Network Analysis with Gephi

Devin Gaffney

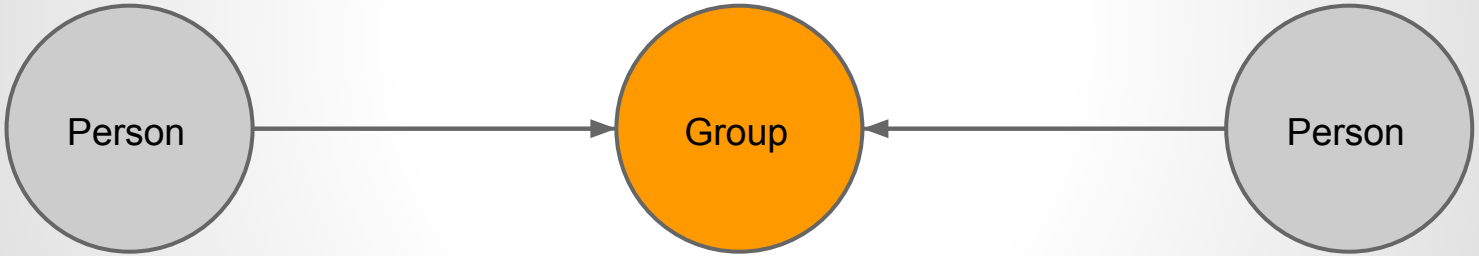
Our Dataset

https://github.com/DGaffney/gephi_tutorial

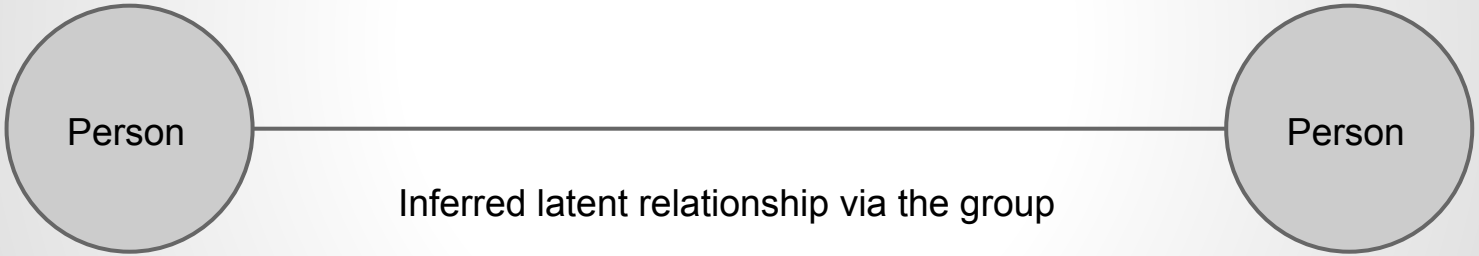
Based off of Kieran Healy's excellent "Using Metadata to Find Paul Revere"

Two Graphs: Bipartite membership graph and a projection.

Bipartite Graphs



Projections



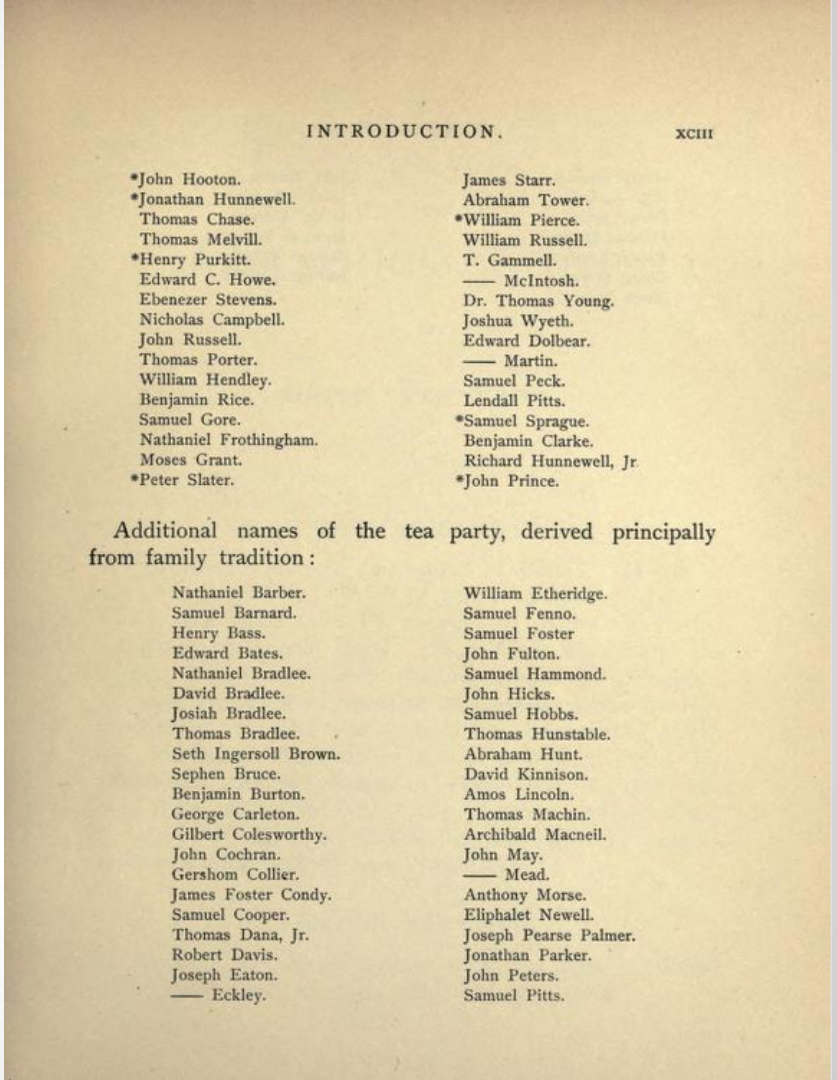
Our Graph

Bipartite graph of prominent members of colonial society (actors) and associations they belong to (groups).

Compiled by Fischer (1995) from original source materials

Our Question: What can this graph tell us about the social network between likely revolutionaries at the outbreak of the war?

Our limitations: what/whom is not in the graph, the degree to which the data are accurate, etc. This is exploratory in nature.



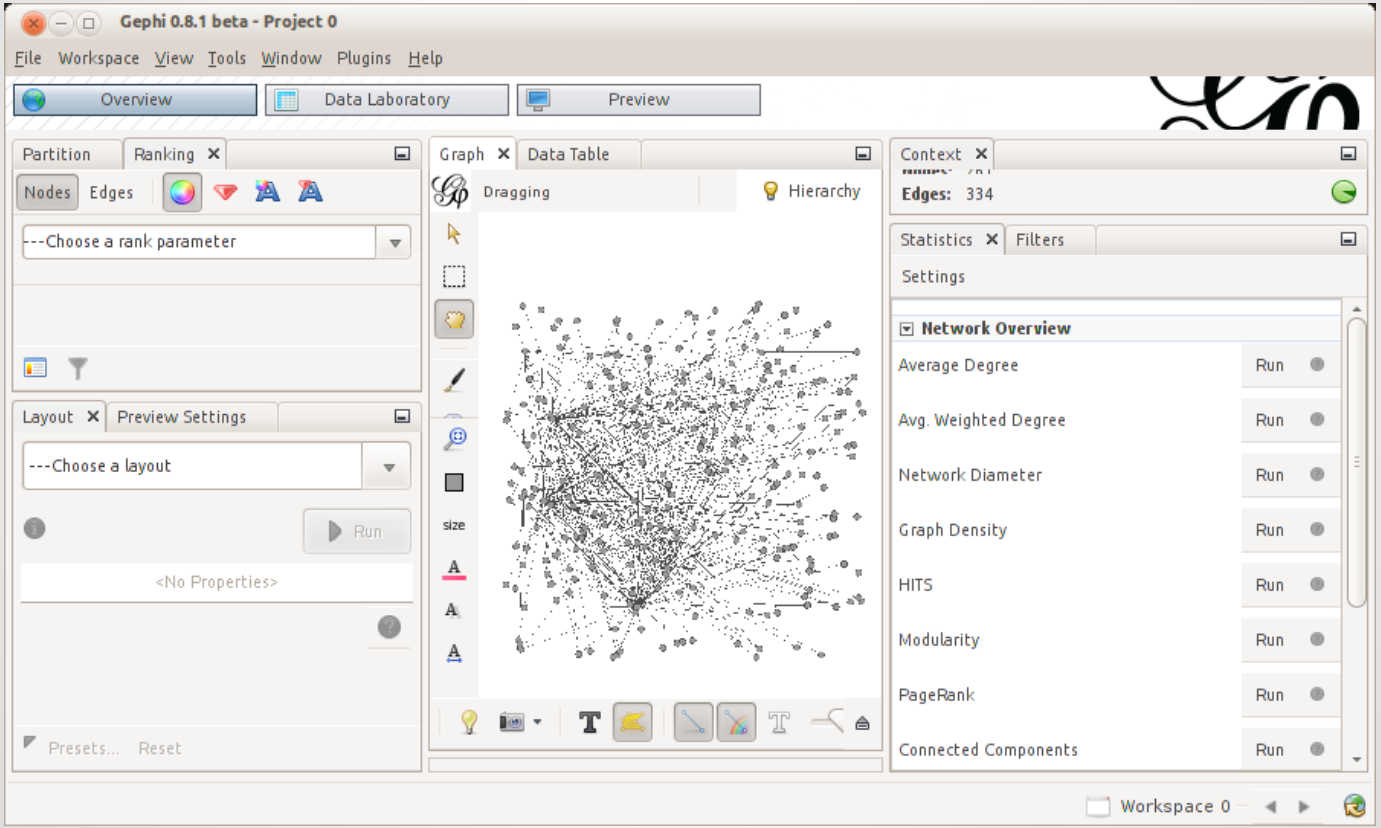
INTRODUCTION. xciii

*John Hooton.
*Jonathan Hunnewell.
Thomas Chase.
Thomas Melvill.
*Henry Purkitt.
Edward C. Howe.
Ebenezer Stevens.
Nicholas Campbell.
John Russell.
Thomas Porter.
William Hendley.
Benjamin Rice.
Samuel Gore.
Nathaniel Frothingham.
Moses Grant.
*Peter Slater.
James Starr.
Abraham Tower.
*William Pierce.
William Russell.
T. Gammell.
—— McIntosh.
Dr. Thomas Young.
Joshua Wyeth.
Edward Dolbear.
—— Martin.
Samuel Peck.
Lendall Pitts.
*Samuel Sprague.
Benjamin Clarke.
Richard Hunnewell, Jr.
*John Prince.

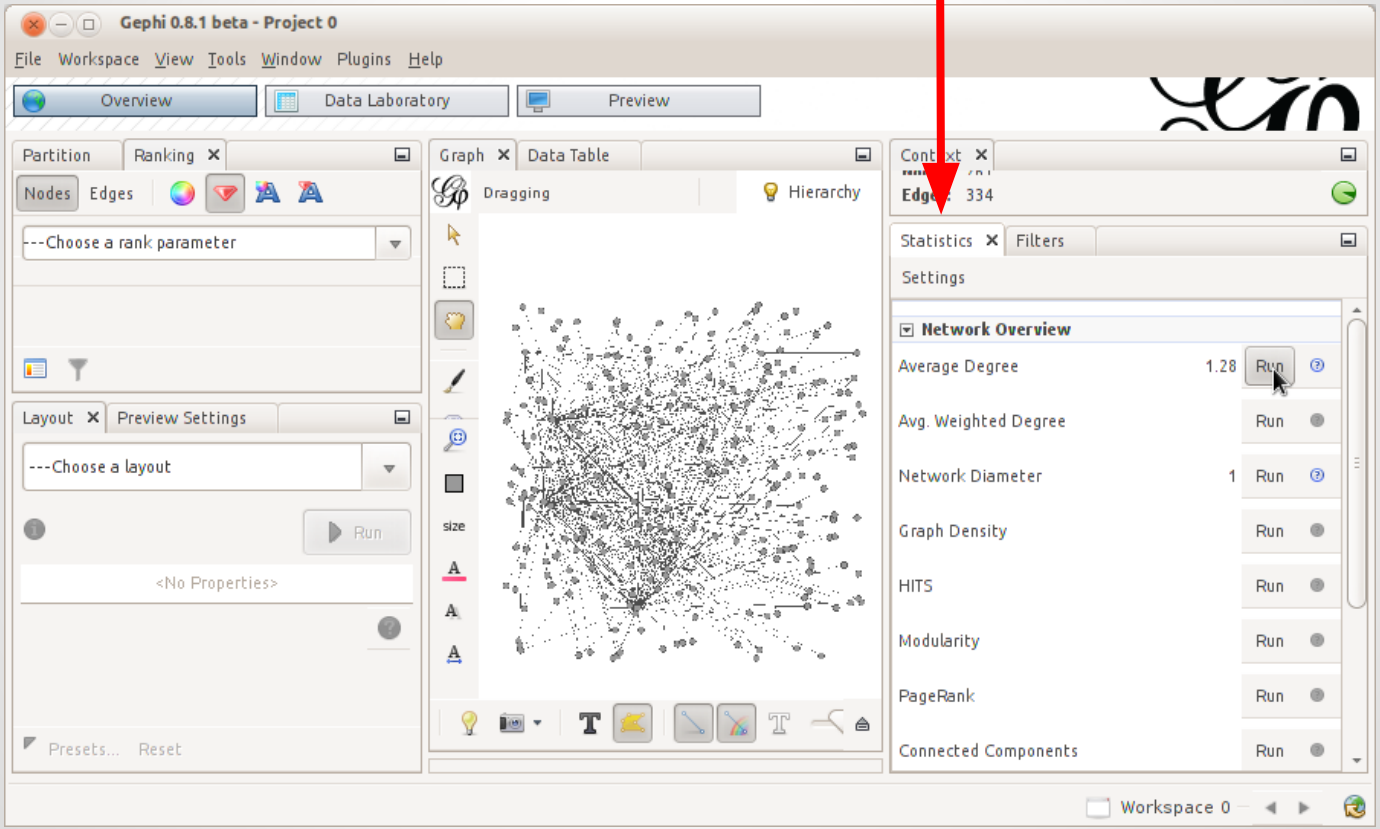
Additional names of the tea party, derived principally from family tradition:

Nathaniel Barber.
Samuel Barnard.
Henry Bass.
Edward Bates.
Nathaniel Bradlee.
David Bradlee.
Josiah Bradlee.
Thomas Bradlee.
Seth Ingersoll Brown.
Sephen Bruce.
Benjamin Burton.
George Carleton.
Gilbert Colesworthy.
John Cochran.
Gershom Collier.
James Foster Condy.
Samuel Cooper.
Thomas Dana, Jr.
Robert Davis.
Joseph Eaton.
—— Eckley.
William Etheridge.
Samuel Fenno.
Samuel Foster
John Fulton.
Samuel Hammond.
John Hicks.
Samuel Hobbs.
Thomas Hunstable.
Abraham Hunt.
David Kinnison.
Amos Lincoln.
Thomas Machin.
Archibald Macneil.
John May.
—— Mead.
Anthony Morse.
Eliphalet Newell.
Joseph Pearse Palmer.
Jonathan Parker.
John Peters.
Samuel Pitts.

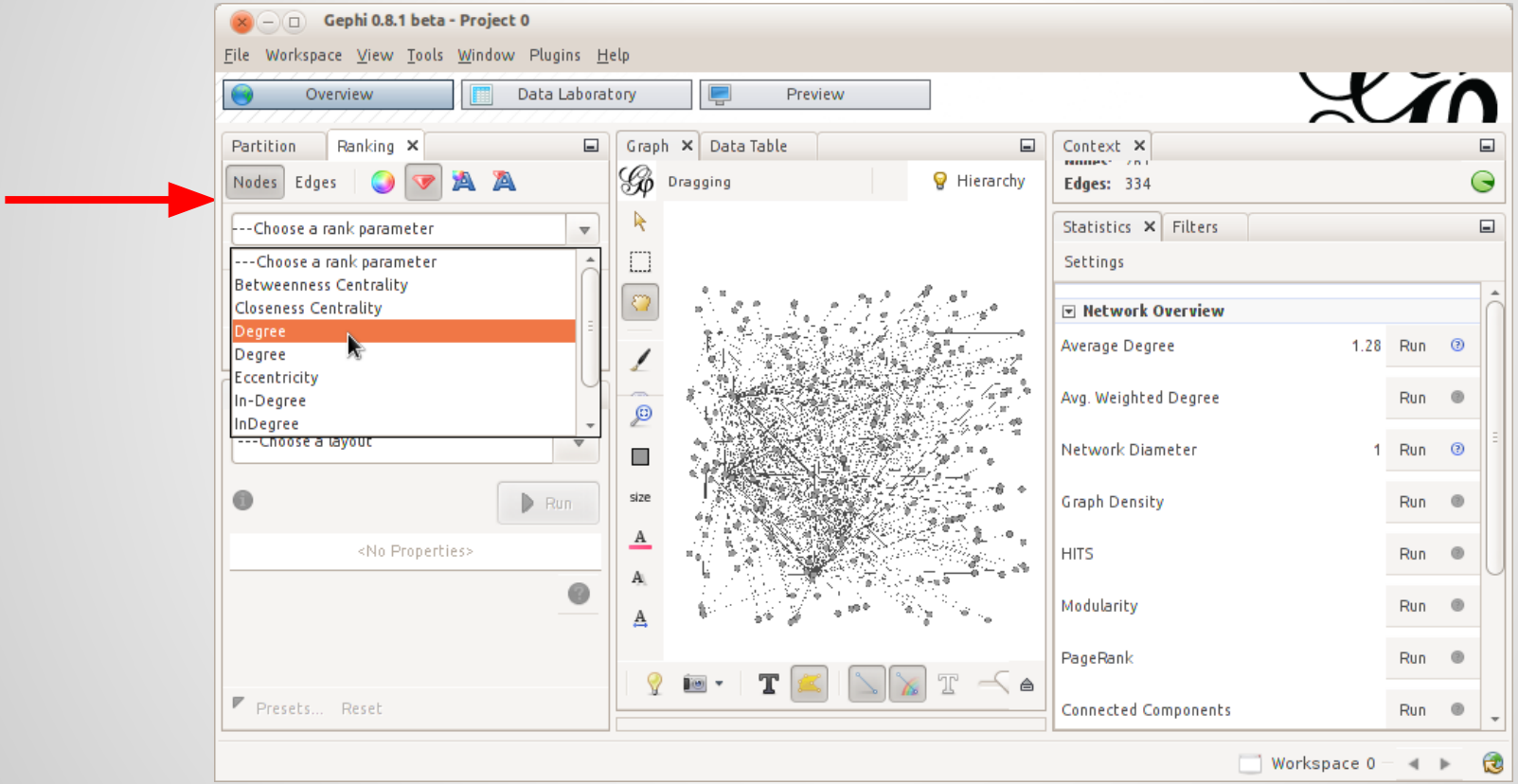
Gephi


Gephi 0.8.1 beta - Project 0
File Workspace View Tools Window Plugins Help
Overview
Data Laboratory
Preview
Partition
Ranking
Nodes
Edges
---Choose a rank parameter
Layout
Preview Settings
---Choose a layout
Run
<No Properties>
Presets...
Reset
Graph
Data Table
Dragging
Hierarchy
size
Context
Edges: 334
Statistics
Filters
Settings
Network Overview
Average Degree
Avg. Weighted Degree
Network Diameter
Graph Density
HITS
Modularity
PageRank
Connected Components
Run
Workspace 0

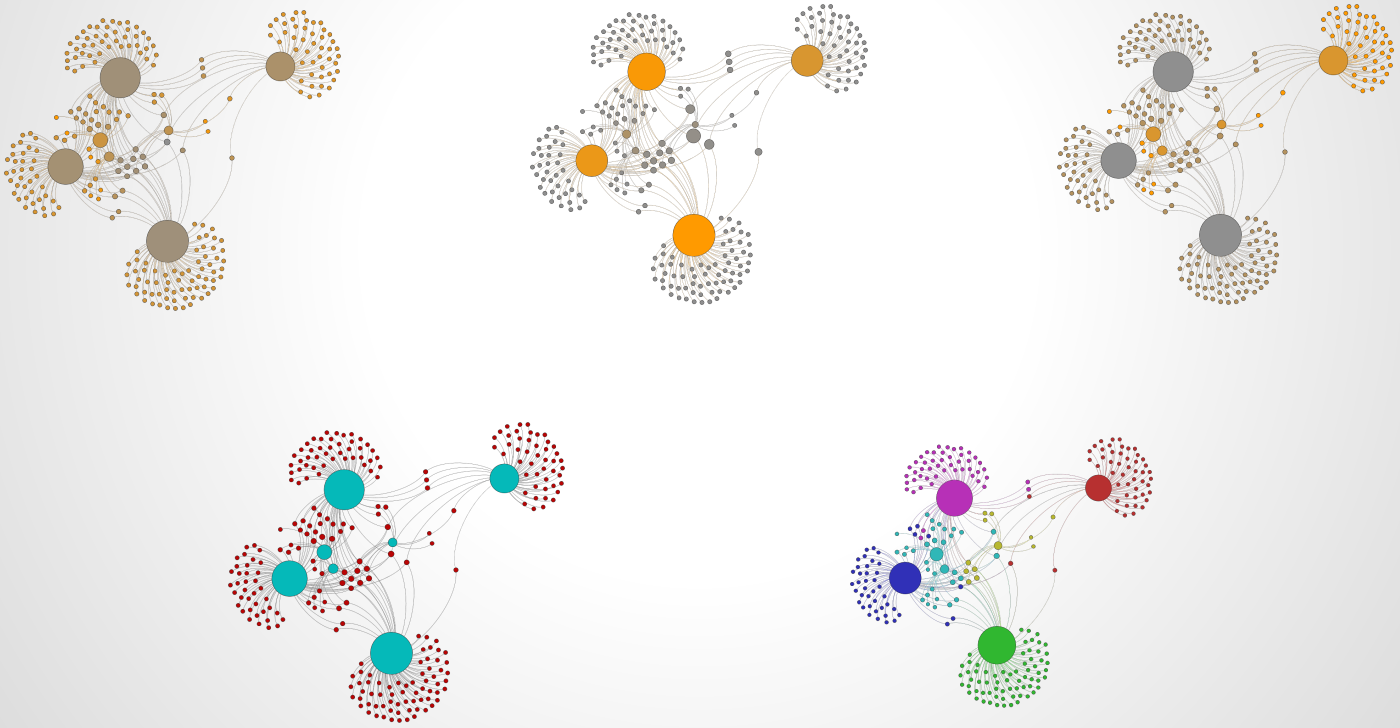
Step 1: Analysis



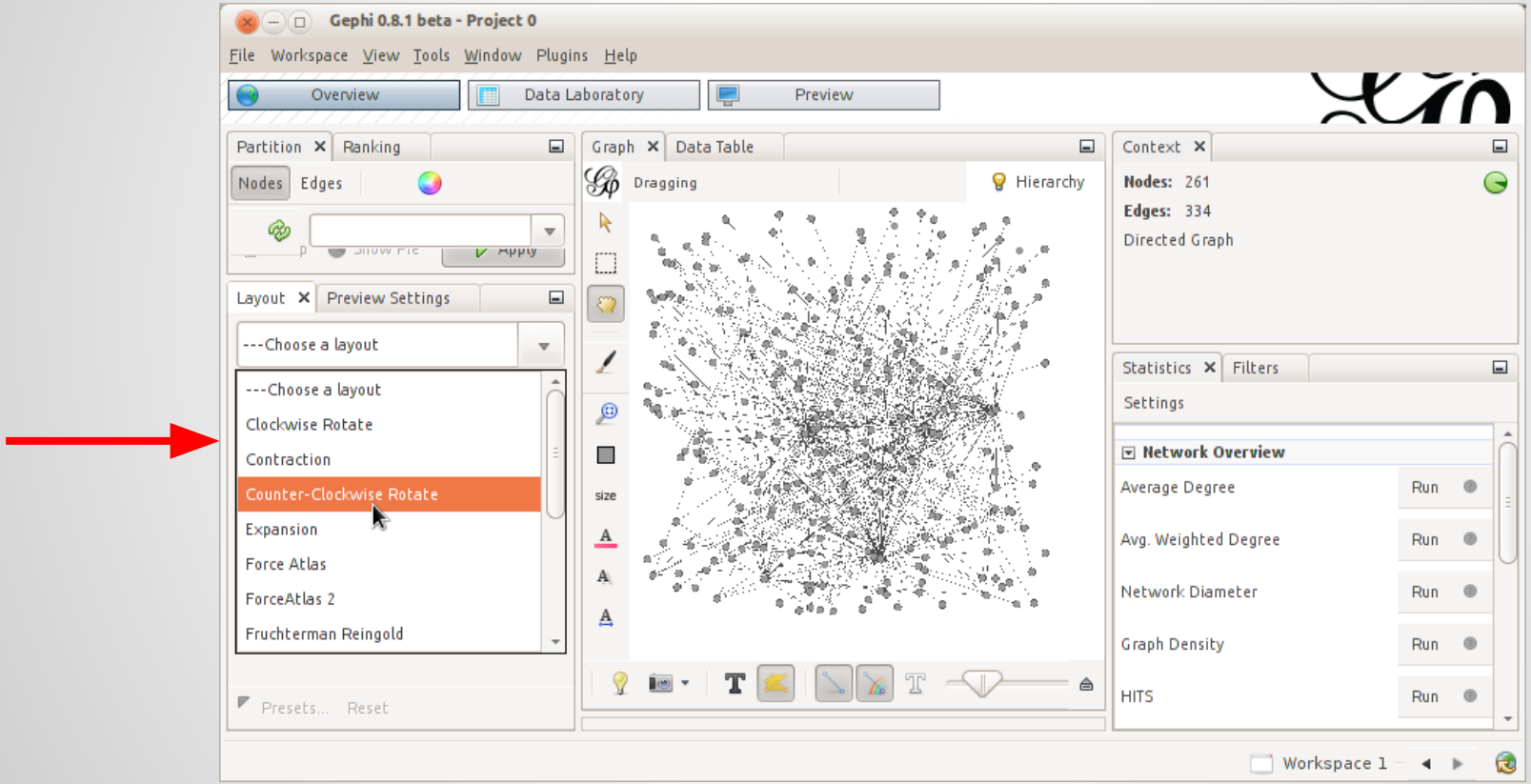
Step 2: Sizing and Coloring



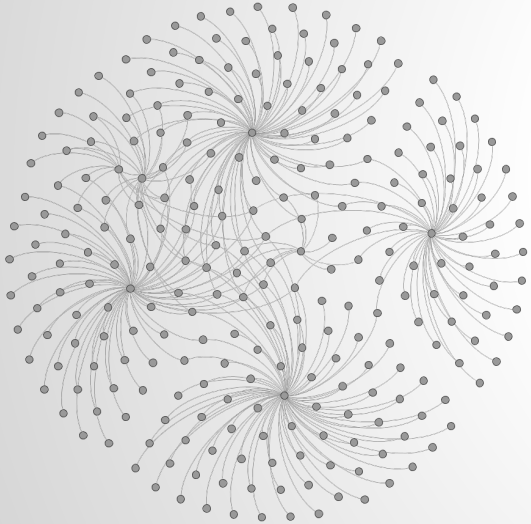
Sizing and Coloring Decisions

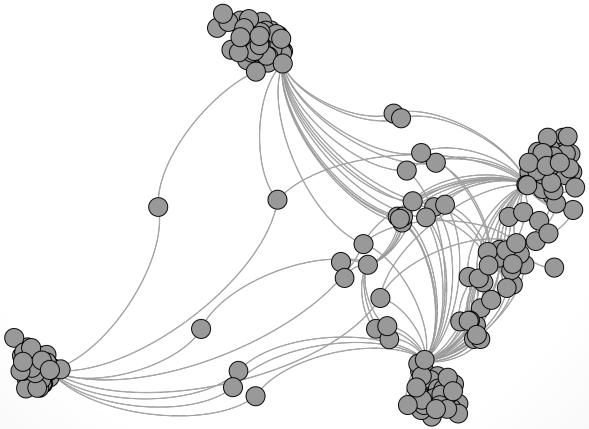


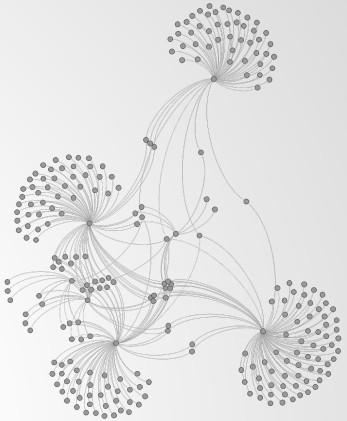
Step 3: Layout

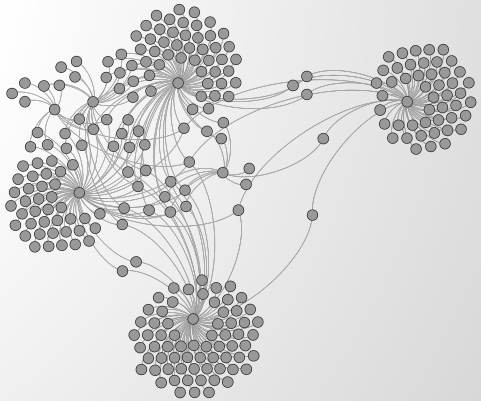


Layout Decisions

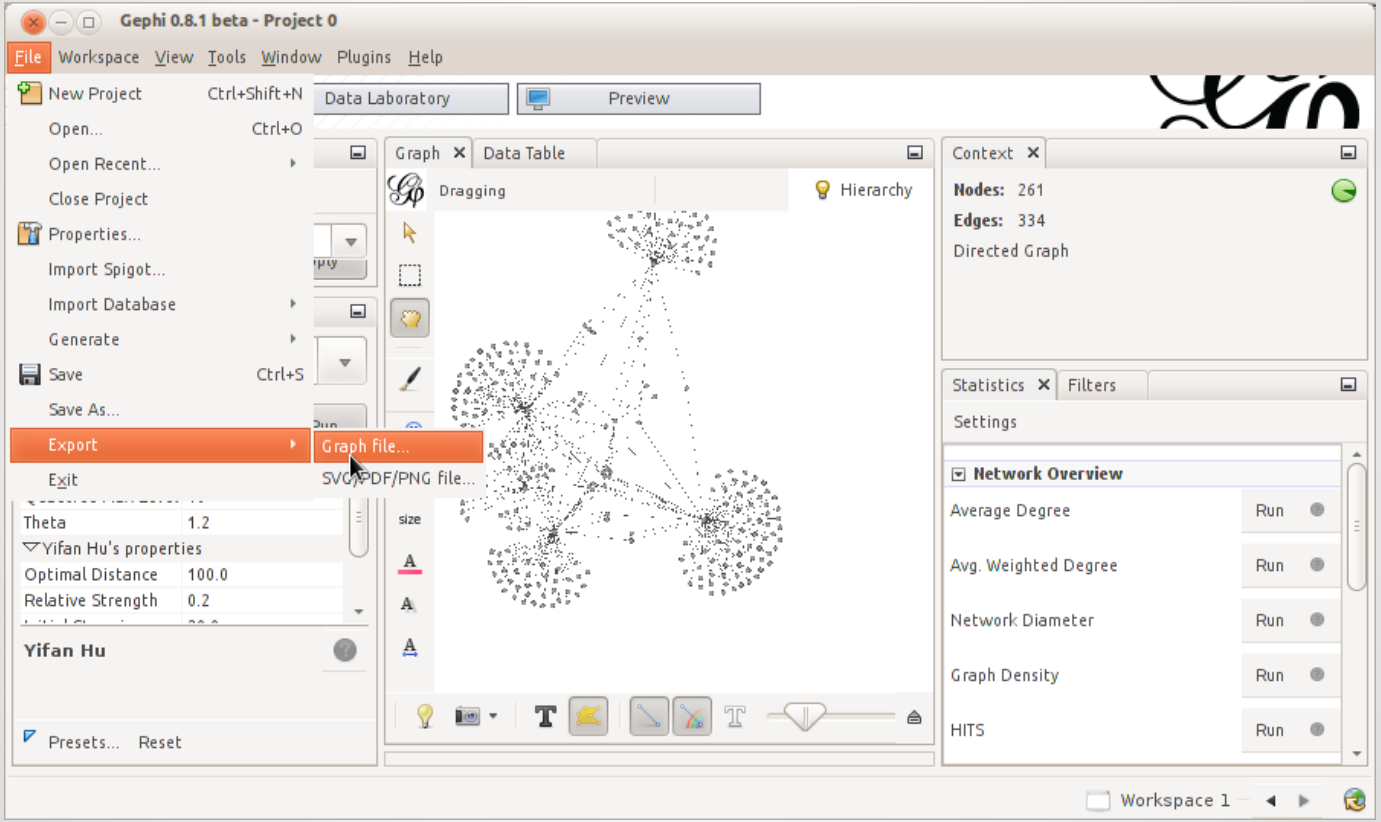




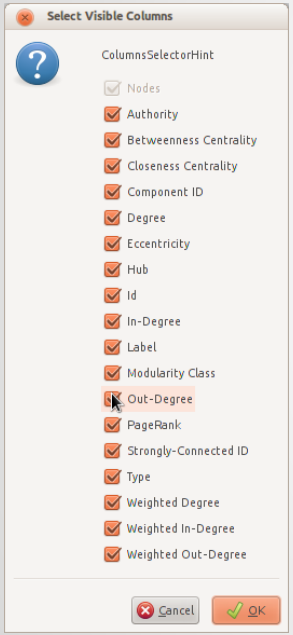


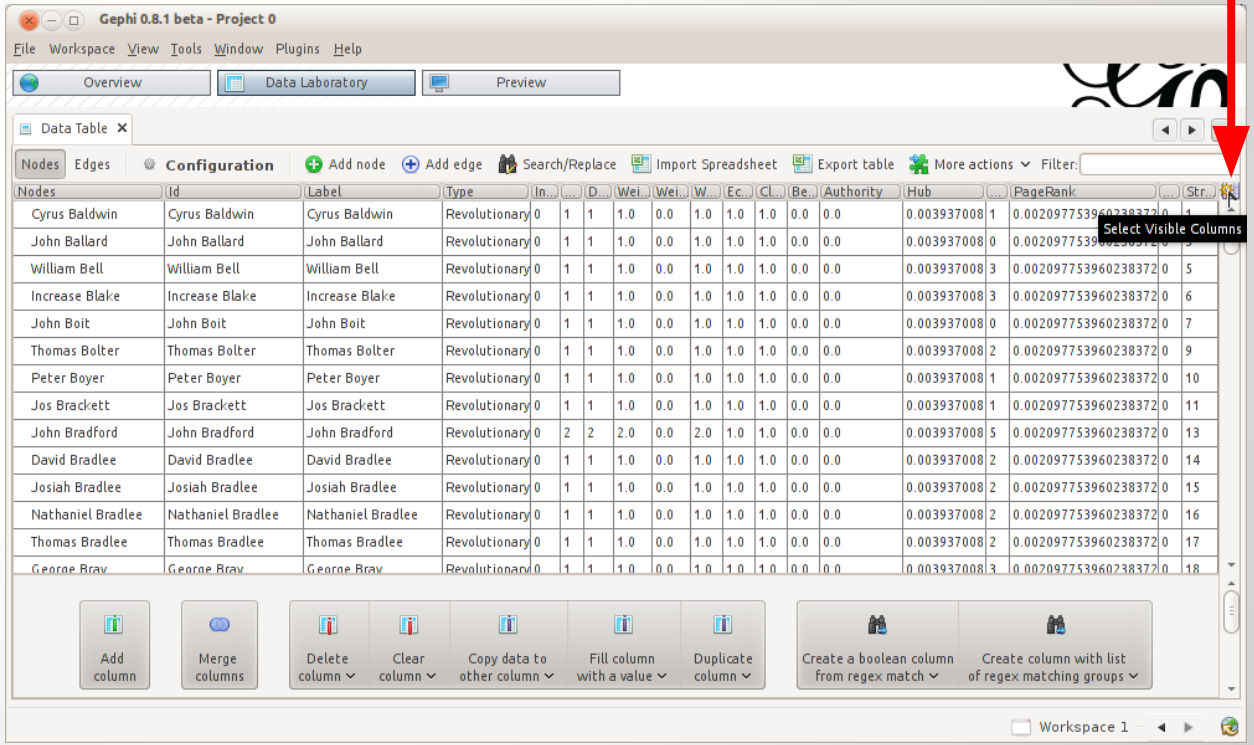


Step 4: Export

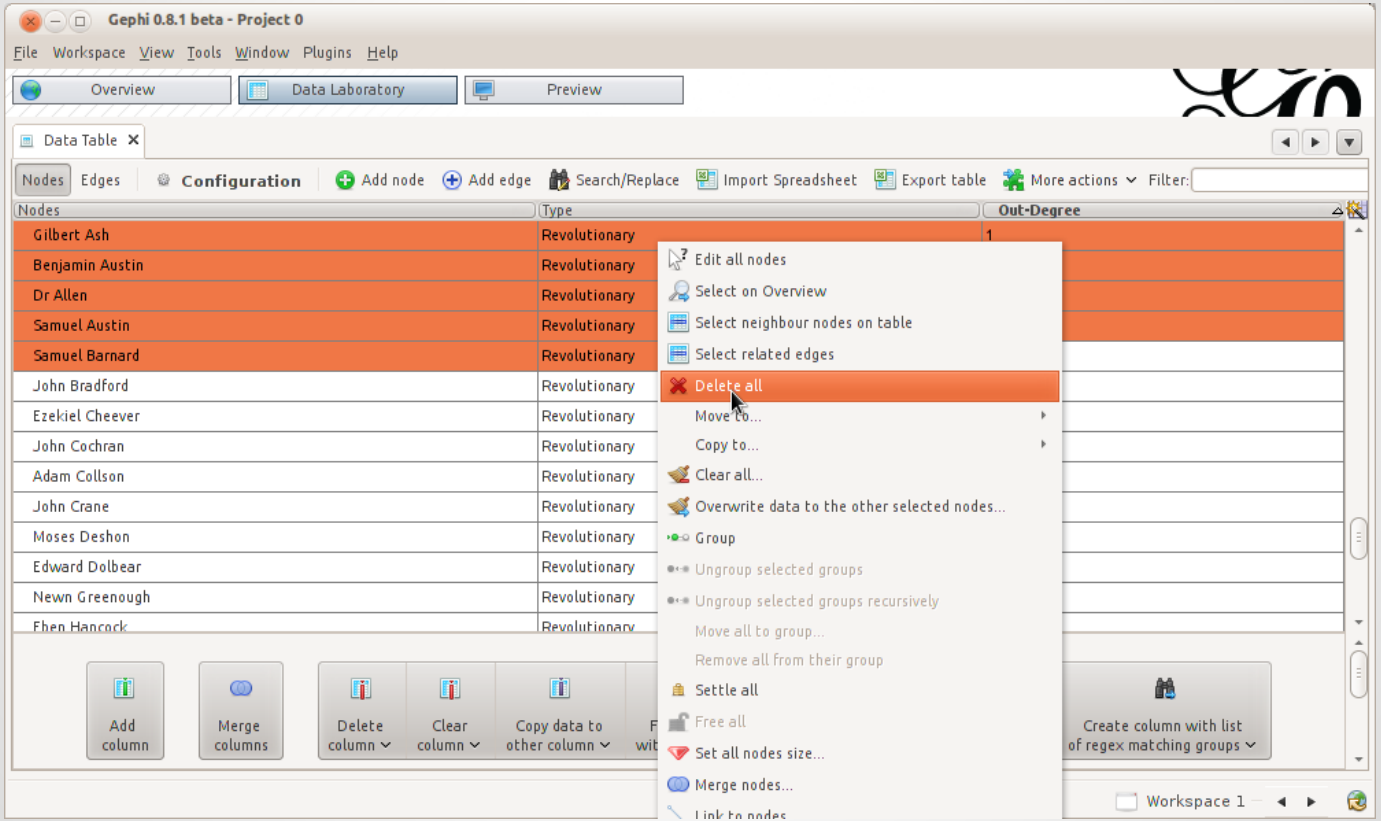


Advanced Steps 1: Deletion

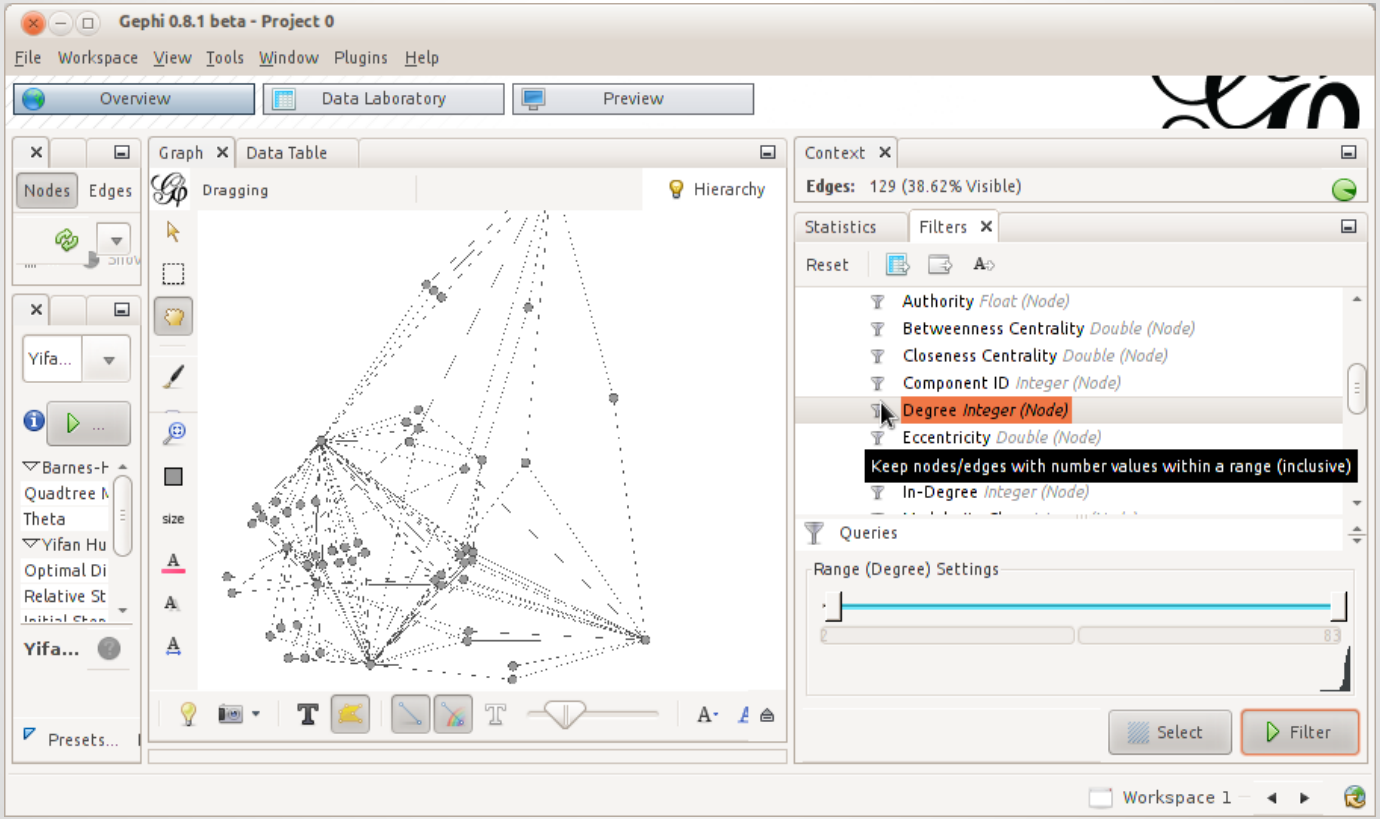




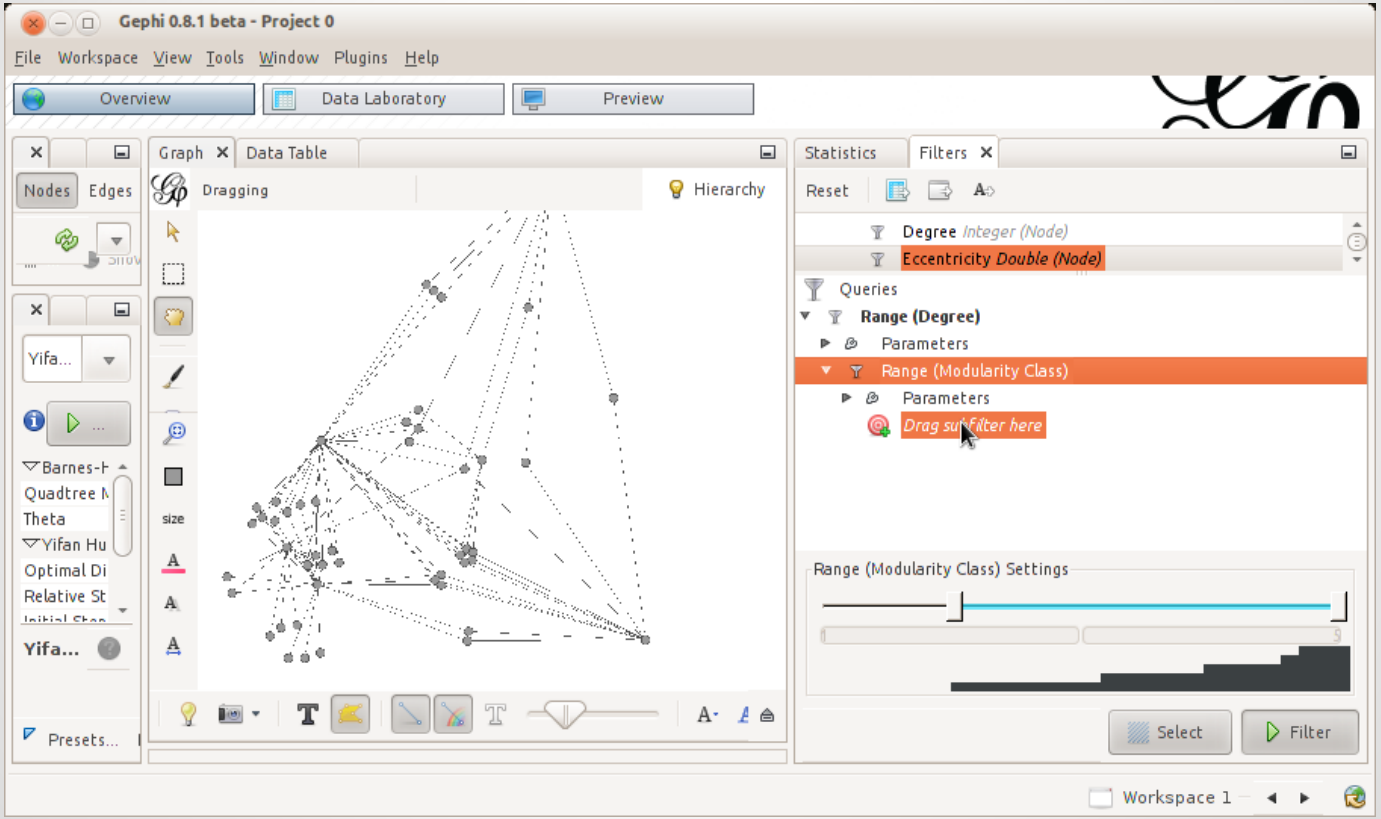
Advanced Steps 1: Deletion



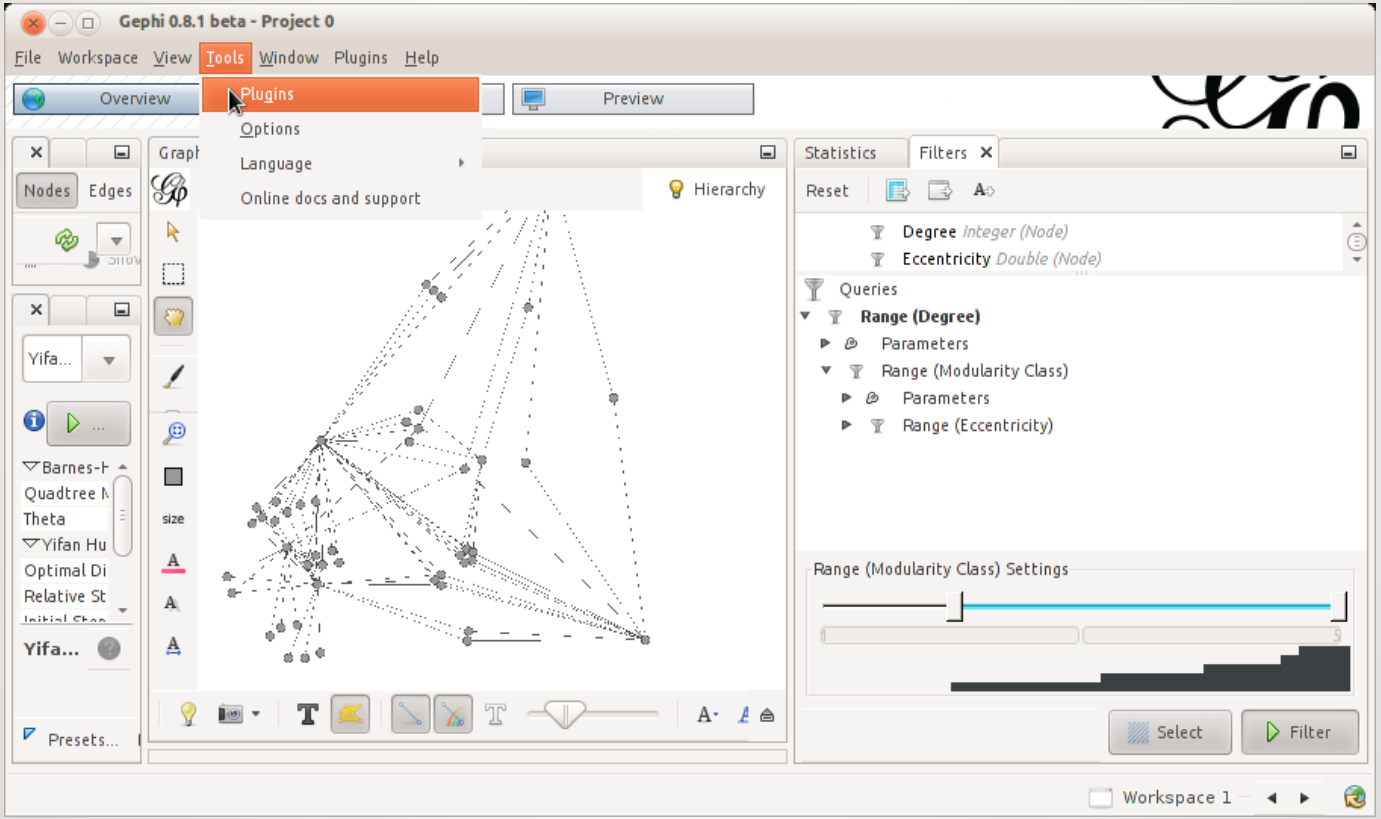
Advanced Steps 2: Filtering



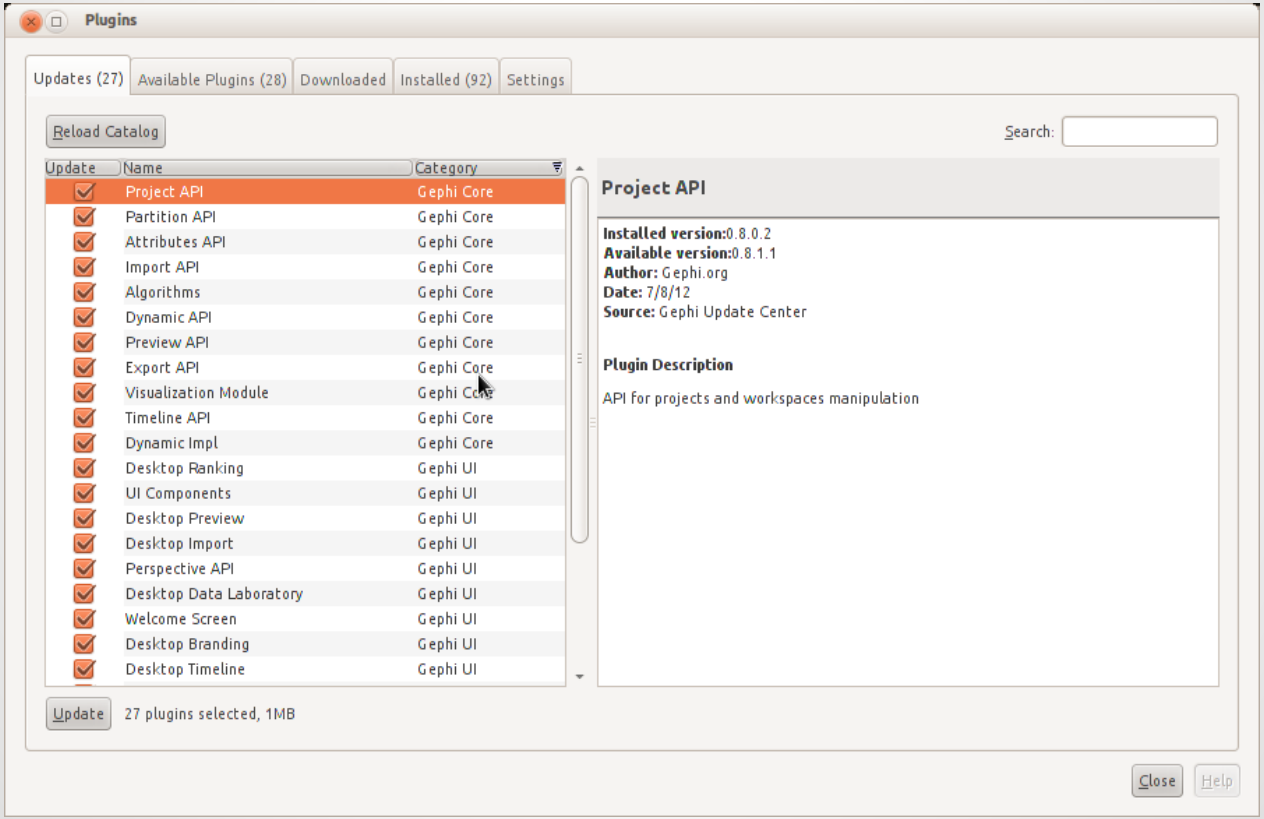
Advanced Steps 2a: Chained Filters



Advanced Steps 3: Plugins



Advanced Steps 3: Plugins



Live Demo

Analyzing, Sizing, Coloring, Visualizing, and Exporting the Bipartite Projection

Data Source: https://github.com/DGaffney/gephi_tutorial/blob/master/paul_revere_projection.gexf

Break into groups of three, walk through Steps 1-4, Advanced Steps 1-2

Slides: https://github.com/DGaffney/gephi_tutorial/blob/master/presentation.pdf