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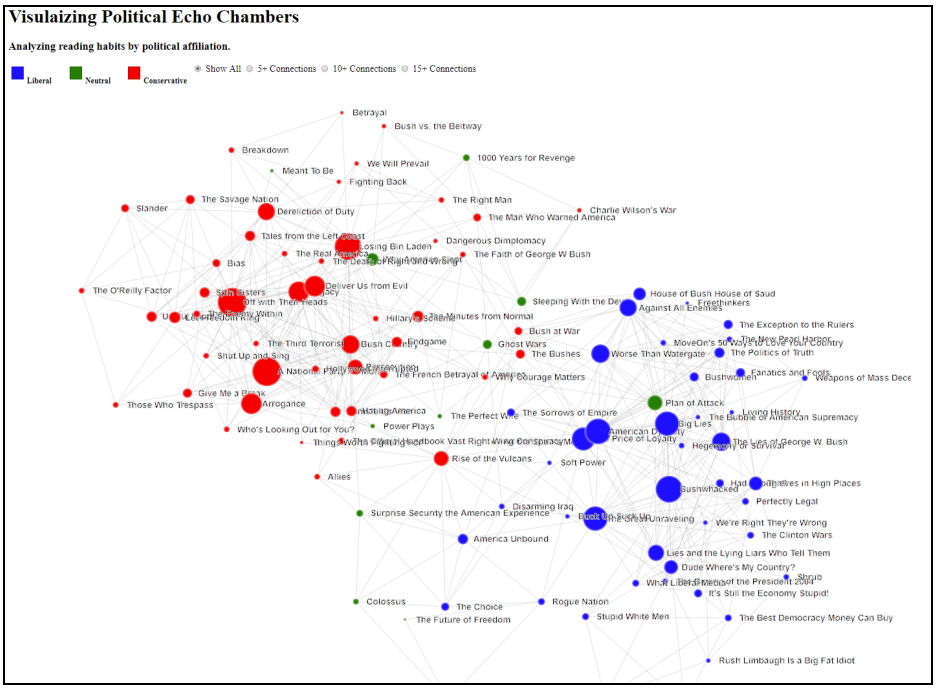
Homework #2
INFSCI 2415: Information Visualization
Dr. Yu-Ru Lin
October 26, 2017

Important Note: Due to personal health issues and scheduling difficulties, all of the work for this assignment was performed independently without a group.

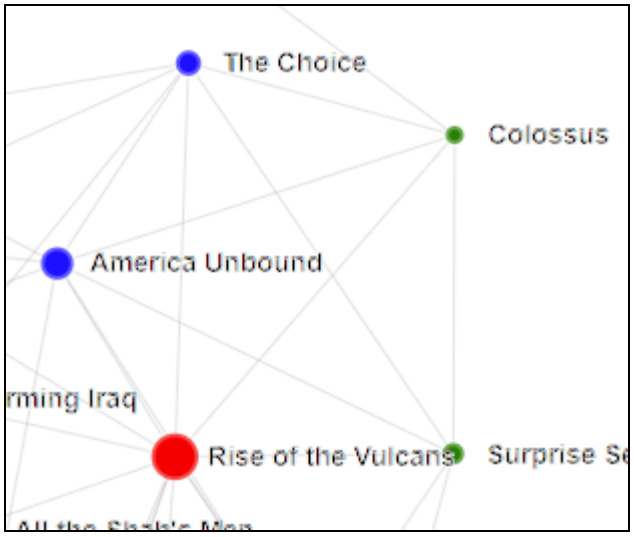
Visualization #1

http://www.pitt.edu/~sdj25/infsci_2415/hw2/vis1.html



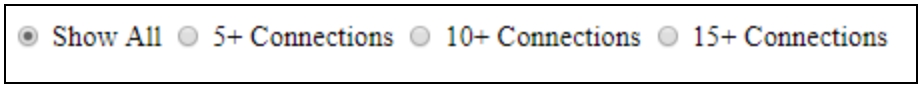
The first visualization uses a Force Directed Graph layout to present a network of frequently co-purchased books about U.S. politics. The intent of this visualization is to explore the phenomenon of cloistering and self-segregation on the basis of political affiliation that occurs in book purchasing. Node colors were chosen due to their historical political affiliations. Books described as liberal in the data set were encoded blue to evoke associations with the Democratic party. Similarly, the red nodes standing as conservative books tie back to the Republican party. Although the color purple was an enticing possibility to represent neutral

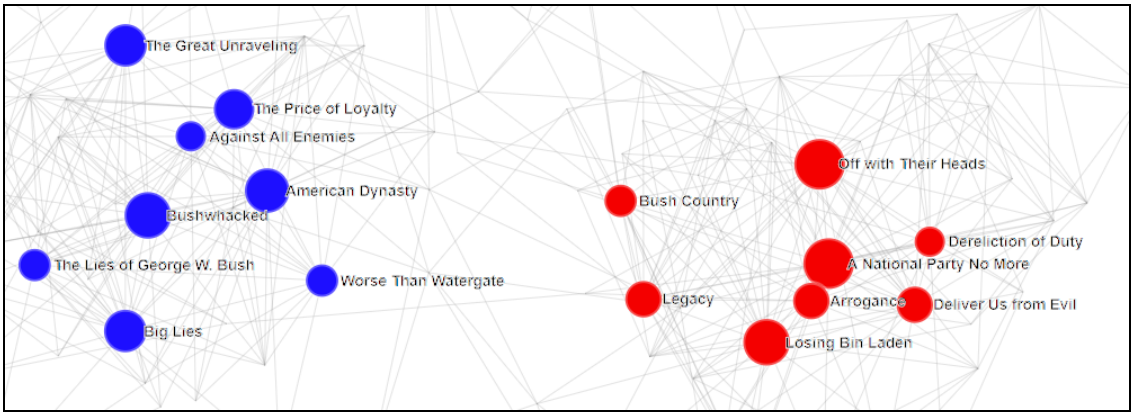
nodes, this option was not sufficiently visually distinguishable from the other nodes. Ultimately, green was chosen as the neutral color due to it's visual distinctiveness as well as the color's association with popular third party options like the Green party in U.S. politics.



The sizes of nodes in the graph are intended to convey the relative popularity of the books. The degree of connections to other books was used to scale the node sizes linearly. Each node also features a unique label that displays the full title of the book.

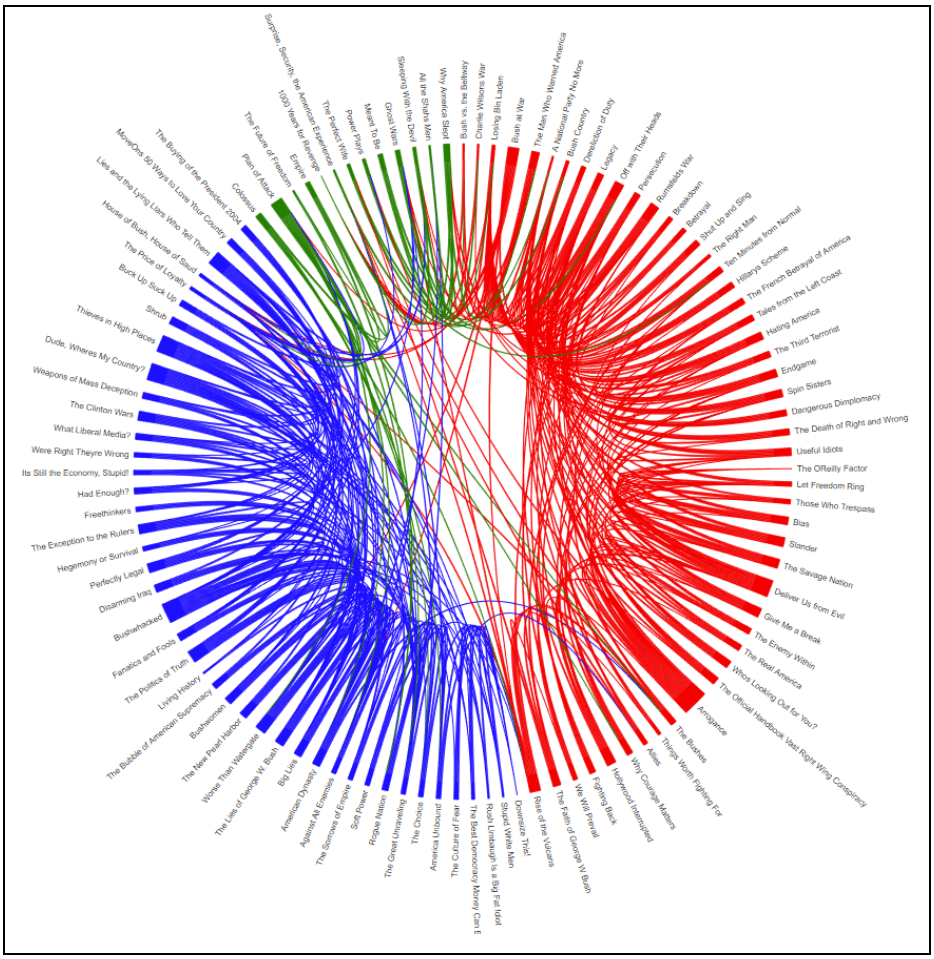
To filter the nodes displayed, a user can select one of the radio button options that range between a full display to a display of only the most co-purchased books. The advantage of using these filters is that it brings into contrast how divided the two political parties are in the United States. The distinct clusters of nodes serve to represent different communities of book purchasers that tend to read similar material and don't purchase books intended for people of competing ideologies.



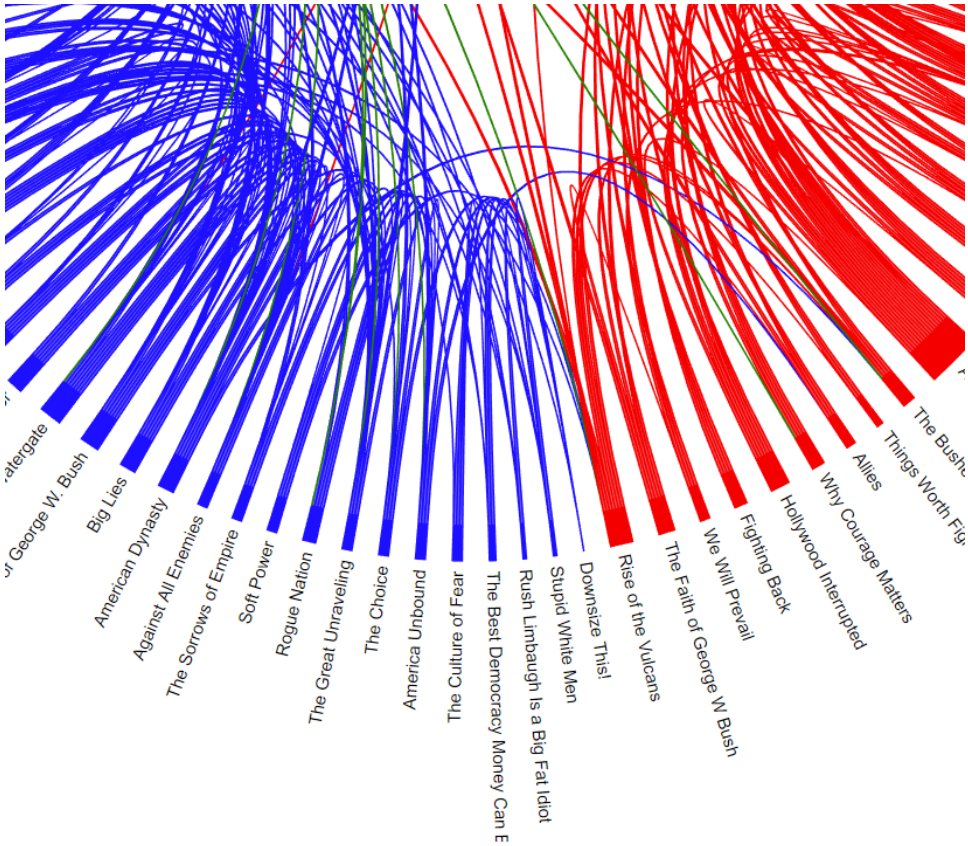


Visualization #2

http://www.pitt.edu/~sdj25/infsci_2415/hw2/vis2.html



Instead of a Force Directed Graph layout, the second visualization eschews the traditional node and link structure for a Chord Diagram. Because the political books dataset was assembled to report associations between books, a Chord Diagram seemed appropriate due to the layout's ability to show a clean visual representation of hierarchical and network data. This visualization relied on the same dataset as the first visualization, but did require the data be formatted from two separate CSV files into a unified JSON file. Like the first visualization, the Chord Diagram uses the same familiar political colors to encode the book data presented.



To increase the visibility of cross-group purchases, the visual has been arranged so that all books of a specific group are positioned right next to each other. Labels displaying the title of the books are positioned around the perimeter of the circle next to their respective cords. Some of the special features of this design include a variable cord size that, much like the previous visual, is used to indicate the relative popularity of the book. The more associations a book has to other books the wider the cord becomes. The second visualization aims to make the separation between conservative and liberal book buyers more obvious. Although some links do extend between ideological groups, it is clear that the majority of co-purchasing occurs within the same group.

References

Bostock, Mike. “Chord Diagram.” Popular Blocks, https://bl.ocks.org/mbostock/1046712. Accessed 26 Octt. 2017.

CCMCC. “D3 Force Diagram Template with CSV files.” GitHub Gist, https://gist.github.com/ccmcc/5182685#file-links-csv. Accessed 25 Oct. 2017.