

GEPHI: HANDS-ON

OVERVIEW WINDOW

Gephi 0.9.2 - Project 1

Overview | Data Laboratory | Preview

Workspace 1

Appearance | Graph | Context

Nodes | Edges | Dragging (Configure)

Unique | Partition | Ranking

#c0c0c0

Apply

Layout | ---Choose a layout | Run

<No Properties>

Presets... Reset

Nodes: 77
Edges: 254
Undirected Graph

Filters | Statistics | Settings

Network Overview

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

Node Overview

- Avg. Clustering Coefficient
- Eigenvector Centrality

Edge Overview

- Avg. Path Length

Dynamic

- # Nodes
- # Edges
- Degree
- Clustering Coefficient

DATA LABORATORY

Workspace 1

Data Table

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

Id	Label	Interval	Modularity Class
11	Valjean		1
48	Gavroche		8
55	Marius		6
27	Javert		7
25	Thenardier		7
23	Fantine		2
58	Enjolras		8
62	Courfeyrac		8
64	Bossuet		8
63	Bahorel		8
65	Joly		8
24	MmeThenardier		7
26	Cosette		6
41	Eponine		7
57	Mabeuf		8
59	Combeferre		8
61	Feuilly		8
0	Myriel		0
66	Grantaire		8
68	Gueulemer		7
69	Babet		7
70	Claquesous		7
16	Tholomyes		2
60	Prouvaire		8
71	Montparnasse		7
29	Bamatambois		3
17	Listolier		2
18	Fameuil		2
19	Blacheville		2
20	Favourite		2
21	Dahlia		2
22	Zepherine		2
49	Gillenormand		6
51	MlleGillenormand		6
75	Brujon		7
76	MmeHucheloup		8
34	Judge		3
35	Champmathieu		3

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

PREVIEW

Overview Data Laboratory Preview

Workspace 1

Preview Settings Preview

Presets
Default

Settings Manage renderers

Nodes

Border Width	1.0
Border Color	custom [0,0,0] ...
Opacity	100.0
Per-Node Opacity	<input type="checkbox"/>

Node Labels

Show Labels	<input type="checkbox"/>
Font	Arial 12 Plain ...
Proportional size	<input checked="" type="checkbox"/>
Color	custom [0,0,0] ...
Shorten label	<input type="checkbox"/>
Max characters	30
Outline size	0.0
Outline color	custom [255,2... ...
Outline opacity	80.0
Box	<input type="checkbox"/>
Box color	parent ...
Box opacity	100.0

Edges

Show Edges	<input checked="" type="checkbox"/>
Thickness	1.0
Rescale weight	<input type="checkbox"/>
Min. rescaled weigh	0.1
Max. rescaled weigh	1.0
Color	mixed ...
Opacity	100.0
Curved	<input checked="" type="checkbox"/>
Radius	0.0

Edge Arrows

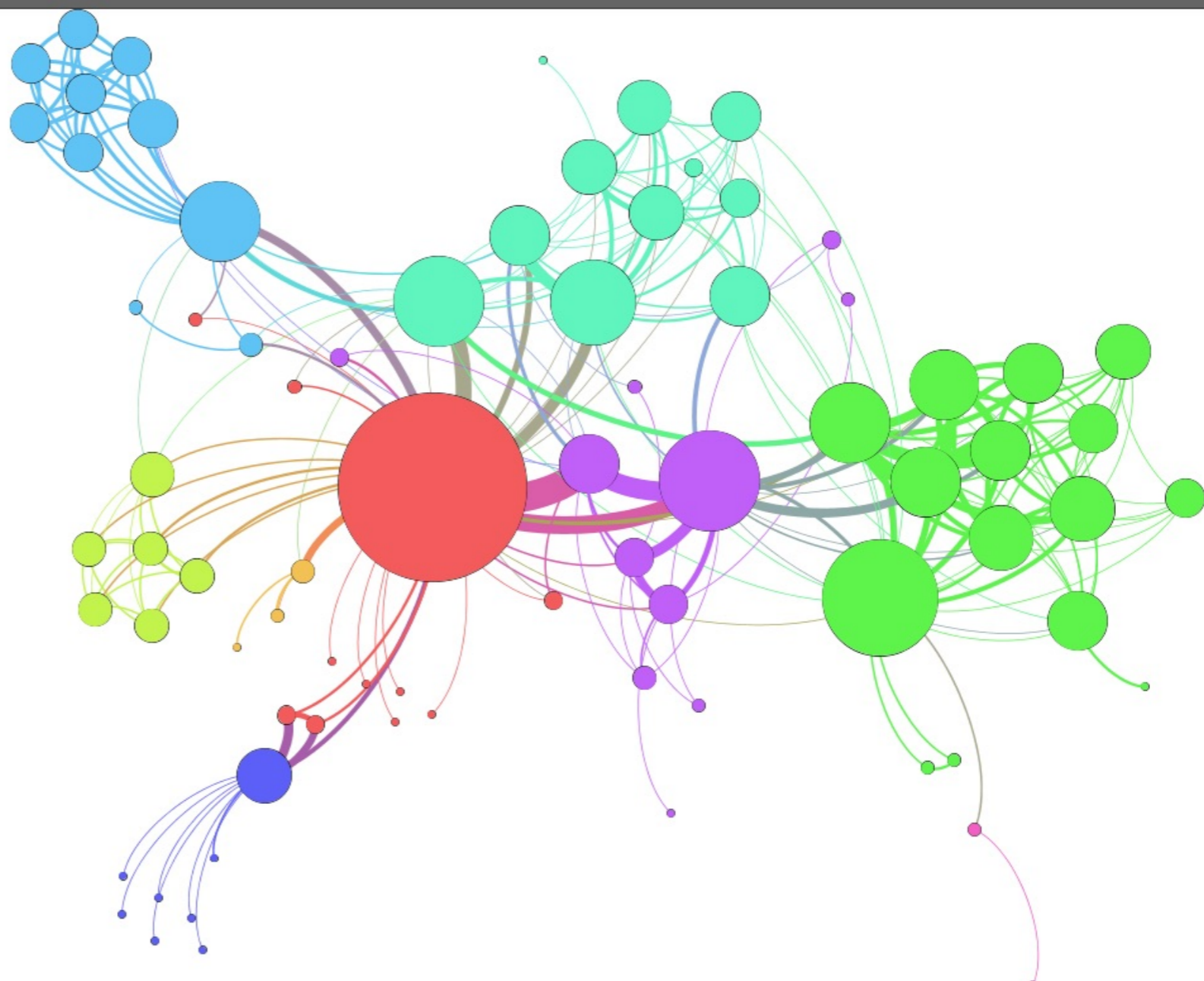
Size	3.0
------	-----

Preview ratio: 100%

Refresh

Export: SVG/PDF/PNG

Background Reset zoom - +



1)IMPORT DATA

IMPORT

- Gephi import all standard graph format.

	Edge List/Matrix Structure	XML Structure	Edge Weight	Attributes	Visualization Attributes	Attribute Default Value	Hierarchical Graphs	Dynamics
CSV	■	■						
DL Ucinet	■		■					
DOT Graphviz		■		■				
GDF		■	■	■	■			
GEXF		■	■	■	■	■	■	■
GML		■	■	■				
GraphML		■	■	■	■	■		
NET Pajek	■		■	■				
TLP Tulip								
VNA Netdraw		■	■					
Spreadsheet*			■	■				■

IMPORT

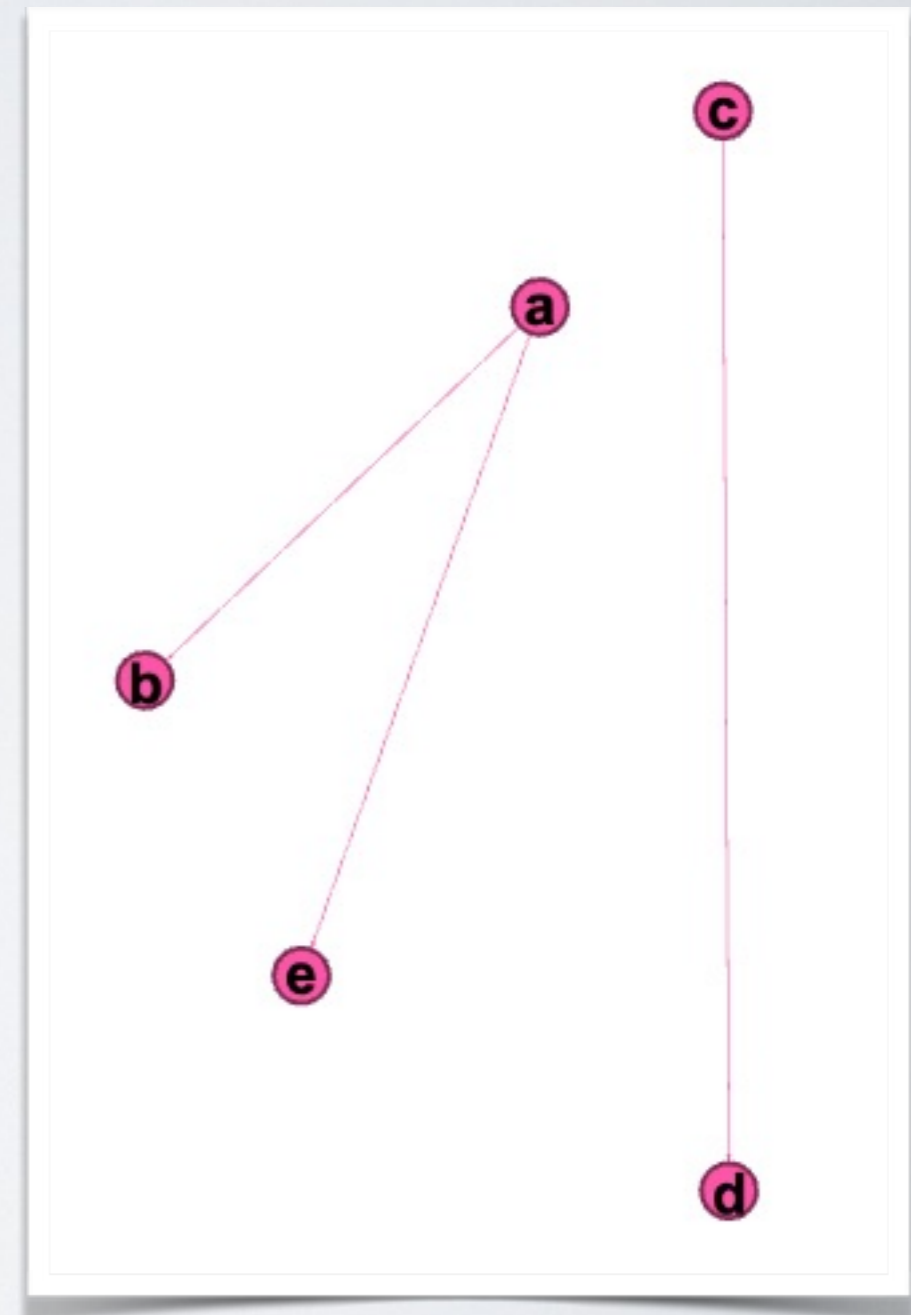
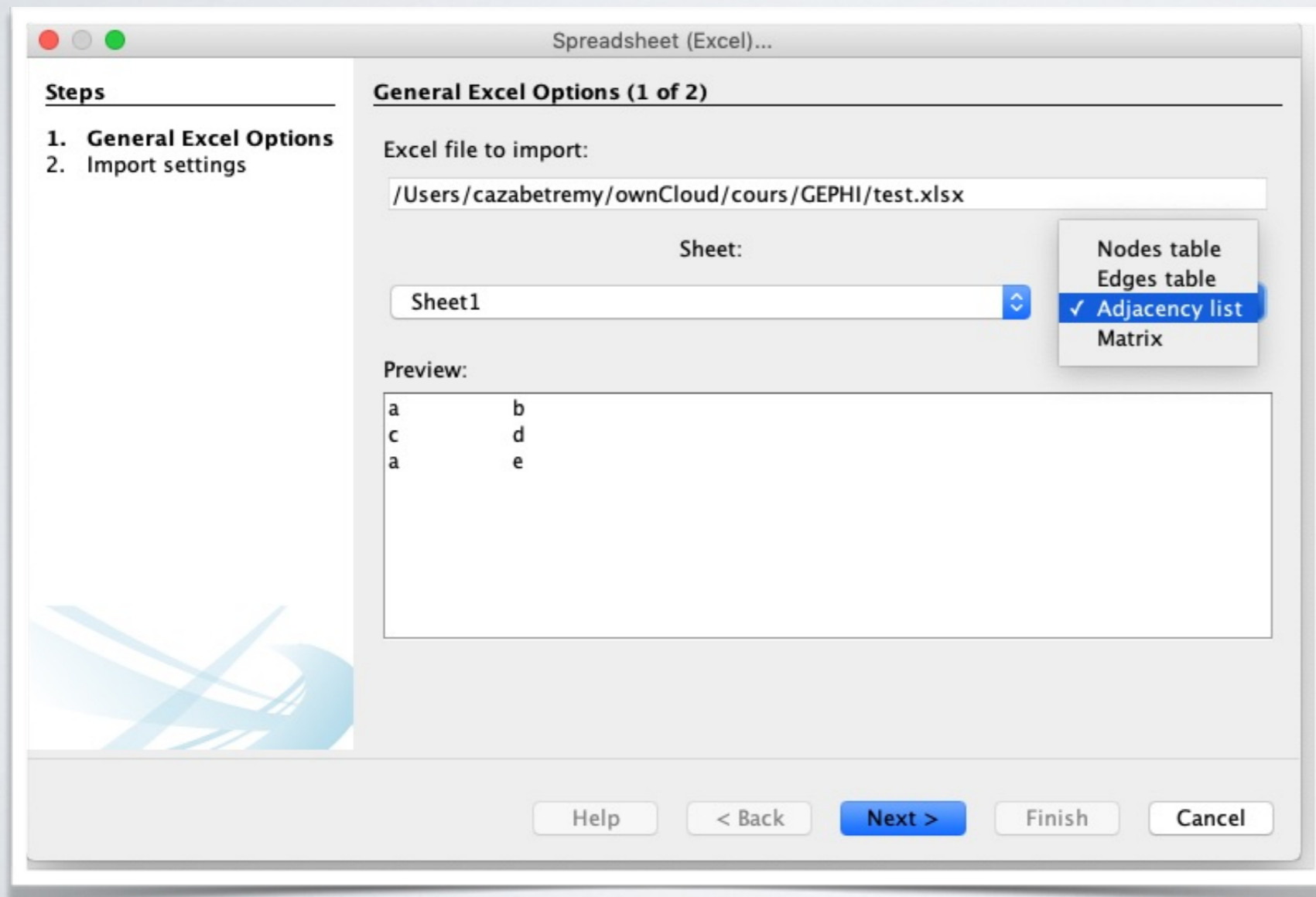
- Most useful for YOUR personal data
- Spreadsheet (Excel, open office cal..)
 - Matrix
 - CSV
- CSV : comma separated value (same as spreadsheet)
- GEXF (to reload a saved file)

IMPORT

- 3 ways to represent data:
 - Adjacency list
 - Edge table (+Node table)
 - Matrix

IMPORT

- Monfichier.xlsx




IMPORT

Spreadsheet (Excel)...

Steps


1. General Excel Options
- 2. Import settings**

Import settings (2 of 2)


Intervals 


Imported columns:

- Source
- Target
- Label
- Weight

String 

- something_else

String 



IMPORT

- Whole graph can be loaded in a single step
 - File > Open > ...
- Graph can be completed after loading
 - (For an already imported graph)
 - Data Laboratory > Import Spreadsheet
 - For instance, Node Table/Edge Table

IMPORT

Gephi 0.9.2 - Project 6

Overview | Data Laboratory | Preview

Workspace 1 | Workspace 2

Data Table

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

Source	Target	Type	Id	Label	Interval	Weight	something_else
a	b	Directed	20	link 1		1.0	5
c	d	Directed	21	another link		1.0	10
a	e	Directed	22	why not ?		1.0	3

IMPORT

- One can modify the data in Gephi
 - Add node/edge
 - Create new column (data property)
 - ...
- But it is better to work on the original data

GRAPH LAYOUT

Overview Data Laboratory Preview

Workspace 1 Workspace 2

Appearance Graph Context

Nodes Edges Dragging (Configure)

Unique Partition Ranking

#c0c0c0

Apply

Layout

Fruchterman Reingold

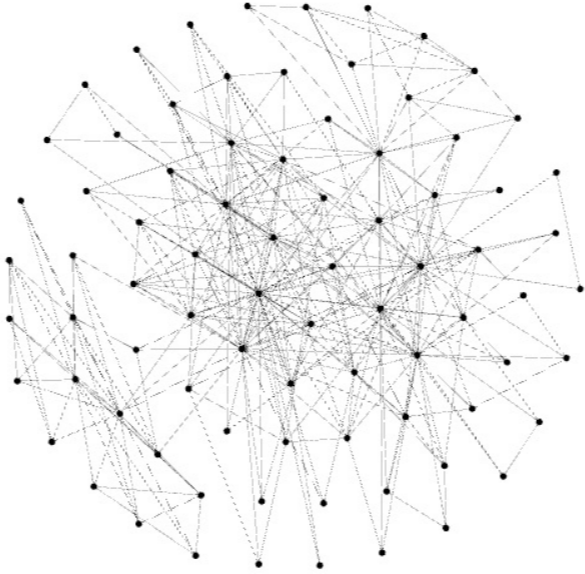
Run

Fruchterman Reingold

Area	10000.0
Gravity	10.0
Speed	1.0

Fruchterman Reingold ?

Presets... Reset



Nodes: 81
Edges: 340
Directed Graph

Filters Statistics 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
------------------	-----

Dynamic

# Nodes	Run
# Edges	Run
Degree	Run
Clustering Coefficient	Run

A- Arial-BoldMT, 32

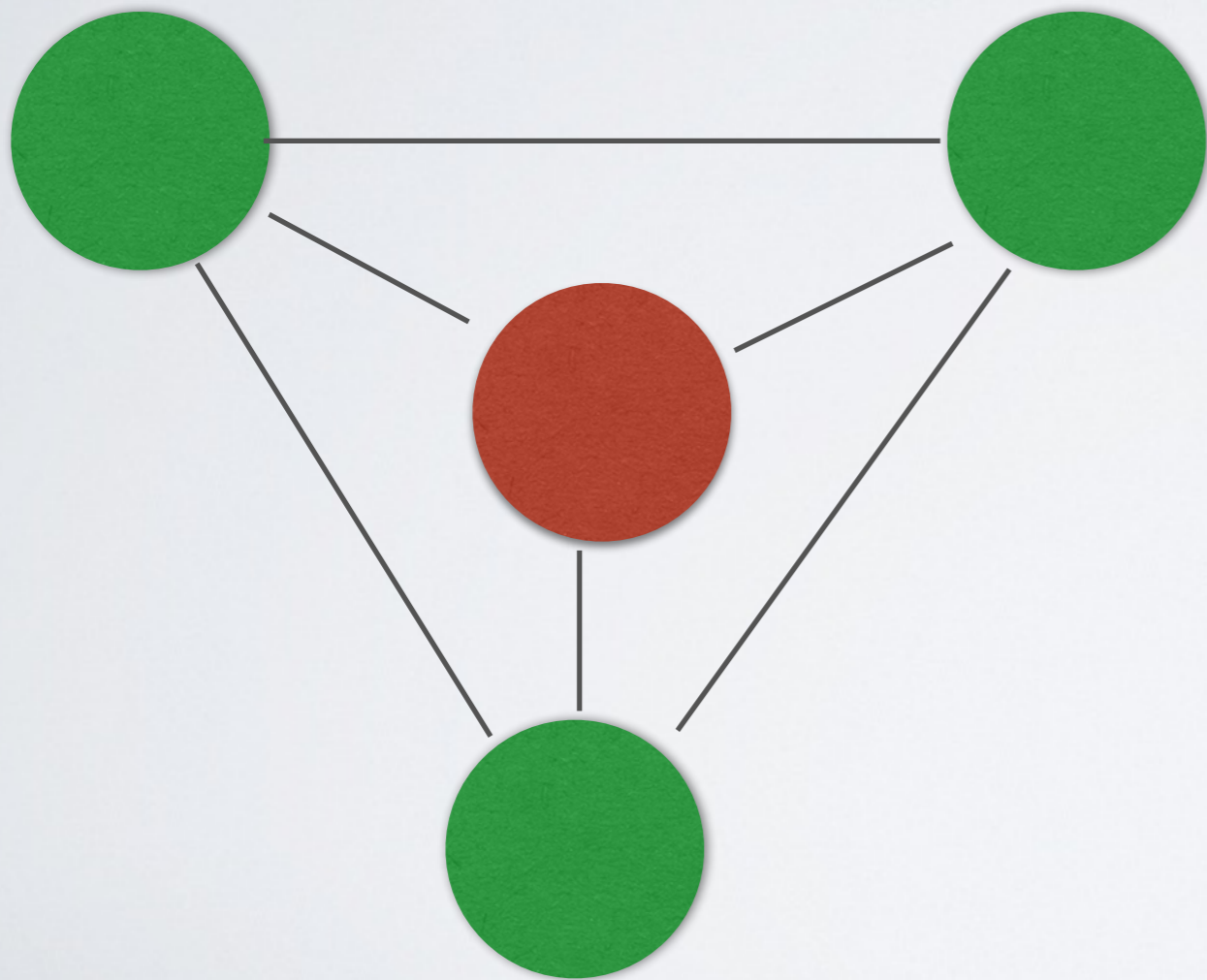
GRAPH LAYOUT

- Layout: Algorithm to automatically position nodes in the graph
 - ▶ Different algorithms are available. They provide different position of nodes.
 - ▶ Intuitive explanation of layouts: the force directed / Spring-Particle layout
 - Edges are springs that attract nodes
 - Nodes are repulsive particles
 - “let the physics do” until stabilization
 - => No guarantee on the properties of node positions.
- Beware interpretations!

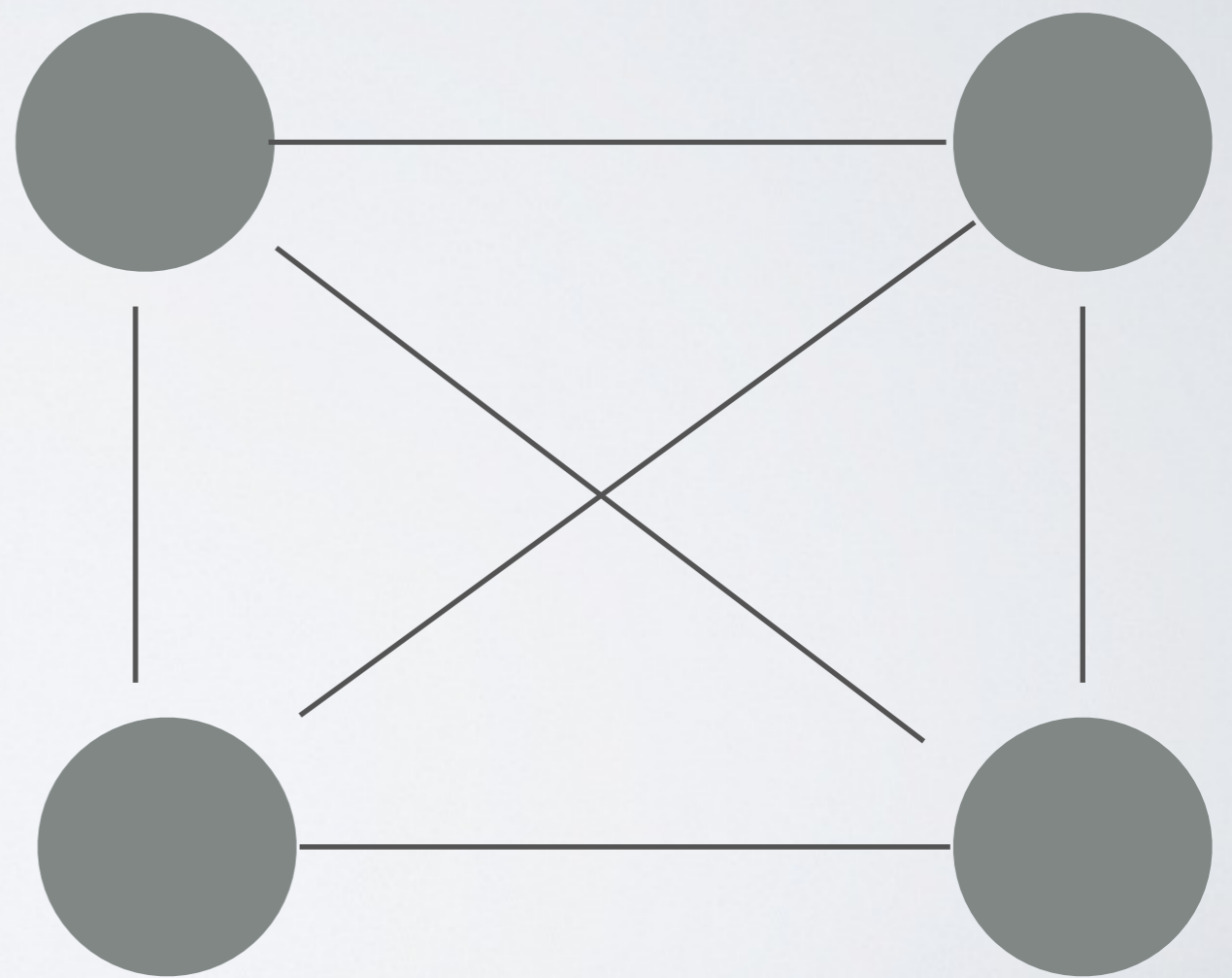
- * ForceAtlas
- * Fruchterman-Reingold
- * YifanHu Multilevel
- * OpenOrd
- * ForceAtlas 2
- * Circular Layout

GRAPH LAYOUT

Hierarchic/centralized



Egalitarian



Same graph...

GRAPH LAYOUT

- Rule of thumb workflow

- ▶ 1) Try “Yifan Hu” and “Fruchterman reingold”.
- ▶ 2) Not satisfied ?
 - Go to ForceAtlas 2. Try to run and pause. Tune parameters, in particular “dissuad hubs”, “prevent overlap”, ..
 - Nodes are too close ? Use “Expansion” a few times
 - Nodes overlap ? Try “noverlap” one time
- ▶ Algorithms (most) start from the **current** configuration, so the result can slowly improve (for large graphs in particular, were some parts might be “stuck” somewhere)

NODE DESIGN

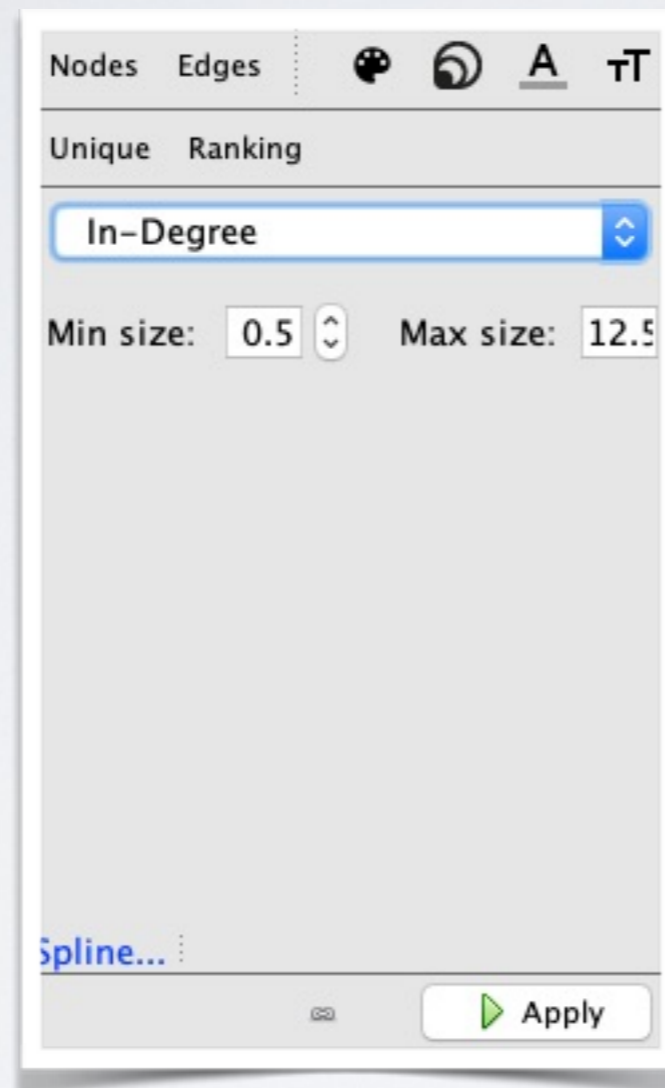
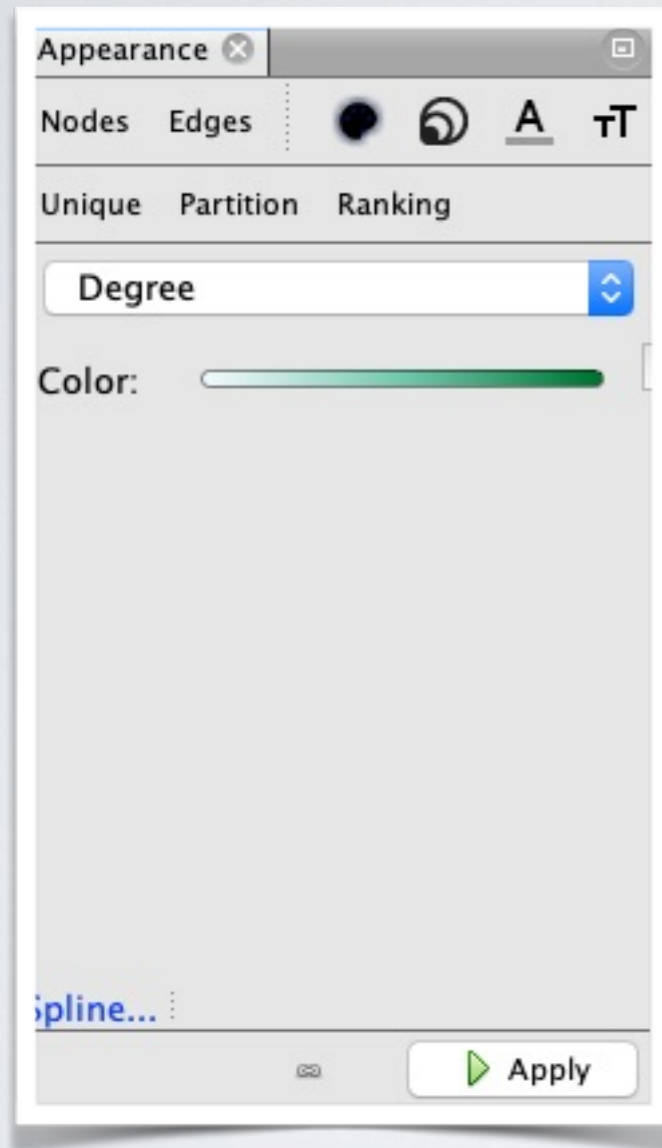
NODE DESIGN

The screenshot displays a network visualization software interface. The central area shows a complex graph with 81 nodes and 340 edges, rendered as a directed graph. The interface is divided into several panels:

- Appearance Panel (Left):** Contains options for Nodes and Edges, with a color selection set to #c0c0c0. It also includes a 'Draggability (Configure)' section.
- Layout Panel (Bottom Left):** Shows the 'Fruchterman Reingold' layout algorithm selected. Parameters include Area (10000.0), Gravity (10.0), and Speed (1.0). A 'Run' button is present.
- Context Panel (Right):** Displays graph statistics: Nodes: 81, Edges: 340, and Directed Graph. It also includes a 'Statistics' section with various metrics and 'Run' buttons.
- Dynamic Panel (Bottom Right):** Lists dynamic properties such as # Nodes, # Edges, Degree, and Clustering Coefficient, each with a 'Run' button.

Two red circles highlight specific areas: one around the Appearance panel and another around the bottom toolbar and Layout panel.

COLORS AND SIZE



Node color, Node Size
Label color, Label Size

Same for all or based on
attribute
(Compute attribute first)

Spline Example:

Country, Size = GDP

China: 13 000 B - Madagascard: 13 B

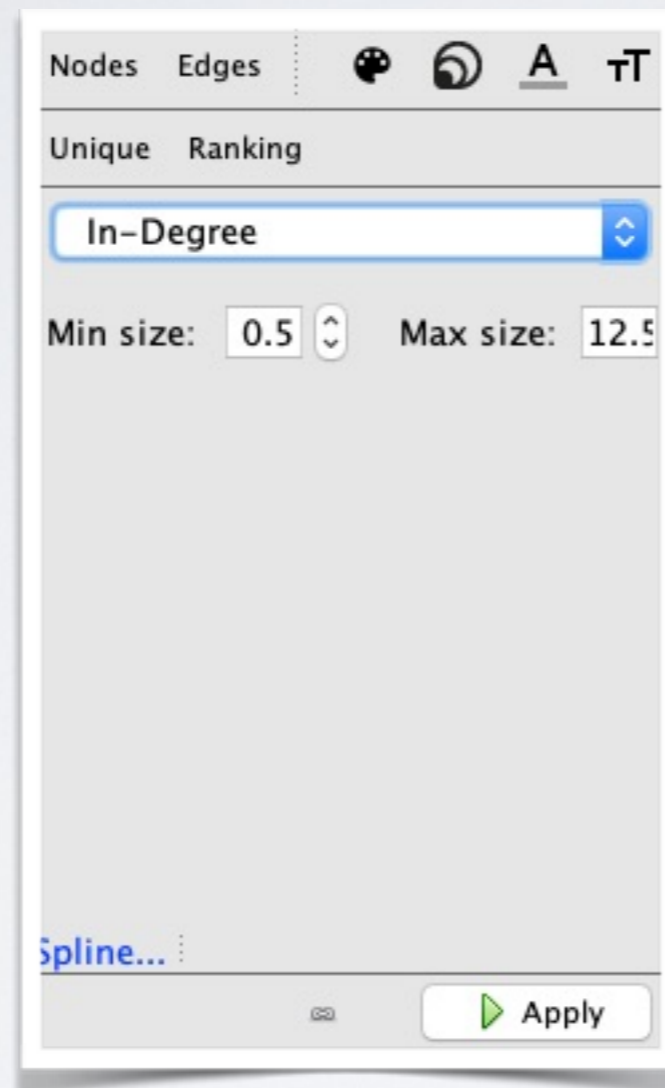
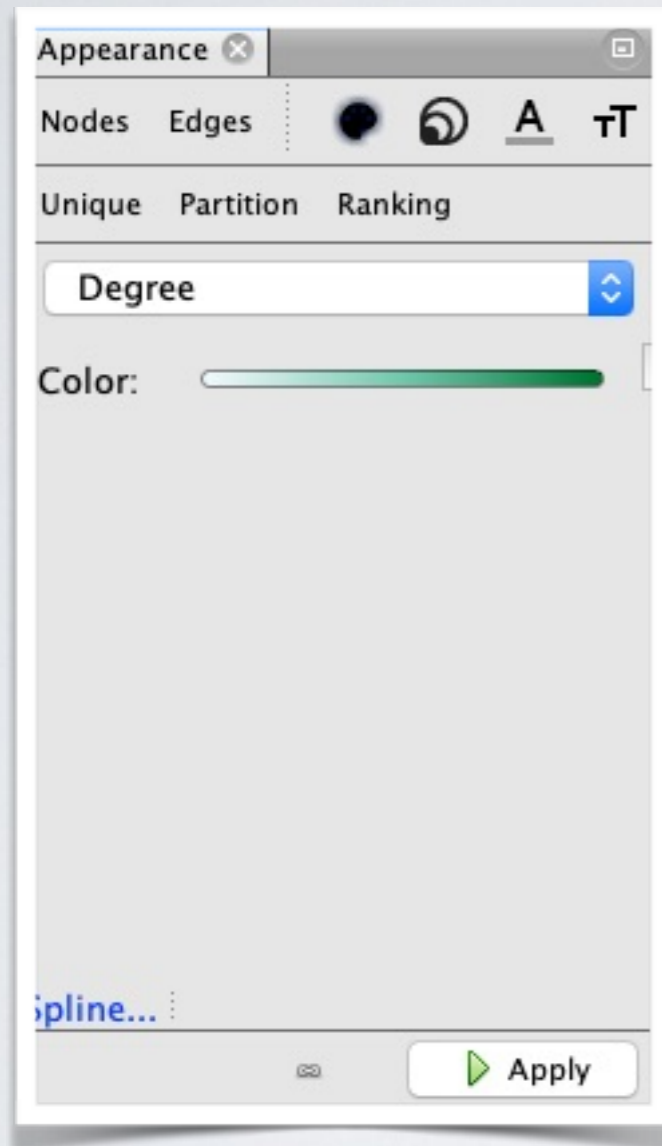
Node 1000 times bigger

Spline => Log

$\log(10\ 000) = 3 - \log(10) = 1$

3 times bigger

COLORS AND SIZE



Node color, Node Size
Label color, Label Size

Same for all or based on
attribute
(Compute attribute first)

Spline Example:

Country, Size = GDP

China: 13 000 B - Madagascard: 13 B

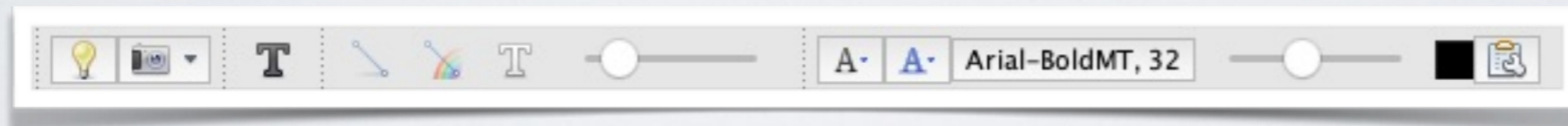
Node 1000 times bigger

Spline => Log

$\log(10\ 000) = 3 - \log(10) = 1$

3 times bigger

COLORS AND SIZE



Hide/show edges

Simple tuning

Let your mouse on a button to see its role

Tip: *Size Mode*:

Text size proportional to node size

COMPUTE STATISTICS

Overview Data Laboratory Preview

Workspace 1 Workspace 2

Appearance Graph Context

Nodes Edges Dragging (Configure)

Unique Partition Ranking

#c0c0c0

Apply

Layout

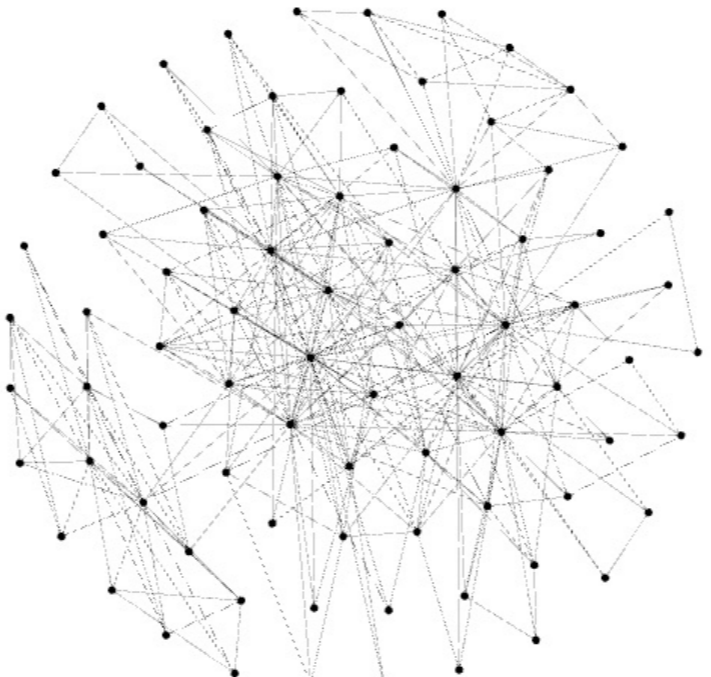
Fruchterman Reingold

Run

Fruchterman Reingold	
Area	10000.0
Gravity	10.0
Speed	1.0

Fruchterman Reingold ?

Presets... Reset



Nodes: 81
Edges: 340
Directed Graph

Filters Statistics 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
------------------	-----

Dynamic

# Nodes	Run
# Edges	Run
Degree	Run
Clustering Coefficient	Run

Font: Arial-BoldMT, 32

Network Overview	
Average Degree	Run <input type="radio"/>
Avg. Weighted Degree	Run <input type="radio"/>
Network Diameter	Run <input type="radio"/>
Graph Density	Run <input type="radio"/>
HITS	Run <input type="radio"/>
Modularity	Run <input type="radio"/>
PageRank	Run <input type="radio"/>
Connected Components	Run <input type="radio"/>
Node Overview	
Avg. Clustering Coefficient	Run <input type="radio"/>
Eigenvector Centrality	Run <input type="radio"/>
Edge Overview	
Avg. Path Length	Run <input type="radio"/>
Dynamic	
# Nodes	Run <input type="radio"/>
# Edges	Run <input type="radio"/>
Degree	Run <input type="radio"/>
Clustering Coefficient	Run <input type="radio"/>

Running statistics:
=>

COMPUTE STATISTICS

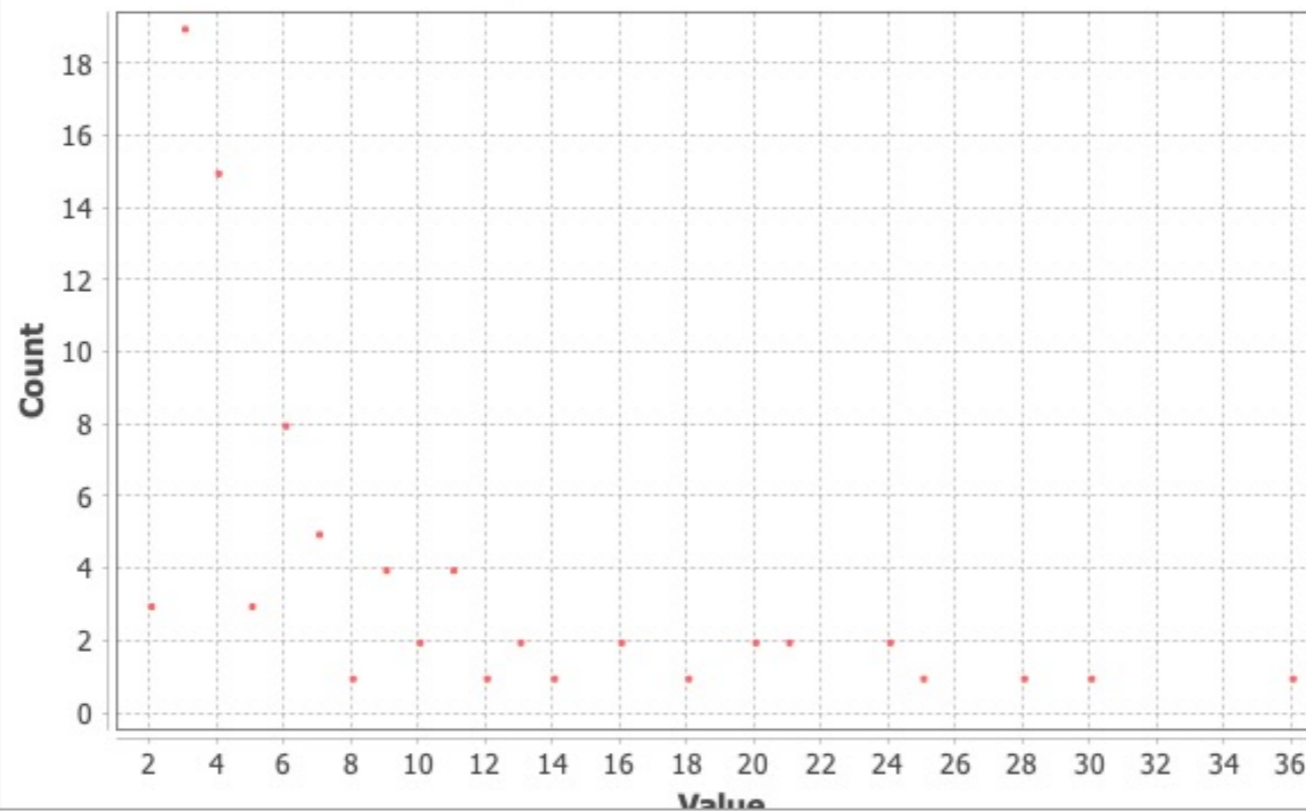
Report of results

Degree Report

Results:

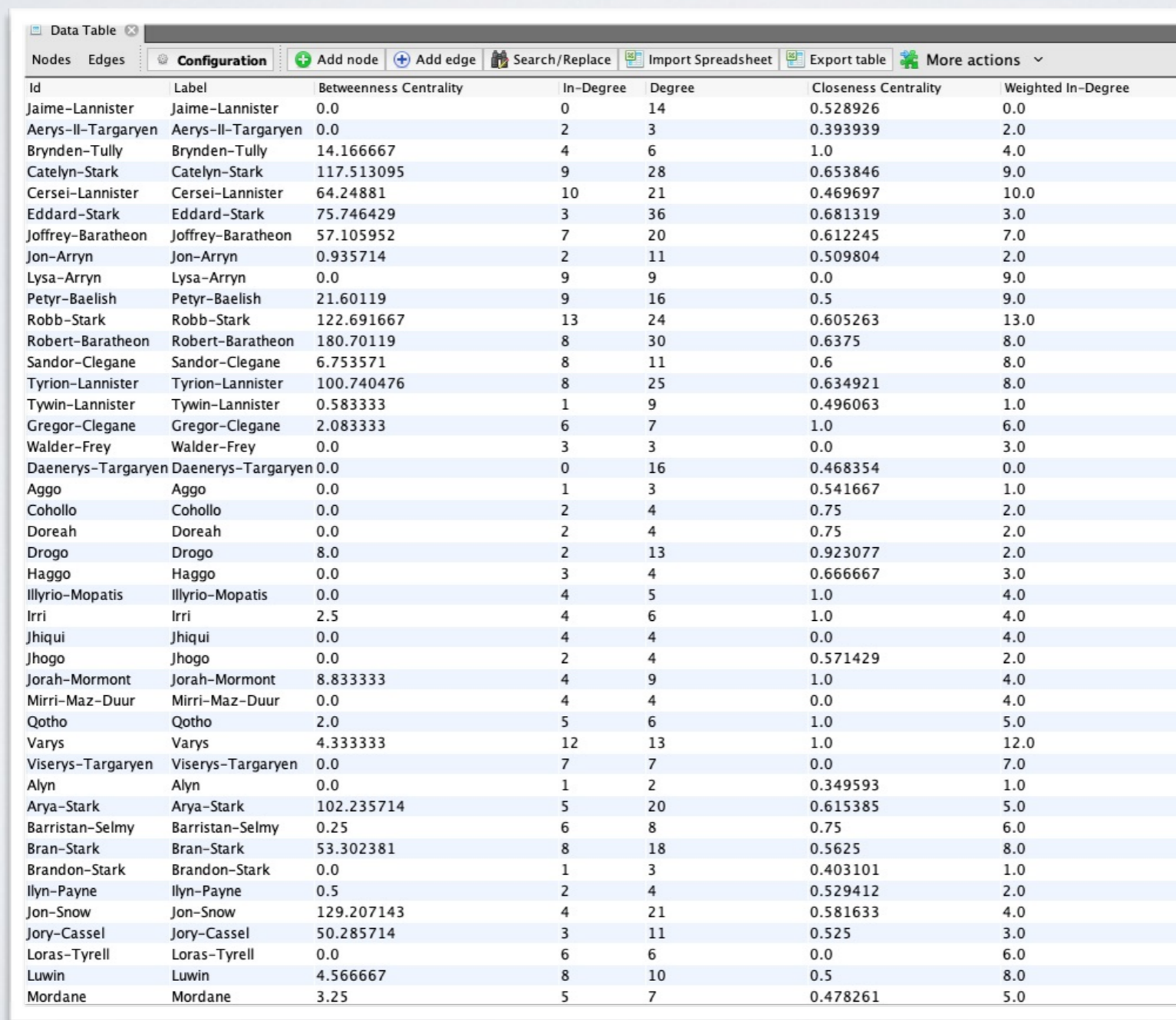
Average Degree: 4.198

Degree Distribution



COMPUTE STATISTICS

Values available in Data Lab => Export in Spreadsheet

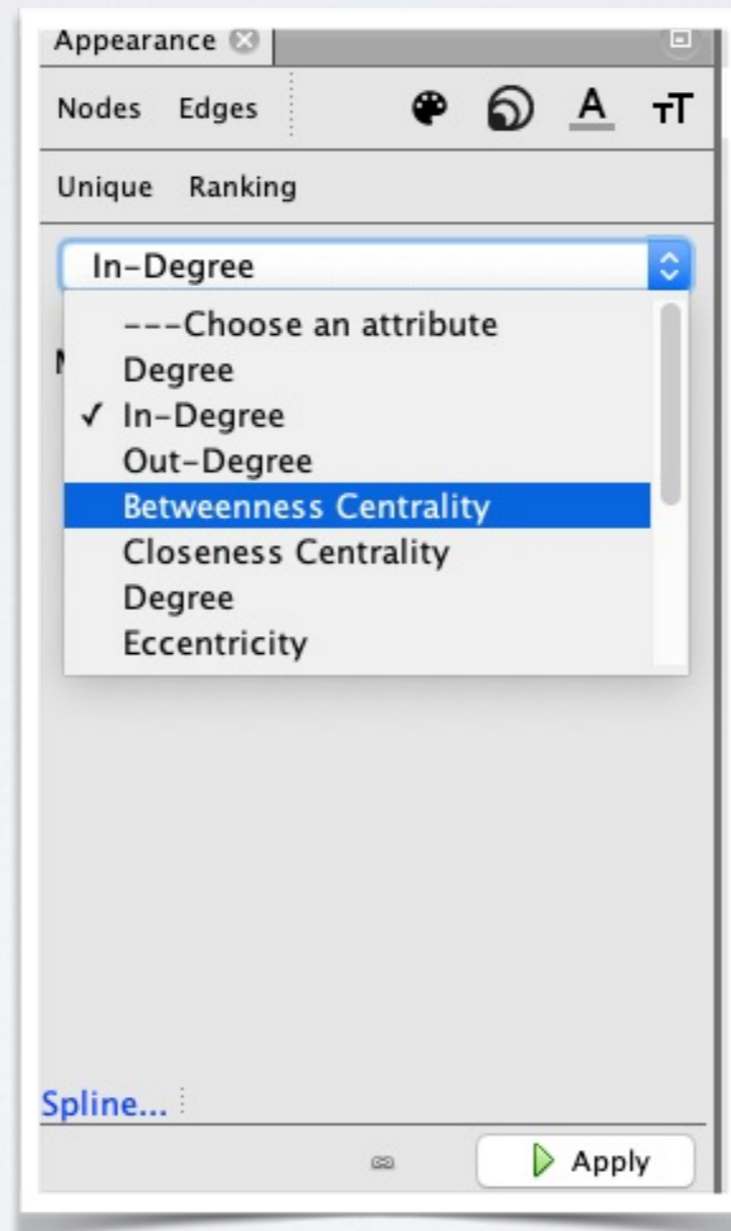


The screenshot shows a 'Data Table' window with a toolbar at the top containing buttons for 'Nodes', 'Edges', 'Configuration', 'Add node', 'Add edge', 'Search/Replace', 'Import Spreadsheet', 'Export table', and 'More actions'. The table below lists characters and their associated statistics.

Id	Label	Betweenness Centrality	In-Degree	Degree	Closeness Centrality	Weighted In-Degree
Jaime-Lannister	Jaime-Lannister	0.0	0	14	0.528926	0.0
Aerys-II-Targaryen	Aerys-II-Targaryen	0.0	2	3	0.393939	2.0
Brynden-Tully	Brynden-Tully	14.166667	4	6	1.0	4.0
Catelyn-Stark	Catelyn-Stark	117.513095	9	28	0.653846	9.0
Cersei-Lannister	Cersei-Lannister	64.24881	10	21	0.469697	10.0
Eddard-Stark	Eddard-Stark	75.746429	3	36	0.681319	3.0
Joffrey-Baratheon	Joffrey-Baratheon	57.105952	7	20	0.612245	7.0
Jon-Arryn	Jon-Arryn	0.935714	2	11	0.509804	2.0
Lysa-Arryn	Lysa-Arryn	0.0	9	9	0.0	9.0
Petyr-Baelish	Petyr-Baelish	21.60119	9	16	0.5	9.0
Robb-Stark	Robb-Stark	122.691667	13	24	0.605263	13.0
Robert-Baratheon	Robert-Baratheon	180.70119	8	30	0.6375	8.0
Sandor-Clegane	Sandor-Clegane	6.753571	8	11	0.6	8.0
Tyrion-Lannister	Tyrion-Lannister	100.740476	8	25	0.634921	8.0
Tywin-Lannister	Tywin-Lannister	0.583333	1	9	0.496063	1.0
Gregor-Clegane	Gregor-Clegane	2.083333	6	7	1.0	6.0
Walder-Frey	Walder-Frey	0.0	3	3	0.0	3.0
Daenerys-Targaryen	Daenerys-Targaryen	0.0	0	16	0.468354	0.0
Aggo	Aggo	0.0	1	3	0.541667	1.0
Cohollo	Cohollo	0.0	2	4	0.75	2.0
Doreah	Doreah	0.0	2	4	0.75	2.0
Drogo	Drogo	8.0	2	13	0.923077	2.0
Haggo	Haggo	0.0	3	4	0.666667	3.0
Illyrio-Mopatis	Illyrio-Mopatis	0.0	4	5	1.0	4.0
Irri	Irri	2.5	4	6	1.0	4.0
Jhiqui	Jhiqui	0.0	4	4	0.0	4.0
Jhogo	Jhogo	0.0	2	4	0.571429	2.0
Jorah-Mormont	Jorah-Mormont	8.833333	4	9	1.0	4.0
Mirri-Maz-Duur	Mirri-Maz-Duur	0.0	4	4	0.0	4.0
Qotho	Qotho	2.0	5	6	1.0	5.0
Varys	Varys	4.333333	12	13	1.0	12.0
Viserys-Targaryen	Viserys-Targaryen	0.0	7	7	0.0	7.0
Alyn	Alyn	0.0	1	2	0.349593	1.0
Arya-Stark	Arya-Stark	102.235714	5	20	0.615385	5.0
Barristan-Selmy	Barristan-Selmy	0.25	6	8	0.75	6.0
Bran-Stark	Bran-Stark	53.302381	8	18	0.5625	8.0
Brandon-Stark	Brandon-Stark	0.0	1	3	0.403101	1.0
Ilyn-Payne	Ilyn-Payne	0.5	2	4	0.529412	2.0
Jon-Snow	Jon-Snow	129.207143	4	21	0.581633	4.0
Jory-Cassel	Jory-Cassel	50.285714	3	11	0.525	3.0
Loras-Tyrell	Loras-Tyrell	0.0	6	6	0.0	6.0
Luwin	Luwin	4.566667	8	10	0.5	8.0
Mordane	Mordane	3.25	5	7	0.478261	5.0

COMPUTE STATISTICS

Values available to set nodes/edges colors/size



COMPUTE STATISTICS

- Average Degree
 - ▶ => Distribution of degrees ...
- Average Weighted Degree
- Network Diameter
 - ▶ => Diameter: Longest shortest path
 - ▶ Compute for nodes:
 - Betweenness (#shortest paths)
 - Closeness (#avg distance)
 - Harmonic closeness/centrality (Closeness variant)
 - Eccentricity (Longest distance to another node)

COMPUTE STATISTICS

- HITS
 - ▶ => Hubs and authorities (Hubs = cited by authorities, authorities = citing hubs)
- Pagerank
 - ▶ => Hubs score by “vote”
- Modularity, Connected components
 - ▶ Next section, communities

COMPUTE STATISTICS

- Avg Clustering coefficient
 - => friends of my friends are my friends
- Eigenvector Centrality
 - Variant of PageRank
- Avg. Path Length
 - => avg. between all pairs of nodes
- Dynamic
 - => To see later

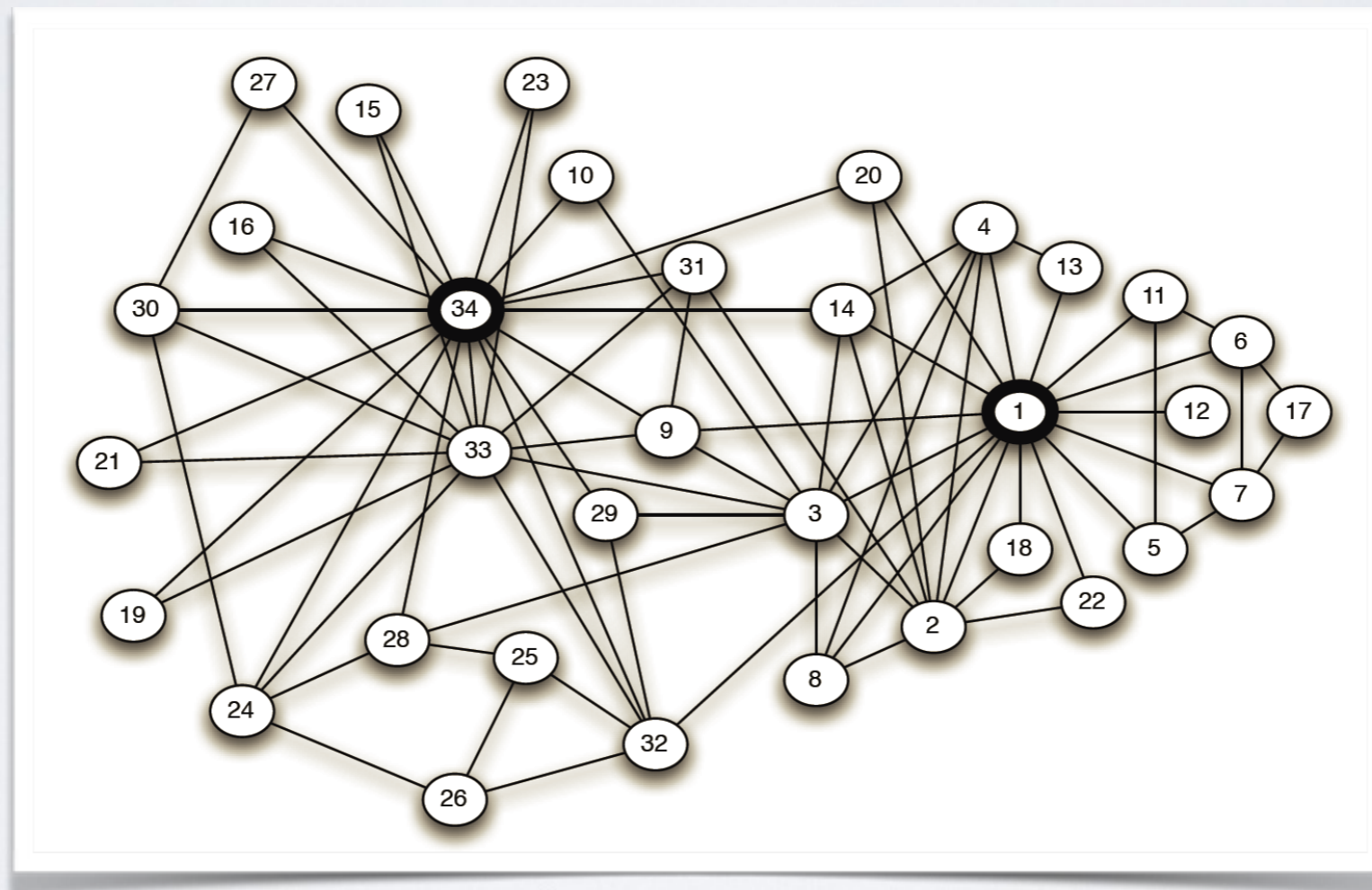
COMMUNITIES
OR “GRAPH CLUSTERS”

COMMUNITY DETECTION

- One of the most active research field in network science
- 1000+ methods proposed
- No clear objective:
 - Discover groups of nodes strongly connected and weakly connected to the rest of the graph ?
 - Discover group of nodes that make sense ?
 - Core-periphery
 - Blocks (male/female in a sentimental network)
- My field of research :)

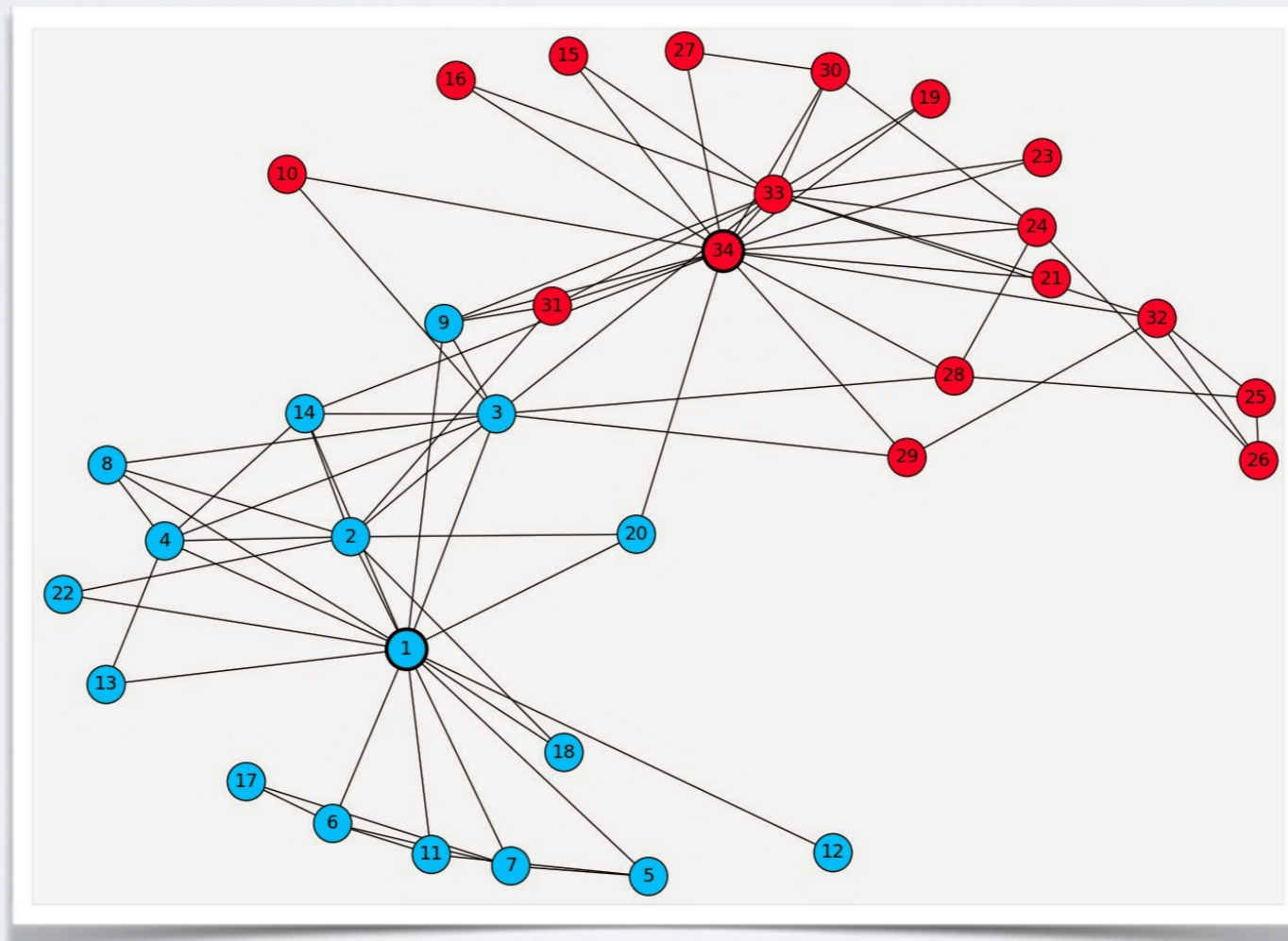
COMMUNITY DETECTION

- History: Karate Club Graph



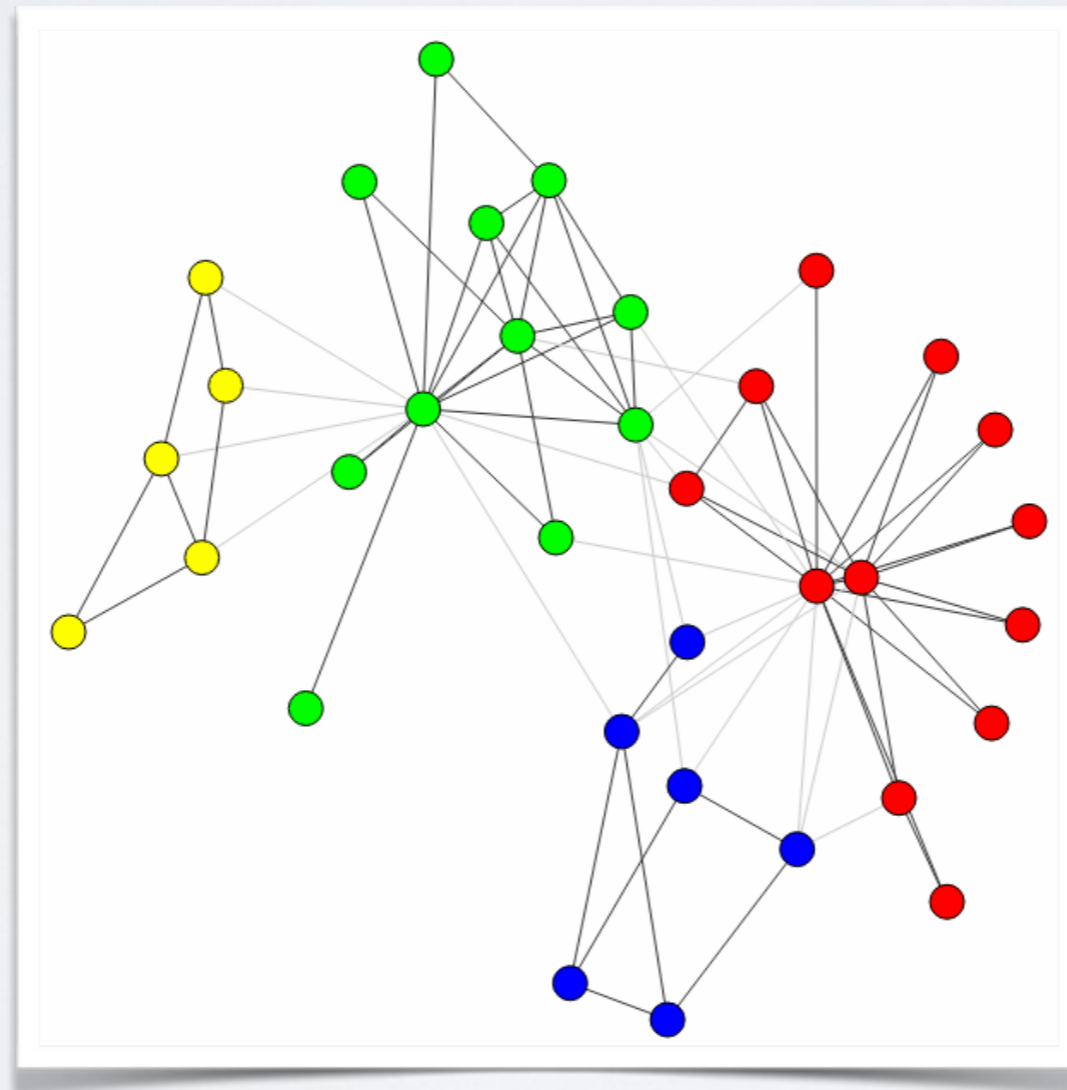
COMMUNITY DETECTION

- History: Karate Club Graph



COMMUNITY DETECTION

- History: Karate Club Graph



COMMUNITY DETECTION

- In Gephi: Louvain Algorithm
 - De facto standard (but might change in a near future...)
- Greedy optimization of modularity
 - Modularity =>
Fraction of edges between communities in **the graph**
 - Fraction of edges between communities in a **randomized graph**
 - Greedy optimization => Fast but not exhaustive
 - Do not necessarily find the solution of **highest** modularity
 - Two runs can yield different results

COMMUNITY DETECTION

- Most famous alternatives:
 - ▶ Stochastic block models:
 - Search from **blocks** that are **random sub-graphs**
 - Can allow to fix the number of clusters
 - ▶ Infomap:
 - Find partitions that allow to **compress** the graph : Occam razor
 - ▶ Leiden algorithm:
 - Improvement of Louvain with guarantees on community properties (connectedness..)
- Famous drawback of all methods: The resolution limit
 - ▶ In summary: methods cannot find small communities in large graphs

FILTERS

FILTERS

The screenshot displays a network visualization software interface. The central workspace shows a graph with 81 nodes and 340 edges, rendered as a directed graph. The interface includes several panels:

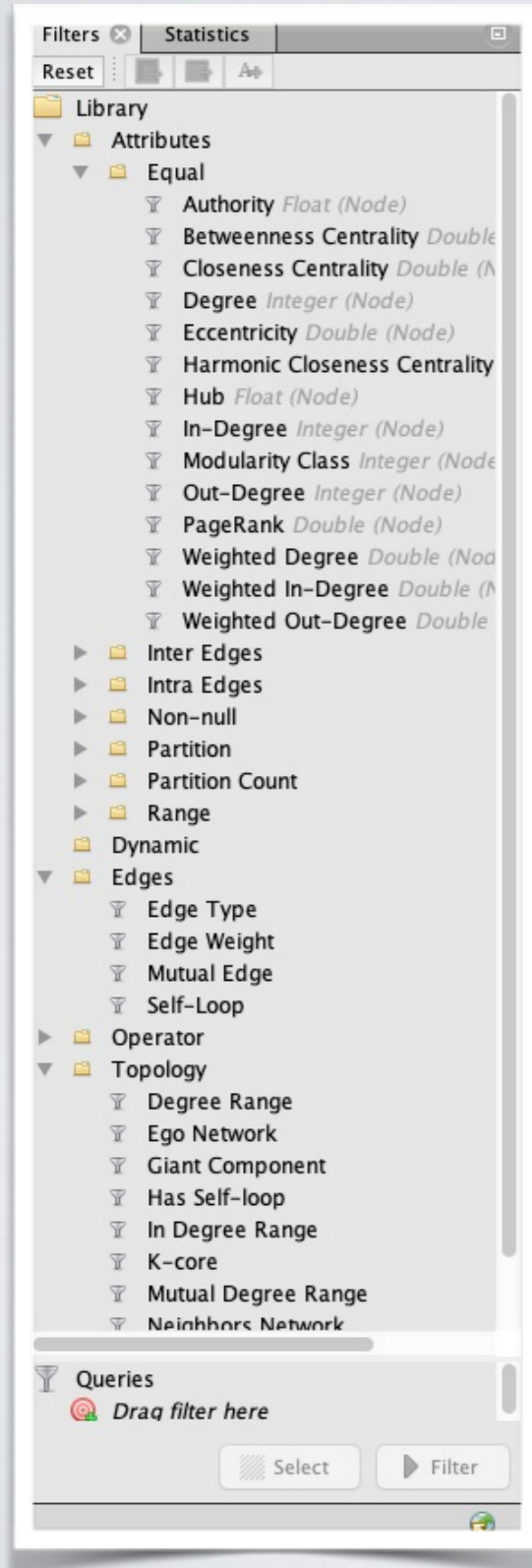
- Appearance:** Contains tabs for Nodes, Edges, Unique, Partition, and Ranking. A color selection area shows the hex code #c0c0c0.
- Layout:** Features a dropdown menu set to 'Fruchterman Reingold' and a 'Run' button. Below it, a table lists parameters for the layout algorithm:

Fruchterman Reingold	
Area	10000.0
Gravity	10.0
Speed	1.0

- Context:** Displays graph statistics: Nodes: 81, Edges: 340, and Directed Graph.
- Filters:** A sidebar containing various filters and statistics, each with a 'Run' button. The filters are organized into sections:
 - Network Overview:** Average Degree, Avg. Weighted Degree, Network Diameter, Graph Density, HITS, Modularity, PageRank, Connected Components.
 - Node Overview:** Avg. Clustering Coefficient, Eigenvector Centrality.
 - Edge Overview:** Avg. Path Length.
 - Dynamic:** # Nodes, # Edges, Degree, Clustering Coefficient.

The interface also includes a top navigation bar with 'Overview', 'Data Laboratory', and 'Preview' tabs, and a bottom toolbar with various tool icons and a font selection area set to 'Arial-BoldMT, 32'.

FILTERS



- Filter-out nodes/Edges
- Based on properties:
 - ▶ User defined:
 - Genre is : male
 - Age is: between 25 and 35
 - ▶ Computed:
 - Degree is : > 10
 - PageRank is : between 0.2 and 0.5
 - ▶ Based on topology
 - Ego network at depth
 - Giant component
 - K-core (subgraph of internal degree at list k)
- Filtered graph can be exported

RANDOM TIPS

RANDOM TIPS

- From the overview, you can right-click on a node to see it in the data laboratory
- From the data lab, you can right-click on a node to see it in the overview
- The data lab has many features to discover:
 - ▶ Filtering nodes/edges,
 - ▶ Create nodes/edges
 - ▶ Group nodes
 - ▶ ...
- I recommend to avoid using this.
 - ▶ 1) Build your data in excel/text file
 - ▶ 2) Compute statistics and visualize with Gephi

SAVING

- Computed statistics:
 - From the data laboratory => Export tables
 - Can be re-load with table import
- The graph topology:
 - File/Export (choose a file format)
 - With all information (colors, node location...) => Choose GEXF format
- The complete workspace (filters...)
 - File/Save
- Graph as a picture
 - File/Export/"PDF/SVG ..."
 - PDF & SVG : vectors => infinite zoom, small weight
 - PNG: pixels by pixel, weight depends on size

SPECIAL COLUMNS

- Some columns in Gephi are “special”, they always exist:
 - Nodes:
 - ID
 - Label <-Column used to display the label
 - Interval
 - Edges
 - Source
 - Target
 - Type <-Directed/Undirected
 - Id
 - Label <-Column used to display the label
 - Interval
 - Weight <-Column used for the width of edges



Tools to fill those columns from other ones

DYNAMICS

DYNAMIC GRAPHS

- Nodes and edges have a special column for dynamic
- Flexible format:
 - ▶ $\langle [start1, start2); (start3, start4] \rangle$
 - ▶ [and] means “limit included”
 - ▶ (and) means “limit excluded”
 - $[3,3] \Rightarrow$ only 3
 - $[3,3) \Rightarrow$ impossible
 - ▶ Accept dates YYYY/MM/DD/MM:SS, timestamps...

DYNAMIC GRAPHS

1) Your spreadsheet file

Source	Target	Label	Weight	something_	Interval
a	b	link 1	100	5	<[2005,2006]>
c	d	another link	150	10	<[2005,2005];[2006,2006]>
a	e	why not ?	50	3	<[2003,2007]>

2) After import

Interval	Weight	something_else	interval
1.0	5		<[2005,2006]>
1.0	10		<[2005,2005];[2006,2006]>
1.0	3		<[2003,2007]>

3) Copy data to other column + (Data Lab/Configuration/time Intervals as graphic)

Source	Target	Type	Id	Label	Interval	Weight
a	b	Undirected	12	link 1		1.0
c	d	Undirected	13	another link		1.0
a	e	Undirected	14	why not ?		1.0

DYNAMIC GRAPHS

The screenshot shows a 'Data Table' application window. The table contains three rows of graph edge data. The toolbar at the bottom includes various actions such as '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', and 'Convert column to dynamic'. The 'Enable Timeline' button is highlighted with a red circle.

Source	Target	Type	Id	Label	Interval	Weight	something_else	interval
a	b	Directed	15	link 1		1.0	5	<[2005,2006]>
c	d	Directed	16	another link		1.0	10	<[2005,2005],[2006,2006]>
a	e	Directed	17	why not ?		1.0	3	<[2003,2007]>

Toolbar actions:

- 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
- Enable Timeline

DYNAMIC GRAPHS

The screenshot displays a software interface for dynamic graph analysis. The main workspace shows a graph with 5 nodes and 1 edge. The interface includes several panels:

- Appearance:** Contains tabs for Nodes, Edges, Unique, Partition, and Ranking. A color selection tool is visible with the hex code #c0c0c0.
- Layout:** Features a dropdown menu to "Choose a layout" and a "Run" button.
- Graph:** The central workspace where the graph is visualized. A red oval highlights the bottom toolbar, which includes a play button and a timeline with numerical markers (2,003.5, 2,004, 2,004.5, 2,005, 2,005.5, 2,006, 2,006.5).
- Context:** Provides summary statistics: Nodes: 5 (100% visible), Edges: 1 (33.33% visible), and Directed Graph.
- Network Overview:** Lists various network metrics with "Run" buttons: Average Degree, Avg. Weighted Degree, Network Diameter, Graph Density, HITS, Modularity, PageRank, and Connected Components.
- Node Overview:** Lists node-level metrics: Avg. Clustering Coefficient and Eigenvector Centrality.
- Edge Overview:** Lists edge-level metrics: Avg. Path Length.
- Dynamic:** Lists dynamic metrics: # Nodes, # Edges, Degree, and Clustering Coefficient.


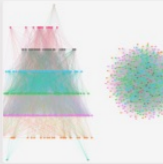
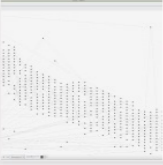

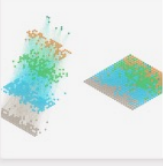

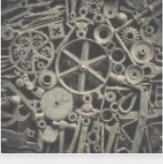
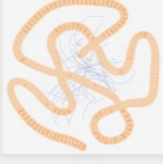

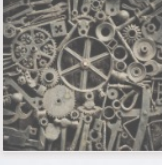
PLUGINS

PLUGINS





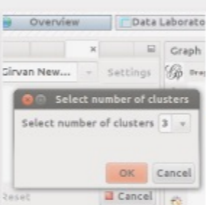
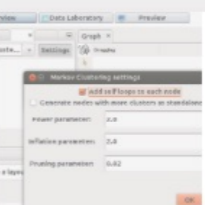
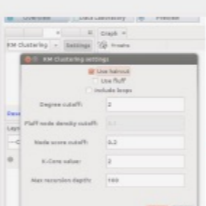
- <https://gephi.org/plugins/#/browse/type/layout>
 - Or just search “Gephi plugins” in Google
- Any programmer can write and propose plugins, i.e. extensions for gephi
- They add some missing features


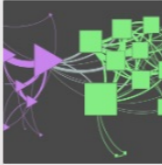

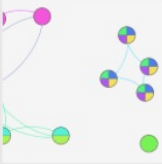
PLUGINS

Layout

	GeoLayout 3 months ago A layout to display geocoded data		Network Splitter 3D 3 months ago This layout can be used to split a network layout into distinct Z-Layers. E.g. after
	Graphviz Layout 3 months ago Graphviz Layout Plugin		Circular Layout 3 months ago This plugin provides three circular layouts; one simple circle (titled "Circular Layout",
	Isometric Layout 3 months ago This layout uses an isometric perspective to visualize networks.		EventGraphLayout 3 months ago Layout algorithm for event graphs
	MdsLayout 3 months ago This plugin takes a set of coordinates on 2 dimensions and creates a layout based on		MultiGravity ForceAtlas 2 3 months ago Force Atlas 2 Modification with multiple sources of
	Map Of Countries 3 months ago A layout to display maps in the backgrounds of networks		Polygon Shaped Nodes 3 months ago Allows node shapes to be changed to any polygon

Clustering - Communities

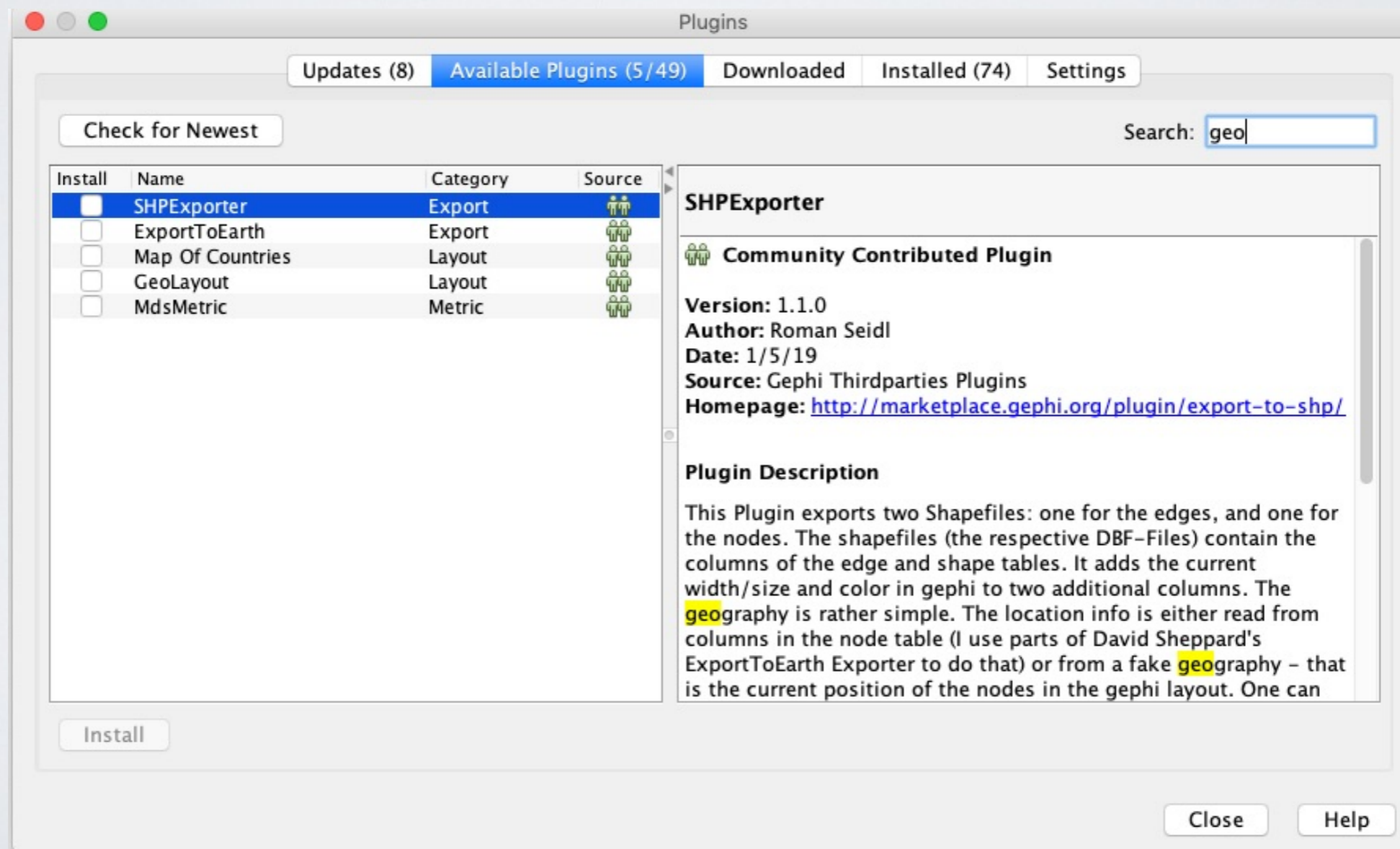
	Newman-Girvan Clustering 3 months ago Girvan-Newman clustering algorithm		Leiden Algorithm 3 months ago The Leiden algorithm finds well-connected communities in large scale networks.
	Chinese Whispers Clustering 4 years ago		Label Propagation Clustering 5 years ago
	Girvan Newman Clustering 5 years ago		Markov Cluster Algorithm (MCL) 5 years ago
	Molecular Complex Detection (MCODE) Clustering 5 years ago		

	Image Preview 3 months ago Image Preview		Polygon Nodes 4 years ago
	Image Preview 5 years ago		Multi Colour Renderer 5 years ago

Preview

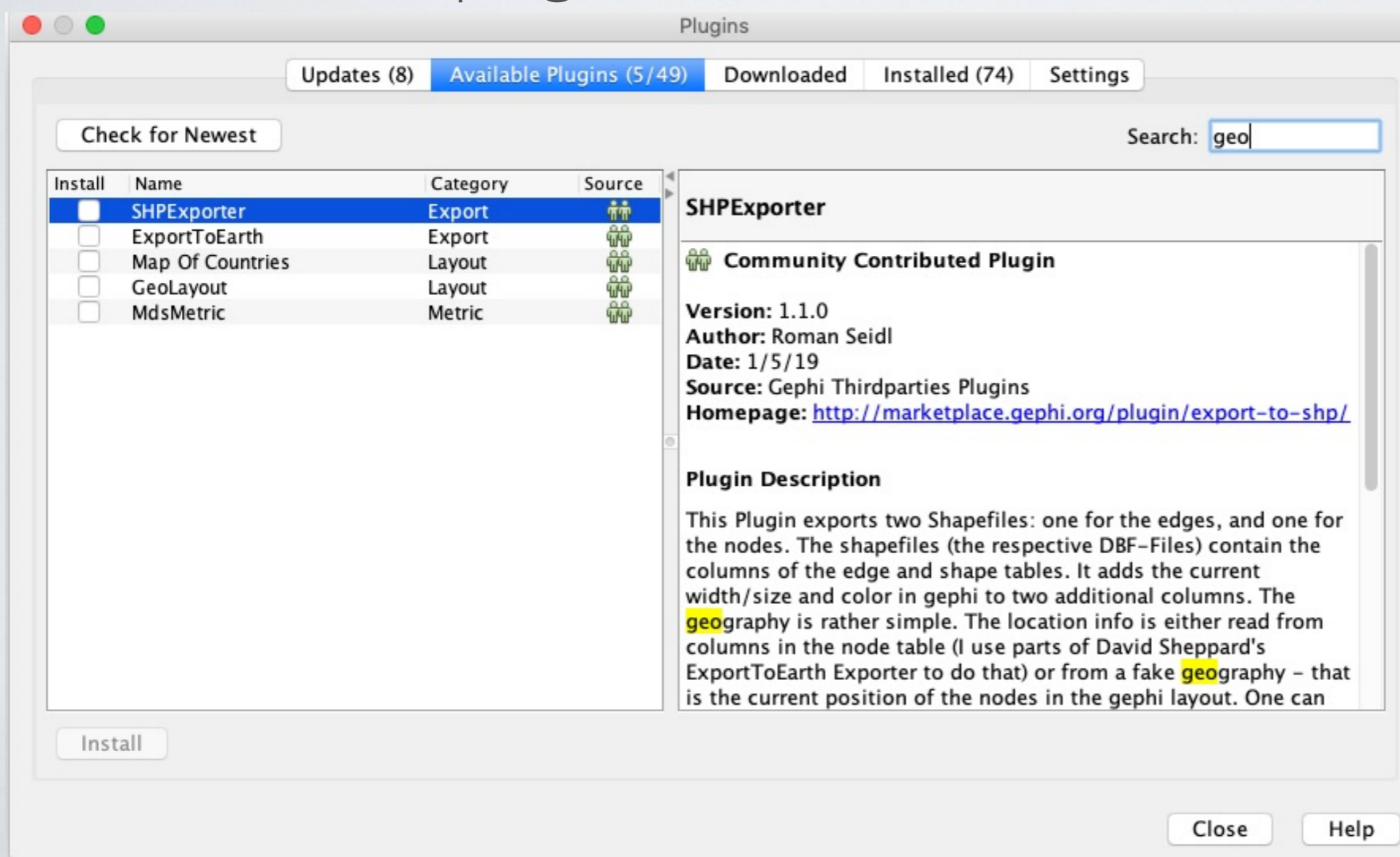
PLUGINS

- One useful example: spatial data
- Menu Tools/plugins



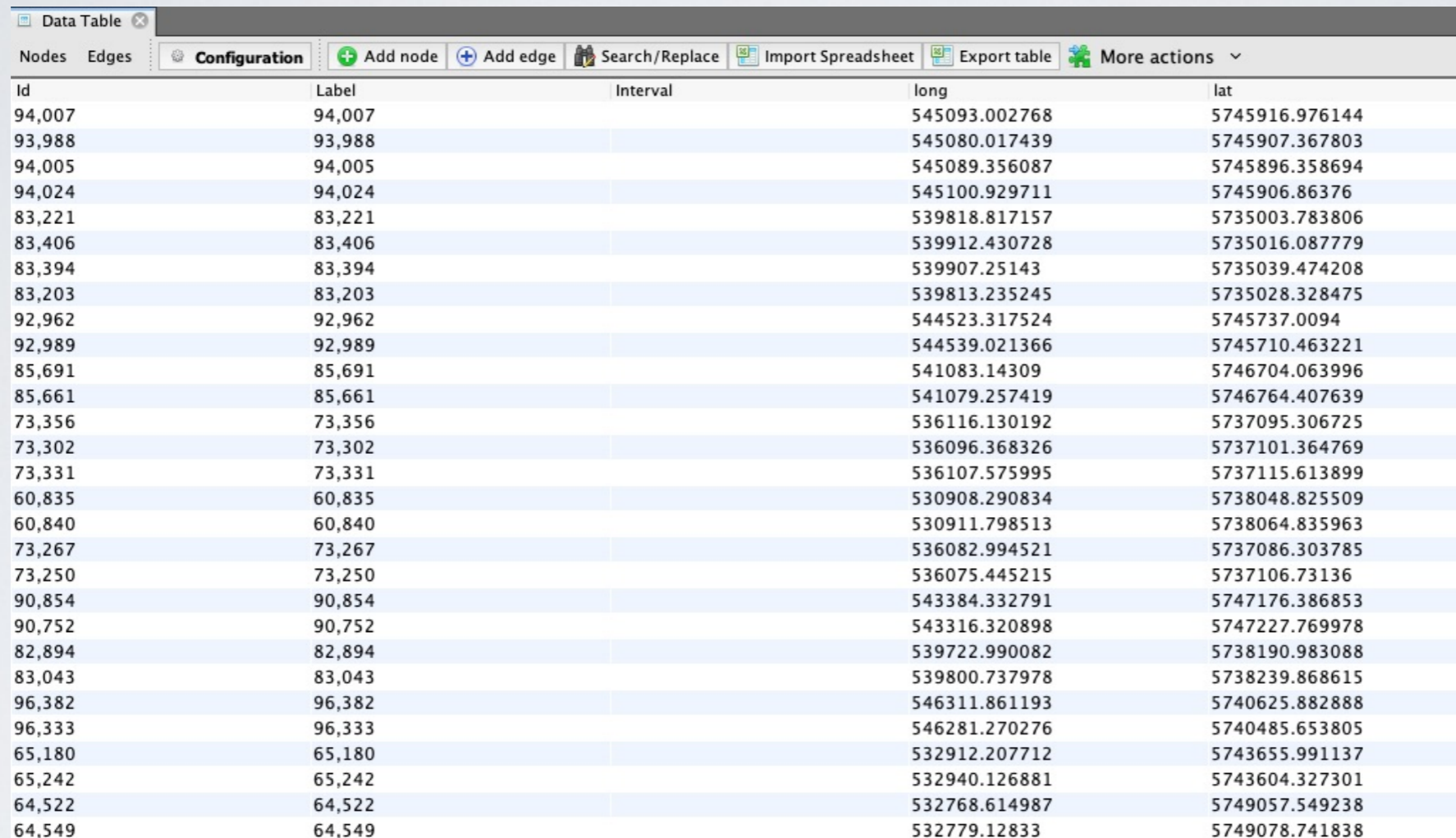
PLUGINS

- One useful example: spatial data
- Menu Tools/plugins



Install
&
Restart

PLUGINS

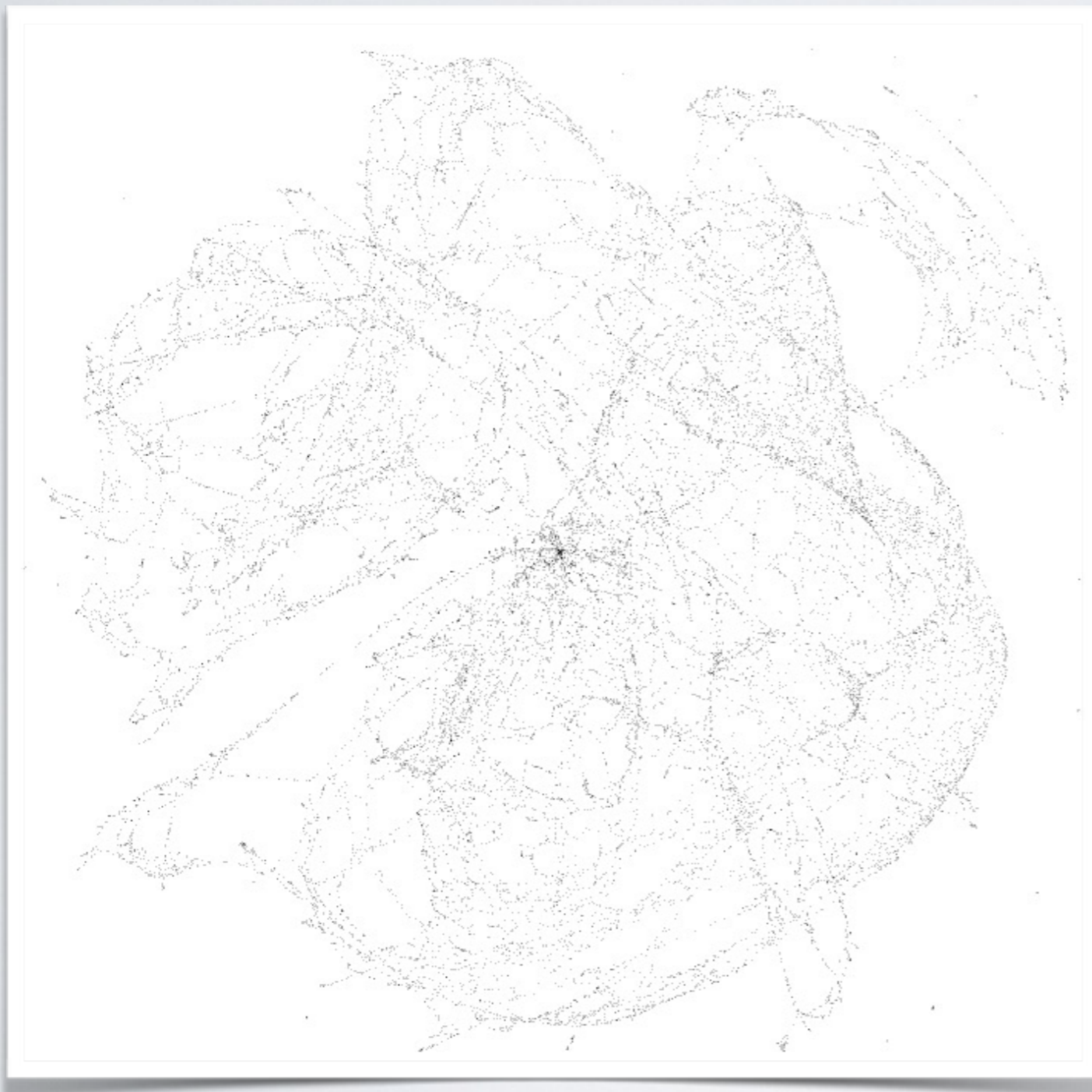


The screenshot shows a software interface titled "Data Table" with a toolbar containing buttons for "Add node", "Add edge", "Search/Replace", "Import Spreadsheet", "Export table", and "More actions". Below the toolbar is a table with the following data:

Id	Label	Interval	long	lat
94,007	94,007		545093.002768	5745916.976144
93,988	93,988		545080.017439	5745907.367803
94,005	94,005		545089.356087	5745896.358694
94,024	94,024		545100.929711	5745906.86376
83,221	83,221		539818.817157	5735003.783806
83,406	83,406		539912.430728	5735016.087779
83,394	83,394		539907.25143	5735039.474208
83,203	83,203		539813.235245	5735028.328475
92,962	92,962		544523.317524	5745737.0094
92,989	92,989		544539.021366	5745710.463221
85,691	85,691		541083.14309	5746704.063996
85,661	85,661		541079.257419	5746764.407639
73,356	73,356		536116.130192	5737095.306725
73,302	73,302		536096.368326	5737101.364769
73,331	73,331		536107.575995	5737115.613899
60,835	60,835		530908.290834	5738048.825509
60,840	60,840		530911.798513	5738064.835963
73,267	73,267		536082.994521	5737086.303785
73,250	73,250		536075.445215	5737106.73136
90,854	90,854		543384.332791	5747176.386853
90,752	90,752		543316.320898	5747227.769978
82,894	82,894		539722.990082	5738190.983088
83,043	83,043		539800.737978	5738239.868615
96,382	96,382		546311.861193	5740625.882888
96,333	96,333		546281.270276	5740485.653805
65,180	65,180		532912.207712	5743655.991137
65,242	65,242		532940.126881	5743604.327301
64,522	64,522		532768.614987	5749057.549238
64,549	64,549		532779.12833	5749078.741838

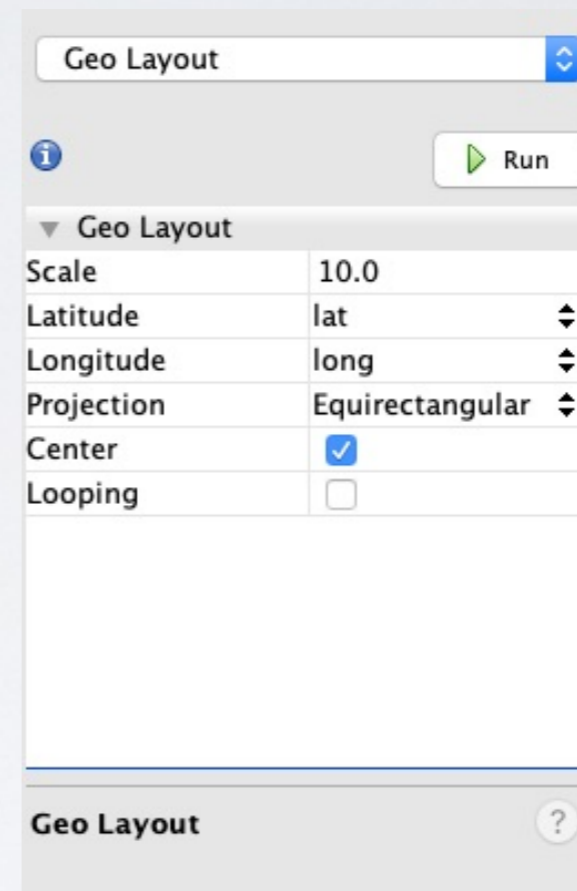
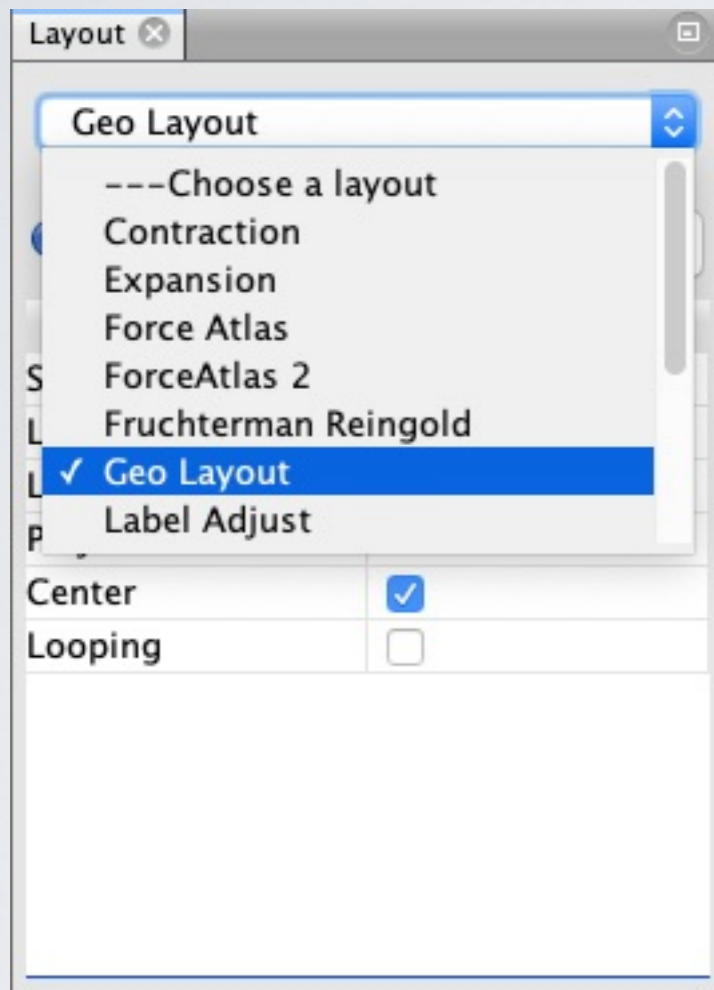
Dataset with columns for position

PLUGINS



Using graph layout

PLUGINS



PLUGINS

