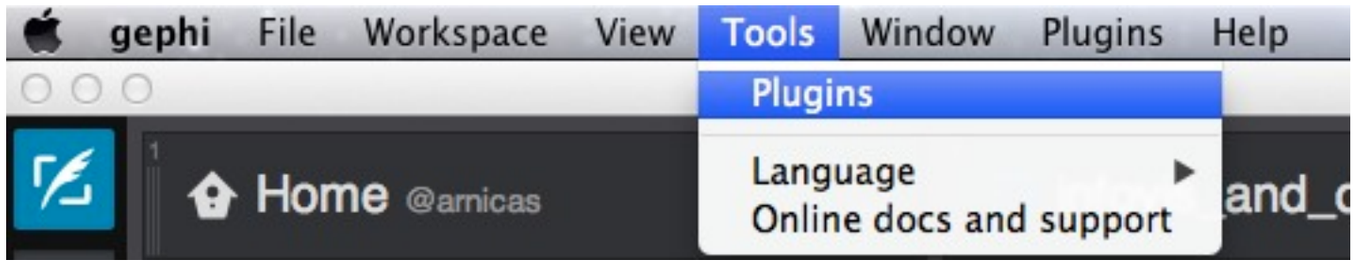
Some Layout and Export Tricks in Gephi

Lynn Cherny (@arnicas)

Plugins to Add to Gephi

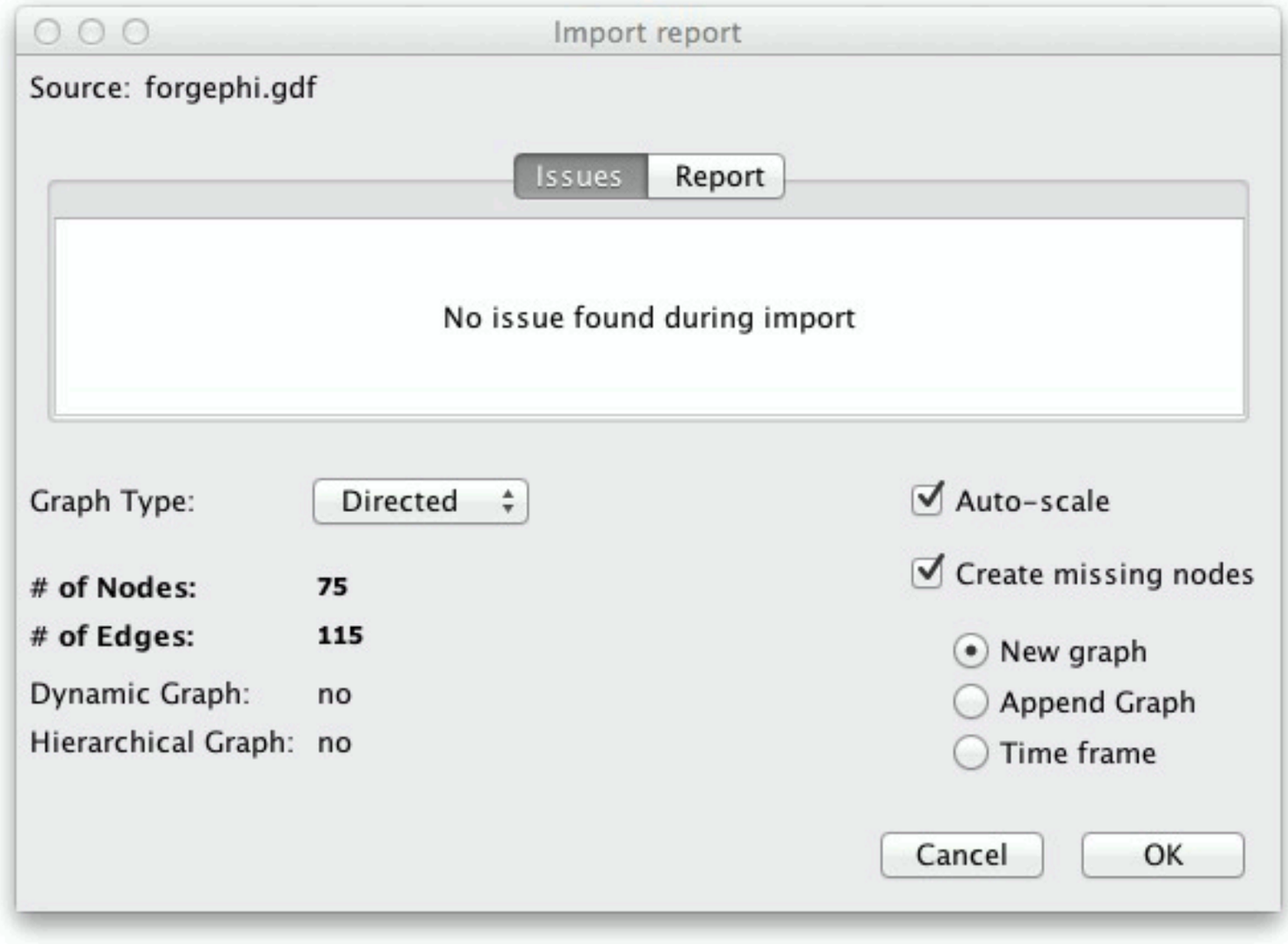


- Circular Layout
- SigmaExporter

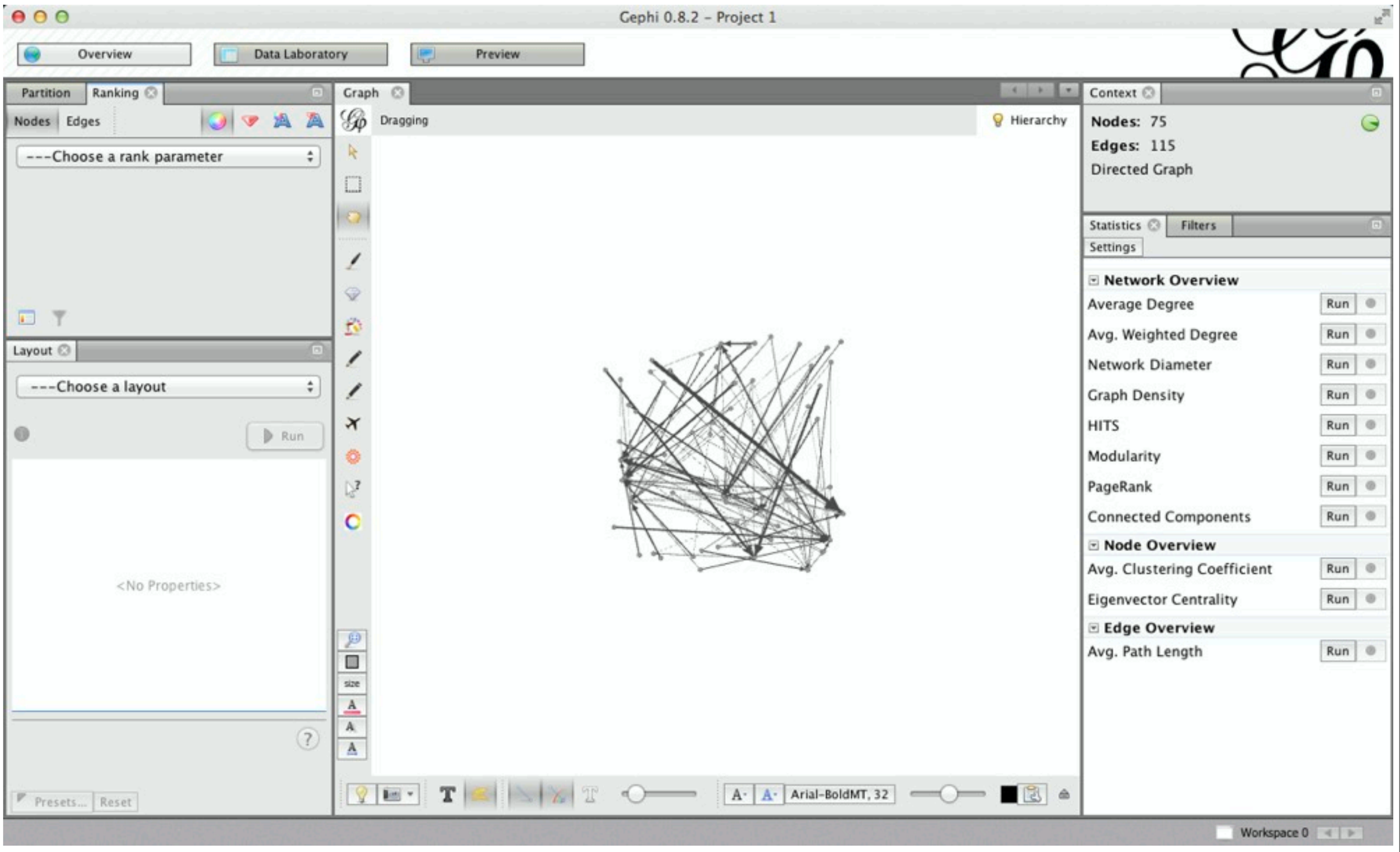
If you're following along...

- All the files are in https://github.com/arnicas/TopicsPythonGephi
- You should have a gephi appropriate files now, found in files/forgephi.gdf: https://github.com/arnicas/TopicsPythonGephi/blob/master/files/forgephi.gdf

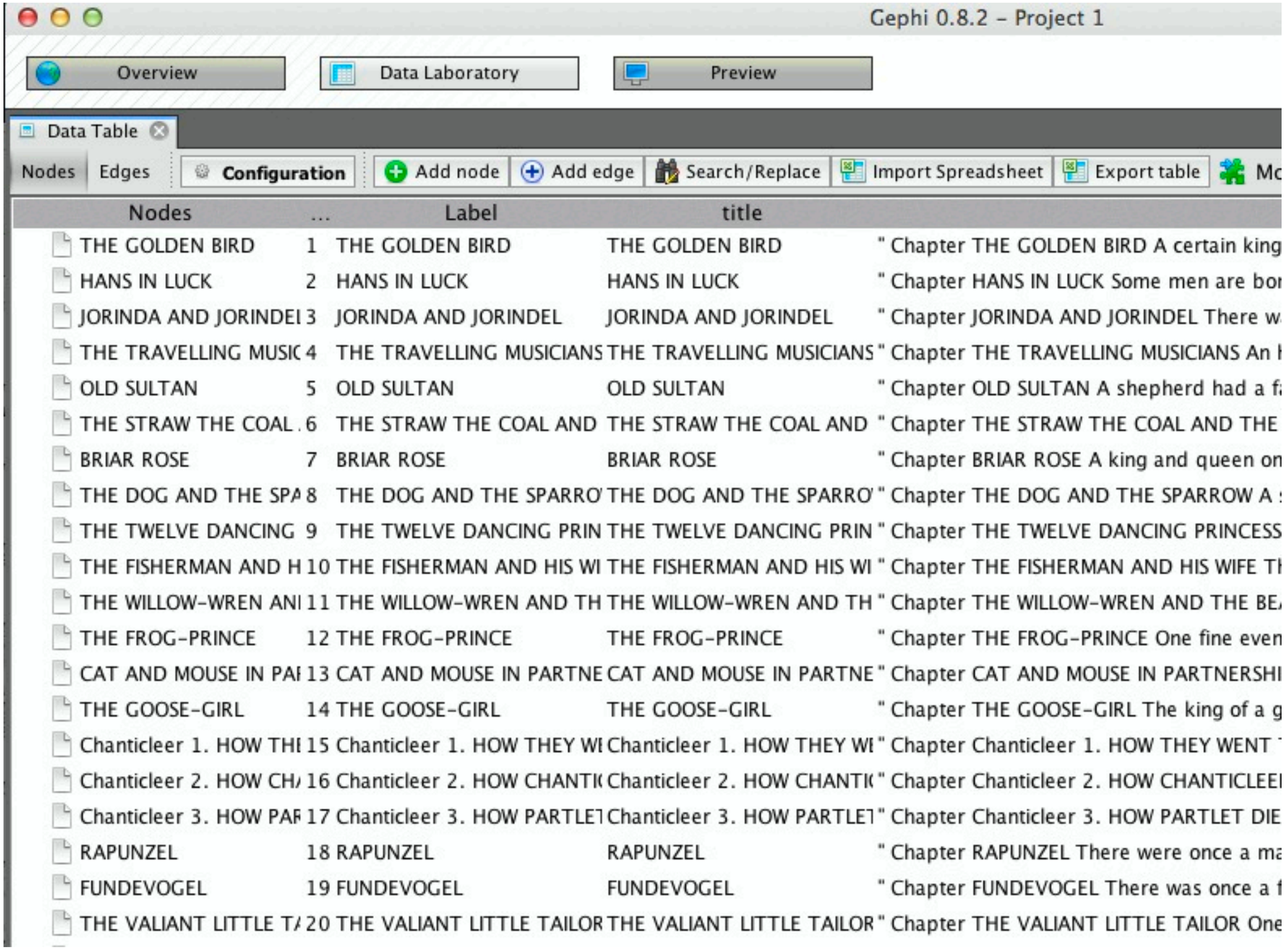
Launch Gephi. "Open" on file menu... Use defaults you see here.



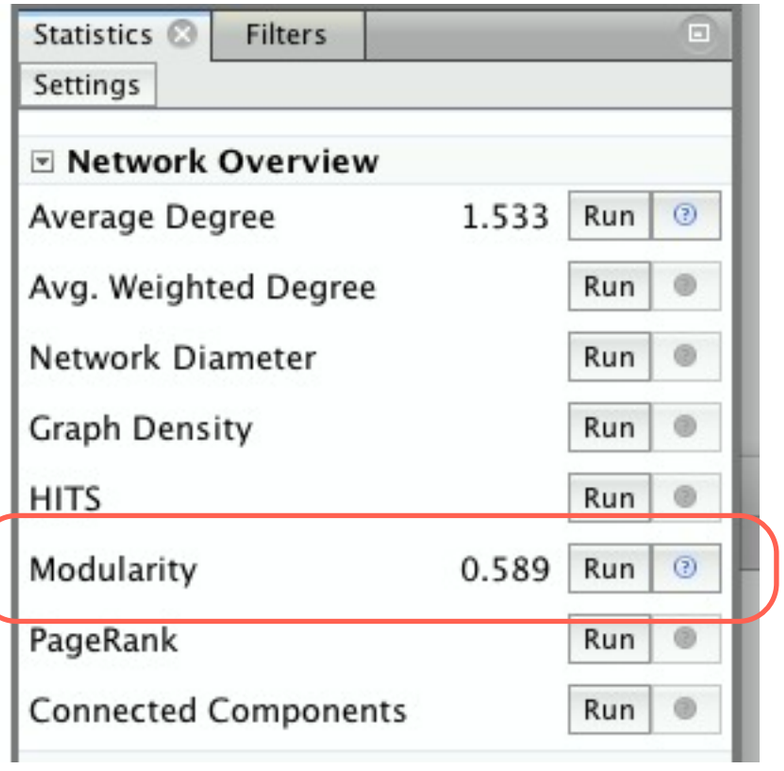
If all goes well, you should see something like this....



On the Data Laboratory Tab, you'll see what we imported.

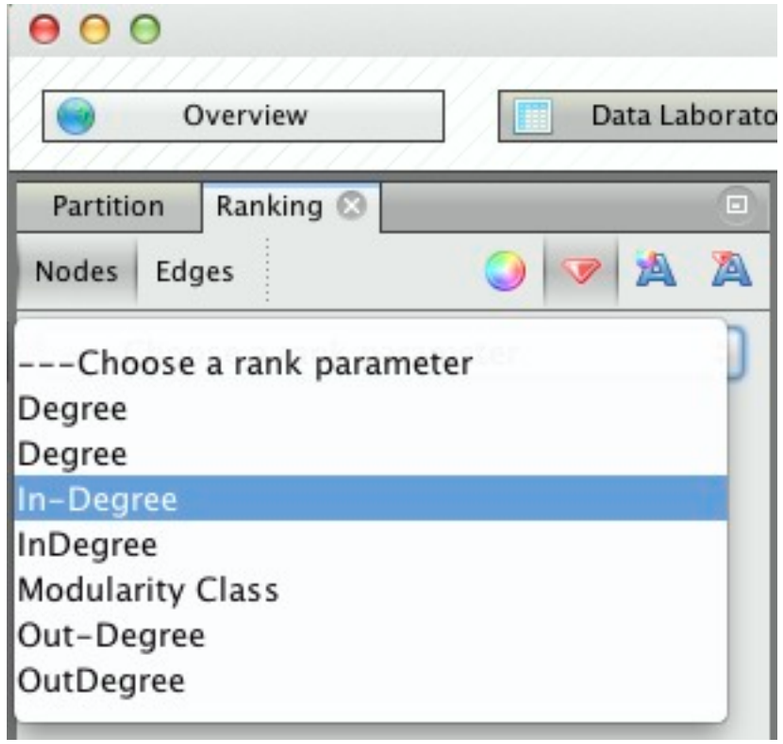


Over on the right side, you should have a “statistics” panel. “Run” a few of them and dismiss the dialogs. This adds stats to your data file you can use in layout and design.
Run Modularity at least -- it’s a “community finding” algorithm.

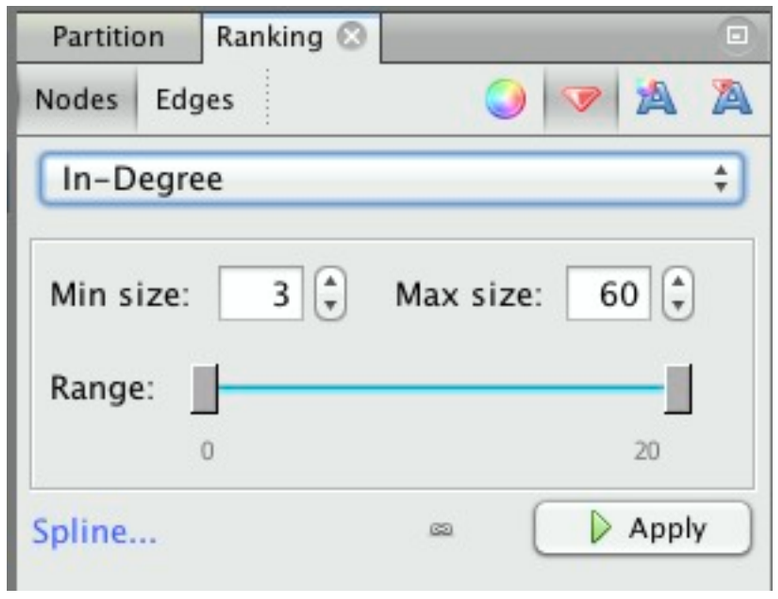


Now, on upper left side, in Ranking, select nodes, and the diamond. Pick "In-Degree" to size by.

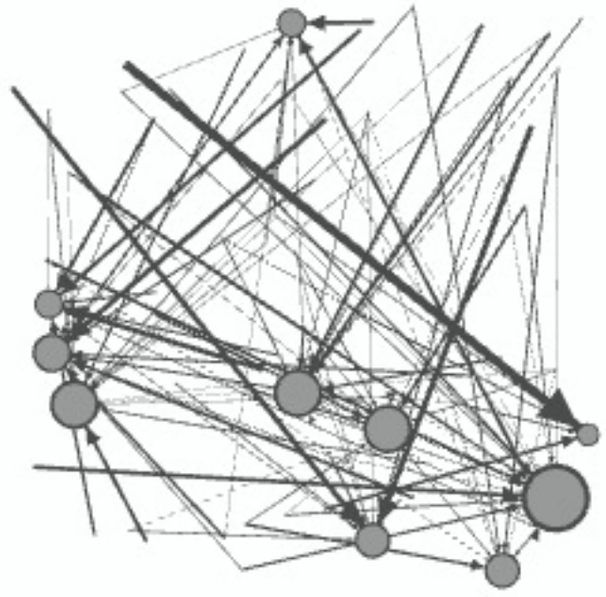
1.



2.



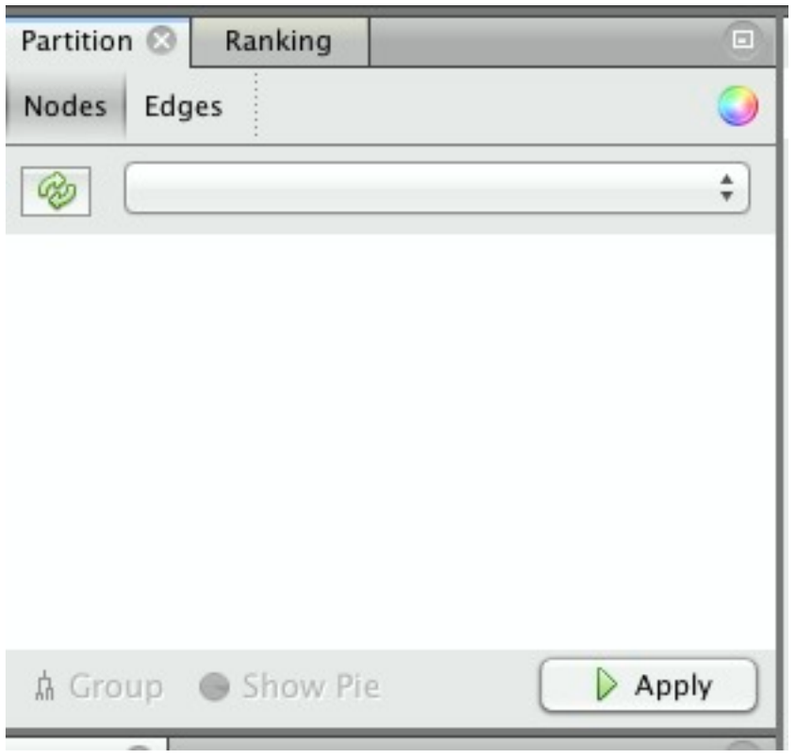
3. after Apply:



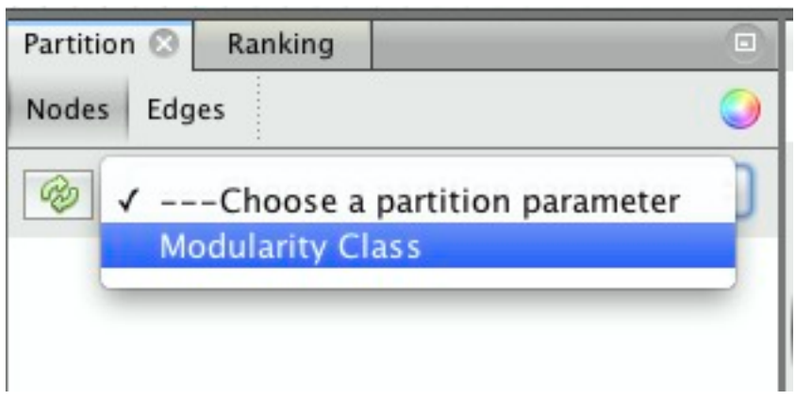
These are the nodes with the most "in arrows," or highest in-degree. They are the "topics."

Color by "Modularity"

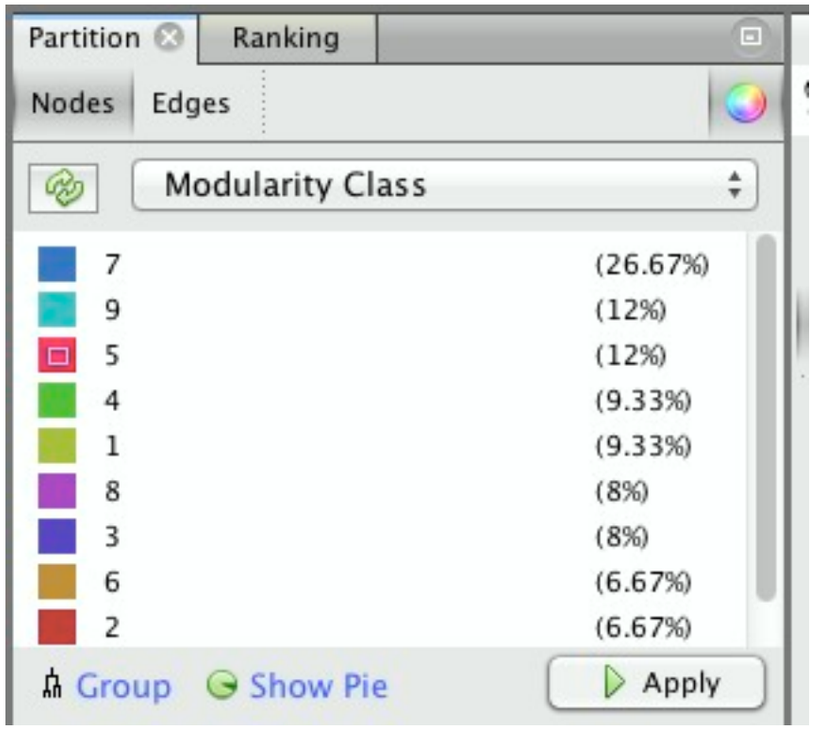
1. Hit green refresh arrow:



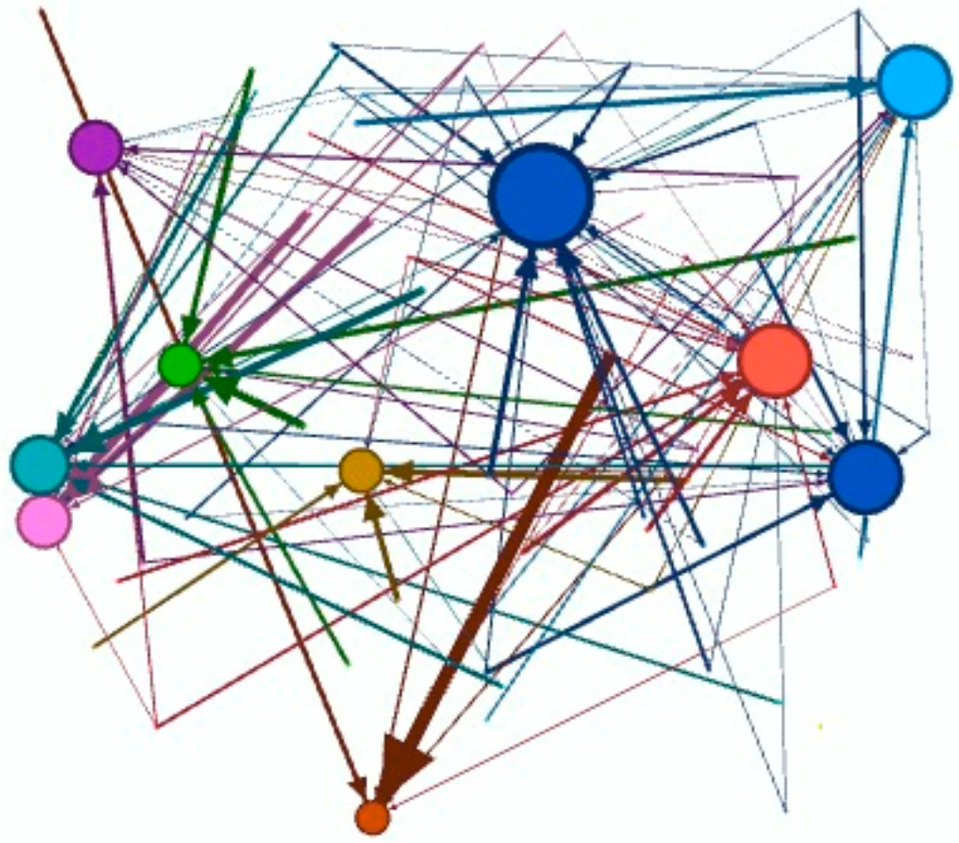
2. Then choose "Modularity Class" from menu:



3. You'll see the "groups" and random assigned colors. Click on a color to pick a new one. Make them as different as you can.

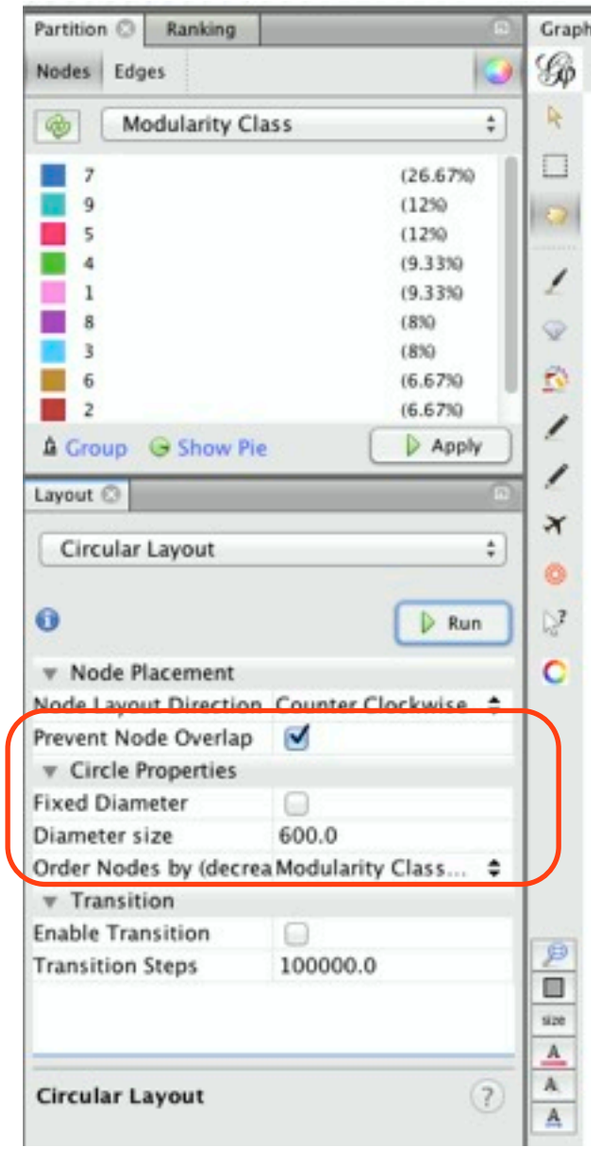


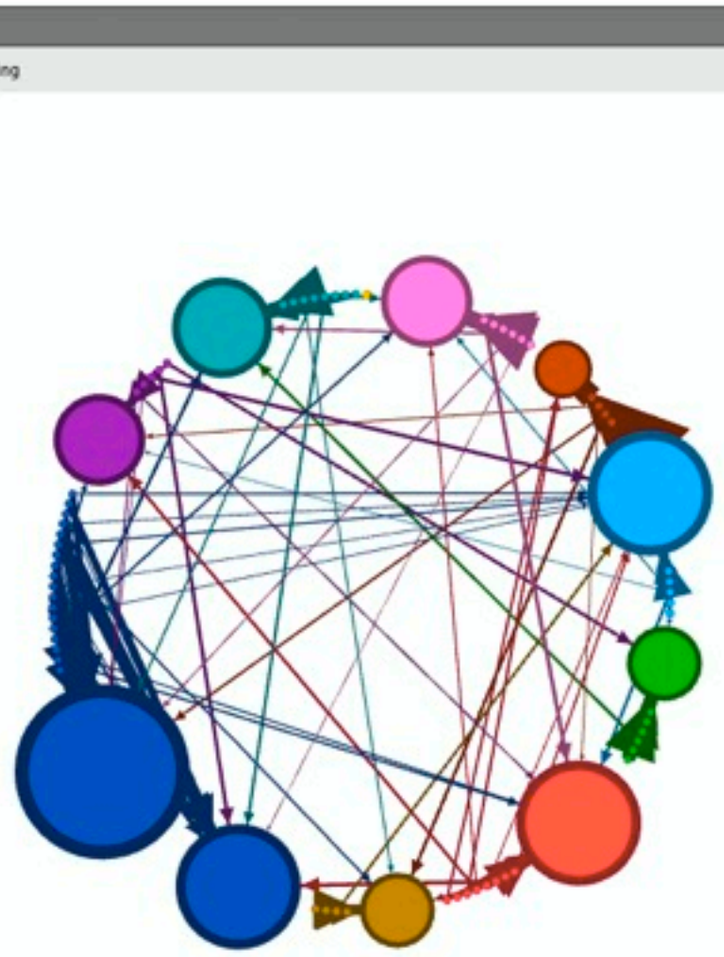
4. Then hit "Apply."



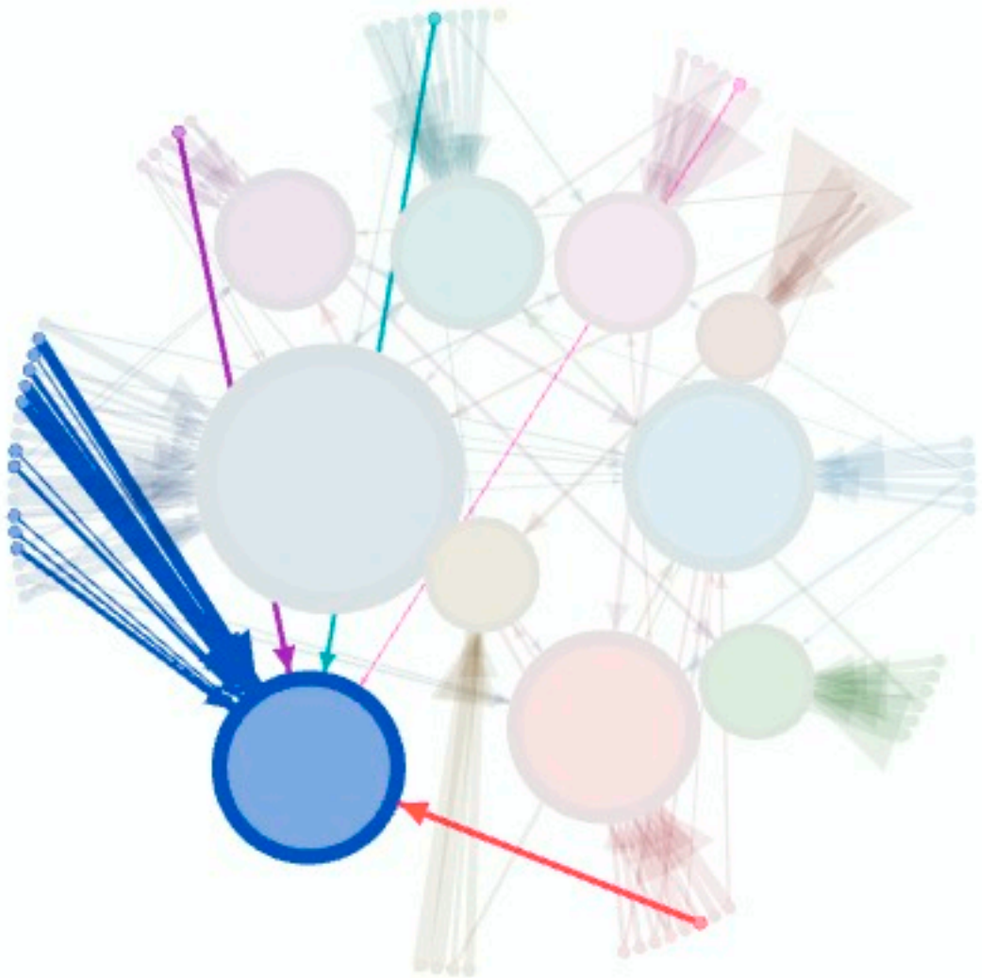
Let's try to lay it out a bit...
Circular is nice for topics.
You'll need to hand-adjust in any case.

Order nodes by modularity class!

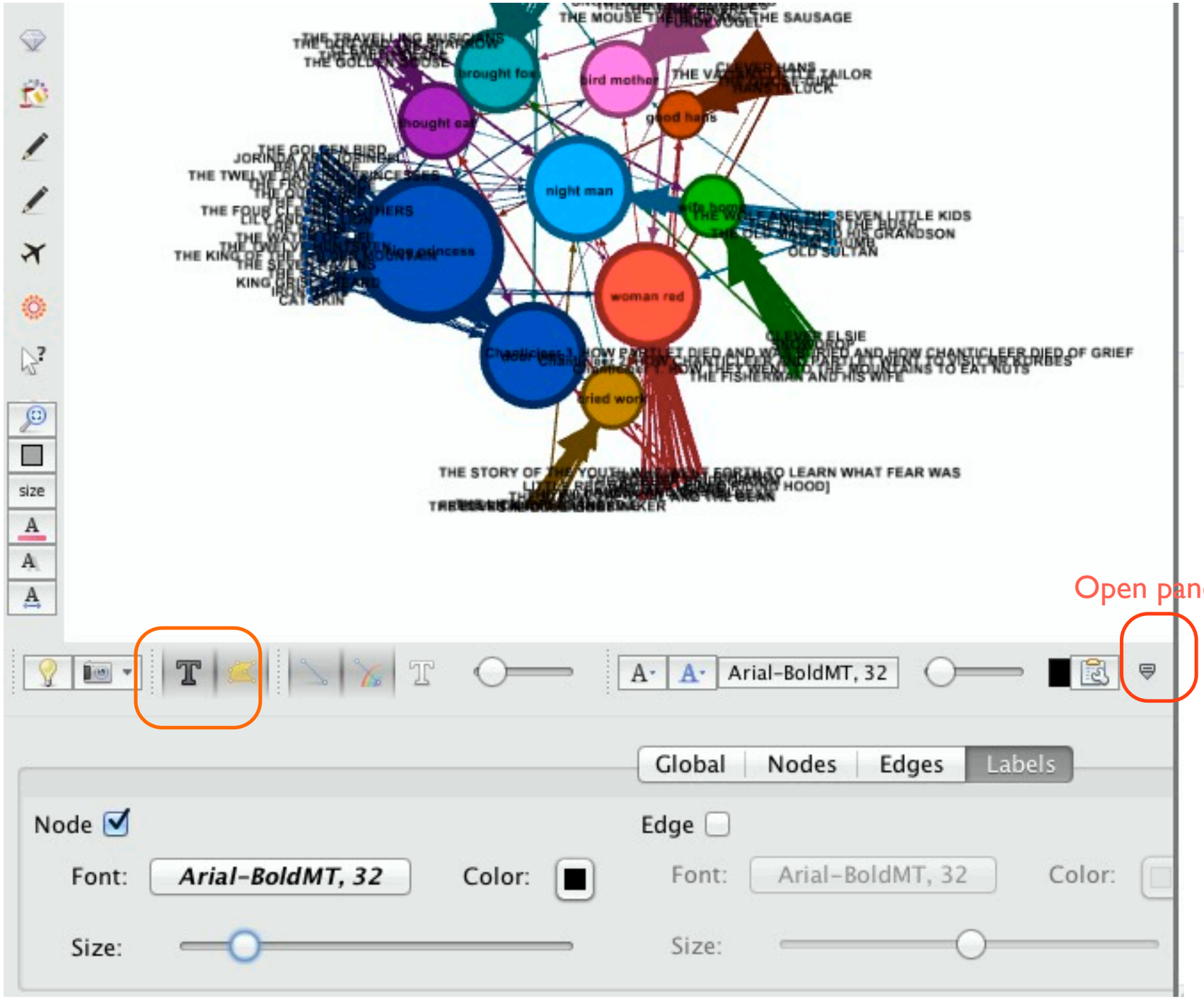




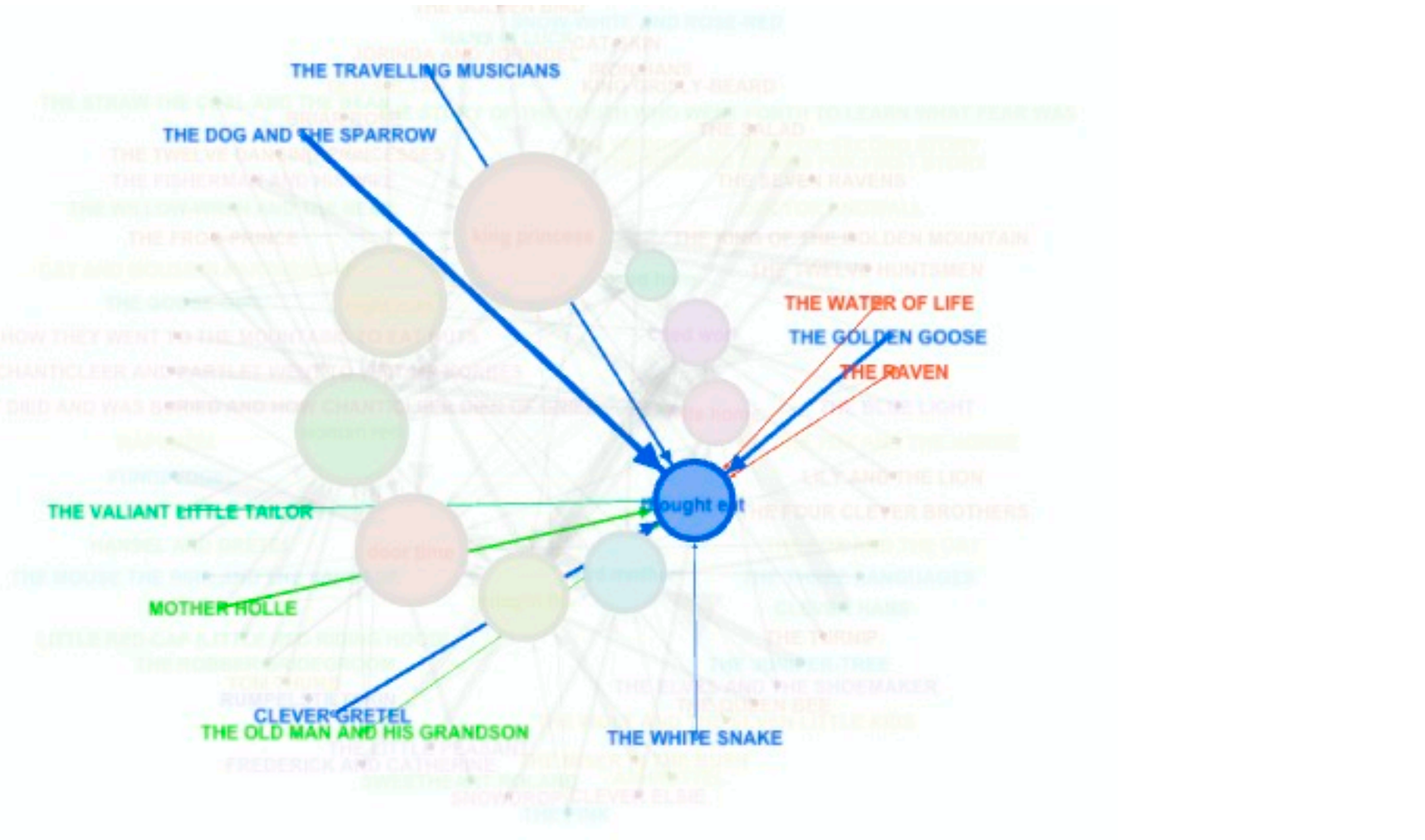
Hand-tweak to move the topic nodes inside.

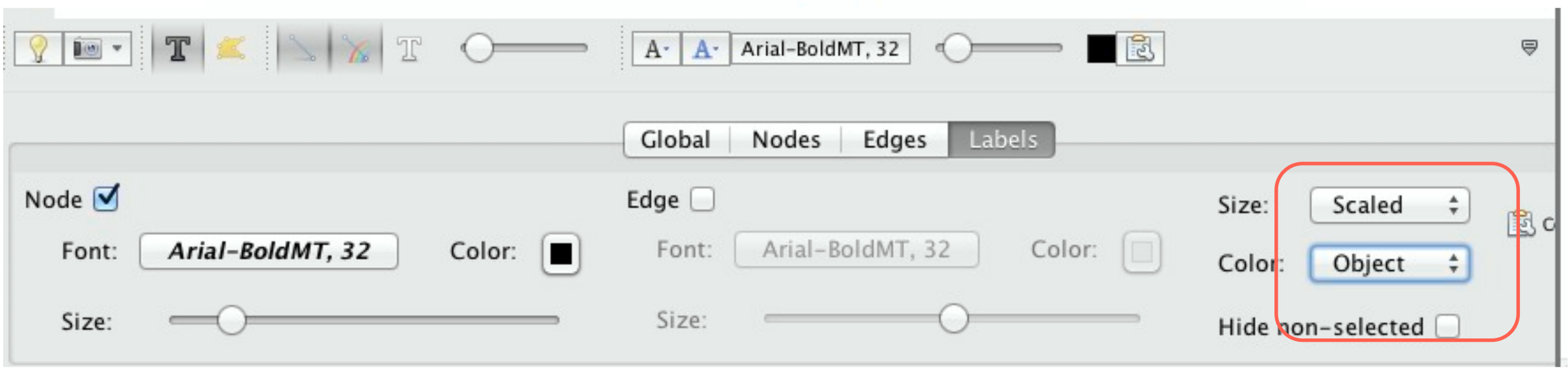


Turn on labels and adjust sizes...

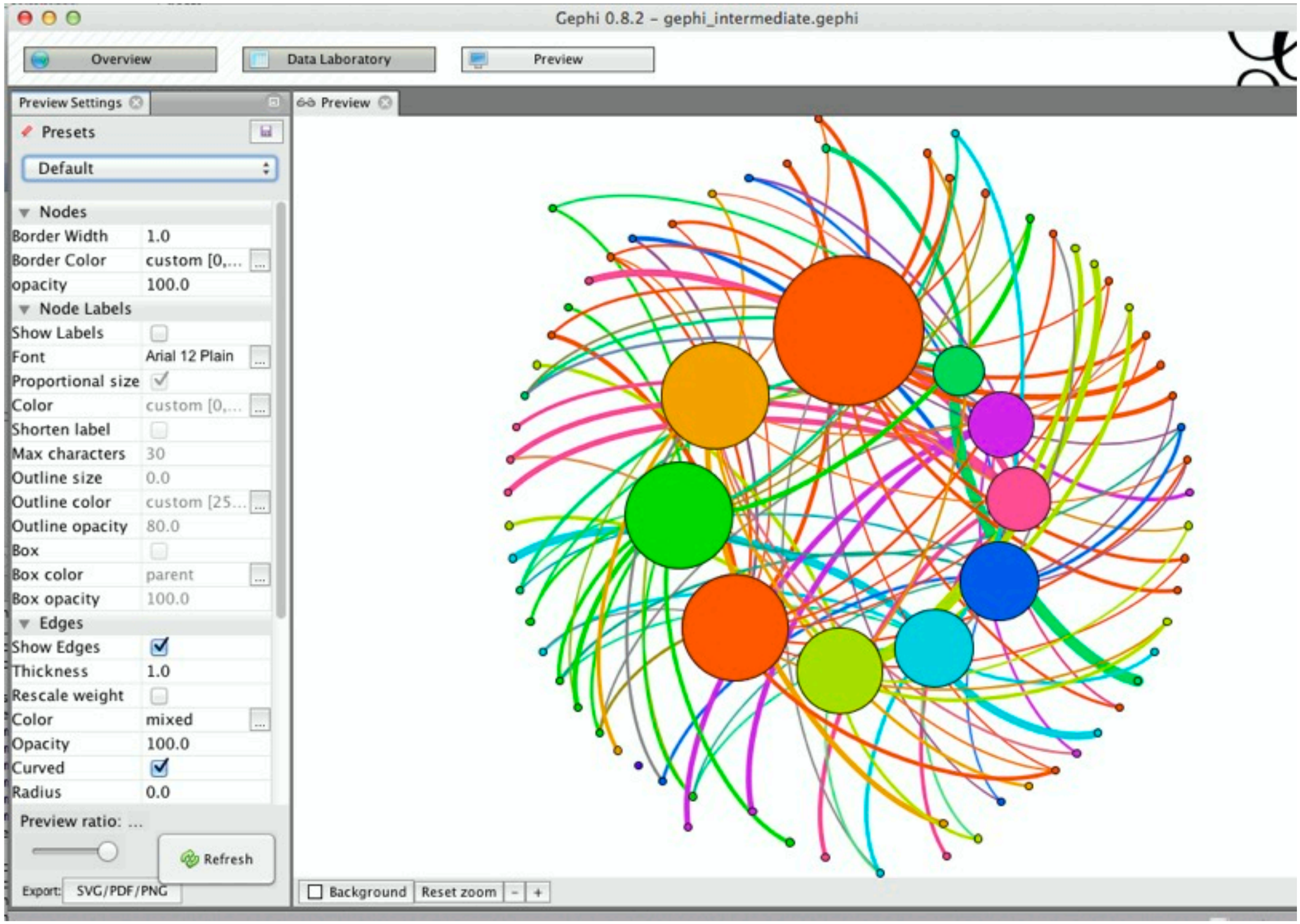


One option is color by destination node.





The “pretty” exportable version is on the Preview Tab. Finish adjusting in here.



w Settings

esets

efault

odes

r Width	1.0
r Color	custom [0,...
ty	100.0
ode Labels	
Labels	☑
	Arial 12 Plain
rtional size	☐
	custom [0,...
en label	☑
haracters	30
e size	0.0
e color	custom [25...
e opacity	80.0
	☐
olor	parent
pacity	100.0
ges	
Edges	☑
ness	1.0
le weight	☐
	mixed
ty	100.0
d	☑
s	0.0
ge Arrows	
	3.0
ge Labels	
Labels	☐

ew ratio: ...

Refresh

SVG/PDF/PNG

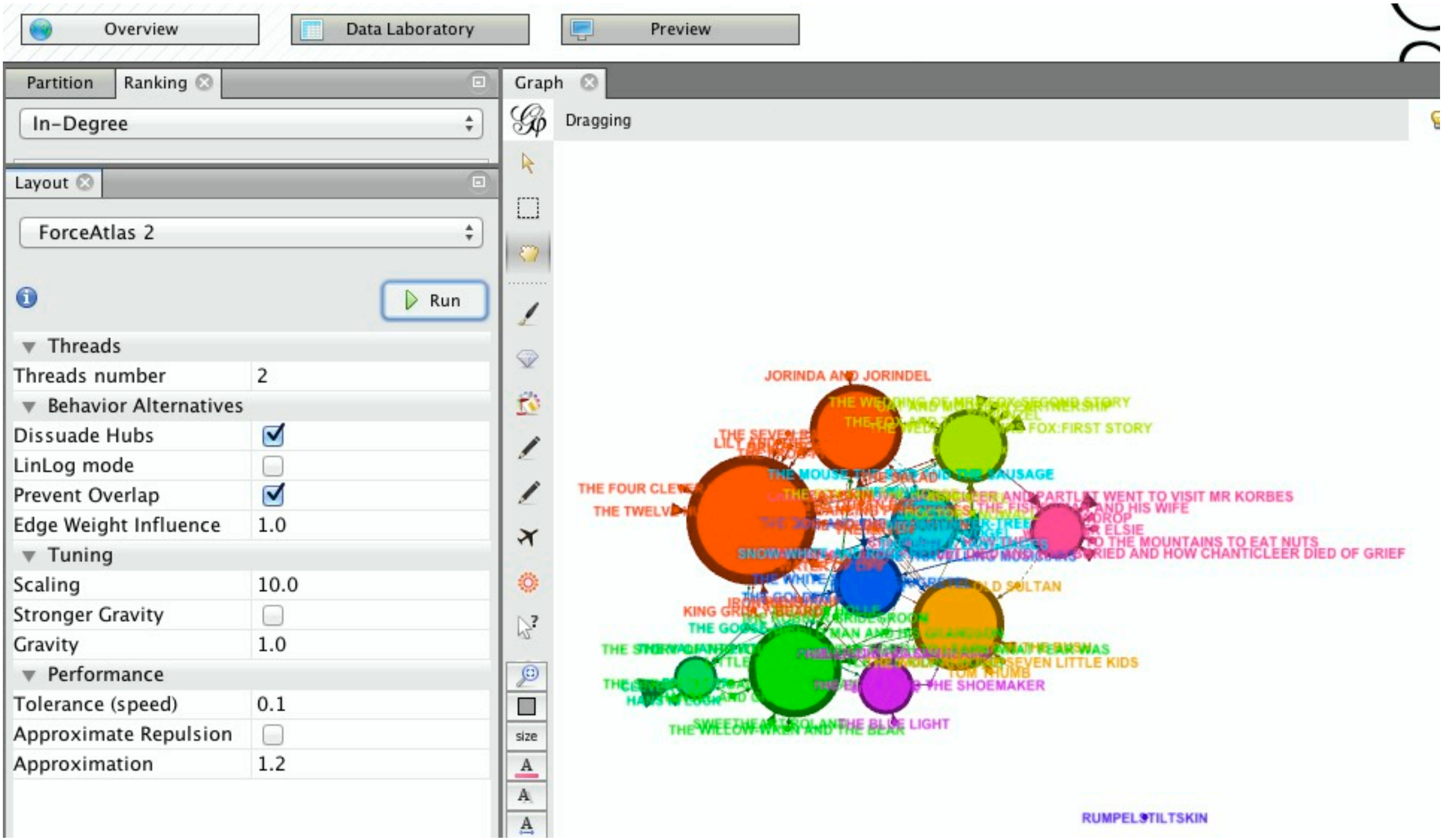
Preview

THE GOLDEN BIRD
SNOW-WHITE AND ROSE-RED
HANS IN LUCK
CAT SKIN
JORINDA AND JORINDEL
THE TRAVELLING MUSICIANS
IRON HANS
OLD SULTAN
KING GRISLY-BEARD
THE STRAW THE COAL AND THE BEAN
THE STORY OF THE YOUTH WHO WEN...
BRIAR ROSE
THE SALAD
THE DOG AND THE SPARROW
THE WEDDING OF MRS FOX:SECOND ...
THE TWELVE DANCING PRINCESSES
THE WEDDING OF MRS FOX:FIRST S...
THE FISHERMAN AND HIS WIFE
THE SEVEN RAVENS
THE WILLOW-WREN AND THE BEAR
DOCTOR KNOWALL
king princess
THE FROG-PRINCE
THE KING OF THE GOLDEN MOUNTAIN
CAT AND MOUSE IN PARTNERSHIP
good hans
THE TWELVE HUNTSMEN
night man
THE GOOSE-GIRL
THE WATER OF LIFE
cried work
Chanticleer 1. HOW THEY WENT T...
THE GOLDEN GOOSE
Chanticleer 2. HOW CHANTICLEER...
THE RAVEN
Chanticleer 3. HOW PARTLET DIE...
wife home
THE BLUE LIGHT
woman red
RAPUNZEL
THE FOX AND THE HORSE
FUNDEVOGEL
thought eat
LILY AND THE LION
THE VALIANT LITTLE TAILOR
THE FOUR CLEVER BROTHERS
door time
HANSEL AND GRETEL
THE FOX AND THE CAT
bird mother
THE MOUSE THE BIRD AND THE SAU...
brought fox
THE THREE LANGUAGES
MOTHER HOLLE
CLEVER HANS
LITTLE RED-CAP
LITTLE RED RID...
THE TURNIP
THE ROBBER BRIDEGROOM
THE JUNIPER-TREE
TOM THUMB
THE ELVES AND THE SHOEMAKER
RUMPELSTILTSKIN
THE QUEEN BEE
CLEVER GRETEL
THE WOLF AND THE SEVEN LITTLE ...
THE OLD MAN AND HIS GRANDSON
THE WHITE SNAKE
THE LITTLE PEASANT
THE MISER IN THE BUSH
FREDERICK AND CATHERINE
ASHPUTTEL
SWEETHEART ROLAND
CLEVER ELSIE
SNOWDROP
THE PINK

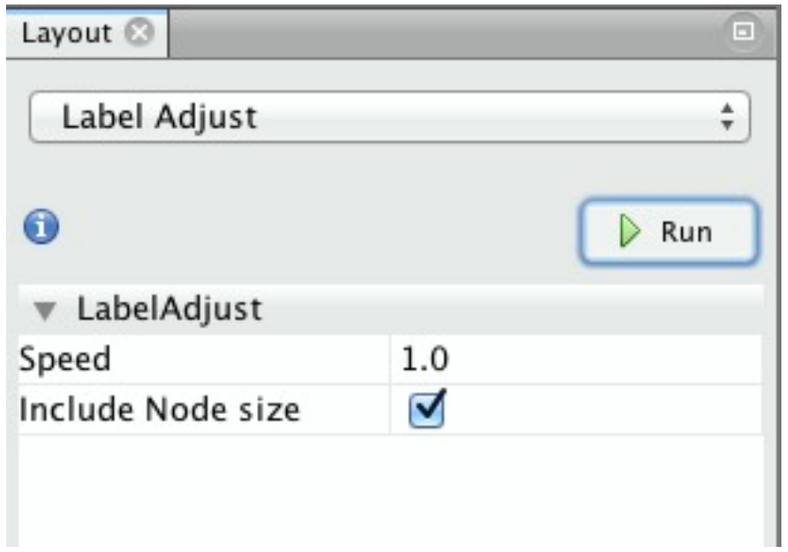
Background
Reset zoom
-
+

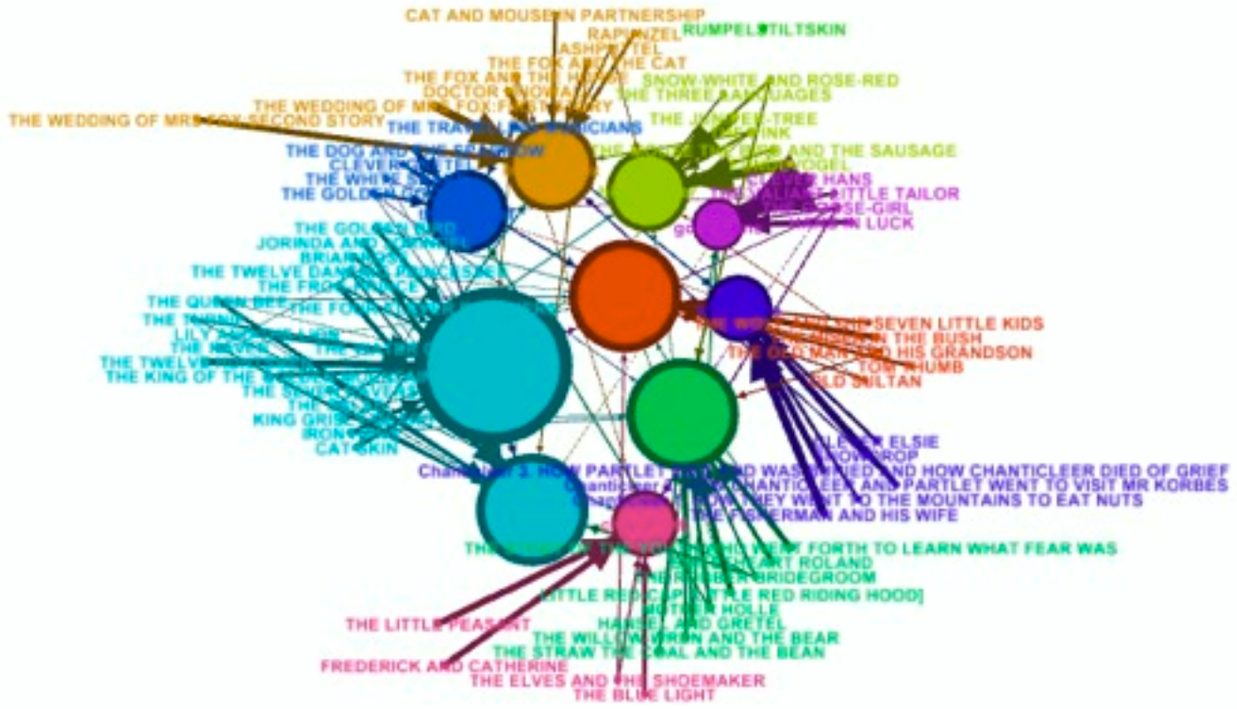
After you change anything, hit Refresh!

Another layout option is force-atlas2. Be careful with the settings! Anything unconnected will fly out.

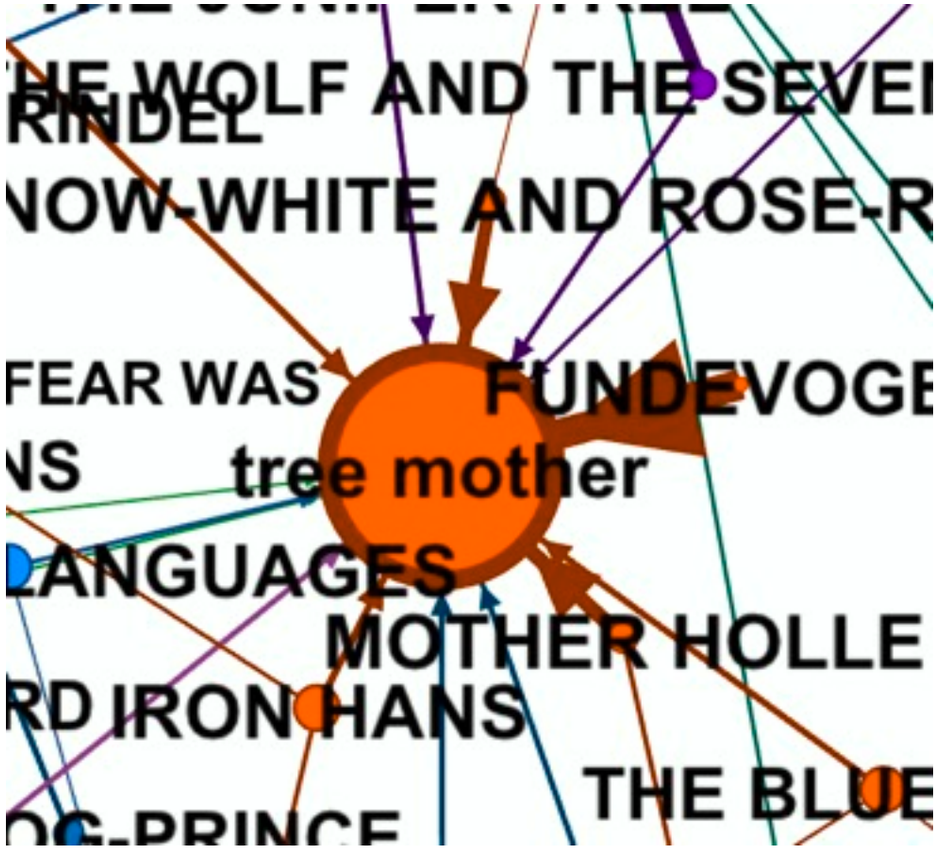


Always use Label Adjust is you use Force Atlas (or any one, actually).

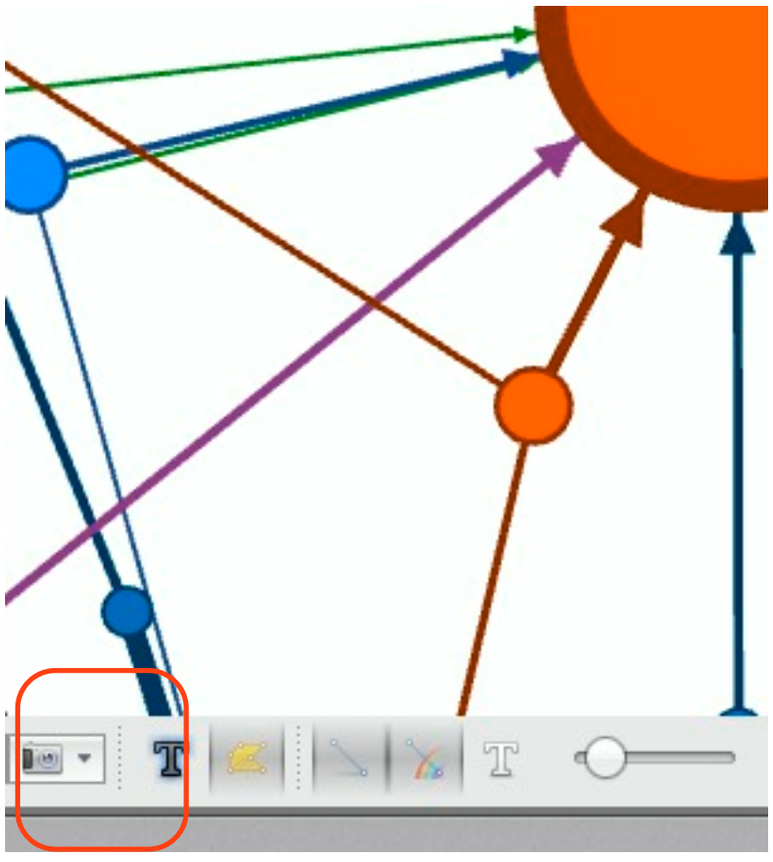




A nice final adjustment workflow is to zoom in on an area....



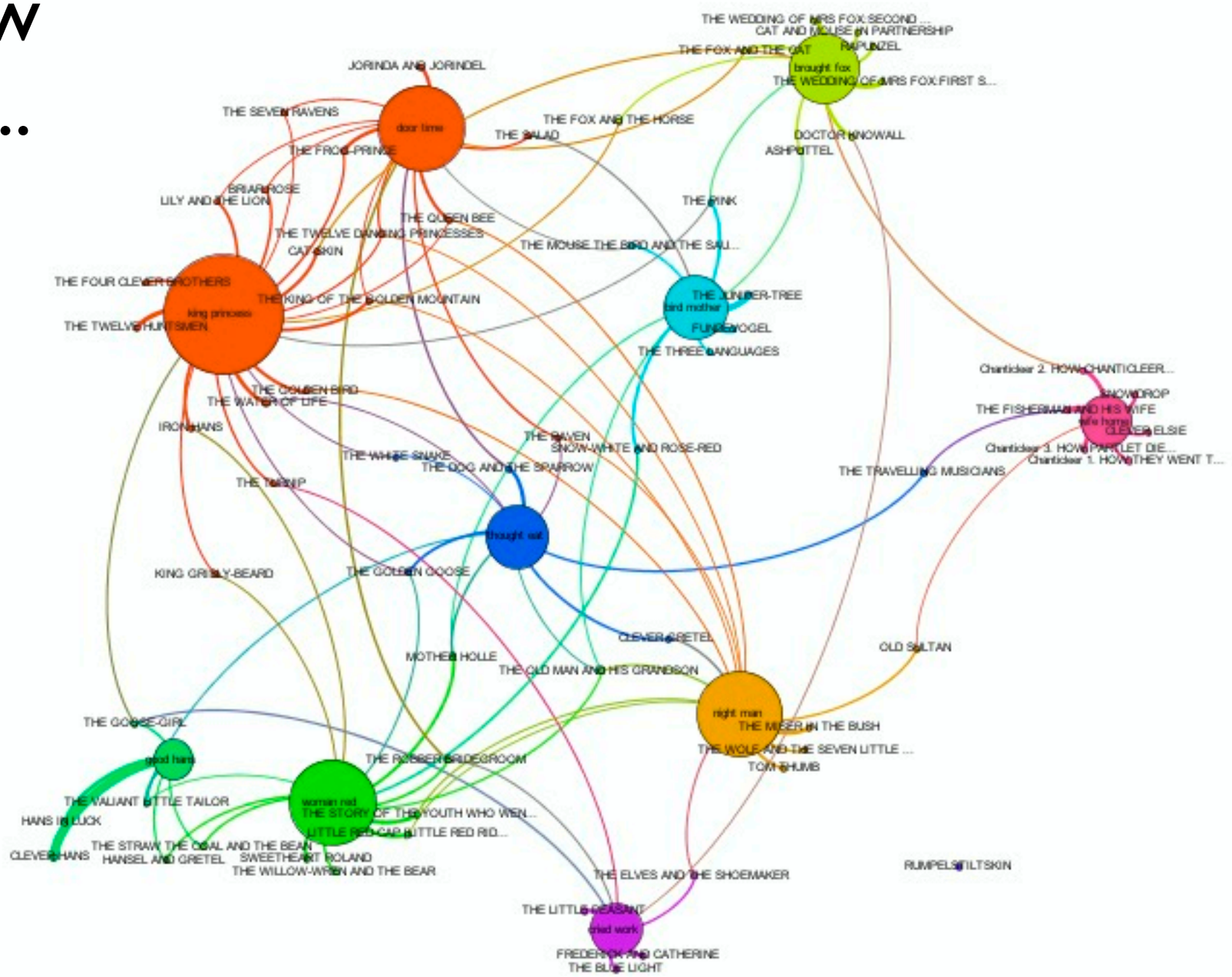
Turn off the labels if they're on...



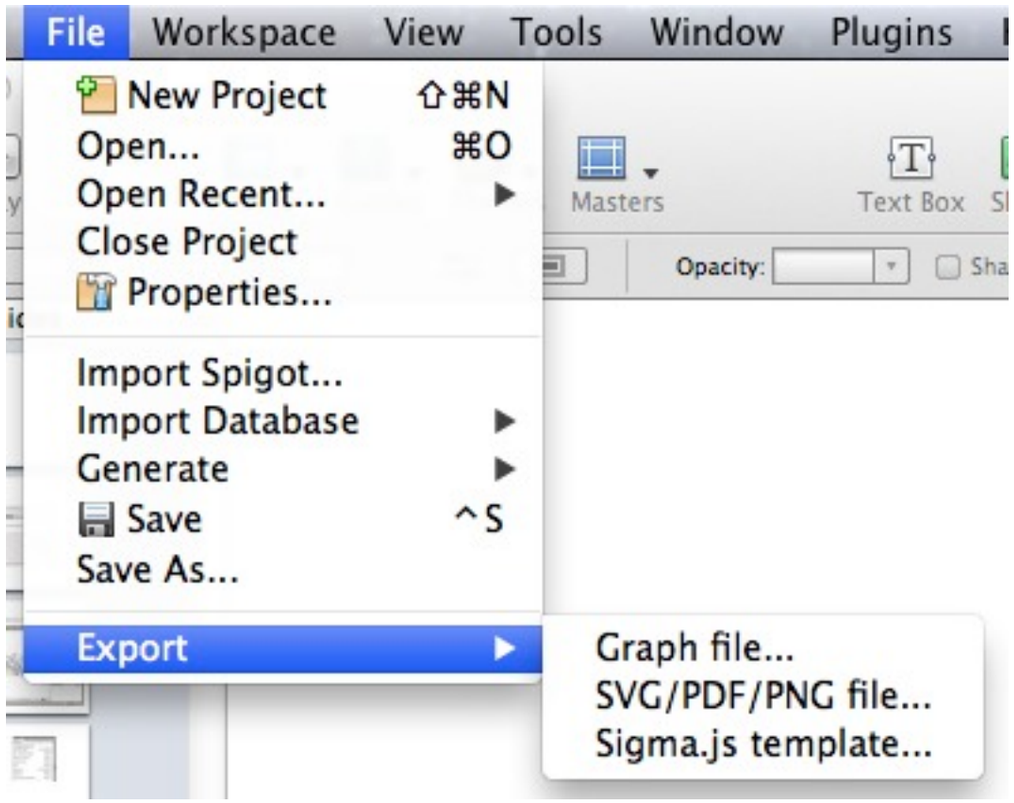
Now drag & move nodes around carefully to space things as you prefer...

Then switch back to Preview and hit REFRESH to see if you like that layout better.

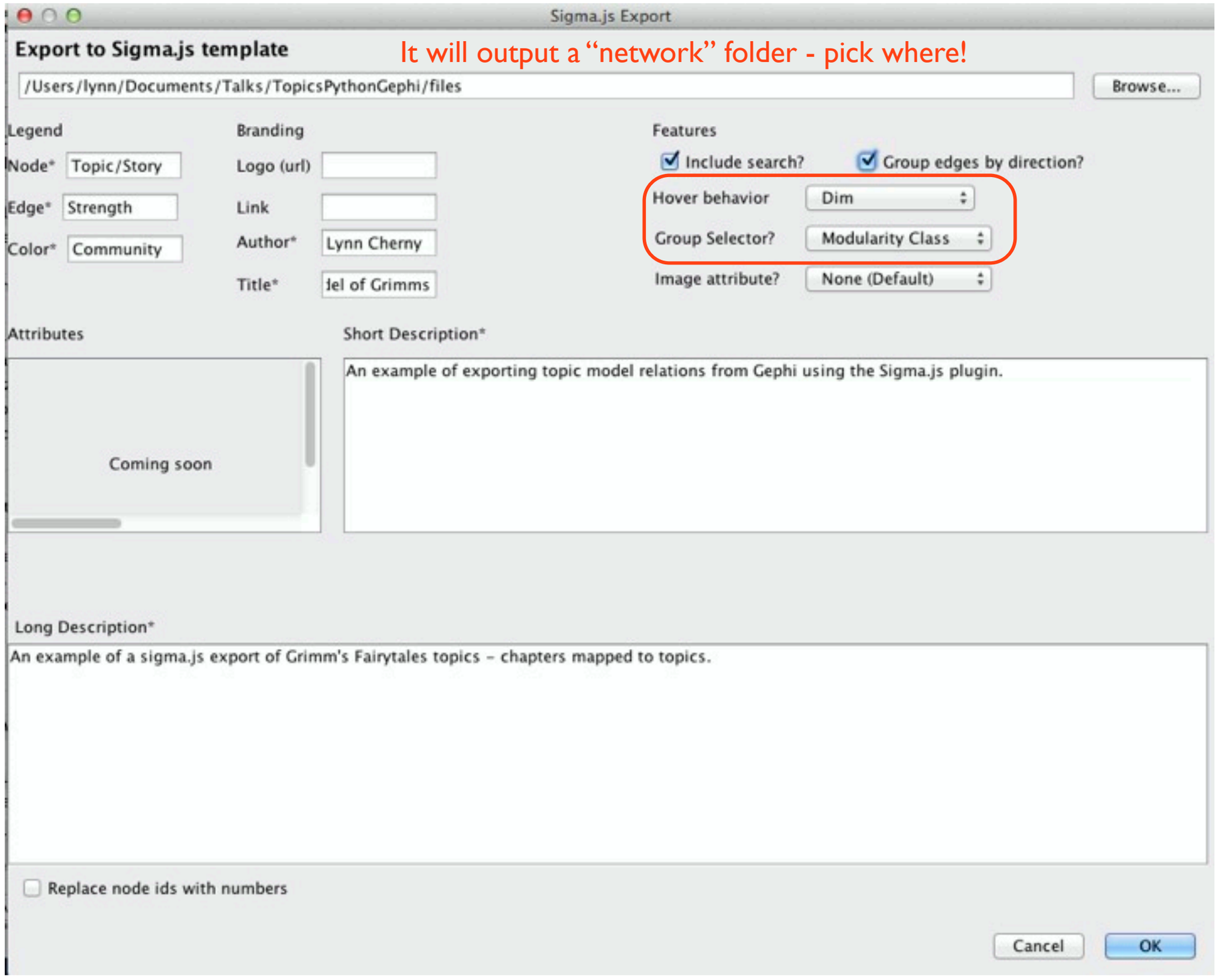
A Force Layout in Preview mode...



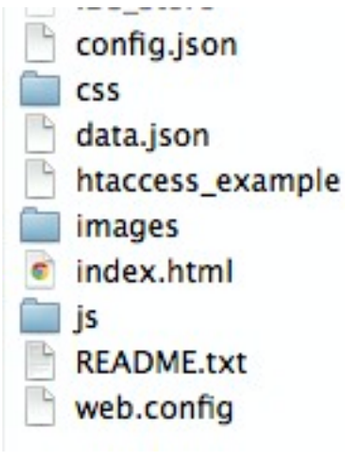
To export to an interactive web project after your Layout, pick Export... Sigma.js template.



Put in whatever useful, informative text you can supply. I like "Dim" for Hover behavior. Let's use Modularity Class for Group.



The "network" folder has these:



config.json

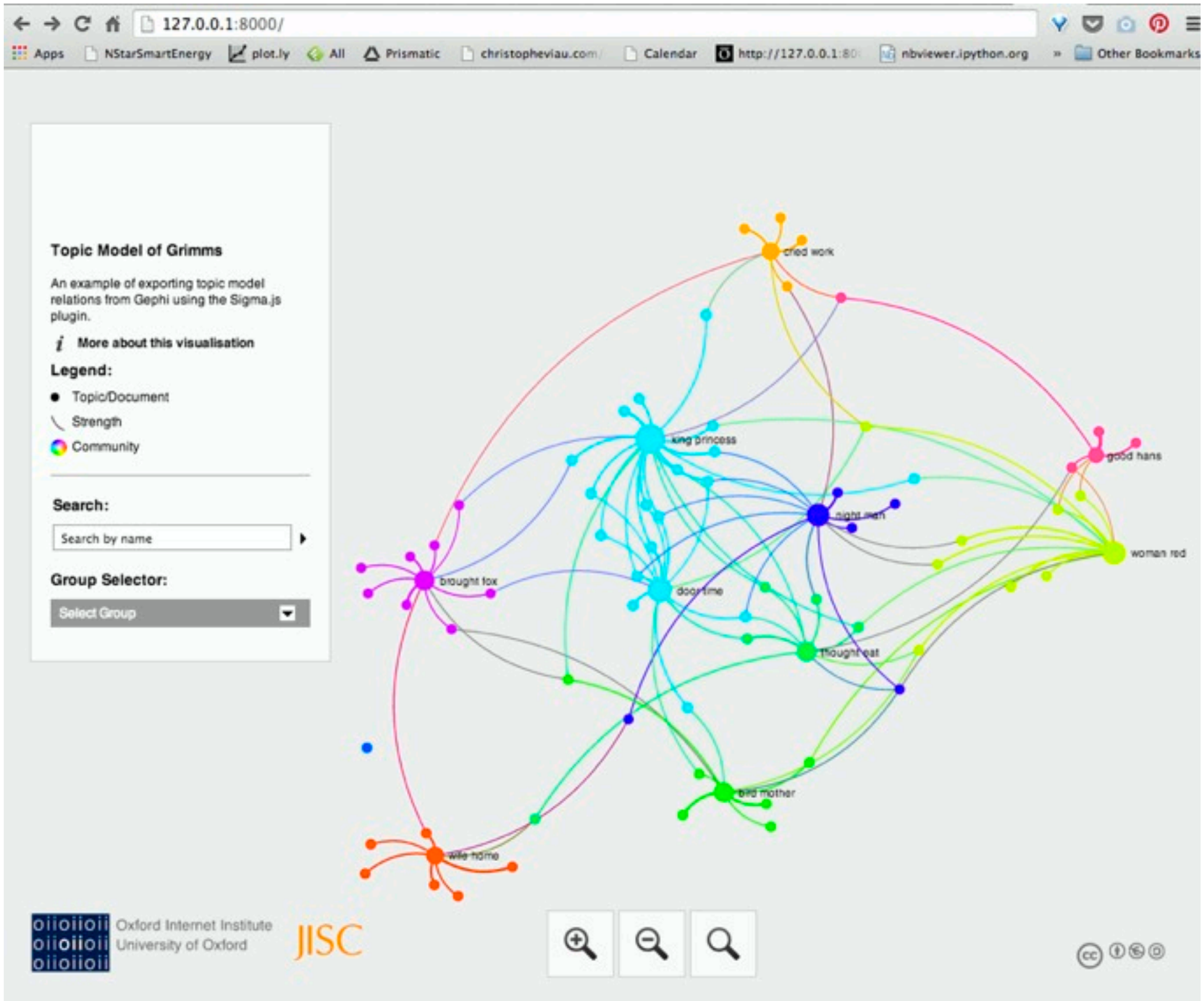
```
    "colorLabel": "Community",
    "nodeLabel": "Topic/Document"
  },
  "features": {
    "search": true,
    "groupSelectorAttribute": "Modularity Class",
    "hoverBehavior": "default"
  },
  "informationPanel": {
    "imageAttribute": false,
    "groupByEdgeDirection": true
  },
  "sigma": {
    "graphProperties": {
      "minEdgeSize": 1,
      "maxNodeSize": 20,
      "maxEdgeSize": 8,
      "minNodeSize": 7
    },
    "drawingProperties": {
      "labelThreshold": 10,
      "hoverFontStyle": "bold",
      "defaultEdgeType": "curve",
      "defaultLabelColor": "#000",
      "defaultLabelHoverColor": "#fff",
      "defaultLabelSize": 14,
      "activeFontStyle": "bold",
      "fontStyle": "bold",
      "defaultHoverLabelBGColor": "#002147",
      "defaultLabelBGColor": "#ddd"
    },
    "mouseProperties": {
      "minRatio": 0.75,
      "maxRatio": 20
    }
  }
}
```

Edit config.json to increase some sizes:

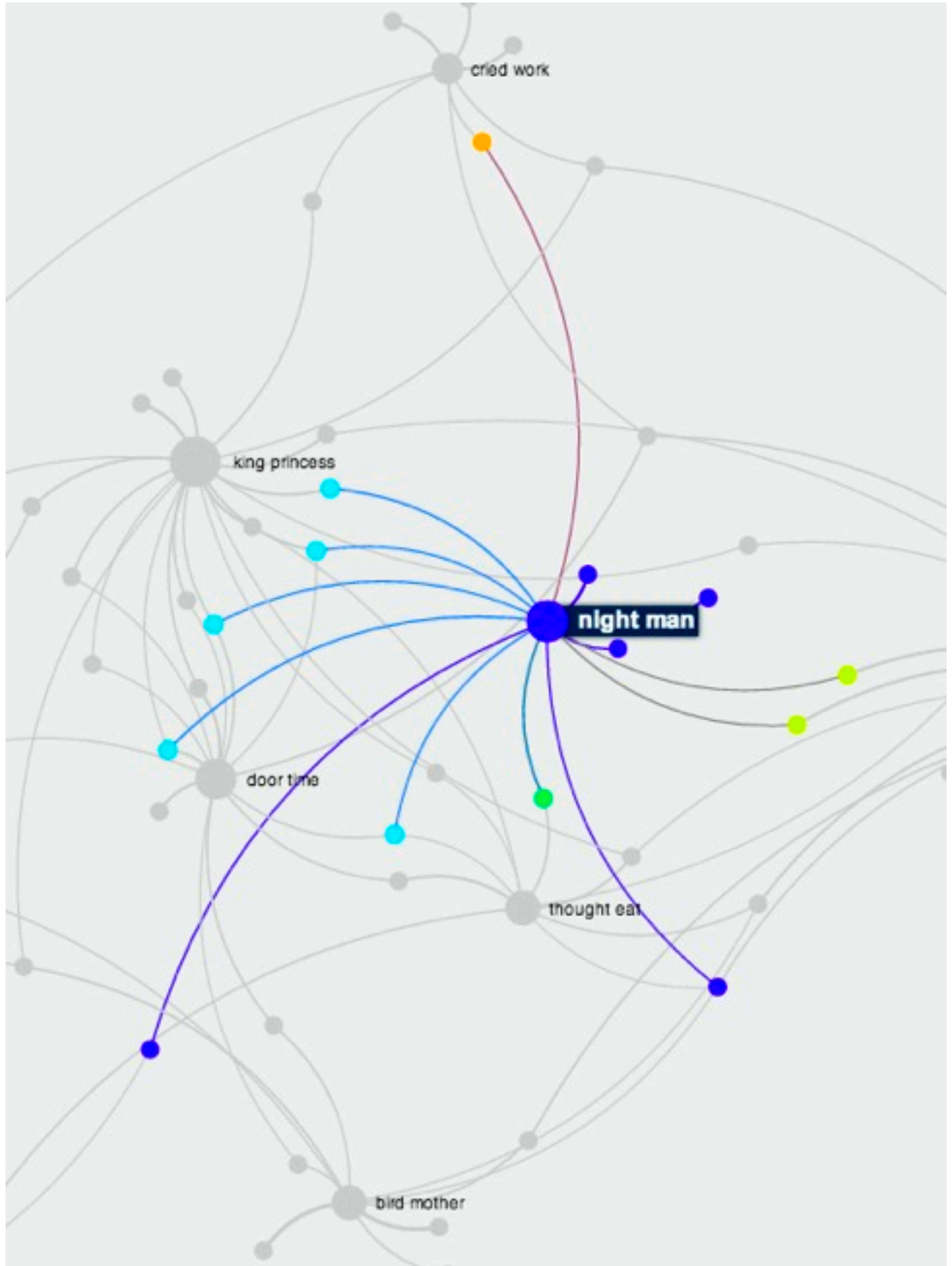
But decrease labelThreshold to maybe 7...

Move your network folder to a web server or start one locally:

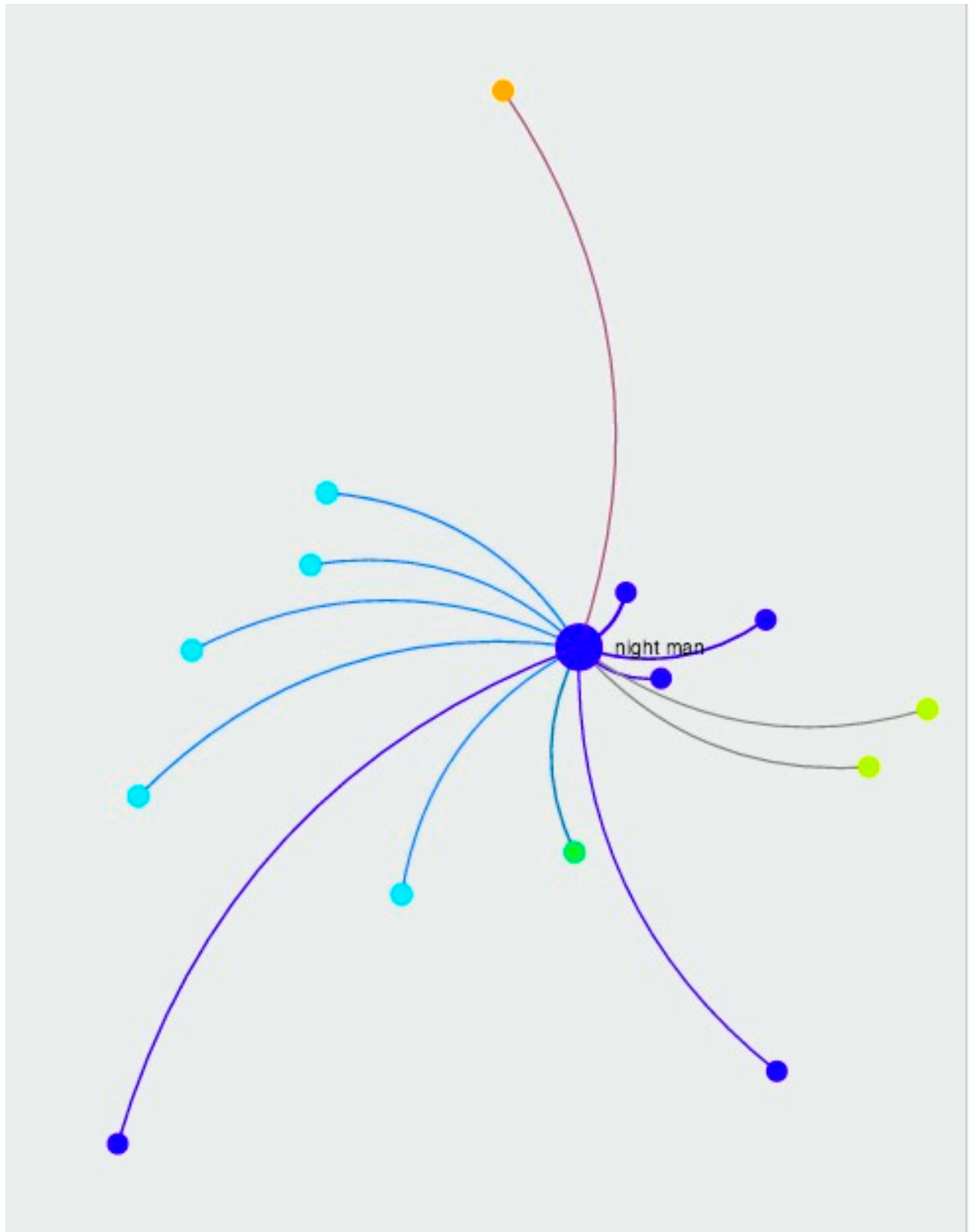
```
new-host-2:files lynn$ cd network
new-host-2:network lynn$ python -m SimpleHTTPServer 8000
Serving HTTP on 0.0.0.0 port 8000 ...
127.0.0.1 - - [30/Mar/2014 15:45:06] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [30/Mar/2014 15:45:07] "GET /js/jquery/jquery.min.js HTTP
```



At this level, rollovers dim unconnected nodes, showing only connected nodes. Only the largest node labels are visible (topics).



Clicking gives you info on the right side, including the text we uploaded to the graph file from python!



Information Pane

night man

Modularity Class: 4

text: "Top words:night man castle wood morning wolf father good dwarf asleep"

title: night man

Connections:

Mututal (0)
No mutual links

Incoming (14)
CLEVER GRETEL
LITTLE RED-CAP [LITTLE RED RIDING HOOD]
OLD SULTAN
THE ELVES AND THE SHOEMAKER
THE GOLDEN BIRD
THE KING OF THE GOLDEN MOUNTAIN
THE MISER IN THE BUSH
THE OLD MAN AND HIS GRANDSON
THE QUEEN BEE
THE RAVEN
THE STORY OF THE YOUTH WHO WENT FORTH TO LEARN WHAT FEAR WAS
THE TWELVE DANCING PRINCESSES
THE WOLF AND THE SEVEN LITTLE KIDS
TOM THUMB

Outgoing (0)
No outgoing links

Information Pane

CLEVER GRETEL

Modularity Class: 8

text: " Chapter CLEVER GRETEL There was once a cook named Gretel who wore shoes with red heels and when she walked out with them on she turned herself this way and that was quite happy and thought: 'You certainly are a pretty girl!' And when she came home she drank in her gladness of heart a draught of wine and as wine excites a desire to eat she tasted the..."

title: CLEVER GRETEL

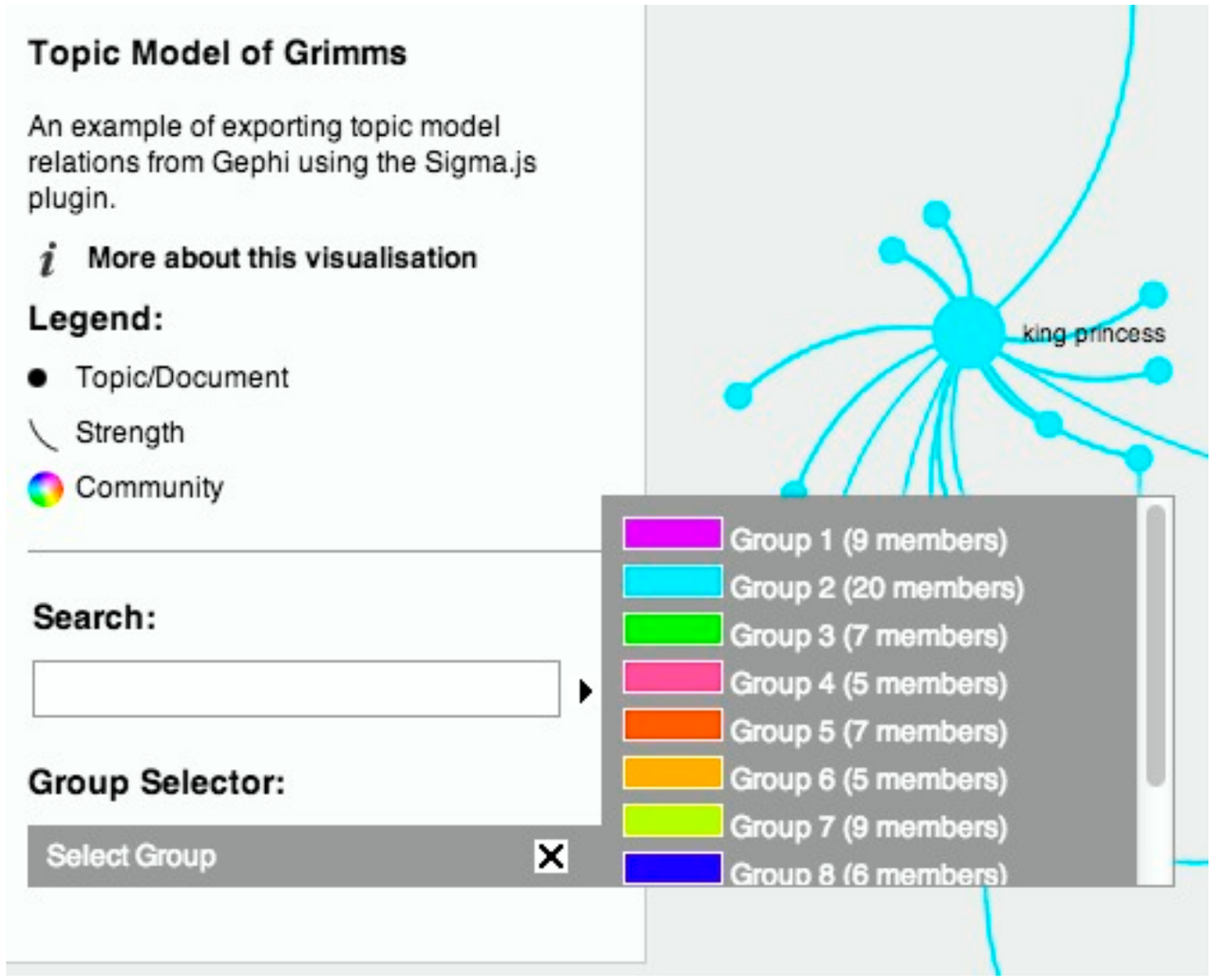
Connections:

Mututal (0)
No mutual links

Incoming (0)
No incoming links

Outgoing (2)
night man
thought eat

The groups are the modularity classes found. You can search for a node name too...



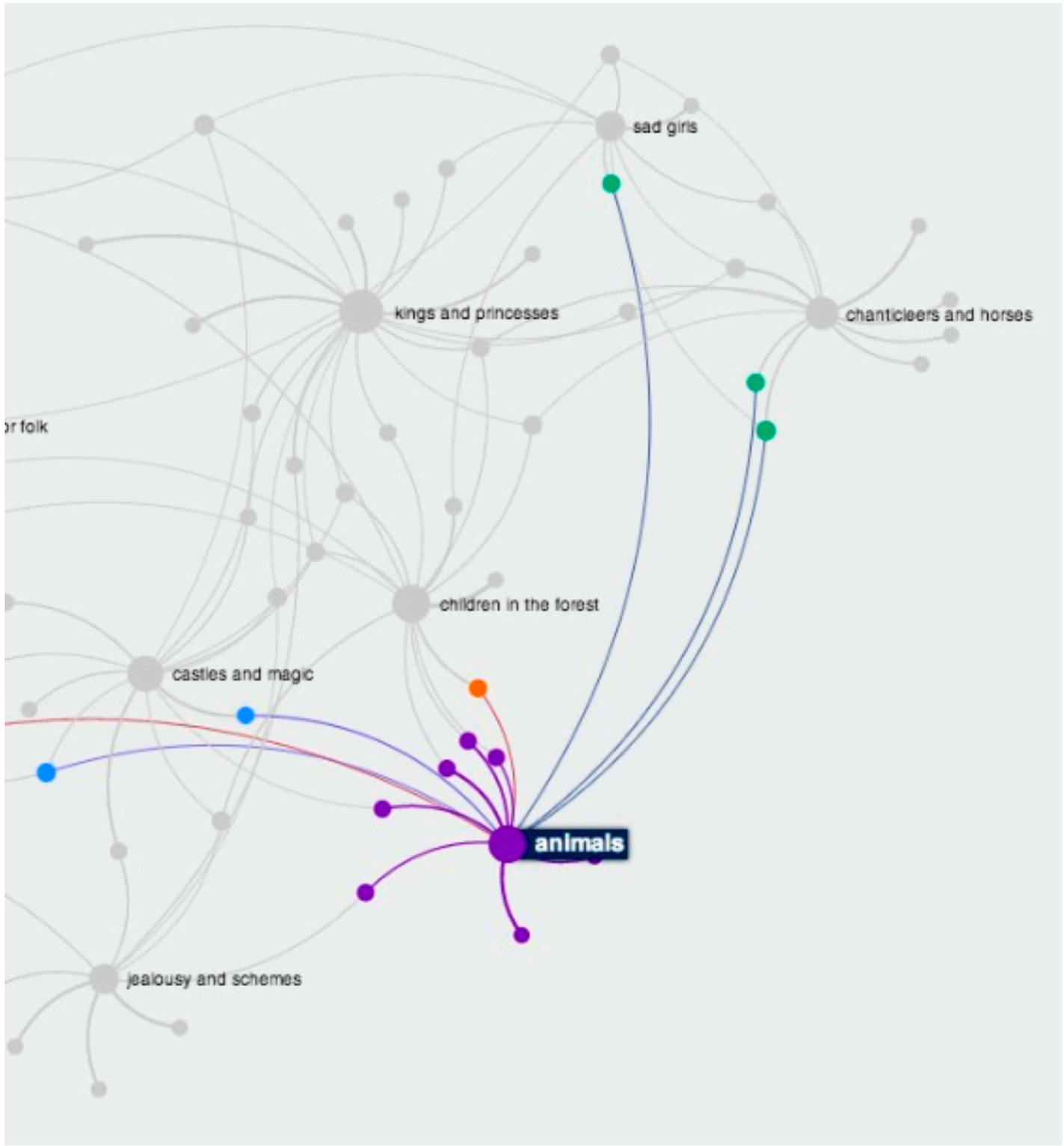
As a last cleanup step, consider using the network to rejigger your names and labels. Copy the data.json file to another name and edit that, as you browse the network.


```
        sons and last of all one daughter. Although the little girl was very
        pretty she was so weak and small that they thought she could not live;
        but they said she should at once be christened. So the father sent one
        of his sons in haste to the spring to get some water but the other six
        ran with him. ...\"",
      "title": "THE SEVEN RAVENS"
    },
    "color": "rgb(15,249,249)",
    "size": 3.0
  },
  {
    "label": "bird mother",
    "x": 8.915628433227539,
    "y": 432.99188232421875,
    "id": "66",
    "attributes": {
      "Modularity Class": "1",
      "text": "\"Top words:bird mother beautiful white tree children gold cook
          home father\"",
      "title": "bird mother"
    },
    "color": "rgb(62,249,15)",
    "size": 31.5
  },
  {
    "label": "CAT AND MOUSE IN PARTNERSHIP",
    "x": -674.8820190429688,
    "y": 9.39062786102295,
    "id": "13",
    "attributes": {
      "Modularity Class": "9",
      "text": "\" Chapter CAT AND MOUSE IN PARTNERSHIP A certain cat had made the
```


relabel the topics with a more human interpretable name based on inspection

For example... swapping in my data_renamed.json file...

But you may find you want to redo the topic modeling with more or fewer topic.



- The utility of this graph is improved by useful text/content additions in the graph file (the python exercise we went thru first) and some tweaks in the output visuals.

- It could be even better by post-processing the modularity groups to have better names than “group 2”...

- NOTE: The sigma.js exporter from Gephi is out of date, using an old sigma.js format. It also seems to not differentiate weights/ sizes of edges very well. Caveats!

Hope this helped!

lynn@ghostweather.com