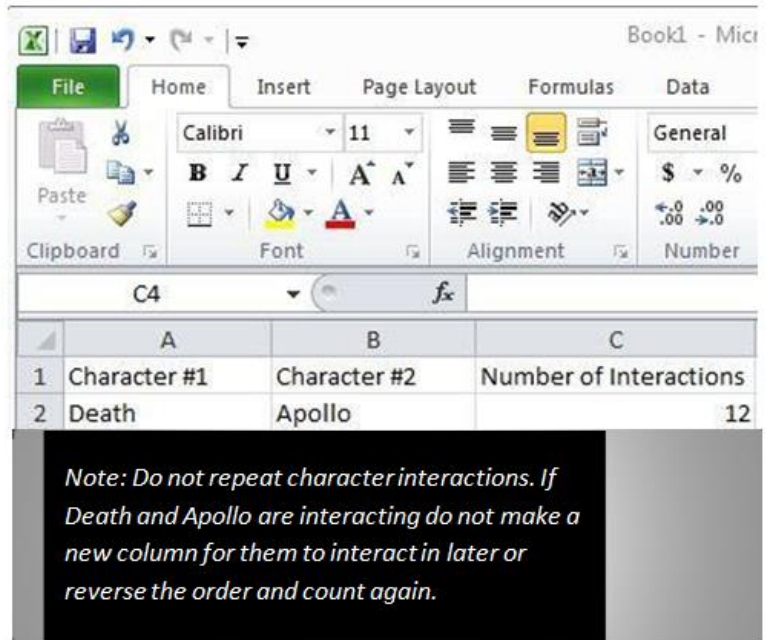# Dramatic Networks Activity Instructions

Step 1: Data Collection

Track the interactions between characters in a play. The goal is to interpret who a character is talking to in any given line. This allows you to take the role of a director of drama rather than a general reader. Record the results of the interactions in an Excel spreadsheet.

Example #1:

DEATH I hear your words and guess your wish!
APOLLO May not Alcestis live to old age?
DEATH No! I also prize my rights!
APOLLO Yet at most you win one life.
DEATH They who die young yield me a greater prize.
APOLLO If she dies old, the burial will be richer.
DEATH Phoebus, that argument favours the rich.
APOLLO What! Are you witty unawares?
DEATH The rich would gladly pay to die old.
APOLLO So you will not grant me this favour?
DEATH Not I! You know my nature.
APOLLO Yes! Hateful to men and a horror to the gods!

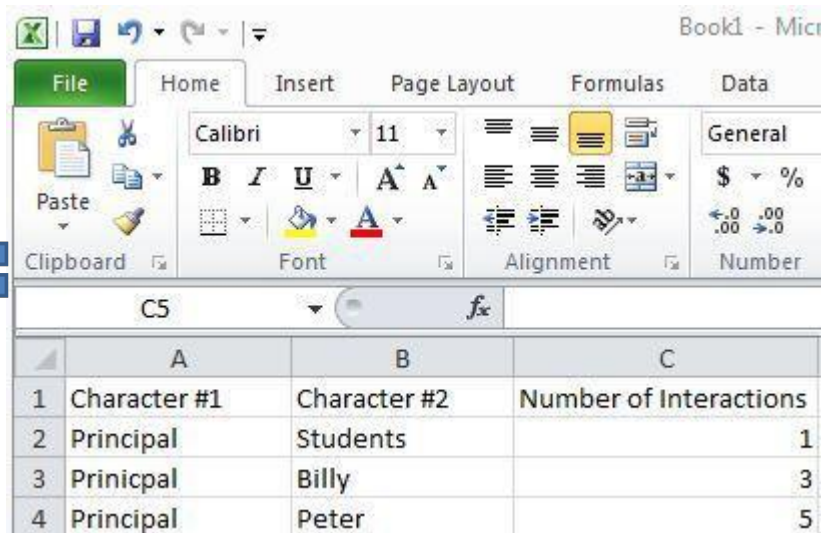|	A	B	C
1	Character #1	Character #2	Number of Interactions
2	Death	Apollo	12

Note: Do not repeat character interactions. If Death and Apollo are interacting do not make a new column for them to interact in later or reverse the order and count again.

Notice that not all interactions are between just two characters. Sometimes you must decide if a character is speaking to one other character or a group of characters. If a character is speaking to a group and only one character responds, only record 1 interaction between the first character and the group and 2 between the character and the second character who responds. In example #2, notice how the principal switches who he is speaking to and how the numbers of interactions correspond to this shift in focus.
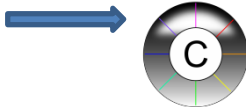
Example #2:

Principal: *Students are to attend a mandatory meeting the first day of school.*
Billy: *I have a doctor's appointment.*
Principal: *Your parents already spoke to me Billy. You are excused.*
Peter: *Can I be excused because I don't want to go?*
Principal: *No Peter.*
Peter: *Please?*
Principal: *No!*

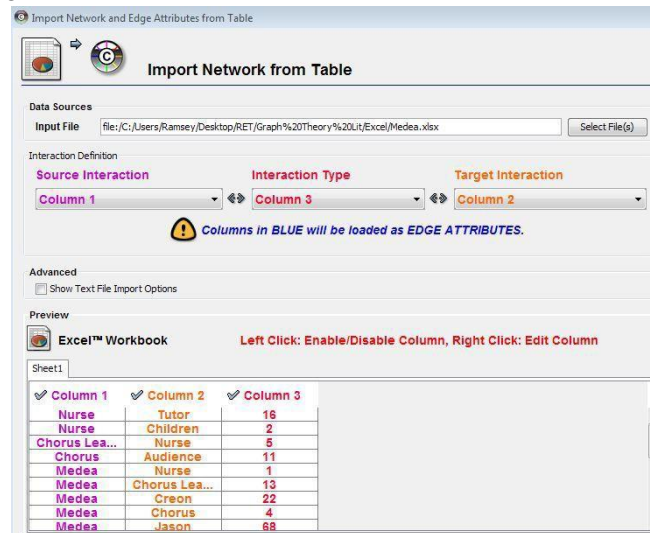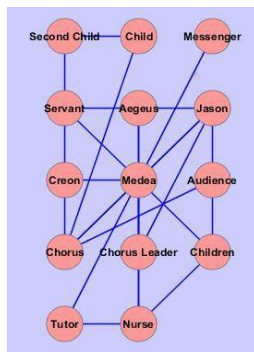|	A	B	C
1	Character #1	Character #2	Number of Interactions
2	Principal	Students	1
3	Prinicpal	Billy	3
4	Principal	Peter	5

Step 2: Data Application

Use the open source program Cytoscape to look closer at the networks you created.
- If your computer does not have the Cytoscape program, obtain it at this website: http://www.cytoscape.org/
- Click "Download Cytoscape now" and follow the instructions to download it.
- The Cytoscape icon looks like this:
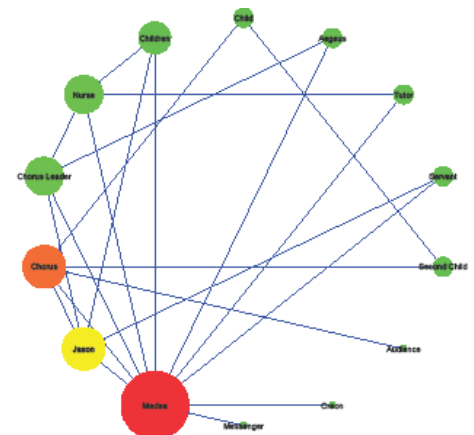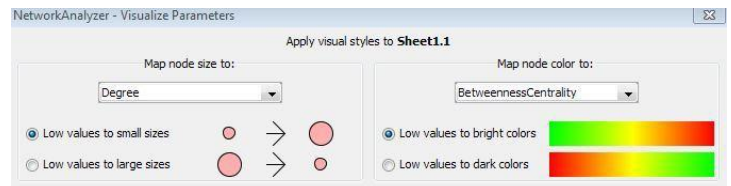
Instructions:
1. Open Cytoscape.
2. Click File > Import > Network from table (Text/MS Excel).
3. Click on the Select File(s) button > select the Excel file you created from where you saved it on the computer.
4. Select the interaction relationship. Set Source Interaction to the column containing the first character. Set Interaction Type to the column containing the number of interactions between character #1 and character #2. Set Target Interaction to the column containing character #2.
5. Click Import and Cytoscape renders a rough version of the network that looks like this:

6. In order to make the data useful, click on the Plugins menu at the top of the page > select Network Analysis > click on Analyze Network.
7. Select the Treat Network as Undirected > click OK.
8. Select Visualize Parameters, which alters the nodes and connections.
9. Set the Map node size to "degree." This represents the characters that do the most communicating as larger nodes.
10. Set the Map node color to "BetweennessCentrality." This changes to warmer colors the characters (nodes) that do the most communicating with great numbers of other characters.
11. Set the layout: Click in the Layouts menu > select Cytoscape Layouts > select the Attribute Circle Layout option > set it to "degree." This generates a final product that looks somewhat like this example from *Medea* (on the right). ➔
12. As necessary, use your mouse to spread out the nodes so that they do not block each other.

Now you have a visual representation of the relationships between the characters in your play.