

Analyzing Facebook Ego Network with Gephi (Version 8)

Dave King

HICSS 47

2014

Gephi 0.8.2 - Project 1

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Partition Ranking Nodes Edges

--Choose a rank parameter

Graph Preview Preview Settings

Dragging Hierarchy

Statistics Filters Settings

Network Overview

- Average Degree Run
- Avg. Weighted Degree Run
- Network Diameter Run
- Graph Density Run
- HITS Run
- Modularity Run
- PageRank Run
- Connected Components Run

Node Overview

- Avg. Clustering Coefficient Run
- Eigenvector Centrality Run

Edge Overview

- Avg. Path Length Run

Open

Look in: ego facebook

Name	Size	Item type	Date modified
facebook ego analysis with gephi [Nodes]	15.0 KB	Microsoft Ex...	1/4/2014 1:40...
Facebook-DaveKing-Clean-Gephi [Edges]	8.31 KB	Microsoft Ex...	1/4/2014 12:5...
Facebook-DaveKing-Clean-Gephi [Nodes]	9.39 KB	Microsoft Ex...	1/4/2014 12:5...
facebook-personal network edges	6.04 KB	Microsoft Ex...	12/10/2013 6:...
facebook-personal network vertices	2.94 KB	Microsoft Ex...	12/2/2013 4:5...
ORA - Edge Links	3.36 KB	Microsoft Ex...	1/2/2014 1:37...
ORA-Edges	3.36 KB	Microsoft Ex...	12/31/2013 1...
Facebook-DaveKing-Clean-Gephi.gdf	8.02 KB	GDF File	1/4/2014 12:4...
facebook-dk-gephi.gdf	11.1 KB	GDF File	12/31/2013 2:...
EgoFace1	118 KB	Gephi Projec...	12/31/2013 1...
facebook ego analysis with gephi	14.9 KB	Gephi Projec...	1/4/2014 12:5...
facebook workspace 1	111 KB	Gephi Projec...	1/4/2014 12:0...
image - facebook spring embedded - density - groups	57.6 KB	JPEG image	12/3/2013 5:3...
facebook	6.00 KB	NET File	1/4/2014 12:4...
gephi analysis	5.21 MB	Microsoft Po...	1/4/2014 1:51...
Communicators	3.12 KB	Text Docume...	12/30/2013 1...

File name: Open Cancel

Files of type: All Files

Layout

--Choose a layout

Run

<No Properties>

Presets... Reset

Workspace 0

The screenshot shows the Gephi 0.8.2 software interface. A file dialog titled 'Open' is displayed in the center, prompting the user to select a file from the 'ego facebook' folder. The dialog lists various files, including GDF files, Microsoft Excel files, and Gephi projects. The 'File of type' dropdown is set to 'All Files'. At the bottom of the dialog are 'Open' and 'Cancel' buttons. The background of the Gephi window shows a blue workspace area with some layout settings visible on the left.

Step 1A: .GDF File Opening

Gephi 0.8.2

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Partition Ranking Nodes Edges Modularity Class

Graph Preview Preview Settings

Dragging Hierarchy

Import report

Source: Facebook-DaveKing-Clean-Gephi.gdf

Issues Report

No issue found during import

Graph Type: Directed Auto-scale

of Nodes: 80 Create missing nodes

of Edges: 391 New graph

Dynamic Graph: no Append Graph

Hierarchical Graph: no Time frame

OK Cancel

Layout Choose a layout Run

<No Properties>

Presets... Reset

Statistics Filters Settings

Network Overview

- Average Degree Run
- Avg. Weighted Degree Run
- Network Diameter Run
- Graph Density Run
- HITS Run
- Modularity Run
- PageRank Run
- Connected Components Run

Node Overview

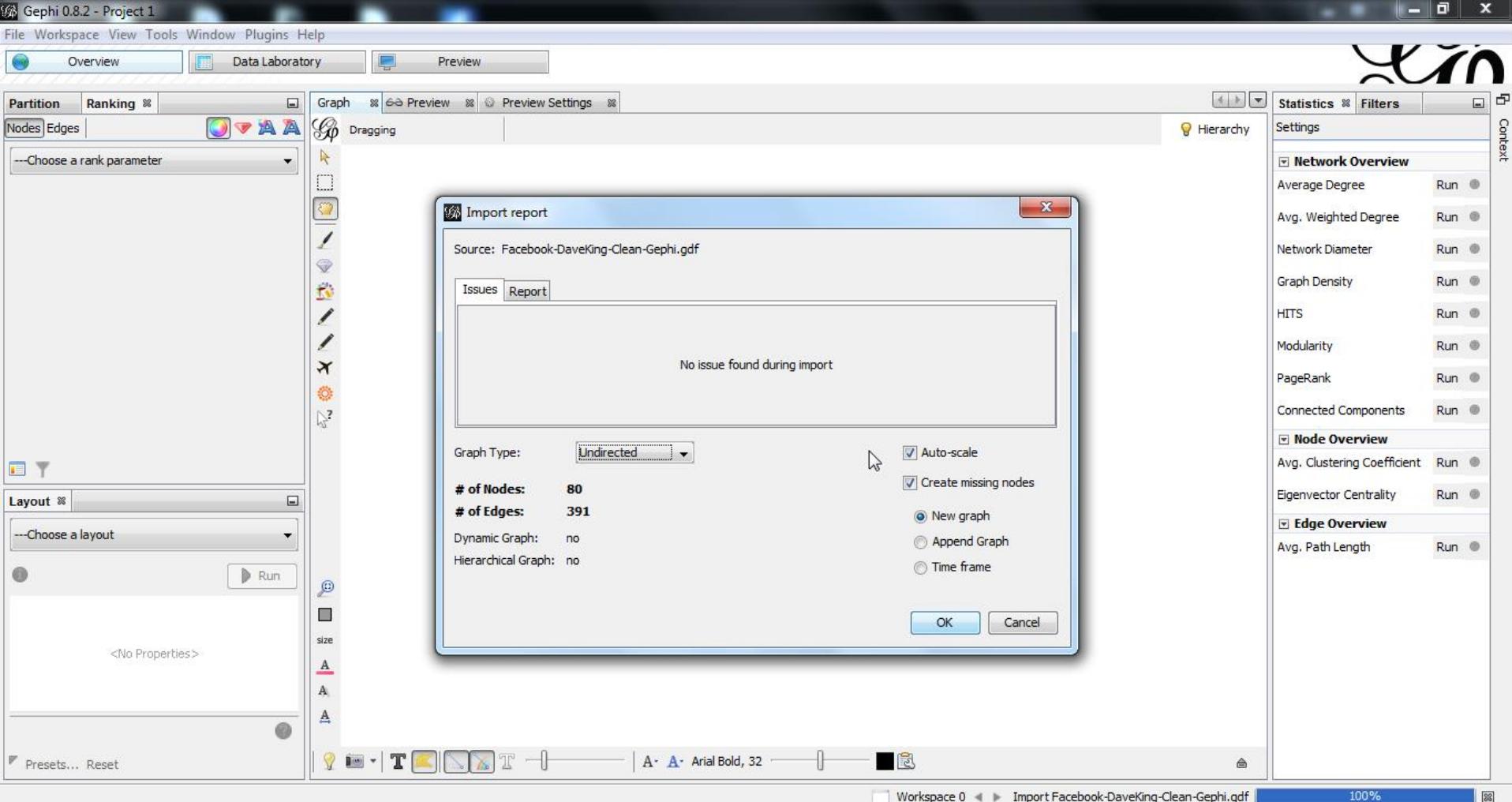
- Avg. Clustering Coefficient Run
- Eigenvector Centrality Run

Edge Overview

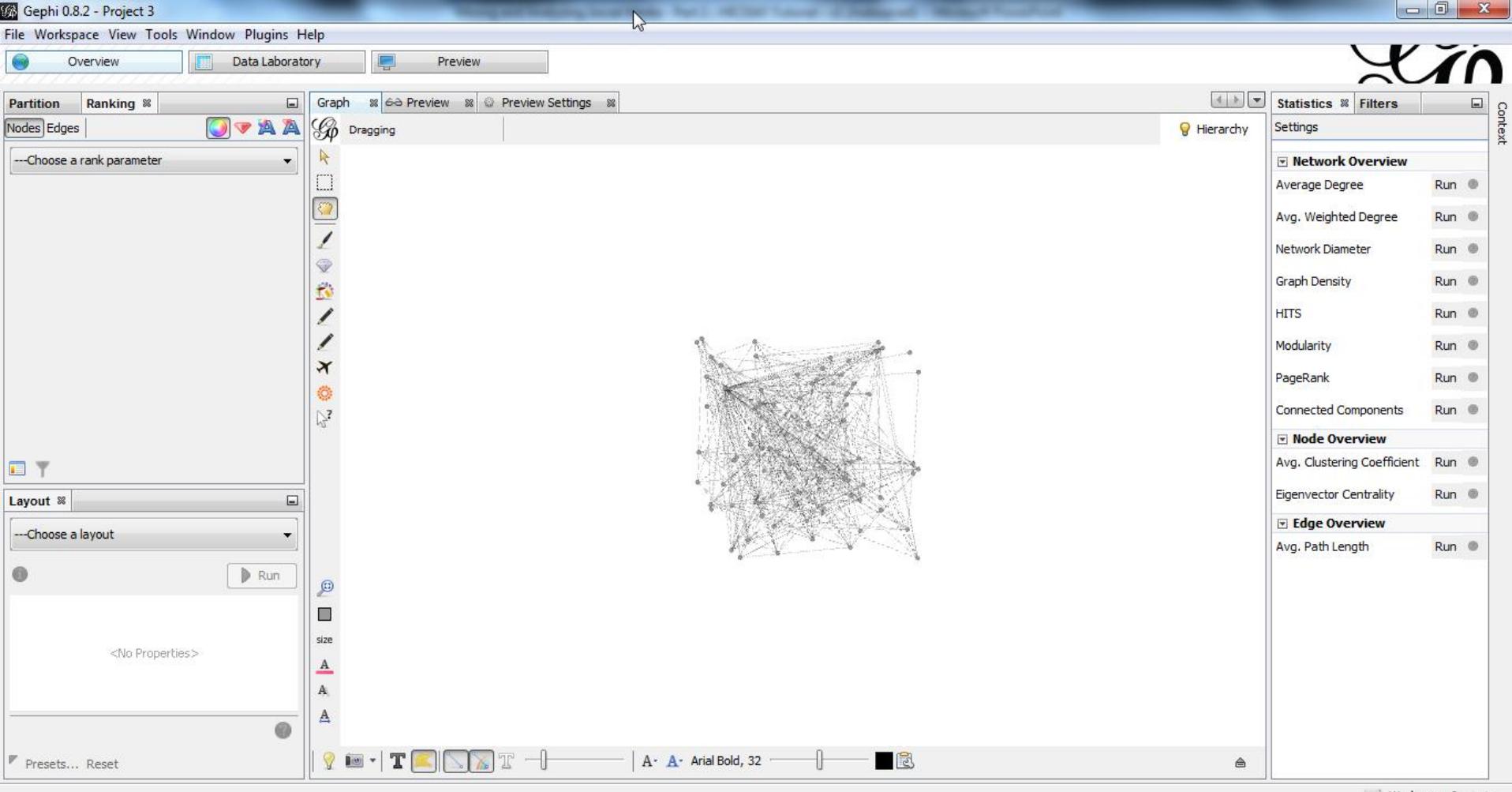
- Avg. Path Length Run

No workspace Import Facebook-DaveKing-Clean-Gephi.gdf 100%

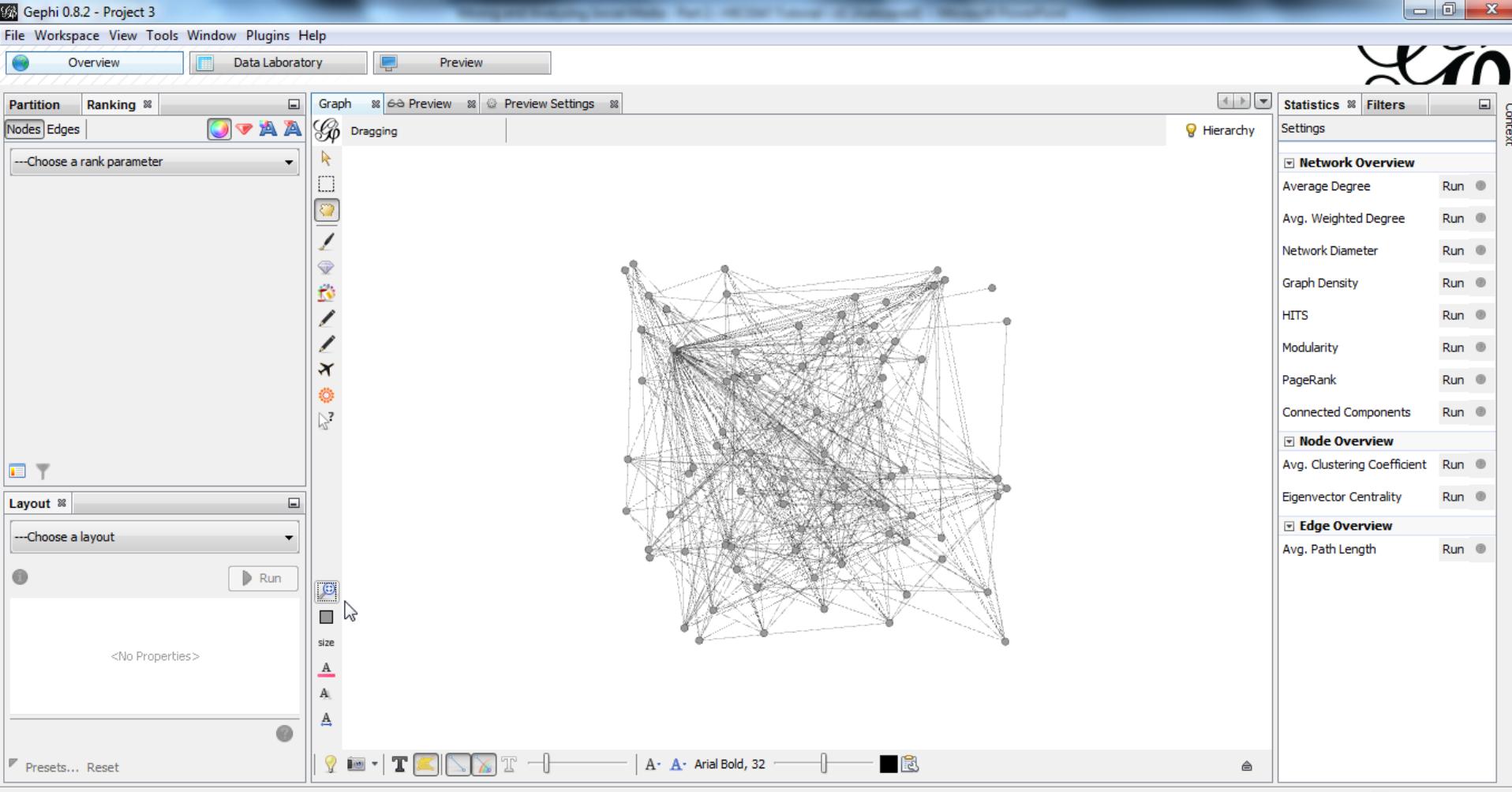
Step 1B: Change Type to Undirected



Step 1C: Open File ("OK")



Step 1D: Random Layout of Network



Step 1E: Clicked “Center on Graph” button

Gephi 0.8.2 - Project 0

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Data Table

Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter Nodes

Nodes	Id	Label	shortname	group	groupn...	sex	sexnum	age	agenum	country	country...	relationship	relnum
● Alan	1	Alan	Alan	Academic		1 Male		2 Middle		3 United States		1 Married	1
● Andrew	2	Andrew	Andrew	JDA		5 Male		2 Young		1 United States		1 Single	2
● Ann	3	Ann	Ann	Family		4 Female		1 Middle		2 United States		1 Married	1
● Barbara	4	Barbara	Barbara	Family		4 Female		1 Middle		2 United States		1 Married	1
● Benn	5	Benn	Benn	Academic		1 Male		2 Older		3 United States		1 Married	1
● Brian	6	Brian	Brian	JDA		5 Male		2 Middle		2 United States		1 Married	1
● Candace	7	Candace	Candace	JDA		5 Female		1 Middle		2 United States		1 Married	1
● ChrisF	8	ChrisF	ChrisF	Comshare		3 Male		2 Older		3 United Kingdom		3 Married	1
● ChrisH	9	ChrisH	ChrisH	JDA		5 Male		2 Middle		2 United States		1 Married	1
● ChrisK	10	ChrisK	ChrisK	JDA		5 Male		2 Middle		2 United States		1 Married	1
● Christopher	11	Christopher	Christopher	Family		4 Male		2 Middle		2 United States		1 Married	1
● Christy	12	Christy	Christy	Family		4 Female		1 Young		1 United States		1 Married	1
● Cindy	13	Cindy	Cindy	JDA		5 Female		1 Young		1 United States		1 Married	1
● Cliff	14	Cliff	Cliff	JDA		5 Male		2 Middle		2 United States		1 Married	1
● DaveC	15	DaveC	DaveC	Academic		1 Male		2 Middle		2 United States		1 Married	1
● David	16	David	David	JDA		5 Male		2 Middle		2 United States		1 Married	1
● Deborah	17	Deborah	Deborah	JDA		5 Female		1 Middle		2 United States		1 Married	1
● Dennis	18	Dennis	Dennis	Comshare		3 Male		2 Older		3 United States		1 Married	1
● Durga	19	Durga	Durga	JDA-I		6 Male		2 Young		1 India		2 Single	2
● Geetesh	20	Geetesh	Geetesh	JDA-I		6 Male		2 Young		1 India		2 Married	1

Add column Merge columns Delete column Clear column Copy data to other column Fill column with a value Duplicate column Create a boolean column from regex match Create column with list of regex matching groups Negate boolean values Convert column to dynamic

Workspace 0 Force Attract

Step 2A: Review Nodes in “Data Laboratory”

Gephi 0.8.2 - Project 0

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Data Table

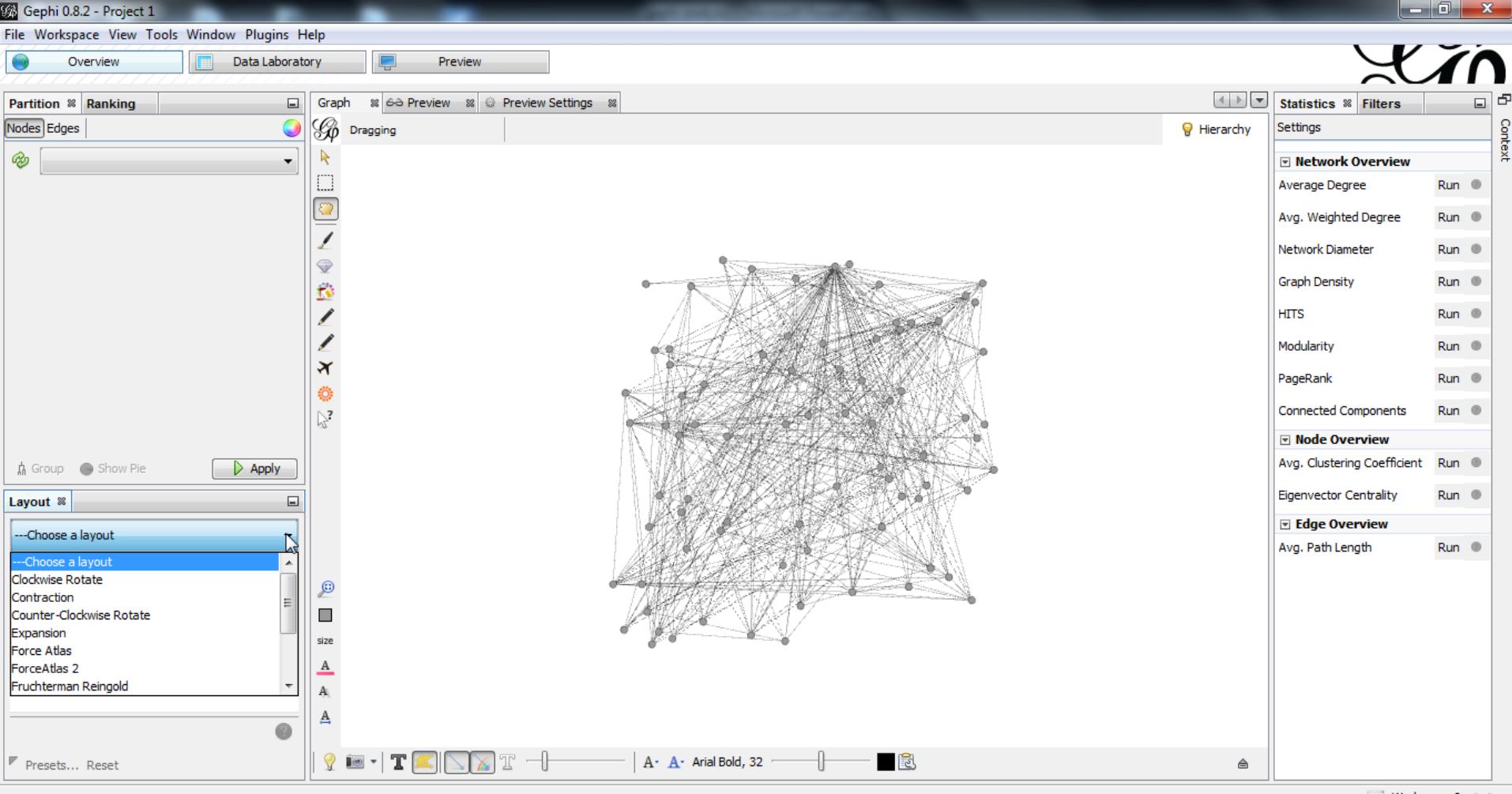
Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter: Source

Source	Target	Type	Id	Label	Weight
1	29	Undirected	1		1
1	37	Undirected	2		1
1	38	Undirected	3		1
2	7	Undirected	4		1
2	13	Undirected	5		1
2	62	Undirected	6		1
2	78	Undirected	7		1
2	79	Undirected	8		1
3	1	Undirected	9		1
3	37	Undirected	10		1
3	50	Undirected	11		1
3	64	Undirected	12		1
4	3	Undirected	13		1
4	11	Undirected	14		1
4	12	Undirected	15		1
4	41	Undirected	16		1
4	50	Undirected	17		1
4	64	Undirected	18		1
5	1	Undirected	19		1
5	32	Undirected	20		1
5	38	Undirected	21		1
5	39	Undirected	22		1
7	14	Undirected	23		1
7	43	Undirected	24		1
7	52	Undirected	25		1

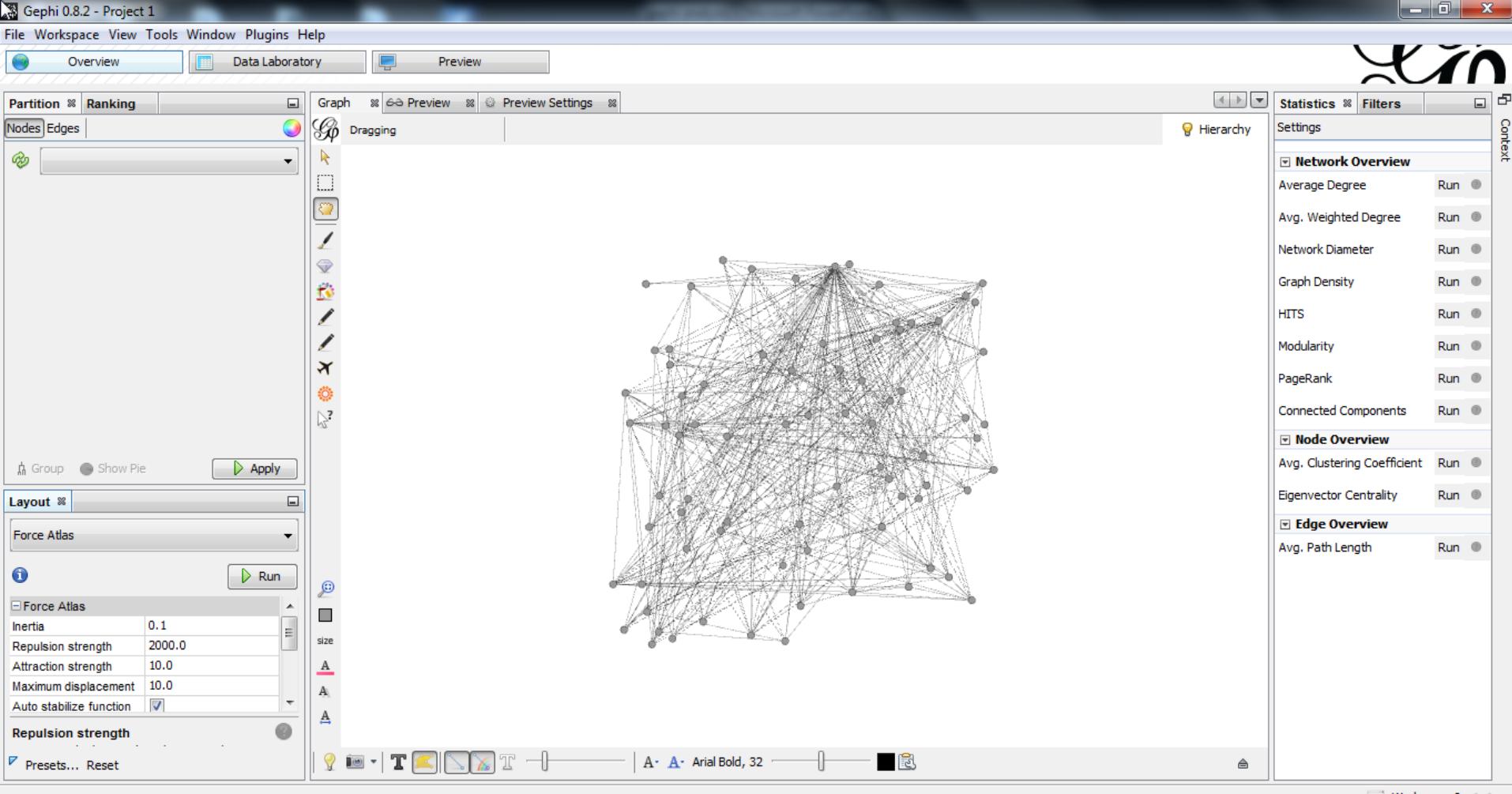
Add column Merge columns Delete column Clear column Copy data to other column Fill column with a value Duplicate column Create a boolean column from regex match Create column with list of regex matching groups Negate boolean values Convert column to dynamic

Workspace 0 Force Atlas

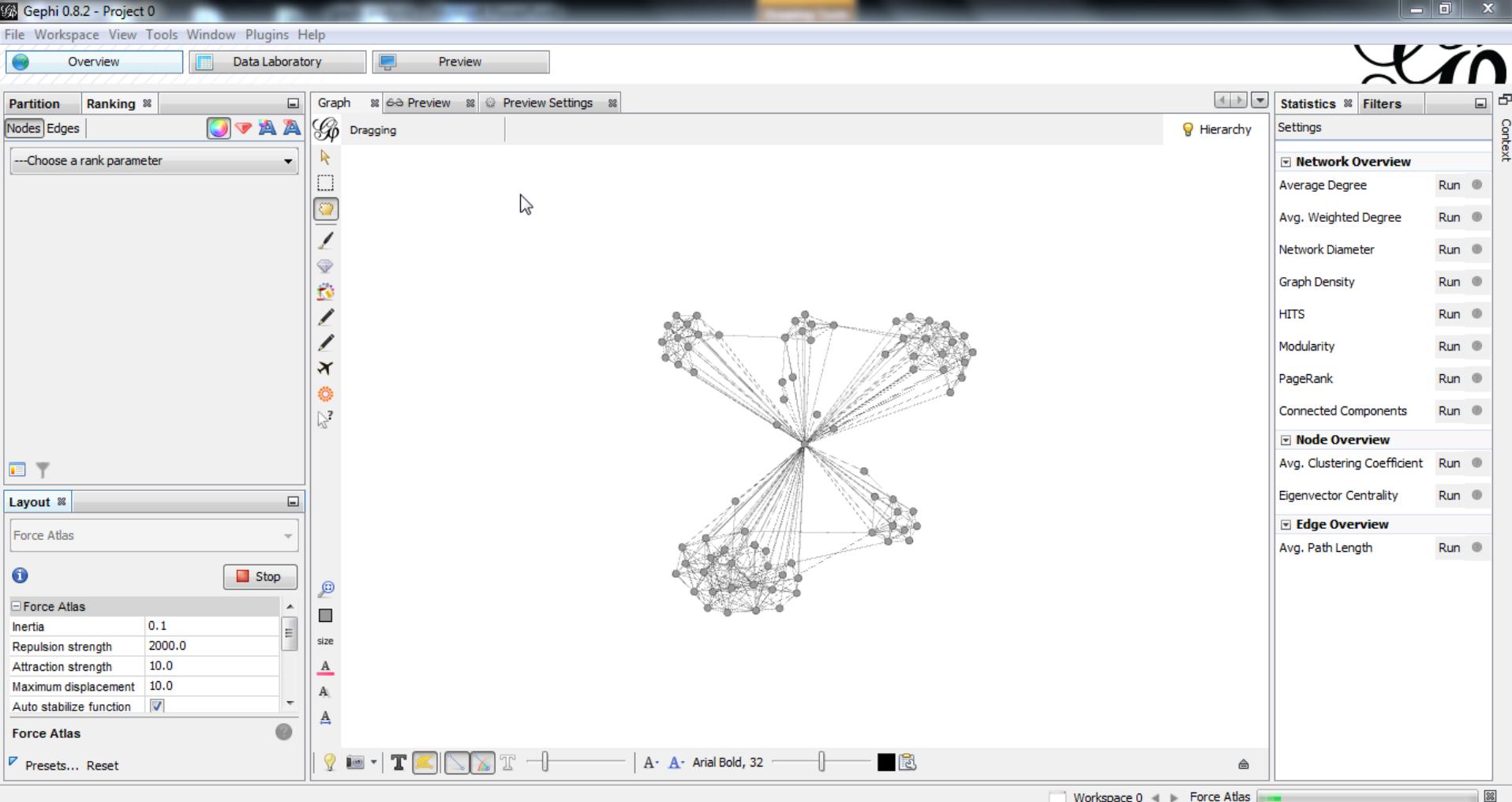
Step 2B: Review Edges in Data Laboratory



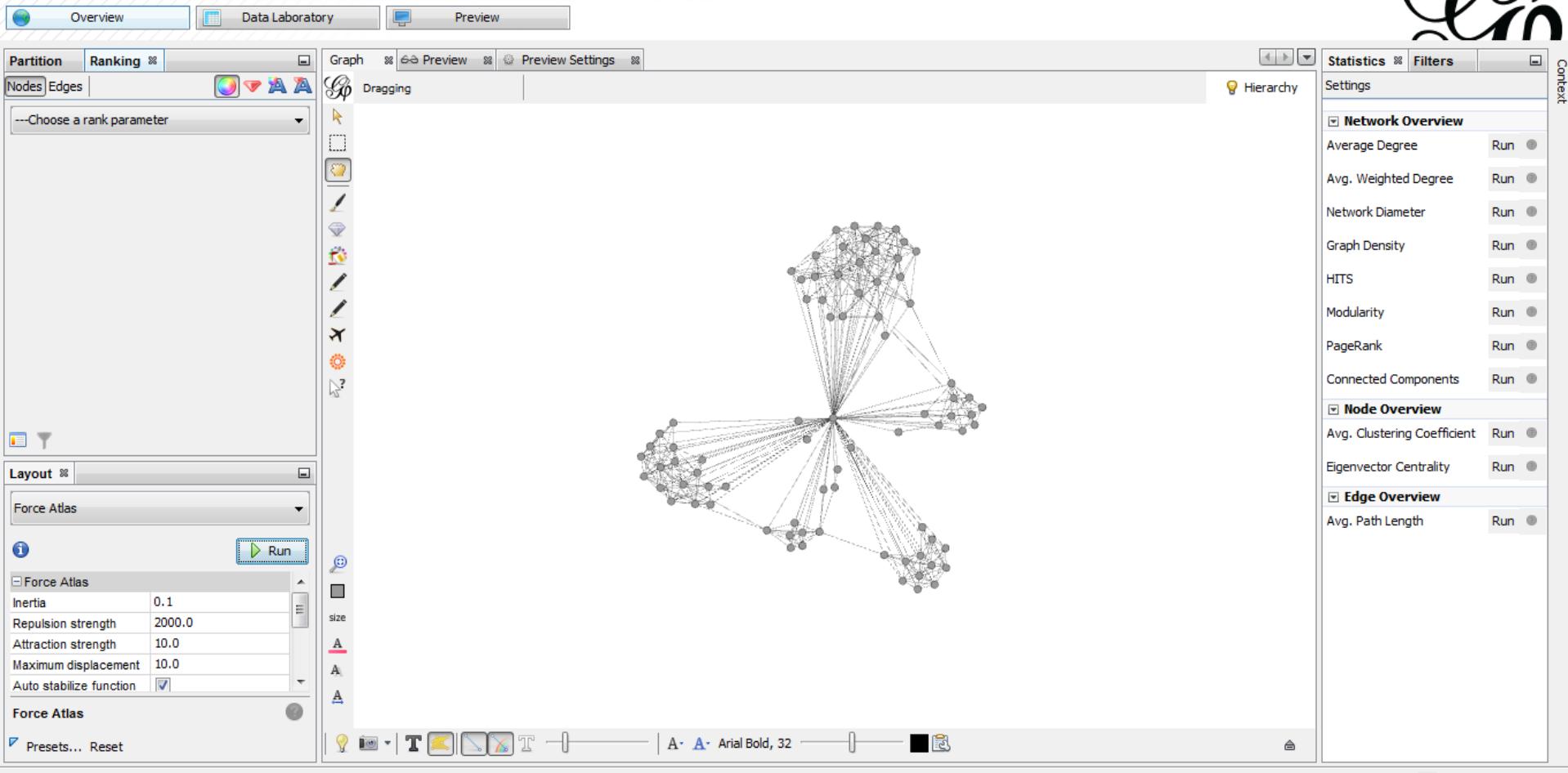
Step 3A: Select a “Layout” to improve the visualized graph structure



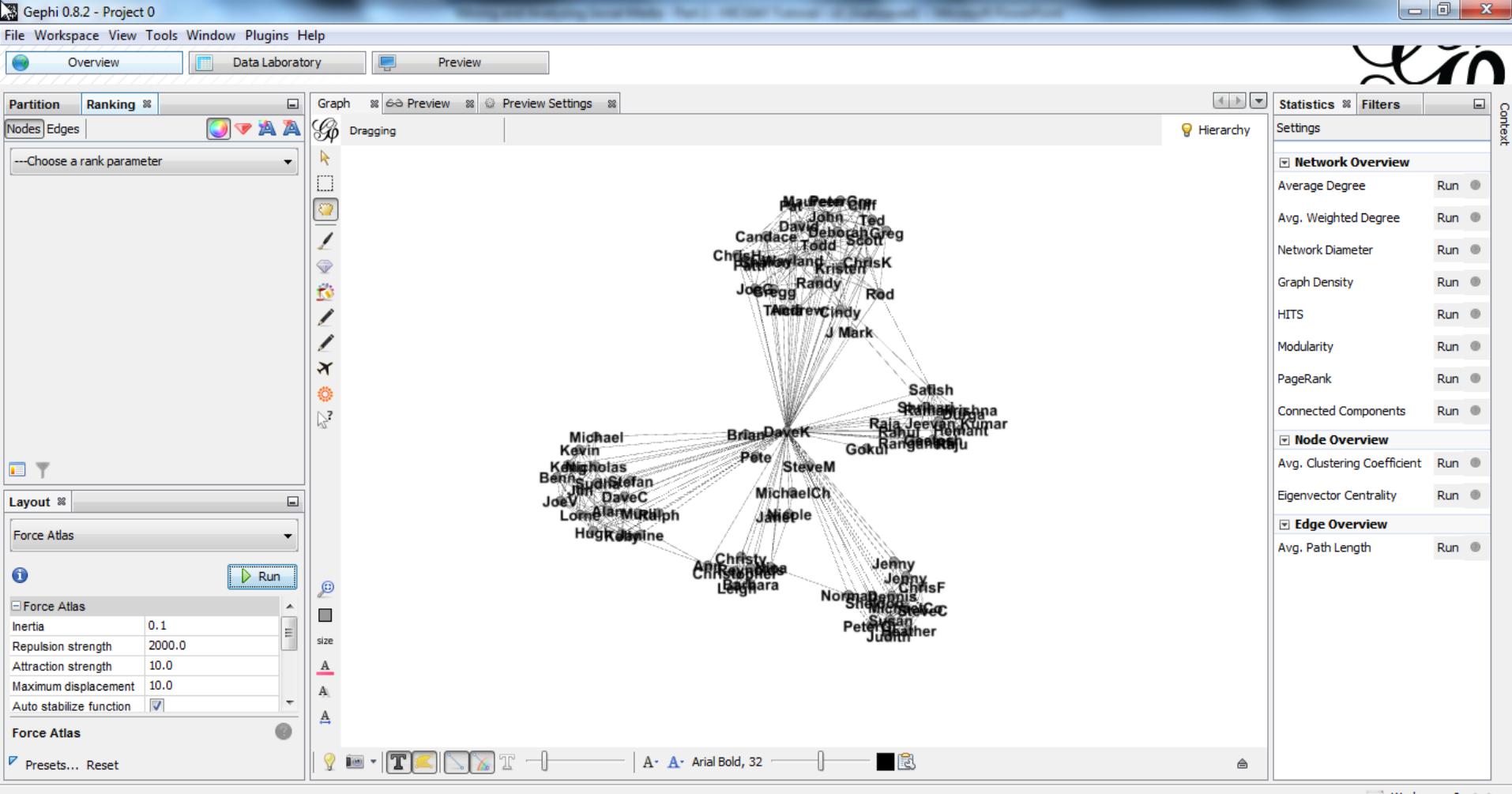
Step 3B: Run “Force Atlas” layout procedure
setting “Repulsion strength” to 2000



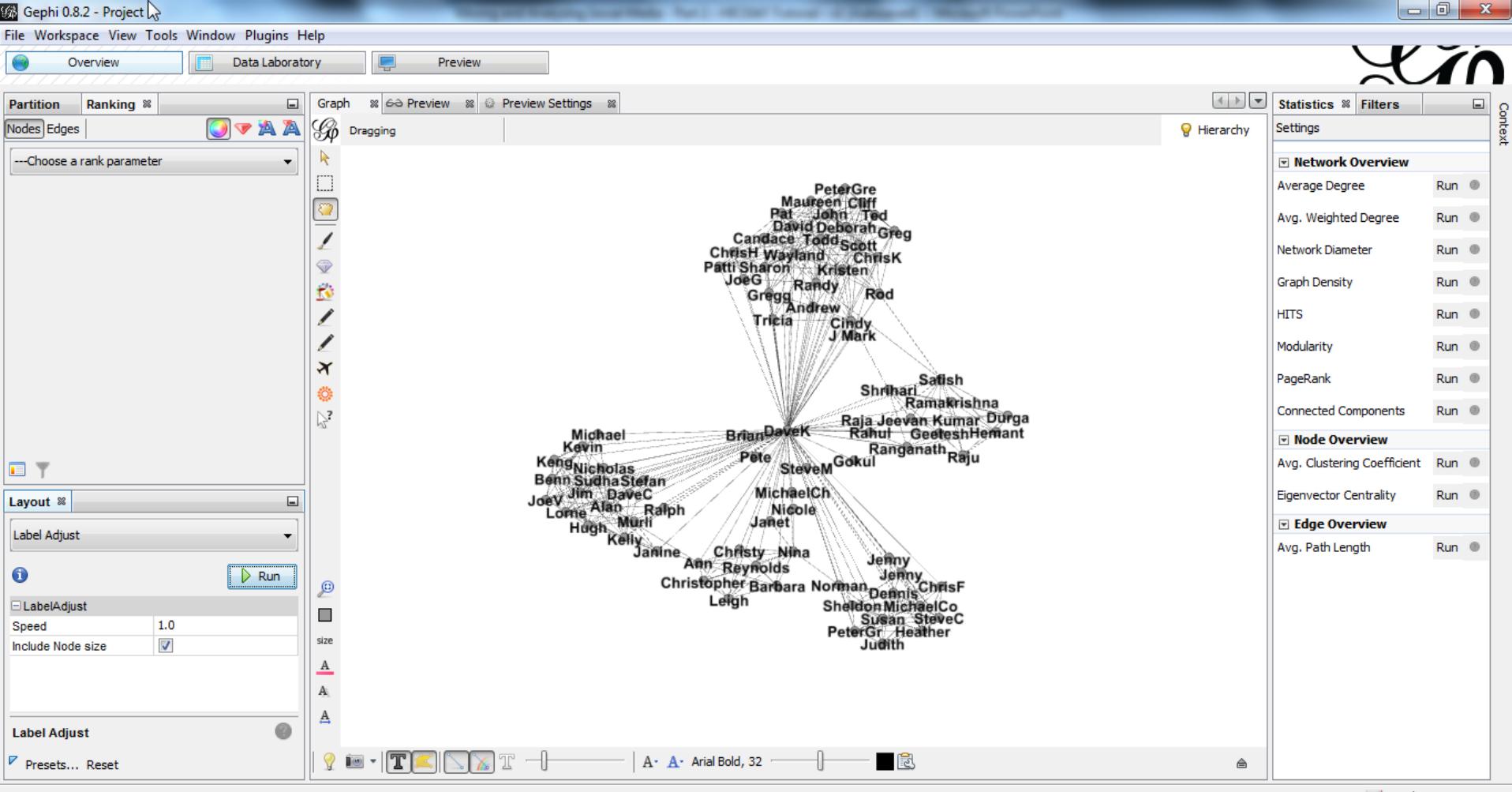
Step 3C: “Stop” layout procedure



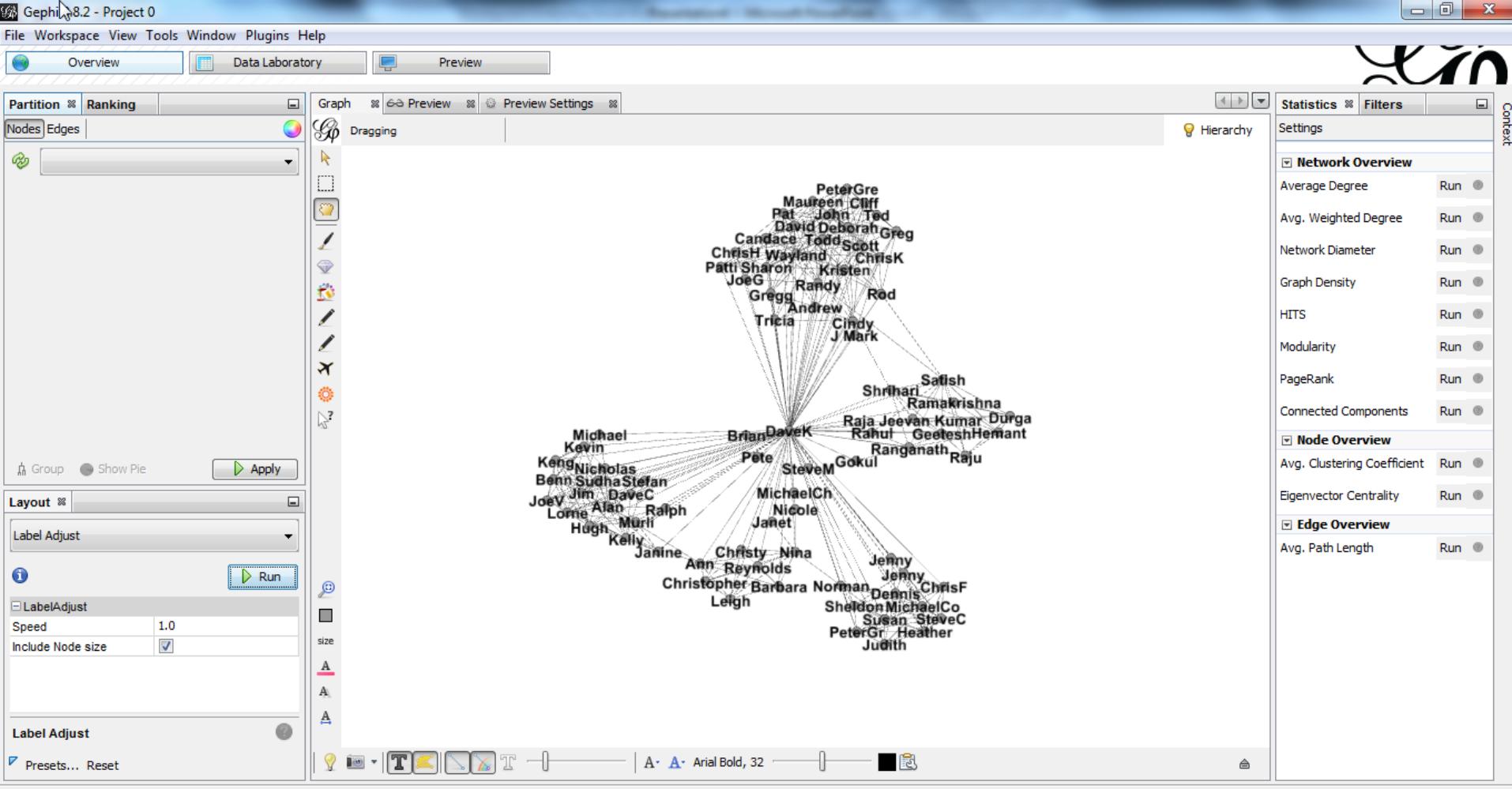
Step 3D: ... producing a new, more easily understood version of the graph



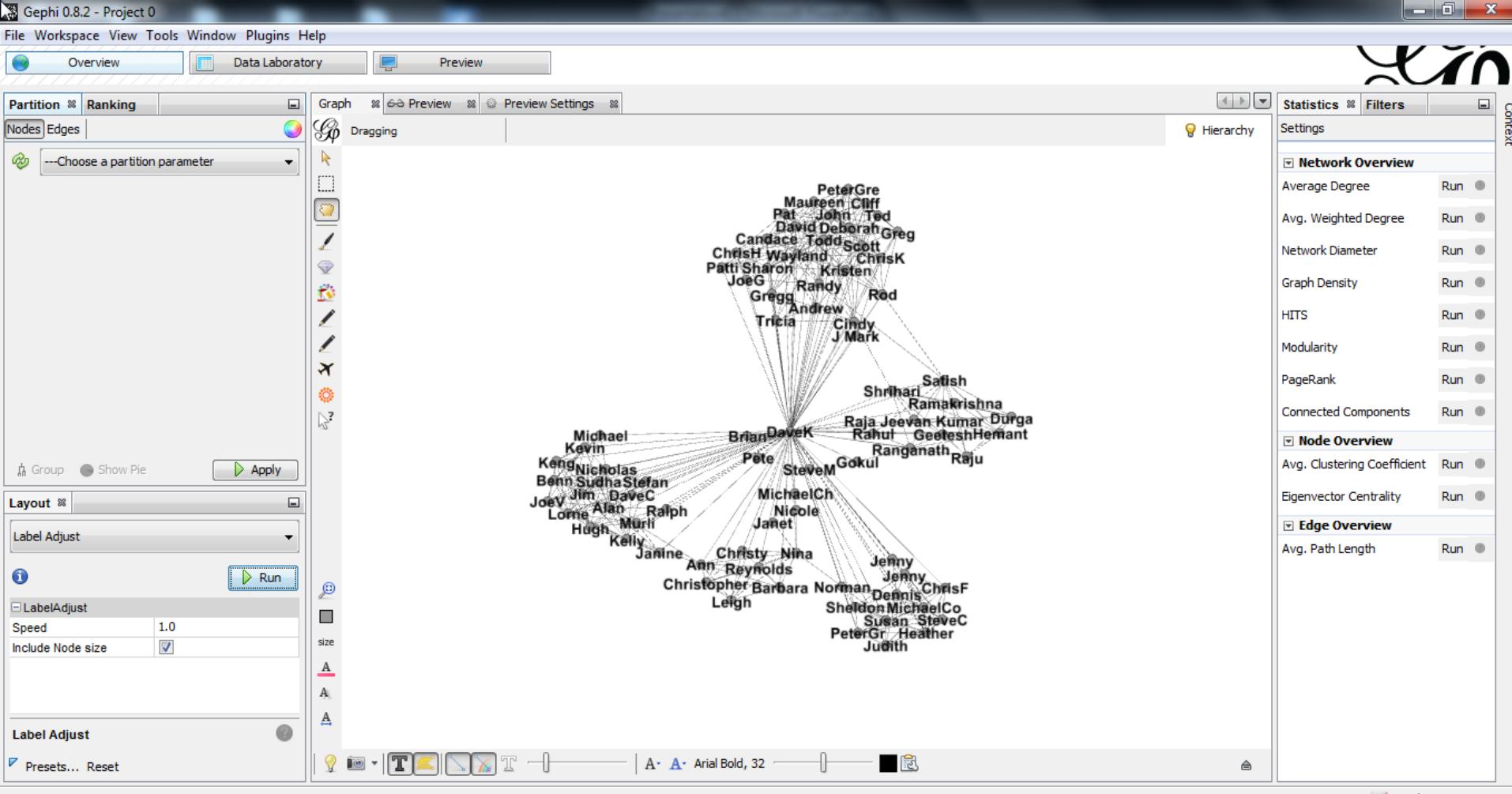
Step 3E: Click “T” to display node labels



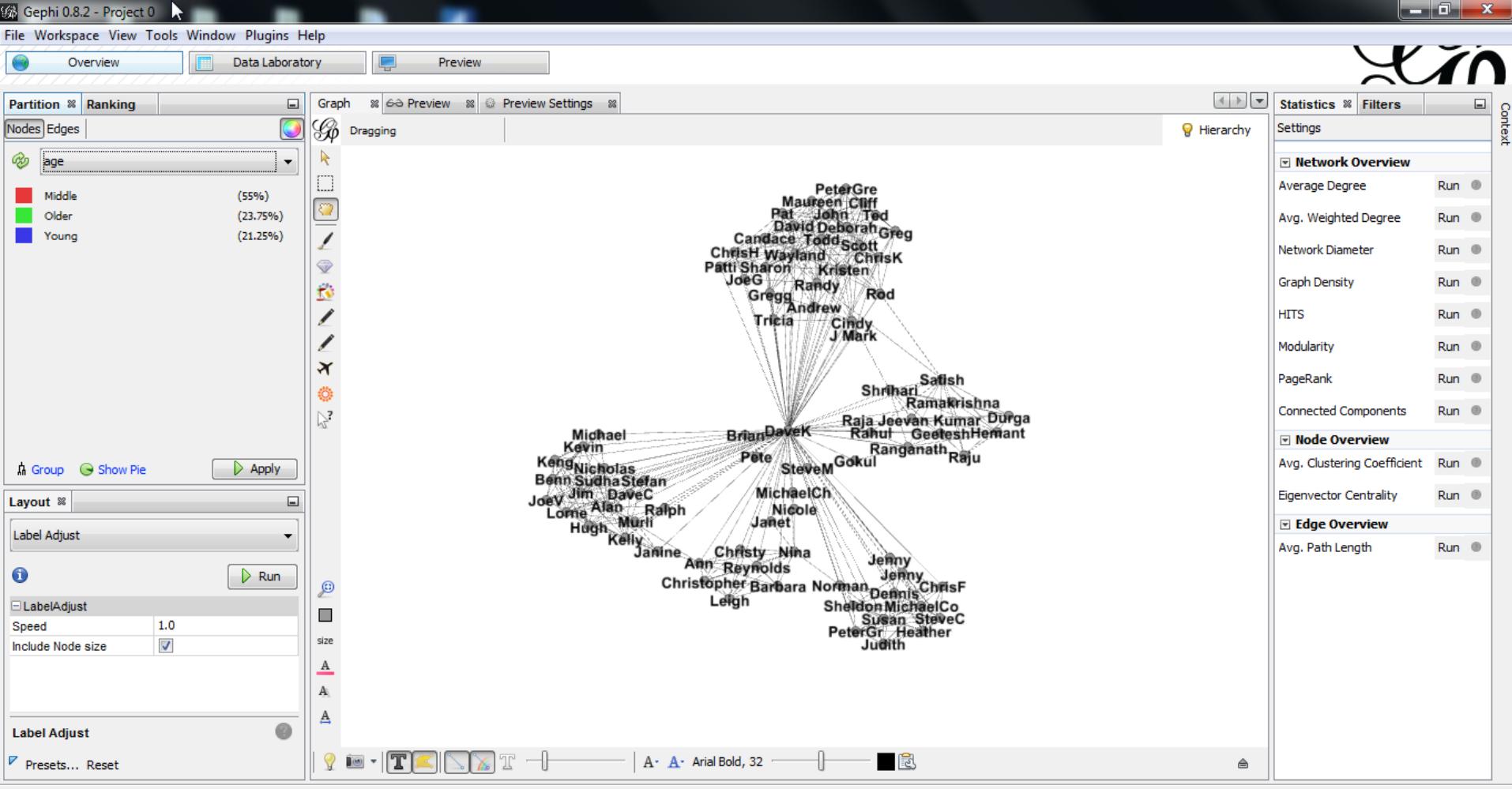
Step 3F: Select “Label Adjust” from Layout(s)
To adjust label overlap



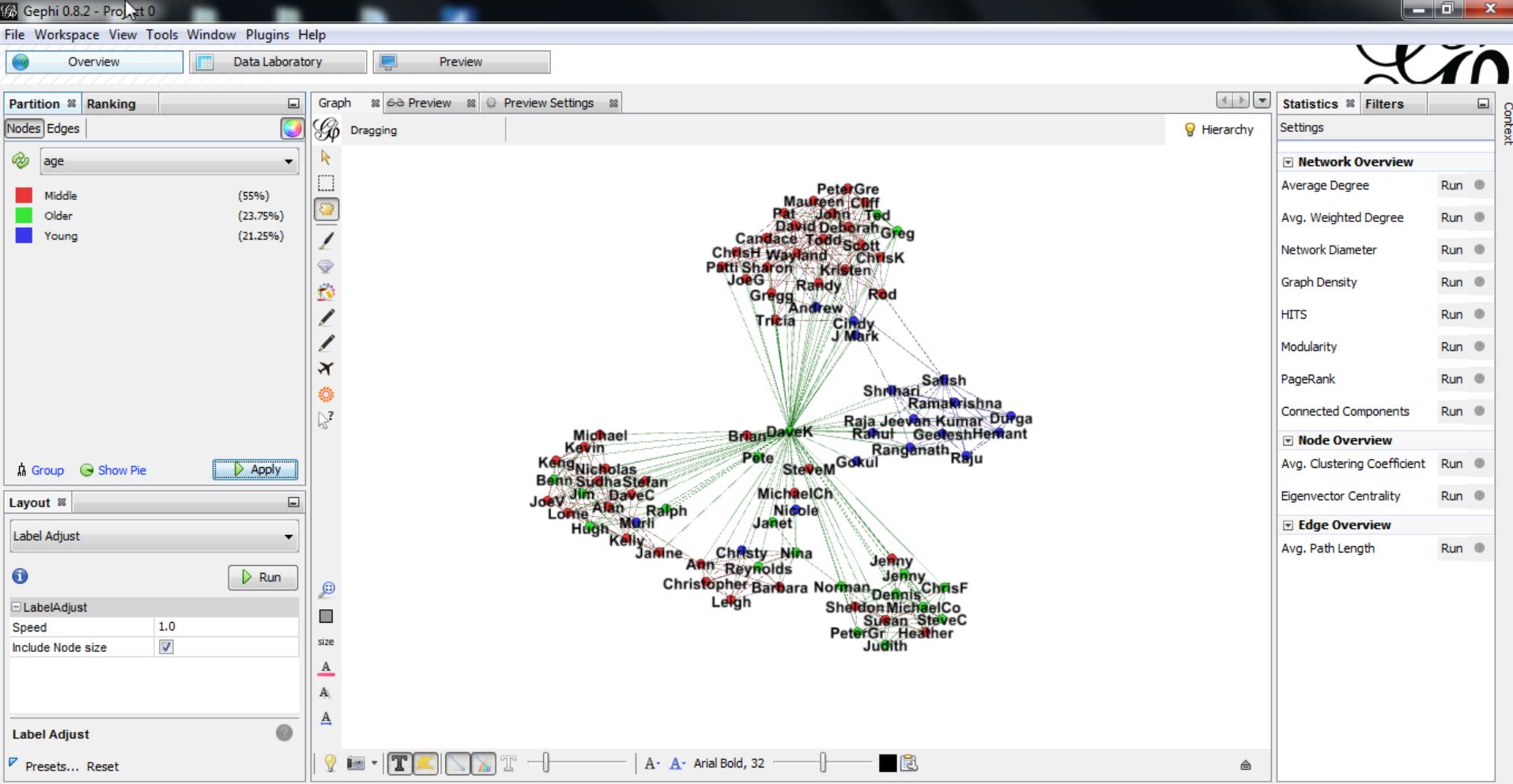
Step 4A: Click “Partition” in order to link node colors to various attributes



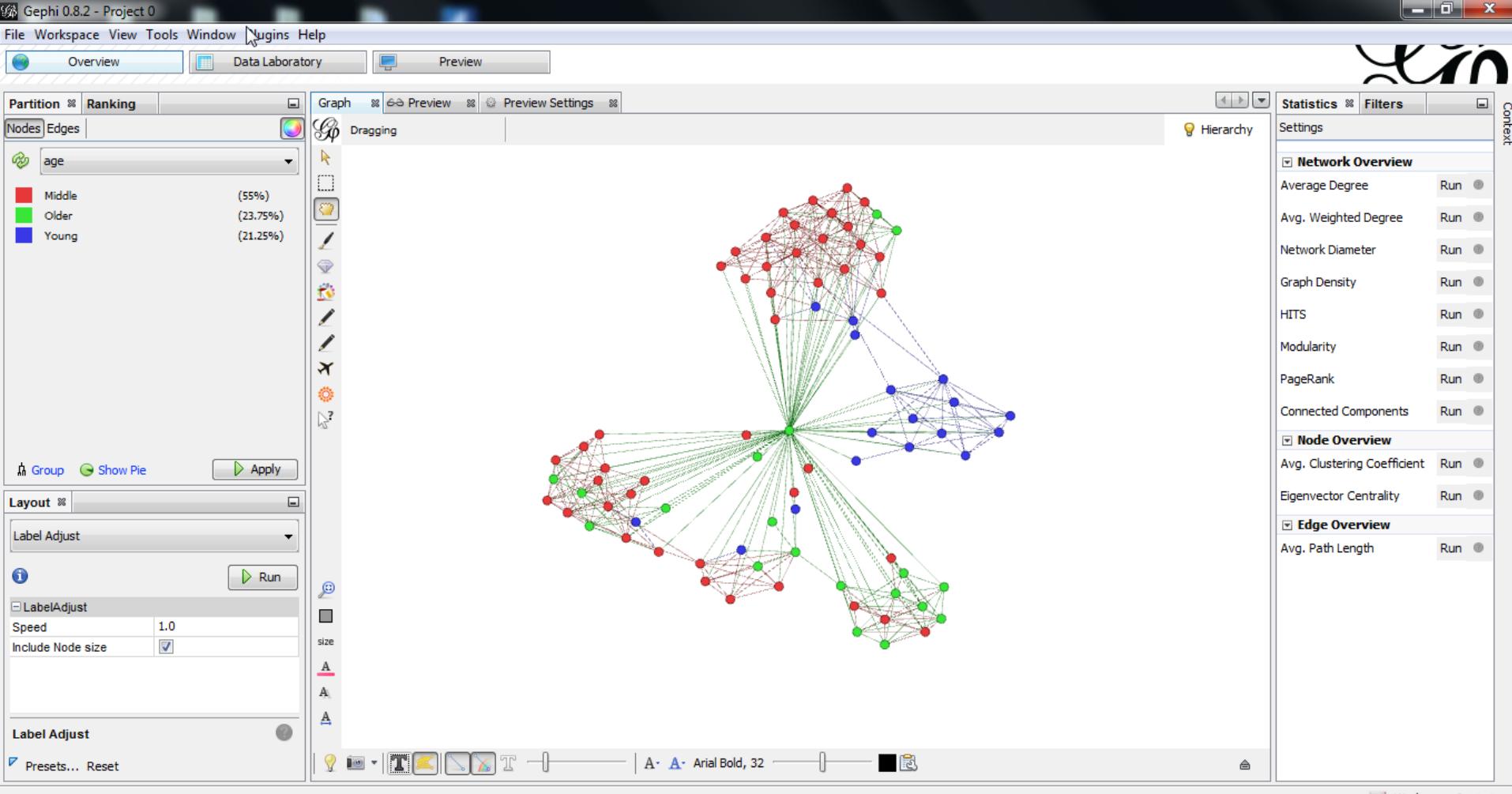
Step 4B: Click “Refresh” button to
Access “partition parameter(s)”



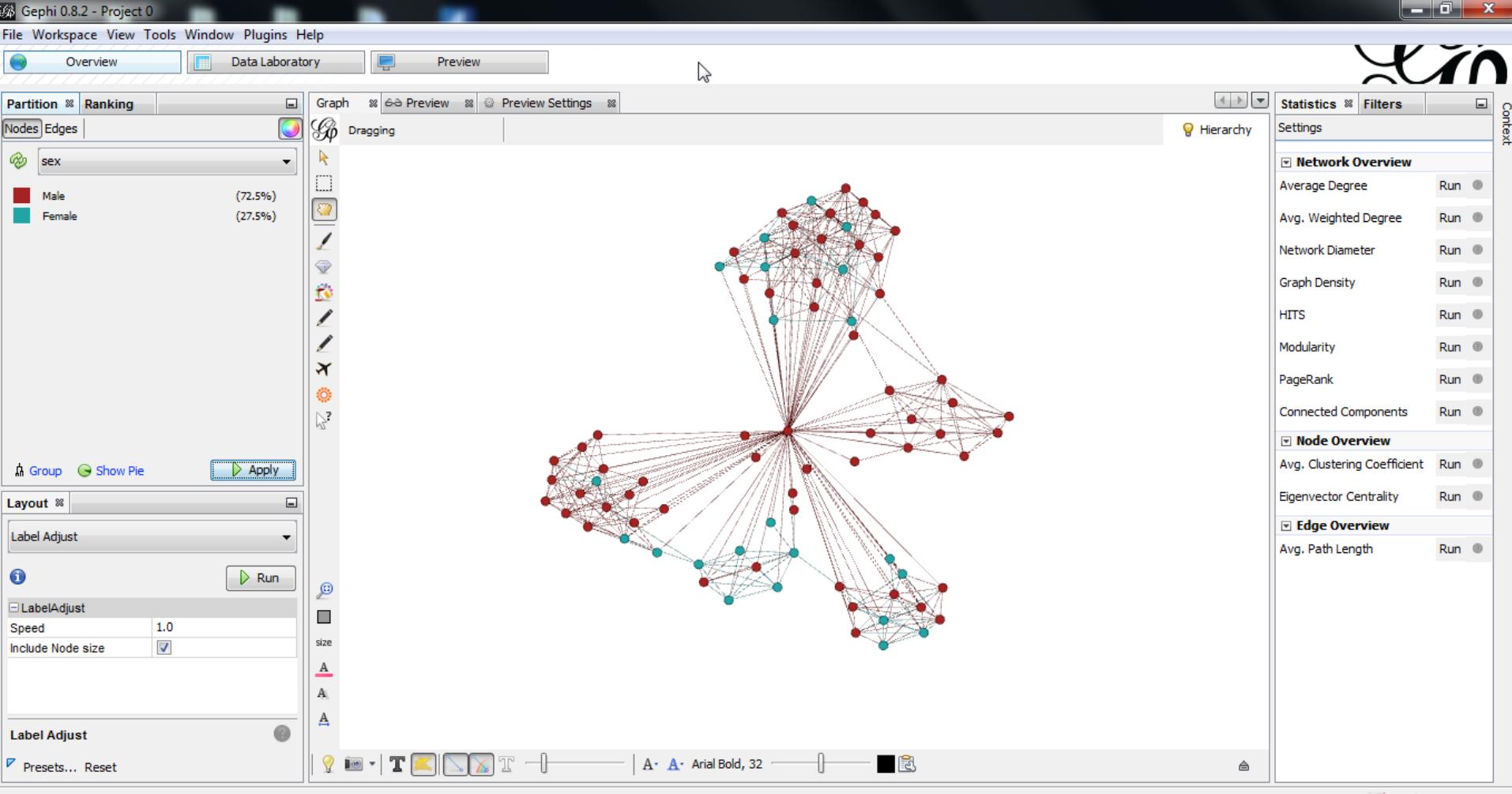
Step 4C: Selected “age” parameter from dropdown list



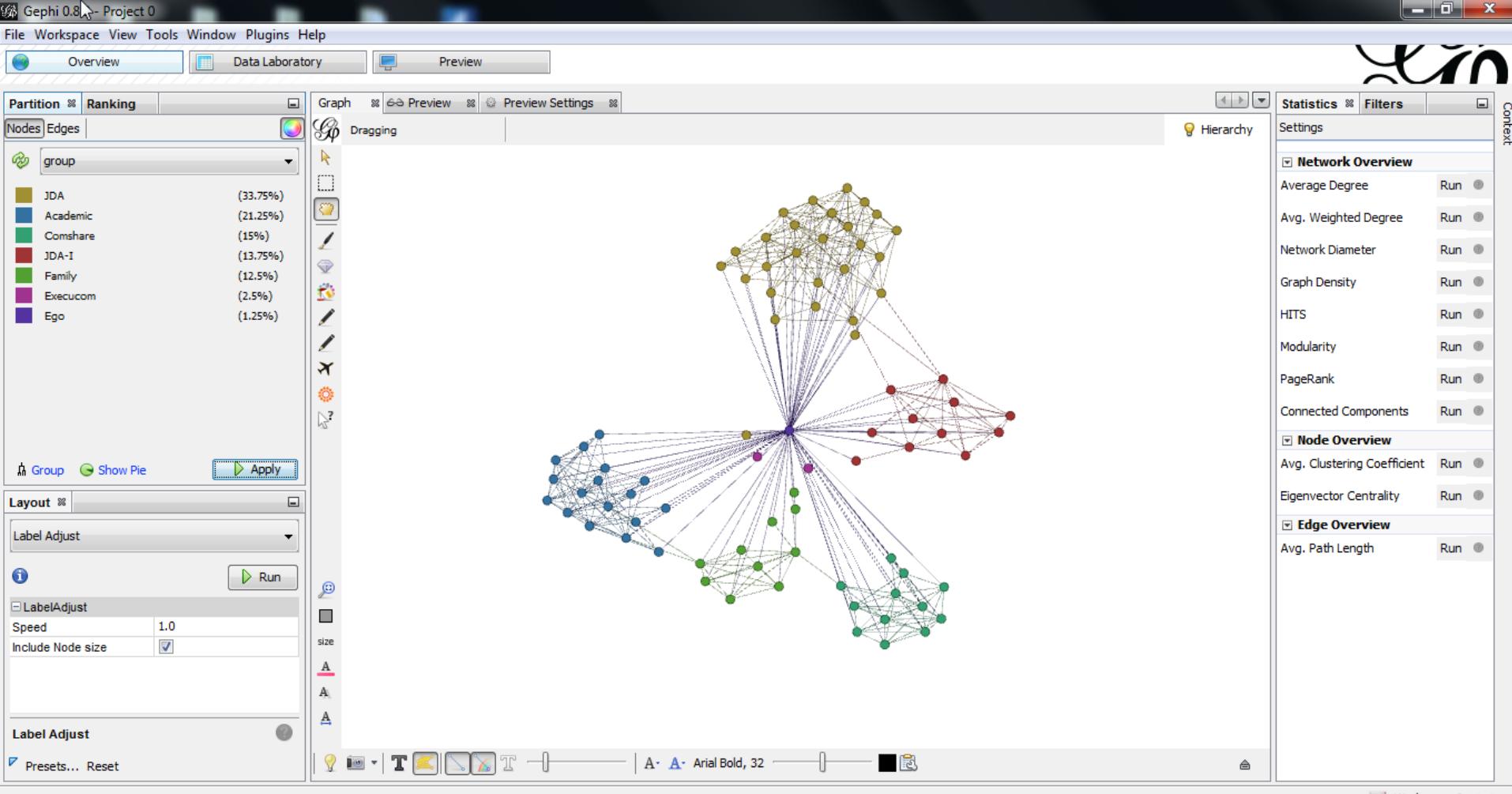
Step 4B: ... then clicked “Apply” to color nodes based on “age” group membership



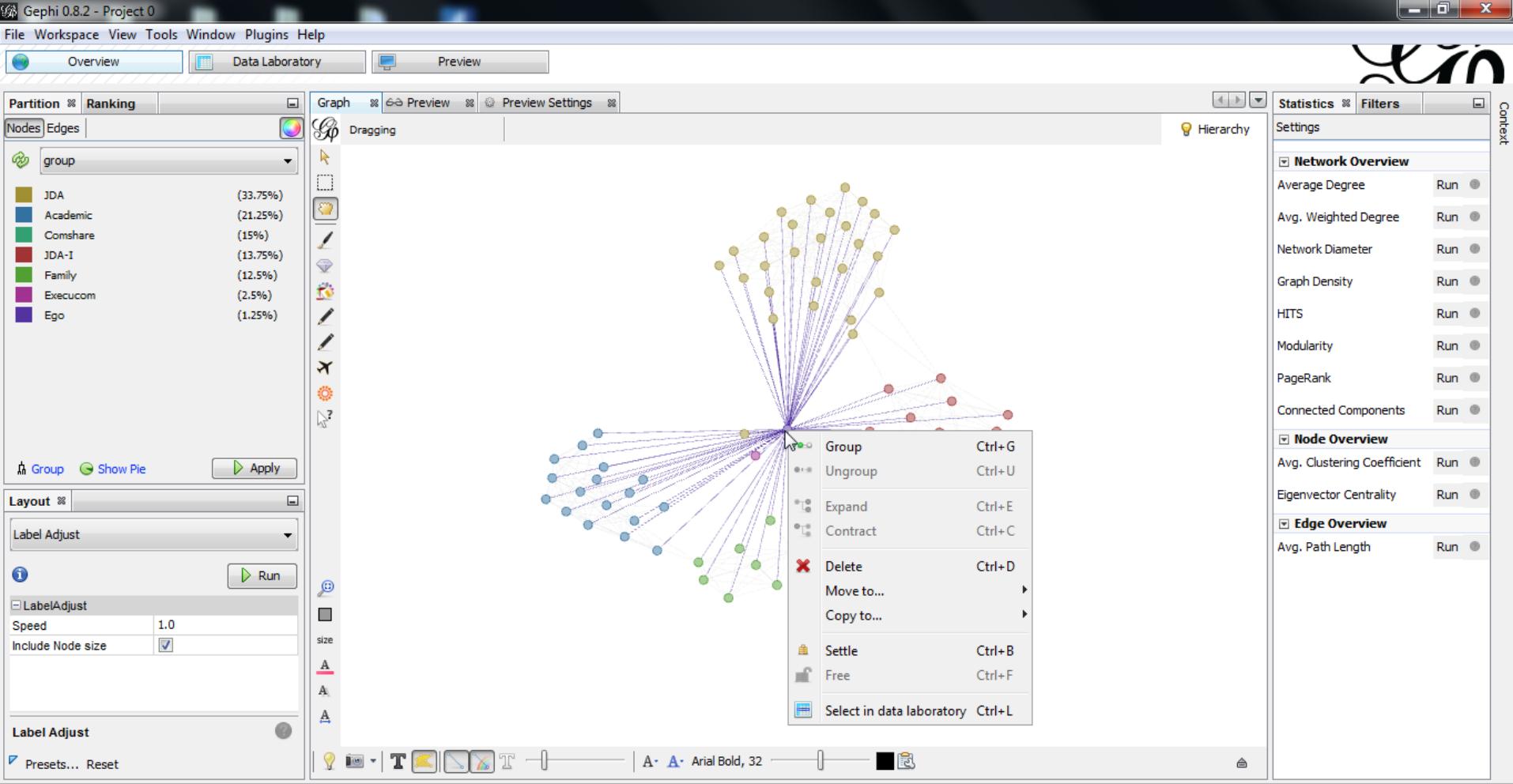
Step 4E: ... then clicked “T” to turn off the labels
in order to better inspect age distribution



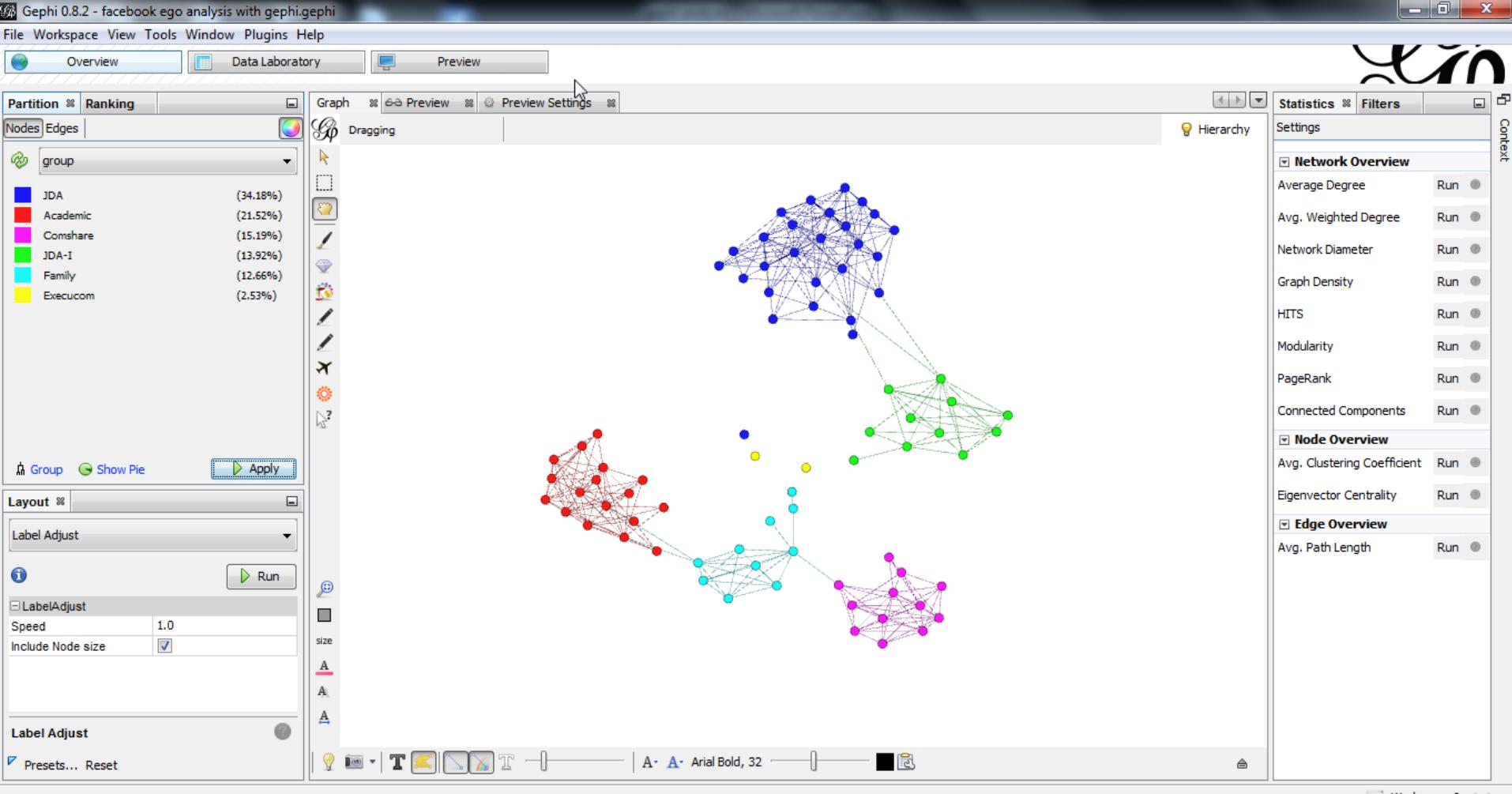
Step 4F: Followed same procedure to
Display “sex” distribution



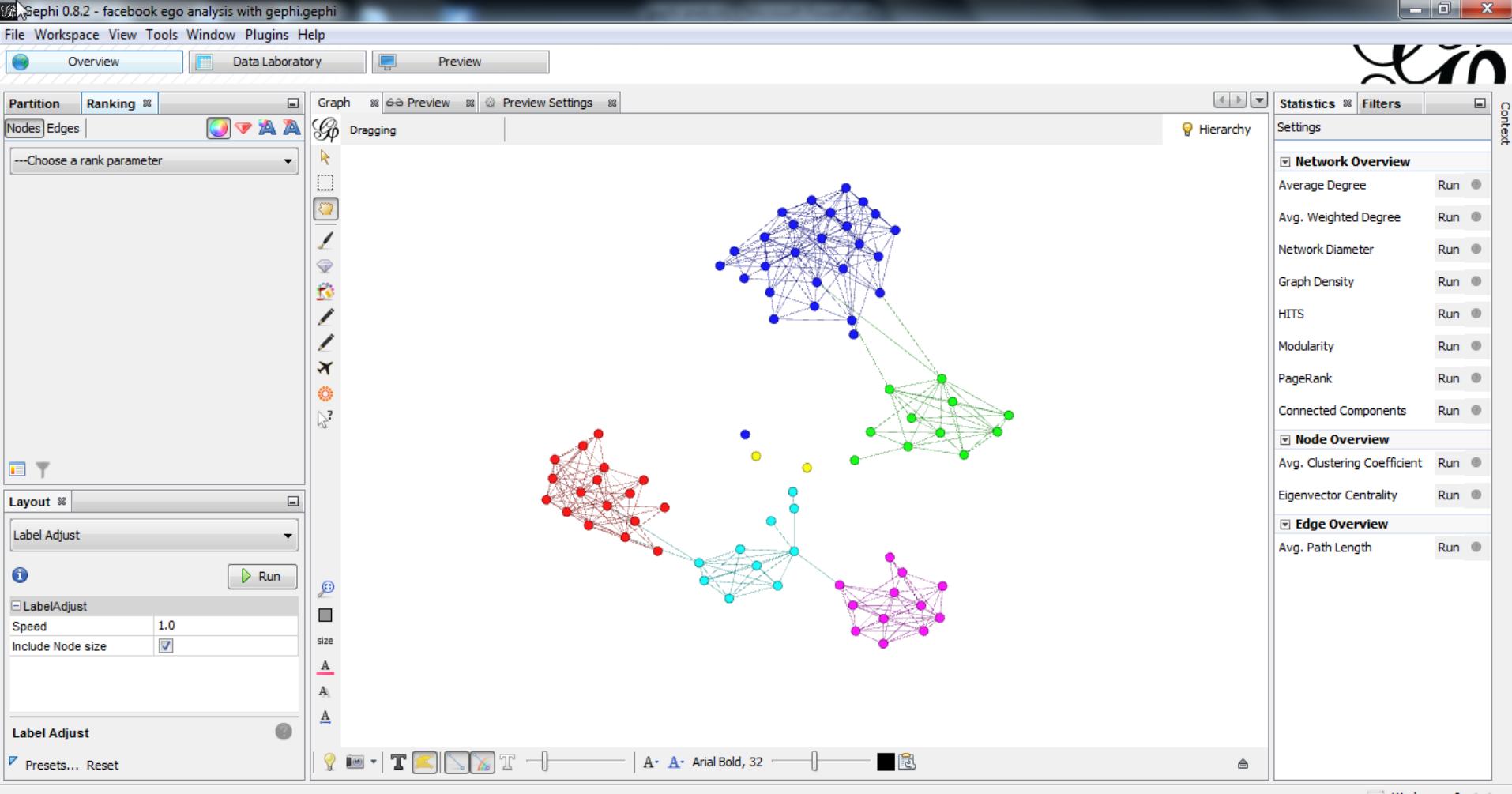
Step 4G: ... and finally the “group” membership distribution to better understand the Friendship structure



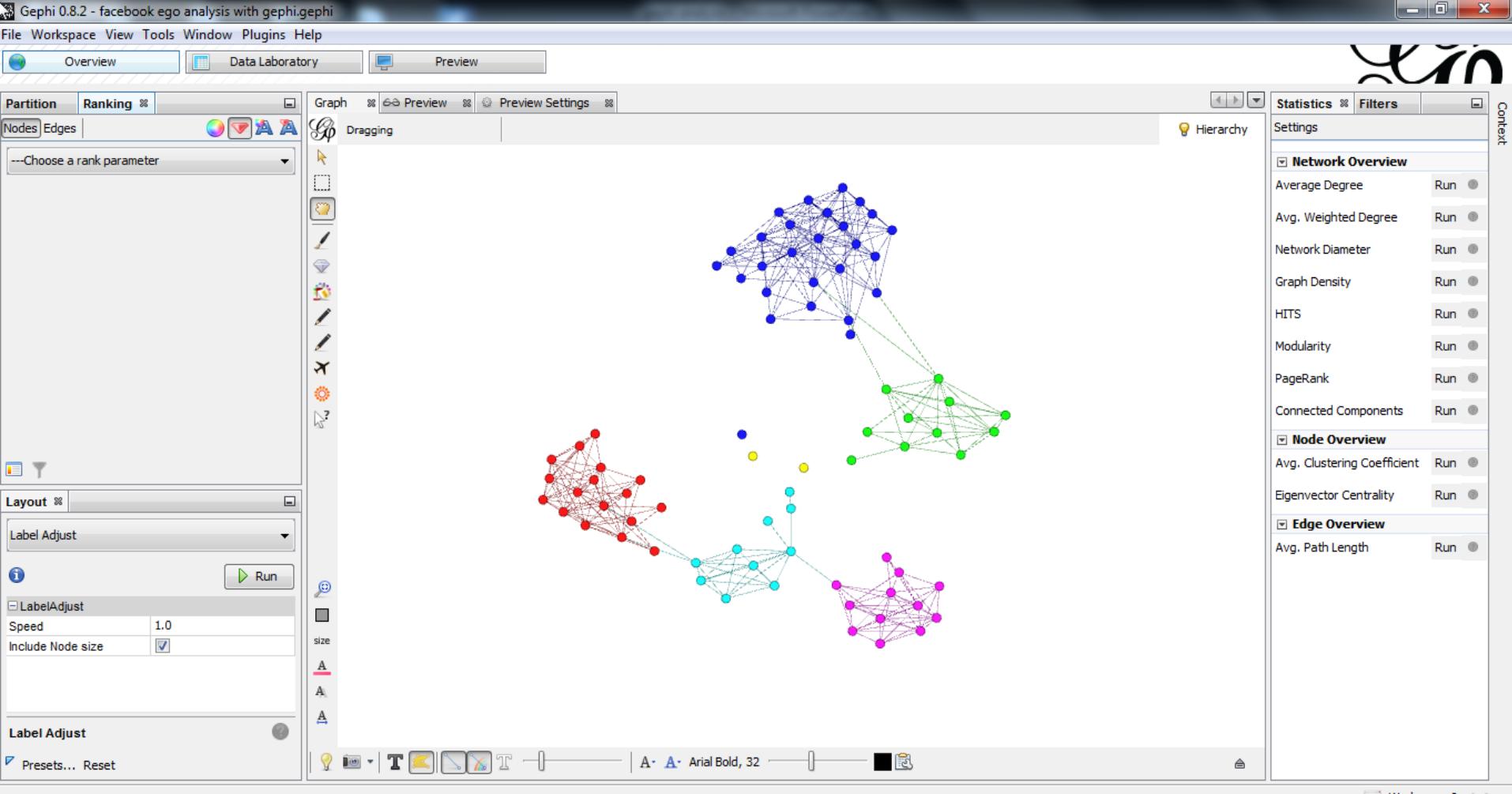
Step 5A: In analyzing various statistics for an Egocentric network, “Ego” is usually deleted from node set



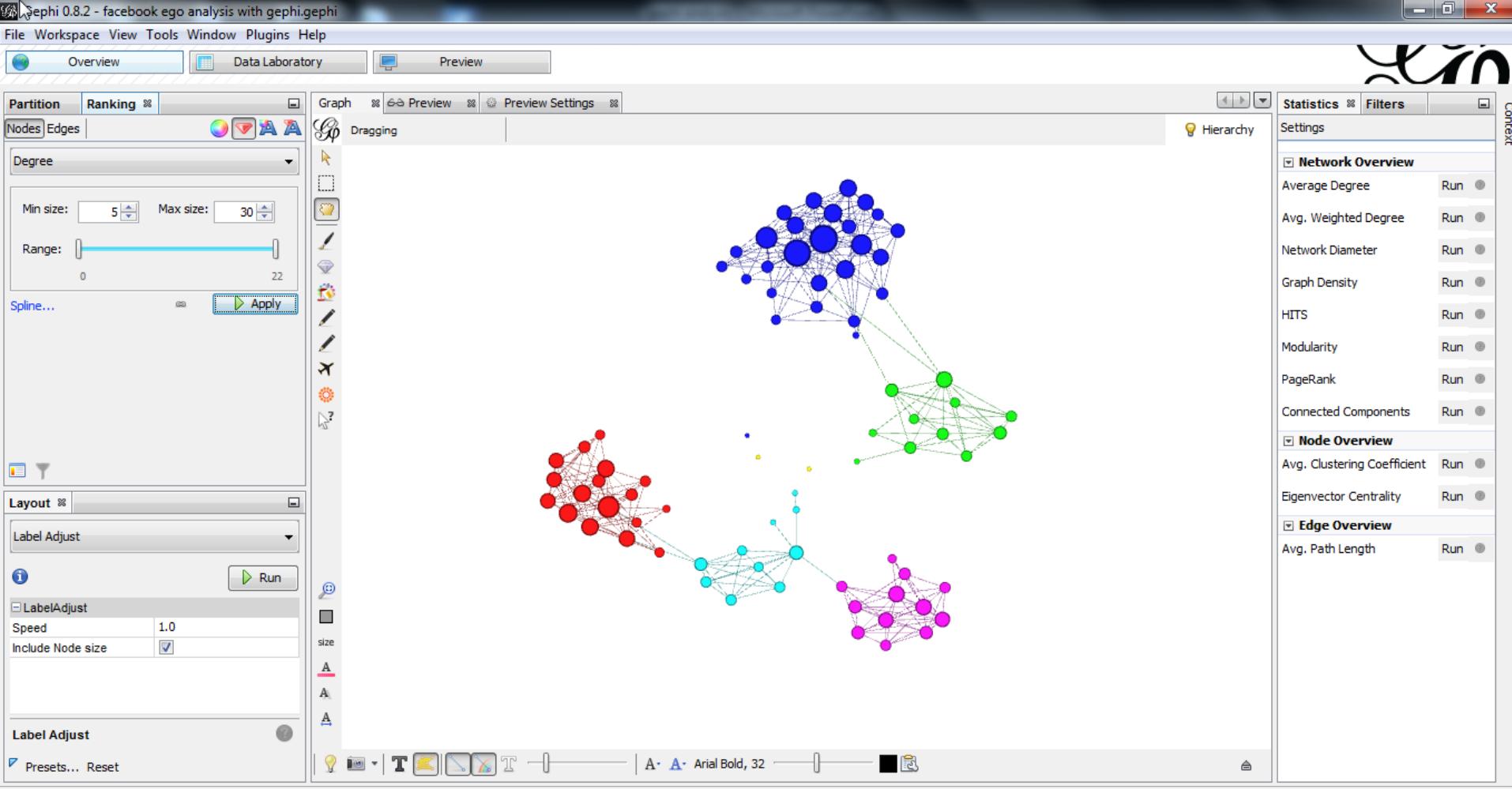
Step 5B: Ego has been eliminated, providing a clearer look at the various sub-networks occupied by Ego's Alters



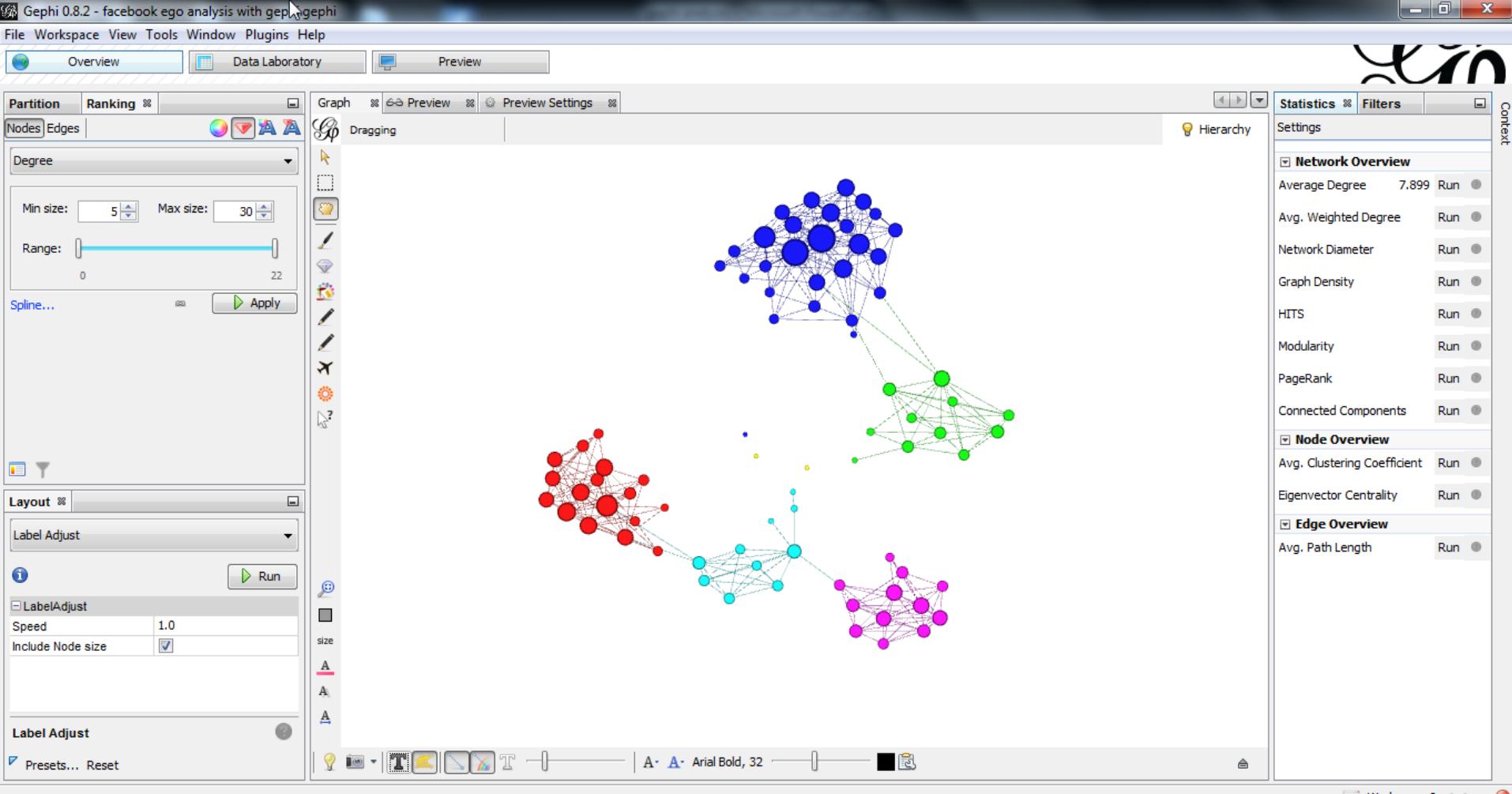
Step 5C: As a second step in the analysis, we click on the “Ranking” tab to access various numerical parameters



Step 5D: In this analysis we are going to modify the “size” (“diamond” icon) of the nodes to reflect the various statistics of interests



Step 5E: At the moment, the only metric that has been calculated is “Degree” which we select and “Apply”



Step 5F: To calculate other statistics we simply click the “Run” button next to the statistic name on the right

Gephi 0.8.2 - facebook ego analysis with gephigephi

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Partition Ranking

Nodes Edges

Degree

Min size: 5 Max size: 30

Range: 0 22

Spline... Apply

Layout

Label Adjust

Speed: 1.0

Include Node size:

Label Adjust Presets... Reset

Graph Distance settings

Distance

The average graph-distance between all pairs of nodes. Connected nodes have graph distance 1. The diameter is the longest graph distance between any two nodes in the network. (i.e. How far apart are the two most distant nodes).

Directed UnDirected

Normalize Centralities in [0,1]

Betweenness Centrality: Measures how often a node appears on shortest paths between nodes in the network.

Closeness Centrality: The average distance from a given starting node to all other nodes in the network.

Eccentricity: The distance from a given starting node to the farthest node from it in the network.

OK Cancel

Statistics Filters

Settings

Network Overview

- Average Degree 7.899 Run
- Avg. Weighted Degree Run
- Network Diameter 7 Run
- Graph Density Run
- HITS Run
- Modularity Run
- PageRank Run
- Connected Components Run

Node Overview

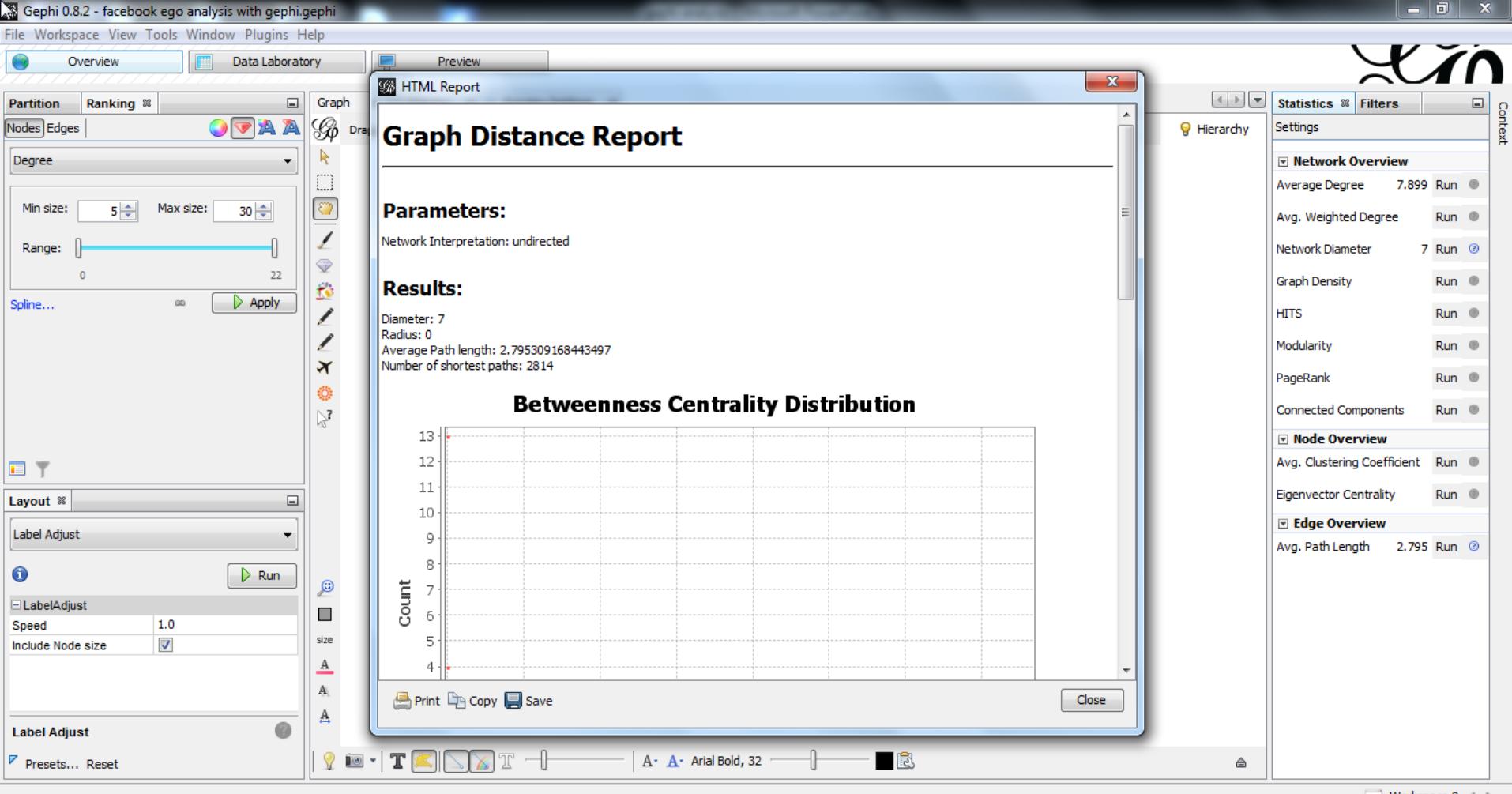
- Avg. Clustering Coefficient Run
- Eigenvector Centrality Run

Edge Overview

- Avg. Path Length 2.795 Run

Workspace 0

Step 5G: For many of these statistical *runs*, dialog boxes appear describing the statistics being calculated



Step 5H: The descriptions are usually followed a report of the associated statistical results

Gephi 0.8.2 - facebook ego analysis with gephi

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Data Table

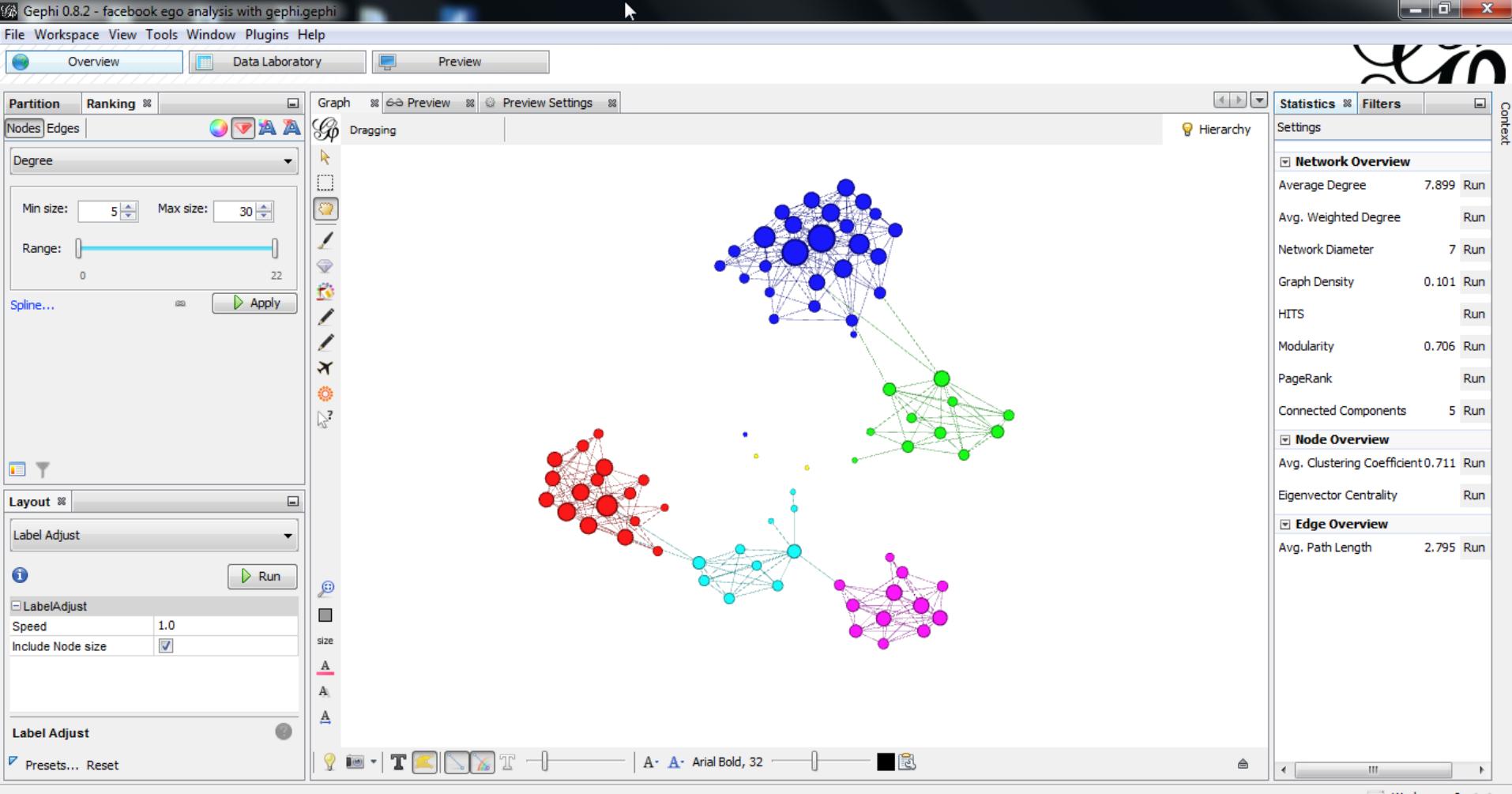
Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter Nodes

Nodes	Id	Label	shortname	group	gro...	sex	sex...	age	age...	country	cou...	relationship	reln...	Deg...	Ecc...	Closen...	Between...	
Alan	1	Alan	Alan	Academic		1 Male		2 Middle		3 United States		1 Married		1	16	5	2.447	241.705
Andrew	2	Andrew	Andrew	JDA		5 Male		2 Young		1 United States		1 Single		2	7	4	2.111	5.845
Ann	3	Ann	Ann	Family		4 Female		1 Middle		2 United States		1 Married		1	8	4	2.289	357.2
Barbara	4	Barbara	Barbara	Family		4 Female		1 Middle		2 United States		1 Married		1	6	4	2.737	0.2
Benn	5	Benn	Benn	Academic		1 Male		2 Older		3 United States		1 Married		1	10	6	3.158	5.602
Brian	6	Brian	Brian	JDA		5 Male		2 Middle		2 United States		1 Married		1	0	0	0	0
Candace	7	Candace	Candace	JDA		5 Female		1 Middle		2 United States		1 Married		1	16	4	1.861	28.452
ChrisF	8	ChrisF	ChrisF	Comshare		3 Male		2 Older		3 United Kingdom		3 Married		1	6	7	4.132	0.167
ChrisH	9	ChrisH	ChrisH	JDA		5 Male		2 Middle		2 United States		1 Married		1	7	5	2.417	1.476
ChrisK	10	ChrisK	ChrisK	JDA		5 Male		2 Middle		2 United States		1 Married		1	11	4	2	18.03
Christopher	11	Christopher	Christopher	Family		4 Male		2 Middle		2 United States		1 Married		1	6	4	2.737	0.2
Christy	12	Christy	Christy	Family		4 Female		1 Young		1 United States		1 Married		1	5	4	2.763	0
Cindy	13	Cindy	Cindy	JDA		5 Female		1 Young		1 United States		1 Married		1	7	3	1.917	60.463
Cliff	14	Cliff	Cliff	JDA		5 Male		2 Middle		2 United States		1 Married		1	11	5	2.278	3.811
DaveC	15	DaveC	DaveC	Academic		1 Male		2 Middle		2 United States		1 Married		1	7	6	3.237	0.258
David	16	David	David	JDA		5 Male		2 Middle		2 United States		1 Married		1	12	4	1.972	7.143
Deborah	17	Deborah	Deborah	JDA		5 Female		1 Middle		2 United States		1 Married		1	9	4	2.083	4.411
Dennis	18	Dennis	Dennis	Comshare		3 Male		2 Older		3 United States		1 Married		1	11	6	3.289	51.633
Durga	19	Durga	Durga	JDA-I		6 Male		2 Young		1 India		2 Single		2	6	4	2.722	0.975
Geetesh	20	Geetesh	Geetesh	JDA-I		6 Male		2 Young		1 India		2 Married		1	7	4	2.667	3.241

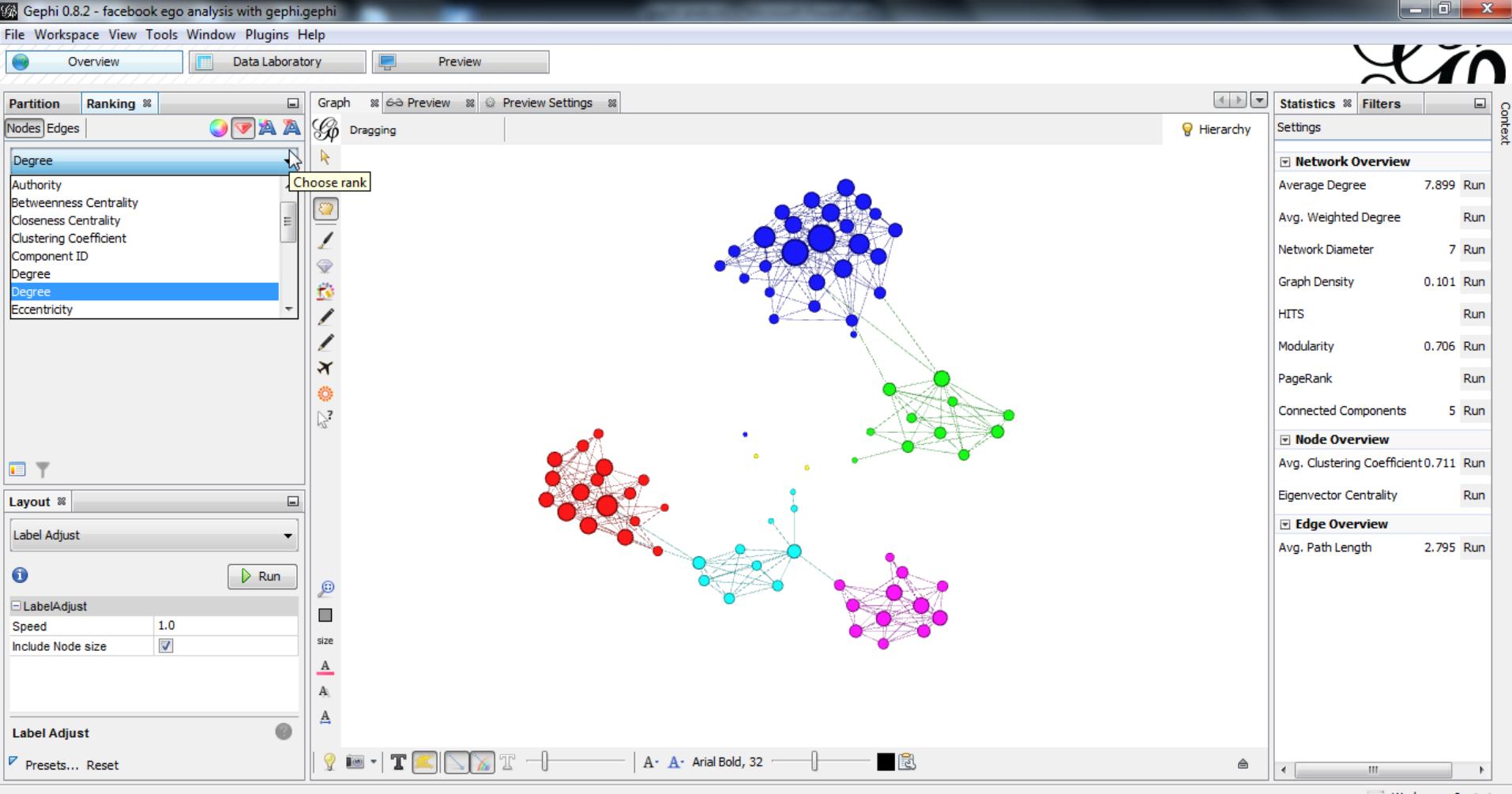
Add column Merge columns Delete column Clear column Copy data to other column Fill column with a value Duplicate column Create a boolean column from regex match Create column with list of regex matching groups Negate boolean values Convert column to dynamic

Workspace

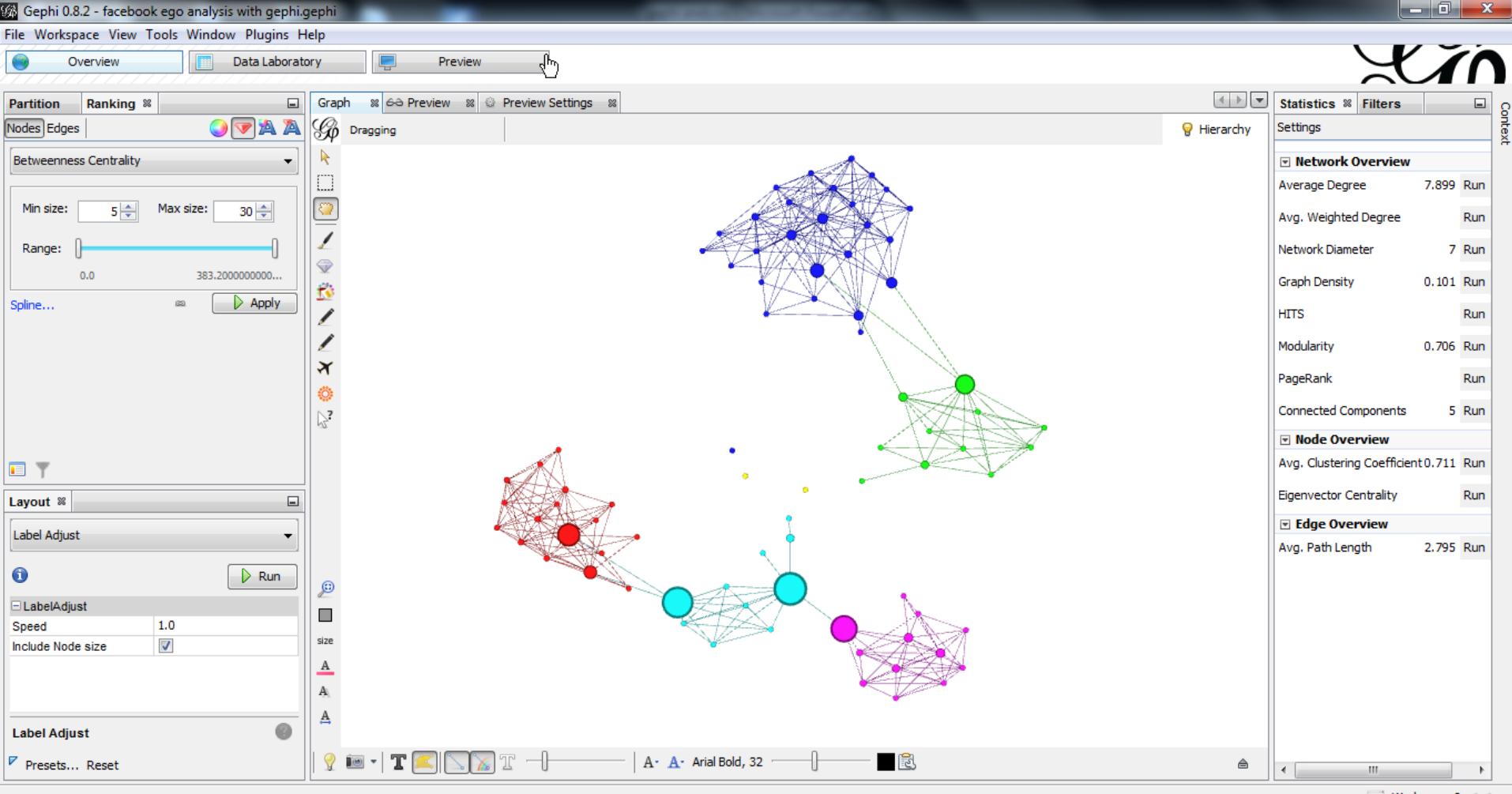
Step 5I: Behind the scenes the selected statistics are also being added to the Nodes table in the Data Laboratory [note: I ran each of the statistics in the list on the Overview page]



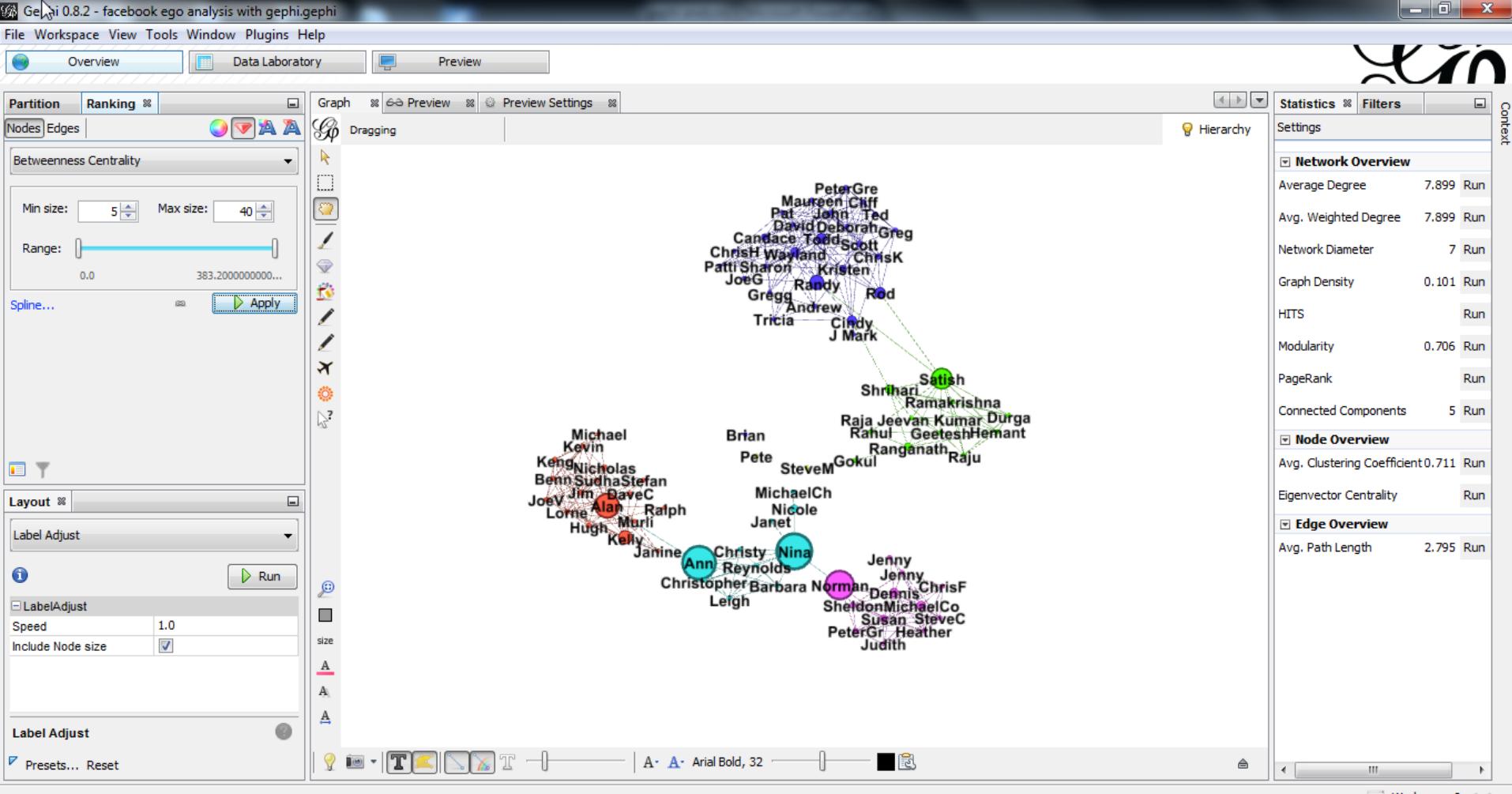
Step 6A: Once a statistic has been run, the name of the associated ranking will also appear in the drop down selection list



Step 6B: In this case we are going to select “Betweenness Centrality” for determining the size of the nodes in the visual display



Step 6C: This is the result of that selection.



Step 6D: Now we click on “T” to add back the labels

Gephi 0.8.2 - facebook ego analysis with gephi

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Partition Ranking Graph Preview Preview Settings

Nodes Edges Presets Default

Betweenness Centrality Min size: 5 Max size: 40 Range: 0.0 383.20000000000005 Spline... Apply

Layout Label Adjust LabelAdjust Speed 1.0 Include Node size Presets... Reset

Label Adjust Preview ratio: 100% Refresh

Export: SVG/PDF/PNG

Statistics Filters Context

Network Overview

- Average Degree 7.899 Run
- Avg. Weighted Degree 7.899 Run
- Network Diameter 7 Run
- Graph Density 0.101 Run
- HITS Run
- Modularity 0.706 Run
- PageRank Run
- Connected Components 5 Run

Node Overview

- Avg. Clustering Coefficient 0.711 Run
- Eigenvector Centrality Run

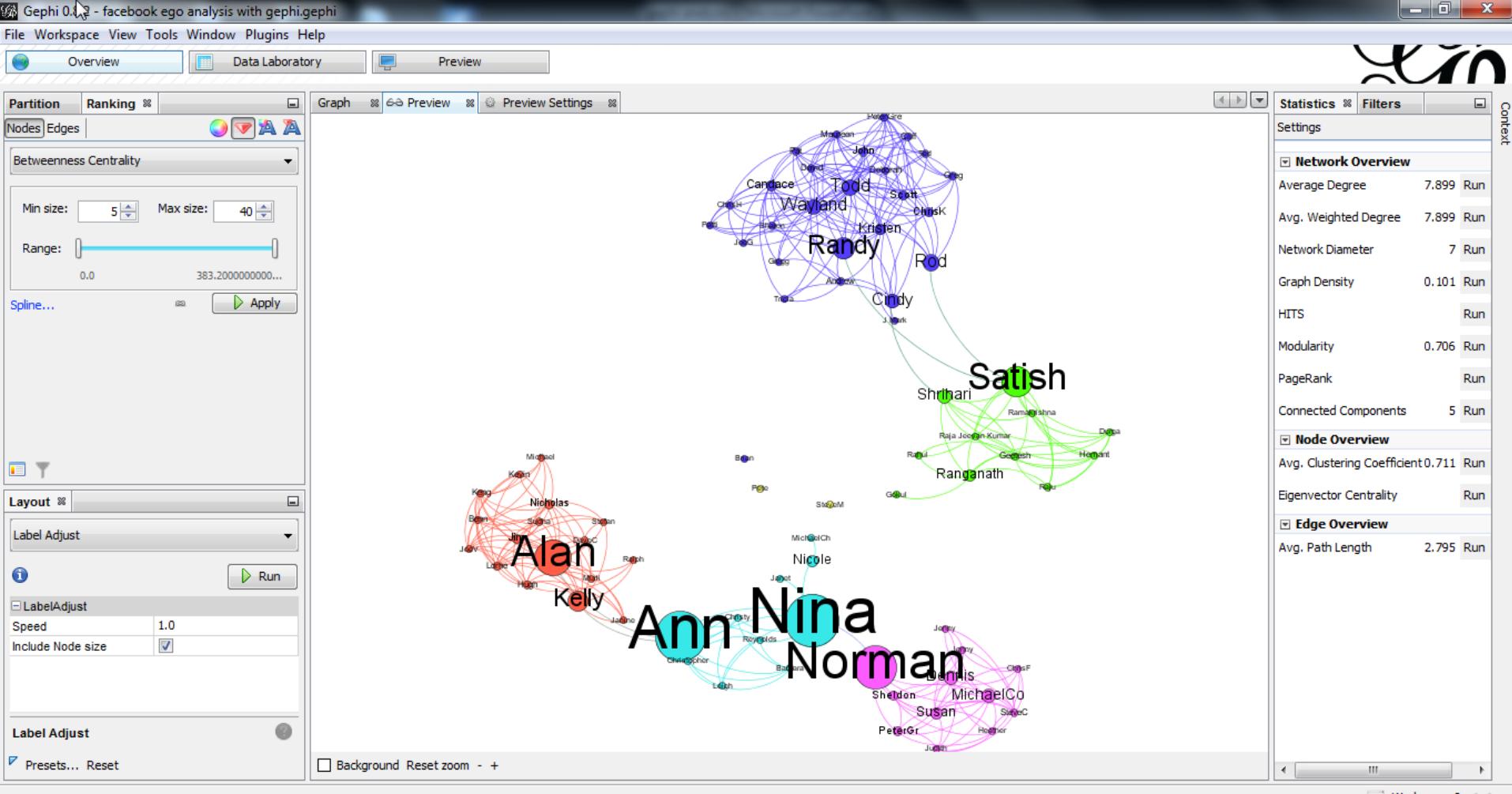
Edge Overview

- Avg. Path Length 2.795 Run

Workspace 0

The screenshot shows the Gephi 0.8.2 interface with the 'Preview' tab selected. On the left, there's a 'Label Adjust' panel with various settings for node labels and edges. In the center, a preview window shows the graph with labels applied. On the right, there are sections for 'Network Overview', 'Node Overview', and 'Edge Overview' with various metrics listed.

Step 7A: Before we finish, we create a stylized rendition of the graph by “Previewing” it. As an initial step to the preview, we click the “Show Labels” box and click “Refresh”



Step 7B: This is the Previewed display

Gephi 0.8.2 - facebook analysis with gephi.gephi

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Data Table

Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter Nodes

Nodes	Id	Label	shortname	group	gr...	sex	se...	age	a...	country	co...	relationship	rel...	D...	W...	Ec...	Close...	Betwee...	Auth...	Hub
Alan	1	Alan	Alan	Academic	1	Male	2	Middle	3	United States	1	Married	1	16	16	5	2.447	241.705	0.024	0.024
Andrew	2	Andrew	Andrew	JDA	5	Male	2	Young	1	United States	1	Single	2	7	7	4	2.111	5.845	0.011	0.011
Ann	3	Ann	Ann	Family	4	Female	1	Middle	2	United States	1	Married	1	8	8	4	2.289	357.2	0.013	0.013
Barbara	4	Barbara	Barbara	Family	4	Female	1	Middle	2	United States	1	Married	1	6	6	4	2.737	0.2	0.01	0.01
Benn	5	Benn	Benn	Academic	1	Male	2	Older	3	United States	1	Married	1	10	10	6	3.158	5.602	0.016	0.016
Brian	6	Brian	Brian	JDA	5	Male	2	Middle	2	United States	1	Married	1	0	0	0	0	0	0	0
Candace	7	Candace	Candace	JDA	5	Female	1	Middle	2	United States	1	Married	1	16	16	4	1.861	28.452	0.024	0.024
ChrisF	8	ChrisF	ChrisF	Comshare	3	Male	2	Older	3	United Kingdom	3	Married	1	6	6	7	4.132	0.167	0.01	0.01
ChrisH	9	ChrisH	ChrisH	JDA	5	Male	2	Middle	2	United States	1	Married	1	7	7	5	2.417	1.476	0.011	0.011
ChrisK	10	ChrisK	ChrisK	JDA	5	Male	2	Middle	2	United States	1	Married	1	11	11	4	2	18.03	0.017	0.017
Christopher	11	Christopher	Christopher	Family	4	Male	2	Middle	2	United States	1	Married	1	6	6	4	2.737	0.2	0.01	0.01
Christy	12	Christy	Christy	Family	4	Female	1	Young	1	United States	1	Married	1	5	5	4	2.763	0	0.009	0.009
Cindy	13	Cindy	Cindy	JDA	5	Female	1	Young	1	United States	1	Married	1	7	7	3	1.917	60.463	0.011	0.011
Cliff	14	Cliff	Cliff	JDA	5	Male	2	Middle	2	United States	1	Married	1	11	11	5	2.278	3.811	0.017	0.017
DaveC	15	DaveC	DaveC	Academic	1	Male	2	Middle	2	United States	1	Married	1	7	7	6	3.237	0.258	0.011	0.011
David	16	David	David	JDA	5	Male	2	Middle	2	United States	1	Married	1	12	12	4	1.972	7.143	0.019	0.019
Deborah	17	Deborah	Deborah	JDA	5	Female	1	Middle	2	United States	1	Married	1	9	9	4	2.083	4.411	0.014	0.014
Dennis	18	Dennis	Dennis	Comshare	3	Male	2	Older	3	United States	1	Married	1	11	11	6	3.289	51.633	0.017	0.017
Durga	19	Durga	Durga	JDA-I	6	Male	2	Young	1	India	2	Single	2	6	6	4	2.722	0.975	0.01	0.01
Geetesh	20	Geetesh	Geetesh	JDA-I	6	Male	2	Young	1	India	2	Married	1	7	7	4	2.667	3.241	0.011	0.011

Add column Merge columns Delete column Clear column Copy data to other column Fill column with a value Duplicate column Create a boolean column from regex match Create column with list of regex matching groups Negate boolean values Convert column to dynamic

Workspace 0

Step 7C. Finally, we return to the Node table in the Data Laboratory and select “Export table”

Gephi 0.8.2 - facebook ego analysis with gephigraph

File Workspace View Tools Window Plugins Help

Overview Data Laboratory Preview

Data Table

Nodes Edges Configuration Add node Add edge Search/Replace Import Spreadsheet Export table More actions Filter Nodes

Nodes	Id	Label	shortname	group	gr...	sex	se...	age	a...	country	co...	relationship	rel...	D...	W...	Ec...	Close...	Between...	Auth...	Hub		
Alan	1	Alan	Alan	Academic		1 Male	2 Middle	3	United States		1 Married		1	16	16	5	2.447	241.705	0.024	0.024		
Andrew	2	Andrew	Andrew	JDA		5 Male	2 Young	1	United States		1 Single		2	7	7	4	2.111	5.845	0.011	0.011		
Ann	3	Ann	Ann	Family		4 Female	1 Middle	2	United States		1 Married		1	8	8	4	2.289	357.2	0.013	0.013		
Barbara	4	Barbara	Barbara	Family		4					1 Married		1	6	6	4	2.737	0.2	0.01	0.01		
Benn	5	Benn	Benn	Academic		1					1 Married		1	10	10	6	3.158	5.602	0.016	0.016		
Brian	6	Brian	Brian	JDA		5					1 Married		1	0	0	0	0	0	0	0		
Candace	7	Candace	Candace	JDA		5					1 Married		1	16	16	4	1.861	28.452	0.024	0.024		
ChrisF	8	ChrisF	ChrisF	Comshare		3					3 Married		1	6	6	7	4.132	0.167	0.01	0.01		
ChrisH	9	ChrisH	ChrisH	JDA		5					1 Married		1	7	7	5	2.417	1.476	0.011	0.011		
ChrisK	10	ChrisK	ChrisK	JDA		5					1 Married		1	11	11	4	2	18.03	0.017	0.017		
Christopher	11	Christopher	Christopher	Family		4					1 Married		1	6	6	4	2.737	0.2	0.01	0.01		
Christy	12	Christy	Christy	Family		4					1 Married		1	5	5	4	2.763	0	0.009	0.009		
Cindy	13	Cindy	Cindy	JDA		5					1 Married		1	7	7	3	1.917	60.463	0.011	0.011		
Cliff	14	Cliff	Cliff	JDA		5					1 Married		1	11	11	5	2.278	3.811	0.017	0.017		
DaveC	15	DaveC	DaveC	Academic		1					1 Married		1	7	7	6	3.237	0.258	0.011	0.011		
David	16	David	David	JDA		5					1 Married		1	12	12	4	1.972	7.143	0.019	0.019		
Deborah	17	Deborah	Deborah	JDA		5					1 Married		1	9	9	4	2.083	4.411	0.014	0.014		
Dennis	18	Dennis	Dennis	Comshare		3					1 Married		1	11	11	6	3.289	51.633	0.017	0.017		
Durga	19	Durga	Durga	JDA-I		6	Male	2 Young	1	India			2 Single		2	6	6	4	2.722	0.975	0.01	0.01
Geetesh	20	Geetesh	Geetesh	JDA-I		6	Male	2 Young	1	India			2 Married		1	7	7	4	2.667	3.241	0.011	0.011

Export table to CSV file

Separator: Comma Charset: UTF-8 Columns: Id, Label, shortname, group, groupnum, sex OK Cancel

Add column Merge columns Delete column Clear column Copy data to other column Fill column with a value Duplicate column Create a boolean column from regex match Create column with list of regex matching groups Negate boolean values Convert column to dynamic

Workspace 0

Step 7D: This produces a dialog box for selecting the attributes we want to export. By default it's all.

facebook ego analysis with gephi [Nodes] - Microsoft Excel

File		Home	Insert	Page Layout	Formulas	Data	Review	View	Developer	Acrobat										
		Cut	Copy	Format Painter	Font	Wrap Text	General	\$ % , .	Conditional Formatting	Format as Table	Cell Styles	Insert	Delete	Format	Σ AutoSum	Fill	Sort & Filter	Find & Select		
		Paste	Copy	Format Painter	Font	Wrap Text	General	\$ % , .	Styles	Format	Cell Styles	Cells								
A1																				
1	Id	Label	shortname	group	group	sex	sex	age	age	country	country	relation	relnum	Degree	Eccentr	Closen	Between	Authori	Hub	
2	1	Alan	Alan	Acader	1	Male	2	Middle	3	United	1	Married	1	16	16	5	2.4474	241.71	0.0243	0.0243
3	2	Andrew	Andrew	JDA	5	Male	2	Young	1	United	1	Single	2	7	7	4	2.1111	5.8448	0.0114	0.0114
4	3	Ann	Ann	Family	4	Female	1	Middle	2	United	1	Married	1	8	8	4	2.2895	357.2	0.0129	0.0129
5	4	Barbara	Barbara	Family	4	Female	1	Middle	2	United	1	Married	1	6	6	4	2.7368	0.2	0.01	0.01
6	5	Benn	Benn	Acader	1	Male	2	Older	3	United	1	Married	1	10	10	6	3.1579	5.6021	0.0157	0.0157
7	6	Brian	Brian	JDA	5	Male	2	Middle	2	United	1	Married	1	0	0	0	0	0	0	0
8	7	Candace	Candace	JDA	5	Female	1	Middle	2	United	1	Married	1	16	16	4	1.8611	28.452	0.0243	0.0243
9	8	ChrisF	ChrisF	Comsh	3	Male	2	Older	3	United	3	Married	1	6	6	7	4.1316	0.1667	0.01	0.01
10	9	ChrisH	ChrisH	JDA	5	Male	2	Middle	2	United	1	Married	1	7	7	5	2.4167	1.4762	0.0114	0.0114
11	10	ChrisK	ChrisK	JDA	5	Male	2	Middle	2	United	1	Married	1	11	11	4	2	18.03	0.0171	0.0171
12	11	Christo	Christo	Family	4	Male	2	Middle	2	United	1	Married	1	6	6	4	2.7368	0.2	0.01	0.01
13	12	Christy	Christy	Family	4	Female	1	Young	1	United	1	Married	1	5	5	4	2.7632	0	0.0086	0.0086
14	13	Cindy	Cindy	JDA	5	Female	1	Young	1	United	1	Married	1	7	7	3	1.9167	60.463	0.0114	0.0114
15	14	Cliff	Cliff	JDA	5	Male	2	Middle	2	United	1	Married	1	11	11	5	2.2778	3.8107	0.0171	0.0171
16	15	DaveC	DaveC	Acader	1	Male	2	Middle	2	United	1	Married	1	7	7	6	3.2368	0.2576	0.0114	0.0114
17	16	David	David	JDA	5	Male	2	Middle	2	United	1	Married	1	12	12	4	1.9722	7.143	0.0186	0.0186
18	17	Debora	Debora	JDA	5	Female	1	Middle	2	United	1	Married	1	9	9	4	2.0833	4.4109	0.0143	0.0143
19	18	Dennis	Dennis	Comsh	3	Male	2	Older	3	United	1	Married	1	11	11	6	3.2895	51.633	0.0171	0.0171
20	19	Durga	Durga	JDA-I	6	Male	2	Young	1	India	2	Single	2	6	6	4	2.7222	0.9755	0.01	0.01
21	20	Geetes	Geetes	JDA-I	6	Male	2	Young	1	India	2	Married	1	7	7	4	2.6667	3.2414	0.0114	0.0114
22	21	Gokul	Gokul	JDA-I	6	Male	2	Young	1	India	2	Married	1	1	1	5	3.6389	0	0.0029	0.0029
23	22	Greg	Greg	JDA	5	Male	2	Older	3	United	1	Married	1	9	9	4	2.0833	5.5415	0.0143	0.0143
24	23	Gregg	Gregg	JDA	5	Male	2	Middle	2	United	1	Married	1	5	5	5	2.4722	0.3813	0.0086	0.0086

Step 7E: This is the final result which can be used for further analysis.