

RA MODEL VISUALIZATION

WITH GEPHI

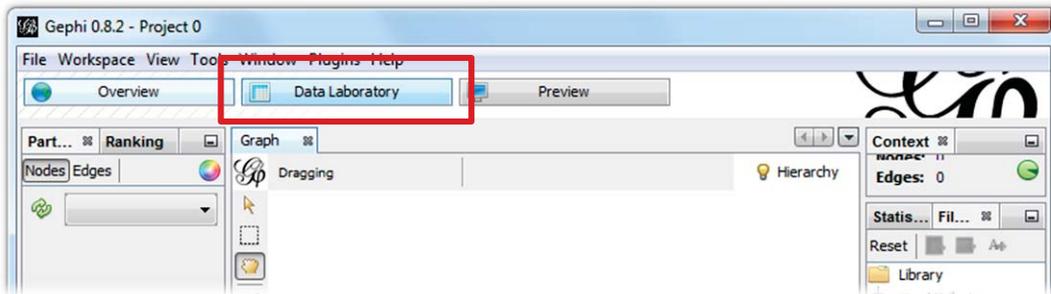
Prepared for Prof. Martin Zwick

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by Teresa D. Schmidt (tds@pdx.edu)

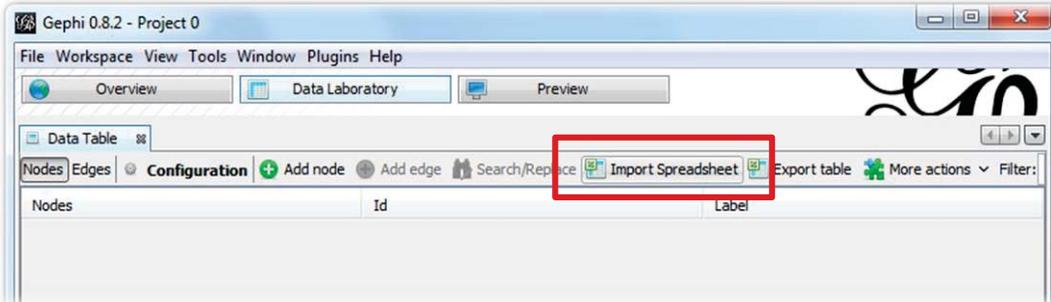
IMPORTING EDGE AND NODE FILES TO GEPHI

Open Gephi and select New Project. Click on the Data Laboratory Tab as shown below.

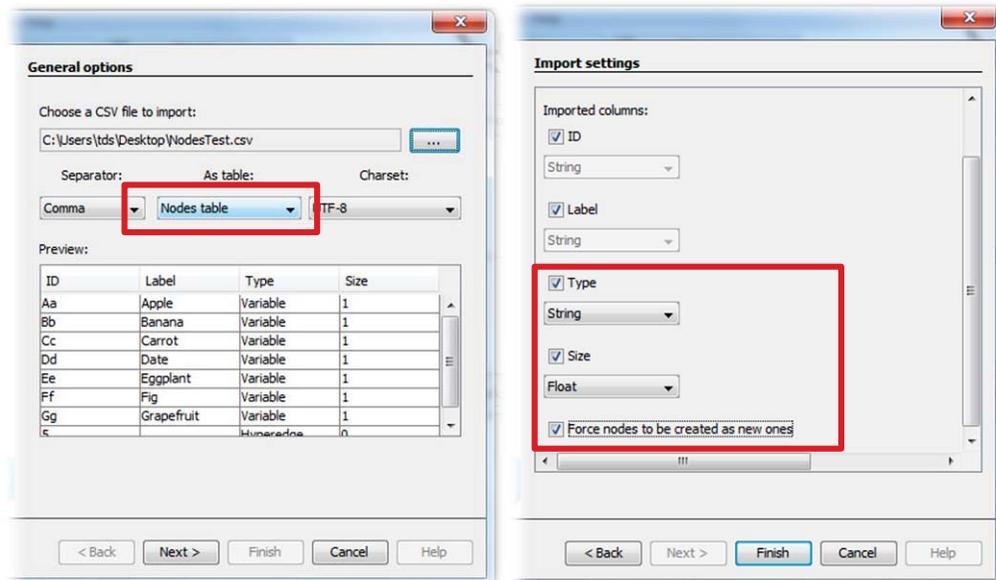


In the Data Laboratory Tab, we will import both the Edges file and the Nodes file.

1. If the Data Table does not appear, click on Window and then Data Table.
2. Click on the Import Spreadsheet button

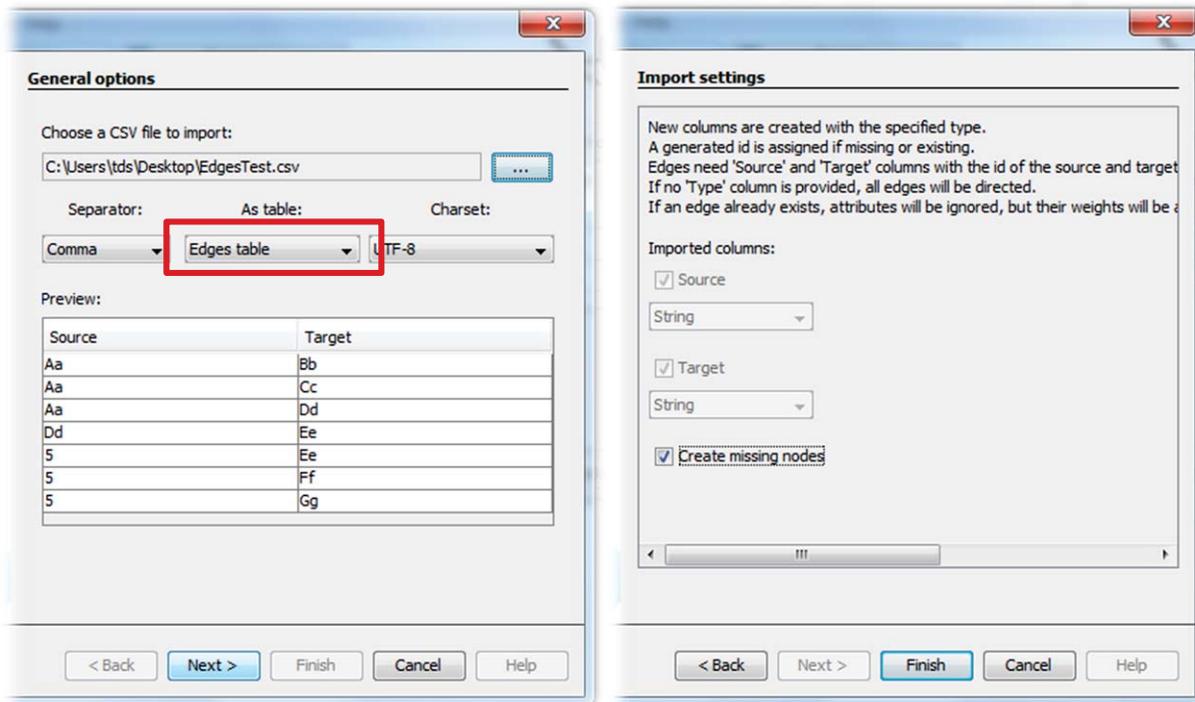


3. With Nodes Table selected, use the  browse for the node file and click Next
4. The next window will show a list of Import settings
 - a. The Type variable should be defined as a String variable already
 - b. The Size variable should be changed to a Float variable
 - c. Check the box at the bottom to "Force nodes to be created as new ones" and click Finish

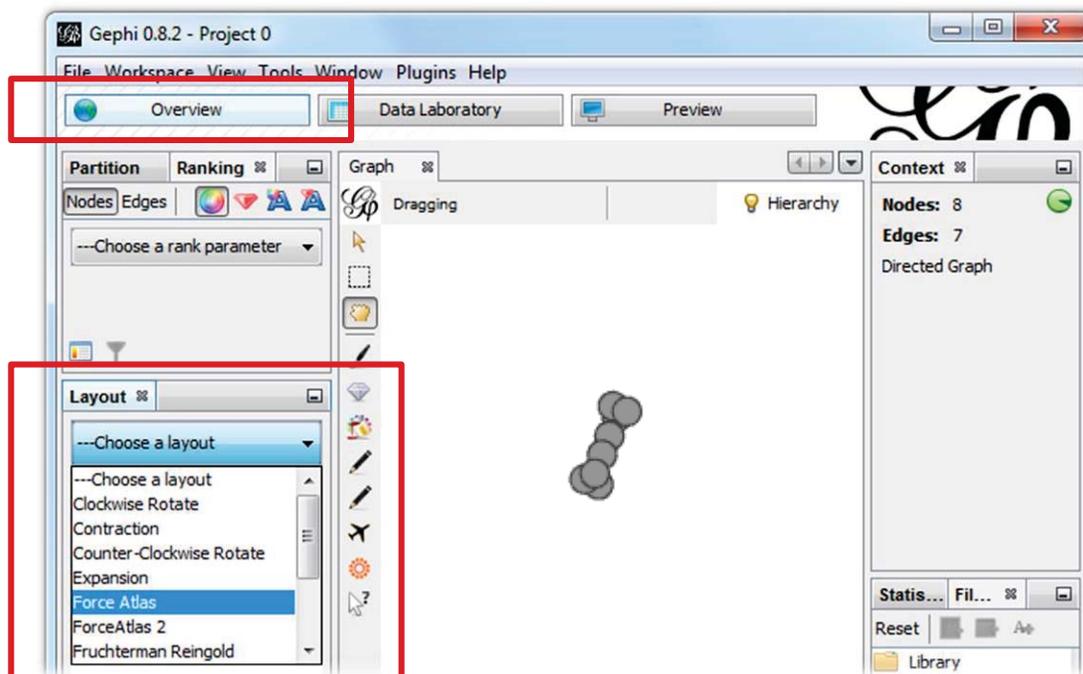


5. Click the Import Spreadsheet button again

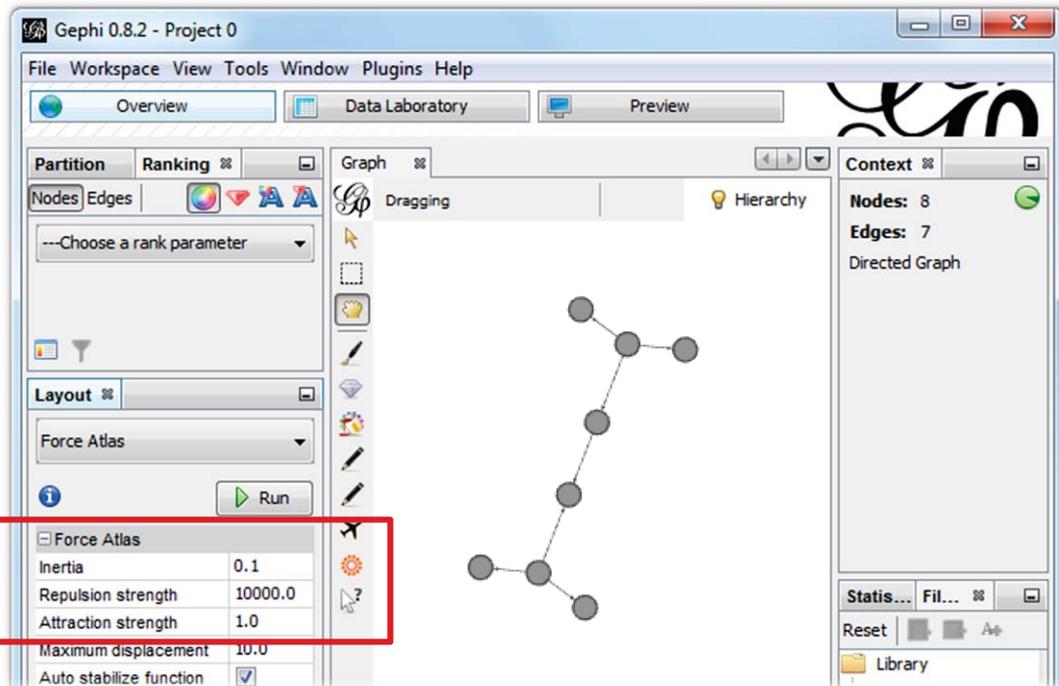
6. With Edges Table selected, browse for the node file and click Next
 - a. If you have labels and weights, they should be String and Float variables, respectively.
 - b. It doesn't matter whether the box is checked for "Create missing nodes." Click Finish

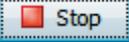


Now we can generate an initial network visualization from Gephi's Overview Tab

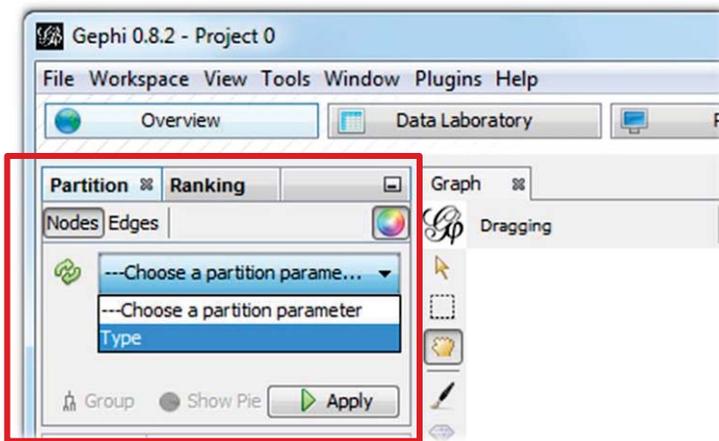


1. In the Layout window, click on the ---Choose a layout button, and choose Force Atlas.
2. Click the run button  and a networks should appear in the Graph window.
3. If the network is "crunched" it can be expanded in the Force Atlas window as shown below:

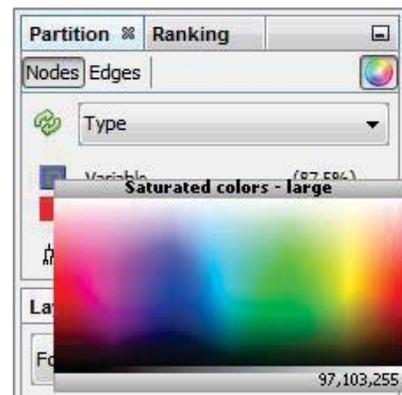


- a. Increase the repulsion strength (to 10,000)
- b. Decrease the attraction strength (to 1)
- c. Click the run button again to update
- d. Click the stop button  when the nodes stop moving

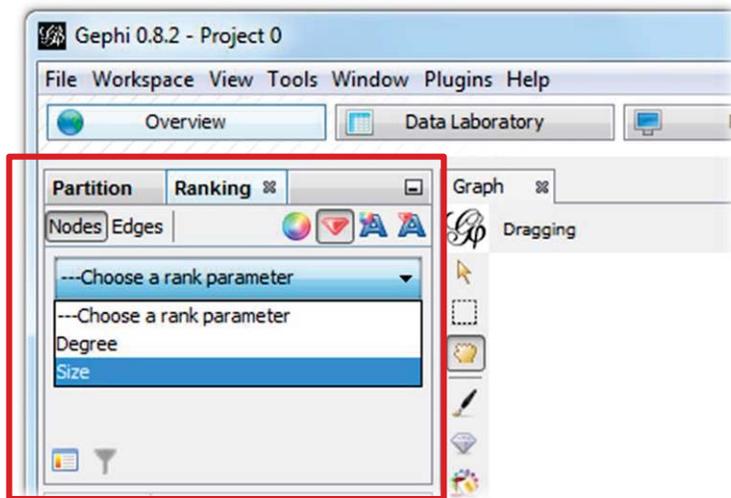
Colors can be added to the network through the Partition window



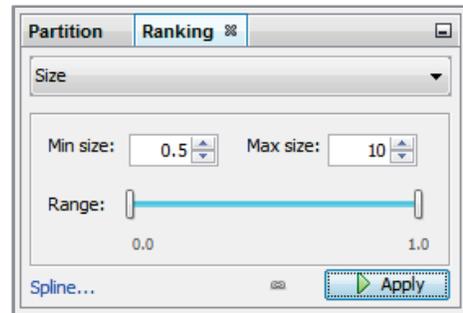
1. Click the refresh button 
2. Choose 'Type' from the drop down menu
3. Colors will be randomly assigned for 'Hyperedge' nodes and for 'Variable' nodes
4. Click the Apply button  to update
5. To change the colors, click on one and drag your cursor through the color palette (shown at right)
6. Click the Apply button  to update



Hyperedge nodes can be made (nearly) invisible through the Ranking window

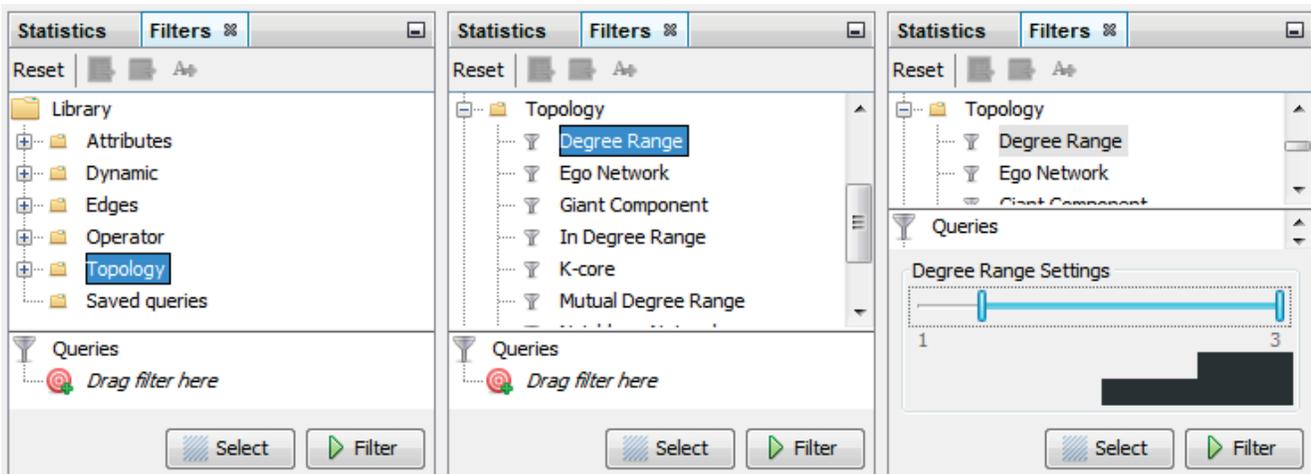


1. Click on the Size/Weight button 
2. Choose 'Size' from the drop down menu
(There's no refresh button in the Ranking window, so if Size doesn't appear at first, try toggling between Nodes and Edges in the Ranking window.)
3. Reduce the Min size to 0.5 (zero is not allowed)
4. Increase the Max size to 10 or more
5. Click the Apply button  to update

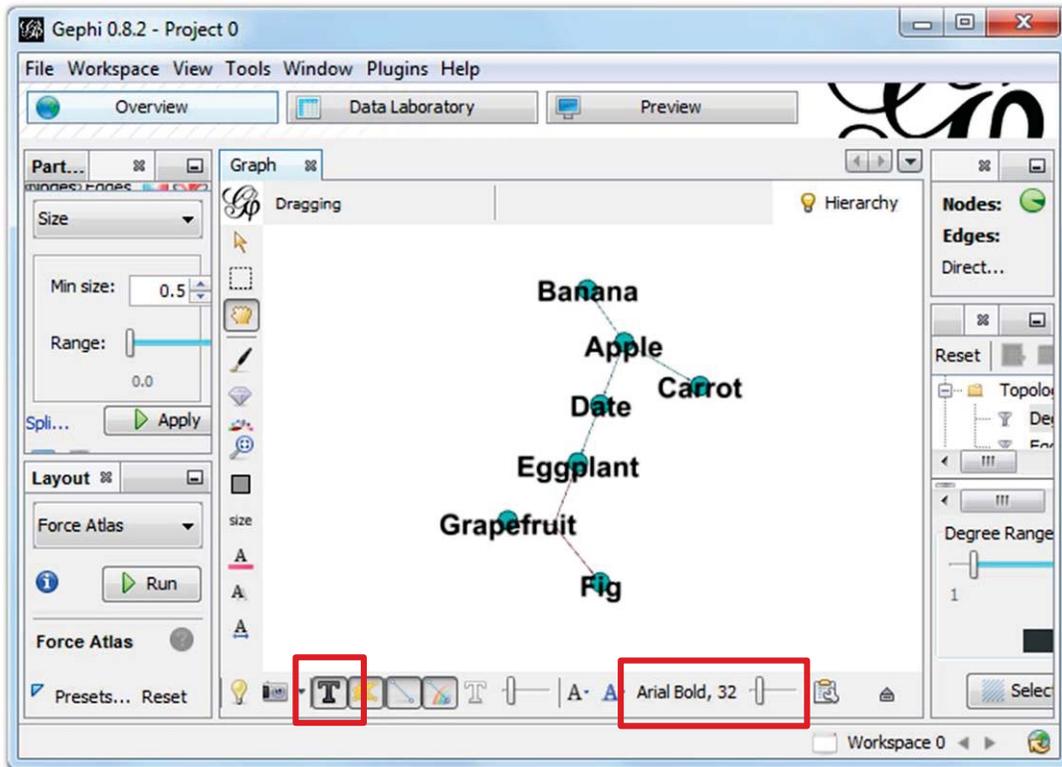


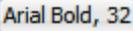
If your network includes "isolate" variables, who are not connected to anyone, you can hide them.

1. In the Filters window, double click on 'Topology'
2. Within Topology, double click on 'Degree Range'
3. In the Degree Range settings, click and drag the lower handle to the right so that the lower range is set to 1 (and not 0)
4. Click the filter button  to update

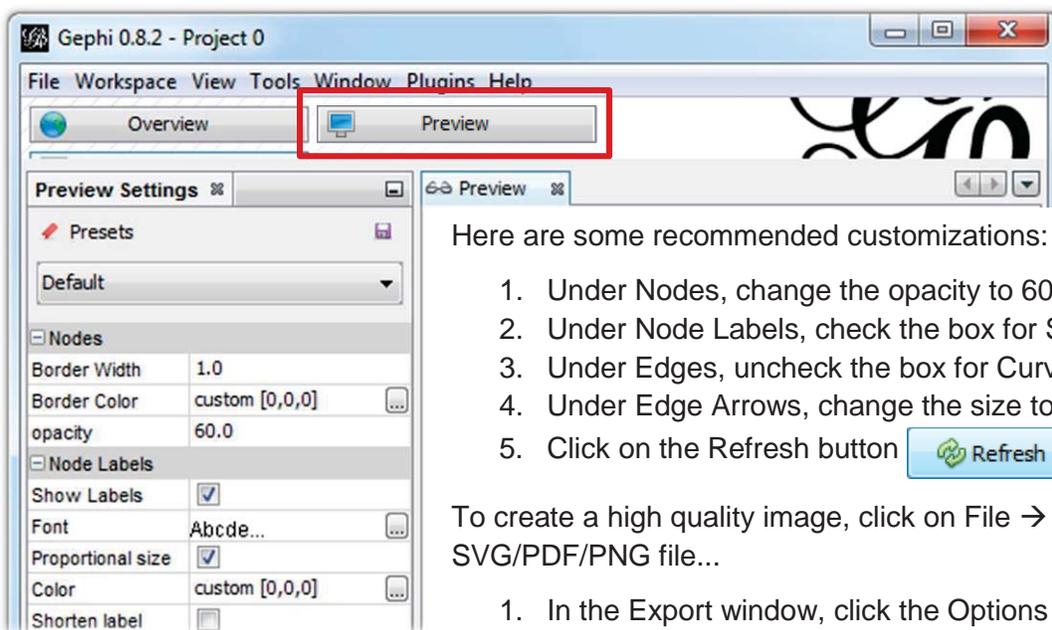


To show variable labels, click the button for Show Node Labels  at the bottom of the Graph window



1. Adjust the font size by clicking the Font Button  or by dragging the text size handle
2. “Drag mode” should be enabled () by default, so you can also click and drag nodes to optimize the network layout

At this point screenshot image of the network can be captured with the camera button . If higher quality images are desired, they can be created under the Preview tab.



Here are some recommended customizations:

1. Under Nodes, change the opacity to 60%
2. Under Node Labels, check the box for Show Labels
3. Under Edges, uncheck the box for Curved
4. Under Edge Arrows, change the size to 0.0
5. Click on the Refresh button  to see changes

To create a high quality image, click on File → Export → and SVG/PDF/PNG file...

1. In the Export window, click the Options button
2. Add one- or two-inch margins on all sides
3. Click OK and then Save