graphipulate

graph + manipulate

www.graphipulate.org

An interactive exploration of partition resolutions

THE PROBLEM

Finding the best resolution for network partitioning is a challenge[1]. Does the data subdivide naturally into five communities, or ten? Is there a hierarchical community structure between partition resolutions, or is there a more nuanced relationship?

THE IDEA

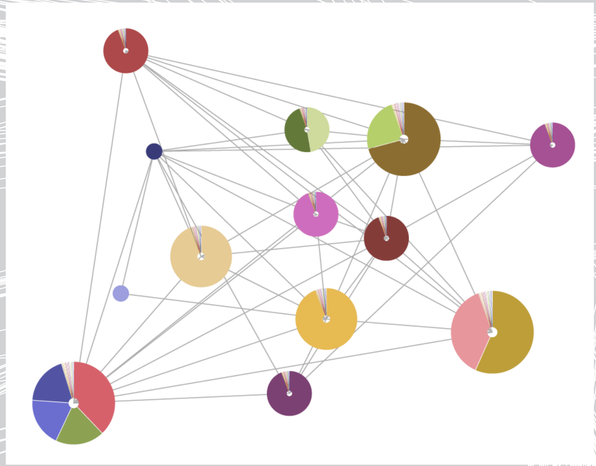
Rather than develop a visualization algorithm that attempts to find the best layout and resolution parameter for all types of network data, we instead give interactive control to the user. Using the responsive, web-based javaScript package D3[2], we allow the user to explore and compare various partition resolutions and layouts.

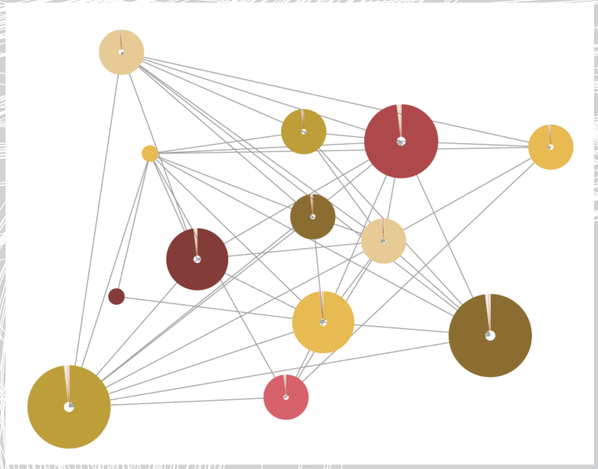
THE TOOL

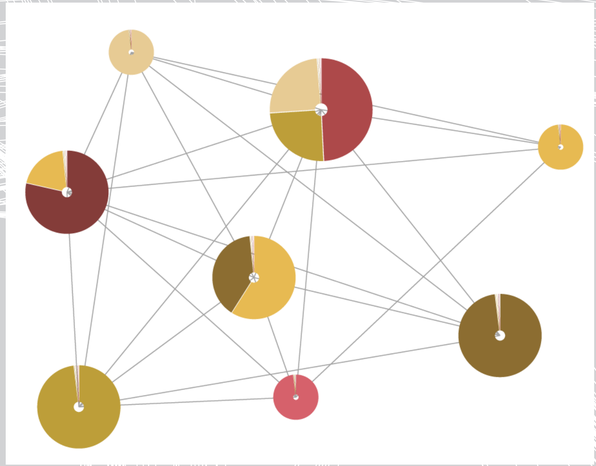
graphipulate takes in a data file of nodes, edges, and Louvain[3] partitionings, and then gives the user the power to visually explore and manipulate. Users can drag nodes and pin them into place, collapse nodes into communities, expand communities into their internal nodes, and color or collapse according to the various partition resolutions.

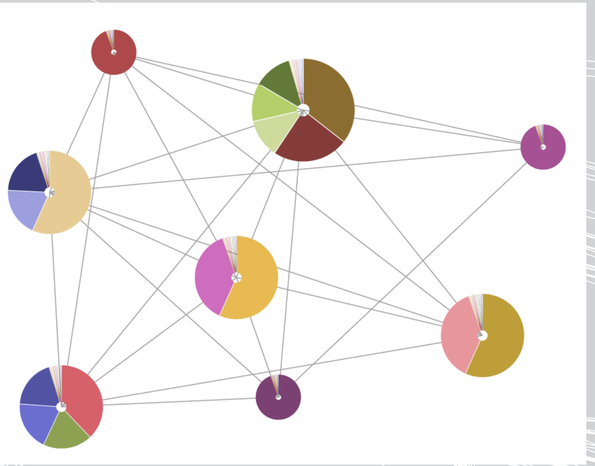
THE FUTURE

Now that we can visually explore and compare paritions, we want to introduce analytics to **graphipulate**. Our next step is to show jaccard distances between paritions at adjacent resolution values in an effort to find stable resolutions. In addition, we seek to incorporate edge bundling techniques into the visualization.









1. Traag et al. 2013. Significant Scales in Community Structure.

2. Bostock et al. 2011. D3: Data-Driven Documents.

3. Blondel et al. 2008. Fast Unfolding of Communities in Large Networks.

Alexis M. Sparko

UNC Chapel Hill

sparko@live.unc.edu