URL
- Wikipedia Image Link
- Knowledge Network
- Social Network
- Professional Network
- Religious Network
- Academies
- Royal Academy
- Institut de France
- Academy_single
- Academy_single_provincial
- Salons
- GenderGroup
- Nationality
- Birth Date
- Birth Year
- Death Date
- Death Year
- Birth City
- Birth Country
- Death City
- Death Country

In our analysis of male/female participation in the ROL, we used two versions of the dataset. The first version was the raw dataset in Excel format without the removal or editing of any participant data. The second was the same, but with the entry for Voltaire removed (Voltaire represents a major outlier in the data with far more recorded letters sent and received than any other

participant). We used Tableau to create bubble chart visualizations to demonstrate each individual ROL member's total letter count.

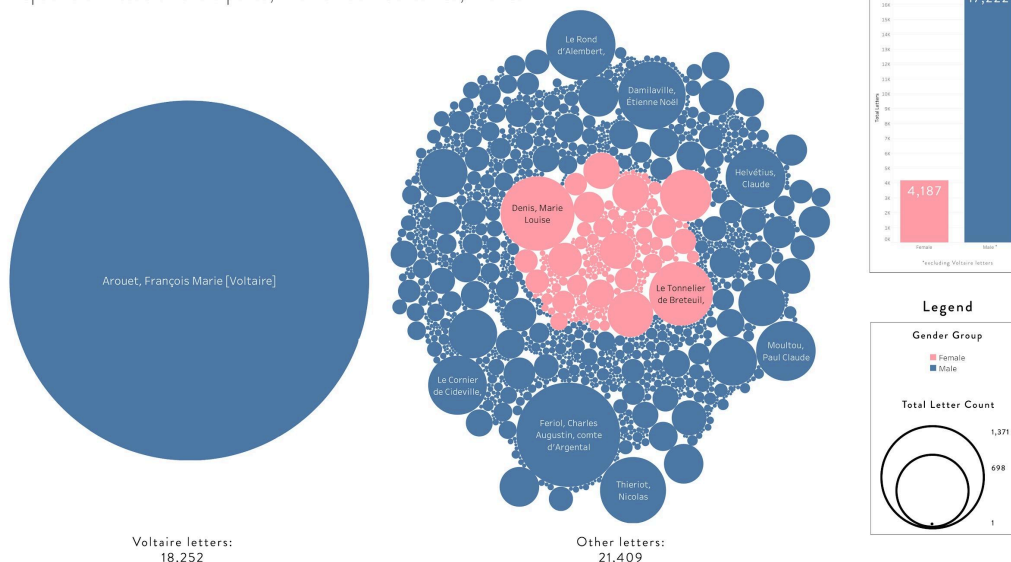
In our analysis of salon membership, we removed all rows in the Excel spreadsheet that contained null values in the “salons” column. We also corrected misspellings in the salon data that led to visualization errors. For these, we first confirmed our assumptions of accidental misspelling in the raw data with the project sponsor, Dr. Melanie Conroy. Next, we removed data in the salons column where the entries did not in fact represent salons (Encyclopédie, Cordeliers, Neuf Soeurs (Freemasons), Jacobins). After that, we created two separate datasets: one containing only male participants, one containing only female participants. We then used Sci2 to extract bipartite networks and generate PostScript visualizations from our three cleaned data sets. Finally, we used Adobe Acrobat to convert the resulting PostScript files to PDF format, and imported into Adobe Photoshop to finalize our visualizations' formatting.

Results

Of the 39,661 total letters sent and received in our dataset, Voltaire's letters totaled 18,252, representing 46% of the total letters in the dataset. This had important implications in our research, and was a recurring consideration as we drew conclusions from the results of our analysis. In the visualization below, the comparison between Voltaire's correspondences (left) and all of the remaining correspondences (right) is demonstrated.

Gender & Total Letter Count

Republic of Letters Participants, 17th & 18th Centuries, France



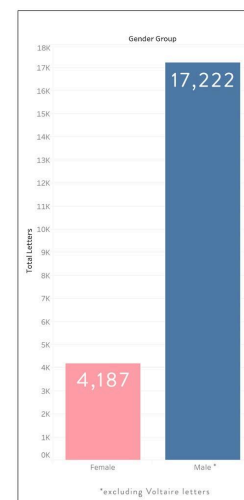
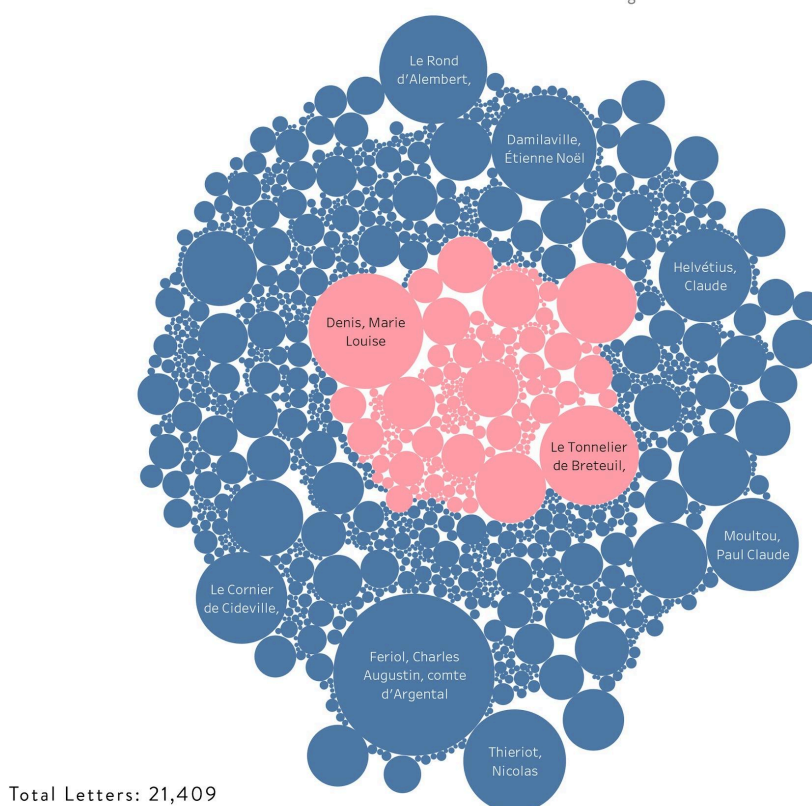
1. The Role of Gender

Upon initial analysis, we quickly derived the percentage of the total letters sent and received by female participants in the ROL. Women participants sent/received 4,187 letters in our dataset, only 10.5% of the total ROL letters. However, upon removing the outlier, Voltaire, from the data, the percentage of total letters sent/received by women jumps to 19.5%. Additionally, the average female participant in the ROL sent/received 20 letters, while the average male participant sent/received 26 letters. However, after removing the outlier, Voltaire, the average for males drops to 13 letters sent/received. The average female participant sent/received 65% more letters than the average man if Voltaire is excluded.

Gender & Total Letter Count

Republic of Letters Participants, 17th & 18th Centuries, France

*excluding Voltaire letters

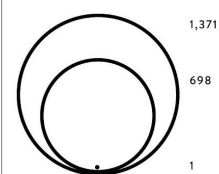


Legend

Gender Group

Female
Male

Total Letter Count



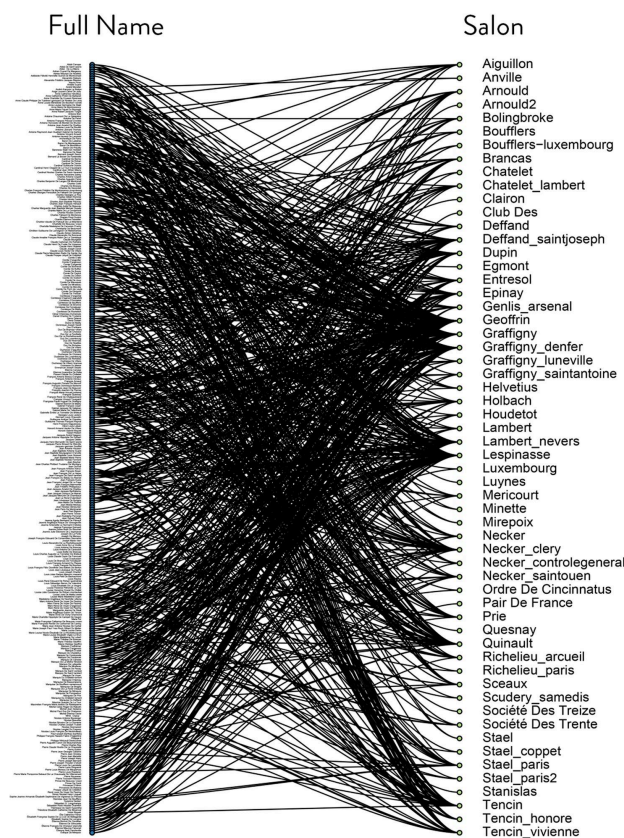
2. Prolific Female Participants

The female participants who sent/received the highest number of recorded letters in the ROL were Marie Louise Denis (696 letters), Gabrielle Émilie Le Tonnelier de Breteuil (520 letters), Marie Anne de Vichy-Chamrond (338 letters), Anne Catherine Helvetius (266 letters), and Françoise de Graffigny (171 letters). In the visualization above, female participants are represented by the pink bubbles, while the male participants are represented by the blue bubbles. The size of the bubbles indicates the total letters sent/received by the respective participant.

3. Salon Membership

The following three visualizations show each individual member of the ROL and their respective memberships in Parisian salons during the Age of Enlightenment.

Salon Membership in The Republic of Letters
Republic of Letters Participants, 17th & 18th Centuries, France

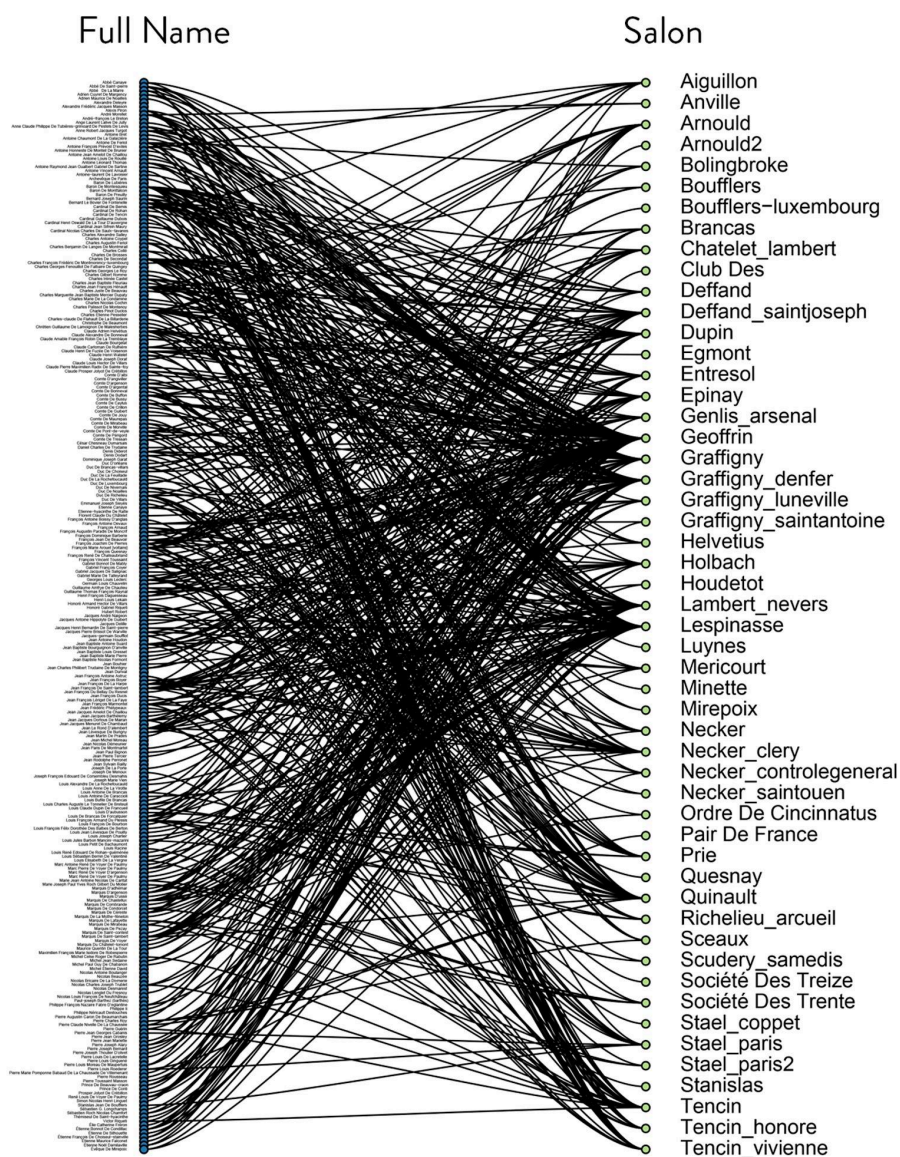


Male and Female Participants

These visualizations highlight the popularity of certain salons over others. The density of the connections on the right side show that some of the most popular salons were Deffand St. Joseph, Geoffrin, Graffigny, Lespinasse, Lambert Nevers, Quinault, and Tencin.

Male Salon Membership in The Republic of Letters

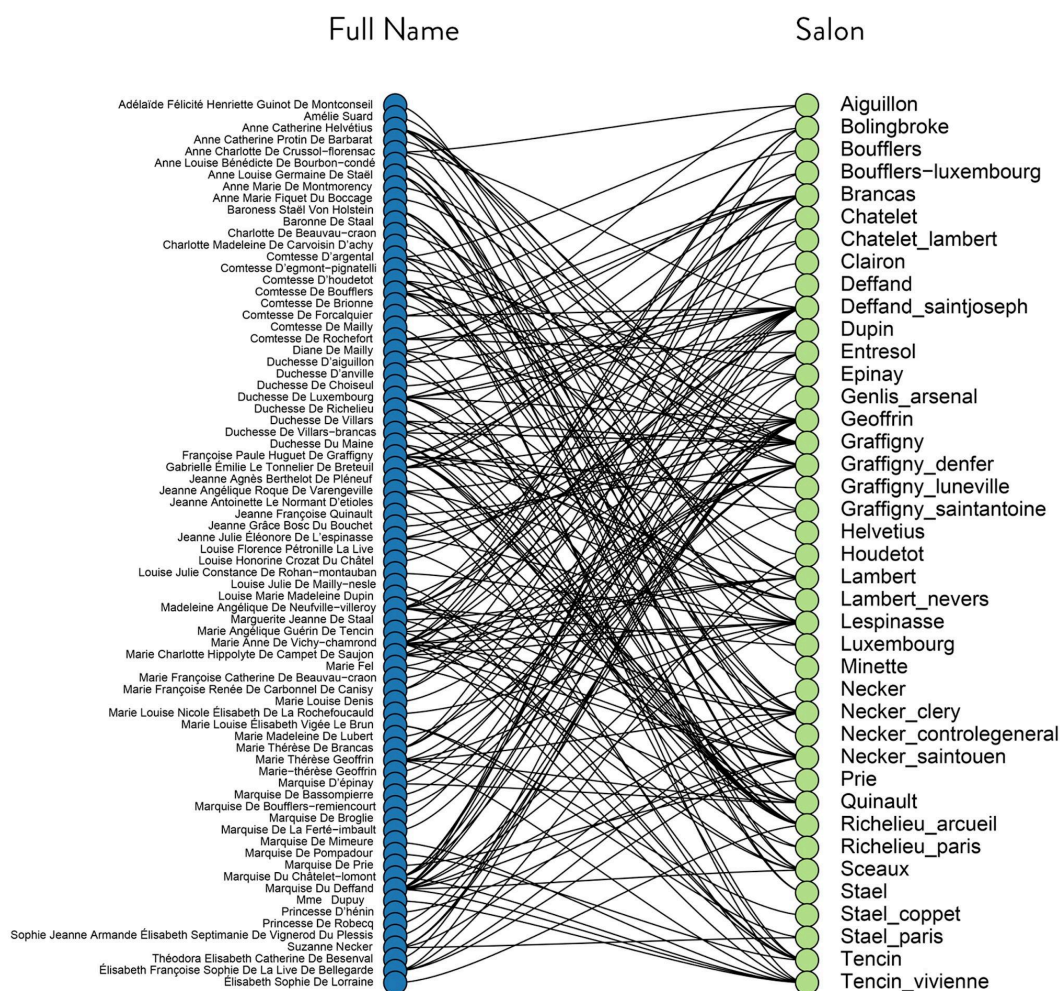
Republic of Letters Participants, 17th & 18th Centuries, France



They also show that although females participants were not as numerous in the ROL as male participants, women participants were members of 40 salons.

Female Salon Membership in The Republic of Letters

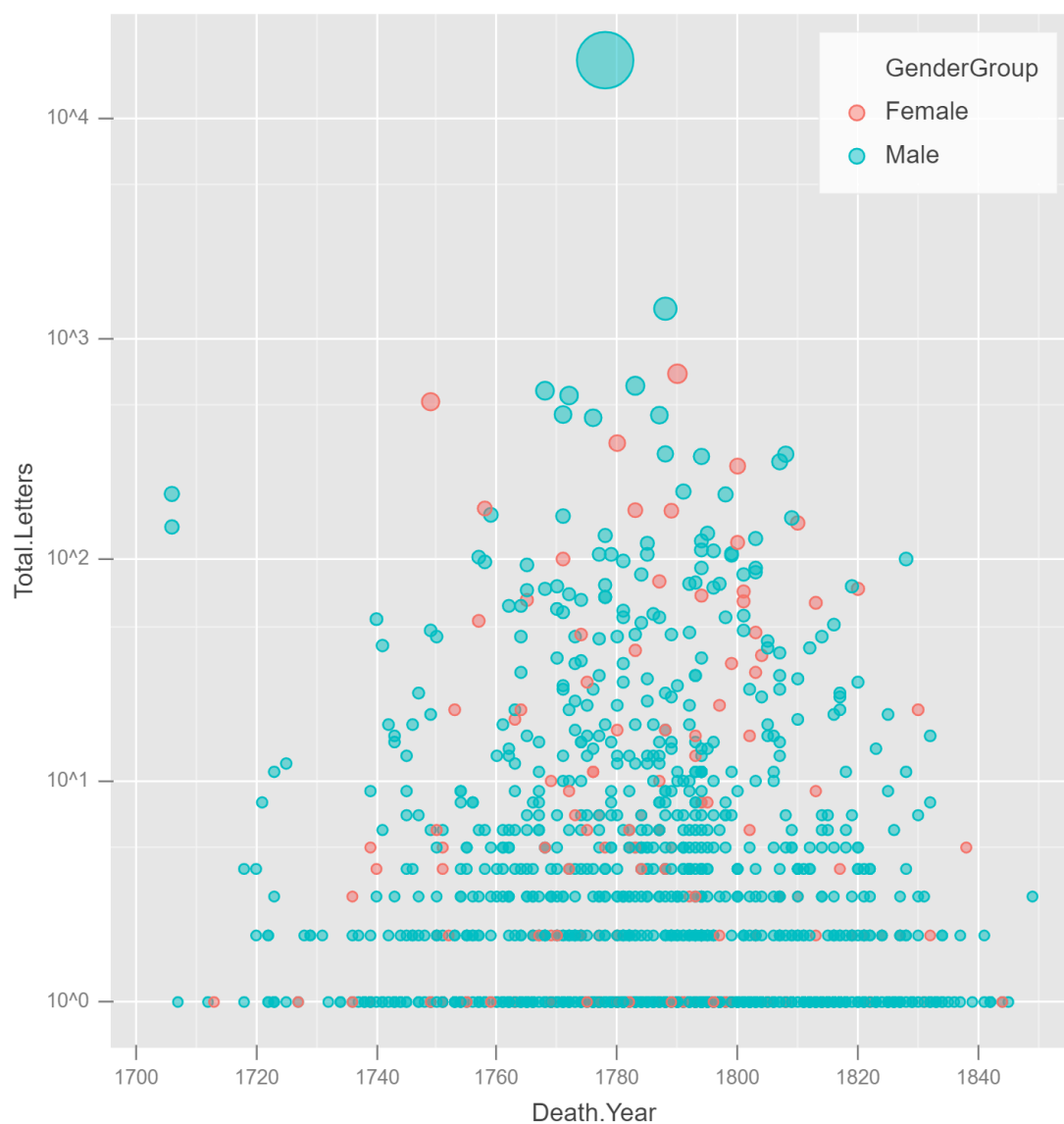
Republic of Letters Participants, 17th & 18th Centuries, France



4. Interactive Visualization of Participants

In addition to these visualizations demonstrating male/female participation and participant salon membership in the ROL, our team generated an interactive visualization (programmed in R) where a user can explore the ROL participant data in an online

graphical user interface. Nodes are plotted on x and y axes with each node representing an individual participant (gender is denoted by node color). When the user hovers over the node, metadata about the participant appears (name, image, total letters, occupation). The y axis represents the total number of letters sent/received by the participant, while the x axis represents the death year of the participant. Using this visualization, any user can quickly examine the existing ROL participant data.



View Interactive Visualization Here:

<http://rpubs.com/habahram/488952>

Problems and Challenges

Since the ROL Procope data is a set of “participants,” much of the related “letters” data was not available for our research. Although our efforts to attain this raw data are ongoing.

We needed more granular data in order to generate some of the visualizations we initially proposed. We purchased a month long subscription to the Oxford Electronic Enlightenment Project’s online data application. It was subsequently necessary to reach out to the EEP representatives at Oxford responsible for the stewardship of this data to receive bulk data extracts. Although our communication is still ongoing, we have yet to attain the necessary information to generate geocoded, individuated letter correspondences of prominent women participants in the ROL.

If we are able to acquire the granular data from Oxford EEP, or from Stanford’s Republic of Letters representatives, we would be able to not only generate interactive geospatial visualizations by participant, but also perhaps even do qualitative analysis of the actual content of the letters. What were the ROL participants talking about to one another at that time? What topics were discussed in written correspondences during the French Renaissance? We could do topical burst analysis on the letter content and see where those insights take us. We hope to continue our research as more raw data becomes available.

Conclusion

Our team’s findings revealed the most prolific female writers and most popular salons in the ROL. Our bubble chart and bar graph visualizations show the proportion of female to male writers, and our network visualizations demonstrate all ROL salon memberships. We discovered that the average female writer in the ROL sent/received 65% more letters than the average male writer. The interactive visualization our team generated shows the relative numbers of total letters sent and received by every participant in the ROL data separated by gender, along with their social networks and image when available (Wikipedia image link from dataset).

Connections to Voltaire

A consideration of particular interest is that writers with high prolificacy derived from this dataset also generally had personal relationships with the data’s outlier, Voltaire. We discovered this by examining the Wikipedia links (a column in the dataset) for each of the 5 female writers with the highest total letter count. Marie Denis was Voltaire’s niece and companion. Gabrielle Émilie Le

Tonnelier de Breteuil, although an influential writer and physicist, had a romantic relationship with Voltaire. Marie Anne de Vichy-Chamrond was personal friends with Voltaire and exchanged correspondences with him regularly beginning in 1736. Perhaps much of these data were only captured by proxy of their letters to and from Voltaire, whose letters we have seen represent nearly half of the total available letters data in the ROL Procope dataset. We wonder, how will these visualizations change as more letters are added to the ROL dataset, closing the gap between those data connected directly to Voltaire and the data representing the rest of the ROL participants at large.

Salonnières

Anne Catherine Helvetius, the fourth most prolific female participant in the dataset, was a renowned *salonnière* of a popular Parisian salon, in addition to being the wife of a famous philosopher. Françoise de Graffigny, the female participant with the fifth highest total letters, was also the hostess of an important Paris salon. These women's contributions to Age of Enlightenment social networking are not inflated by direct correspondences with Voltaire.

Future Research

Future investigation of the *content* of the letters would benefit from the use of our interactive and bubble chart visualizations. Topical burst word analysis could be conducted on the actual content of the letters sent by prolific female writers. Using our bipartite network visualizations, further research could be conducted examining the actual content of letters exchanged between members of the same salons.

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