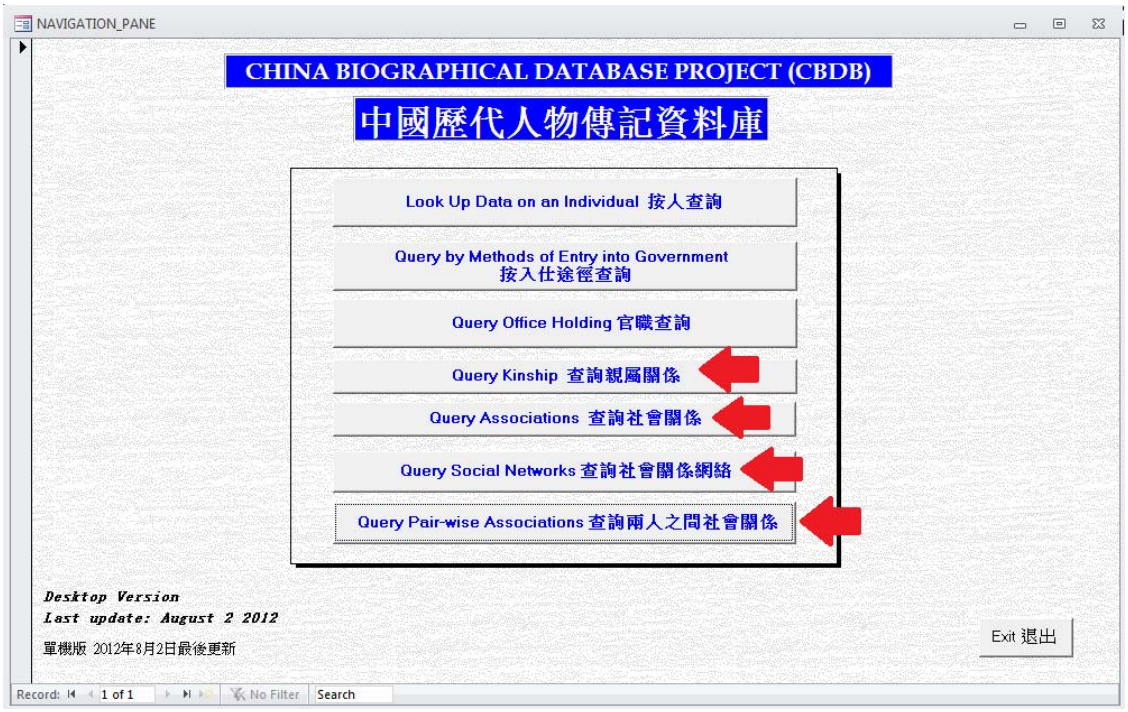
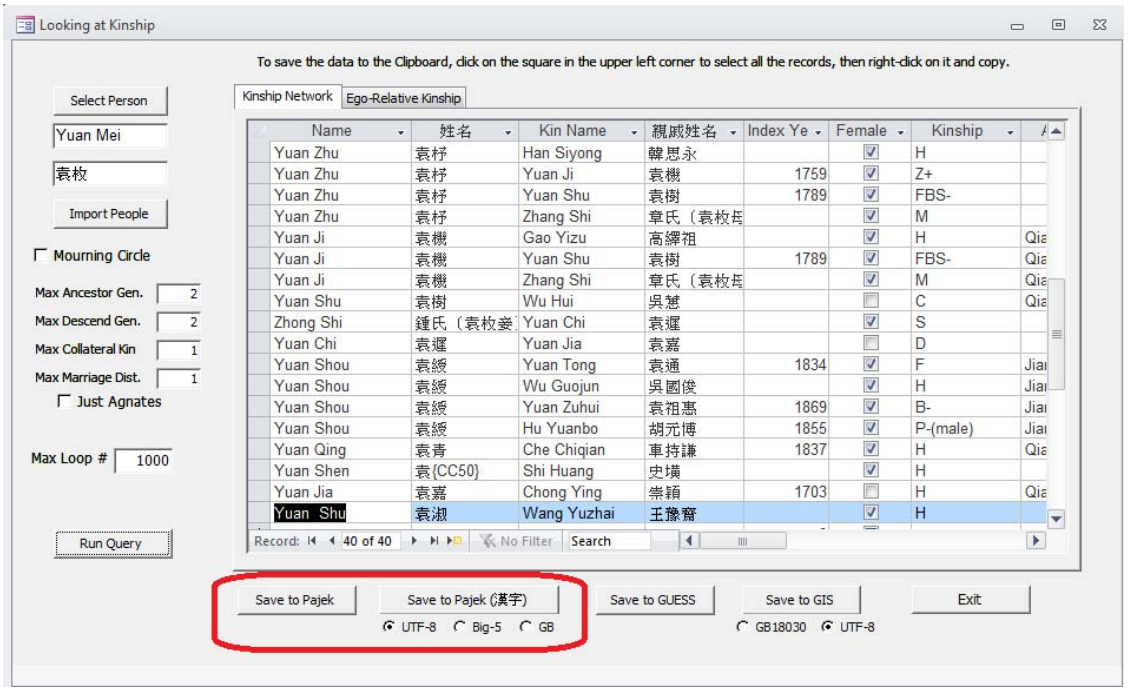
Tutorial: Using the CBDB standalone database – Using Pajek to Visualize Social Networks

For some of the built-in queries, CBDB provides the mechanism to export the query result to the Pajek format for Social Network Analysis. This tutorial demonstrates the steps of exporting results to Pajek, and visualizing social networks using Pajek software.

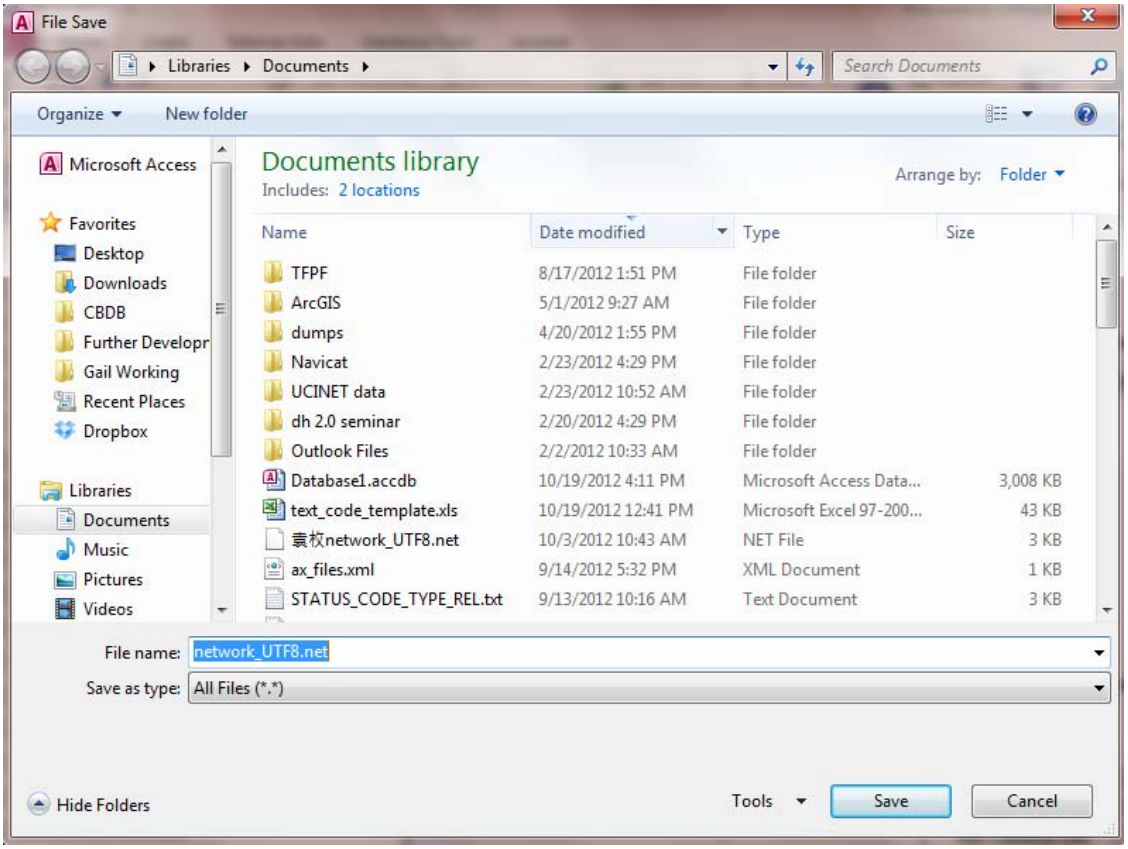
In each of the 4 built-in queries marked by red arrows below, a user can choose to export the query results to the Pajek format for visualizing social networks.



In each of the built-in queries the user will find two buttons at the bottom of the browser for exporting to Pajek: Save to Pajek and Save to Pajek (漢字). The left button exports Chinese names in ***Pinyin***, while the right button outputs the names in ***Chinese characters(漢字)***.



After you run a query and click on Save to Pajek or Save to Pajek (漢字), the system will prompt you for a location for saving that file, like the following window. Note that one can choose between 3 encodings: UTF-8 (Unicode), Big5 (Taiwan), and GB (PRC).



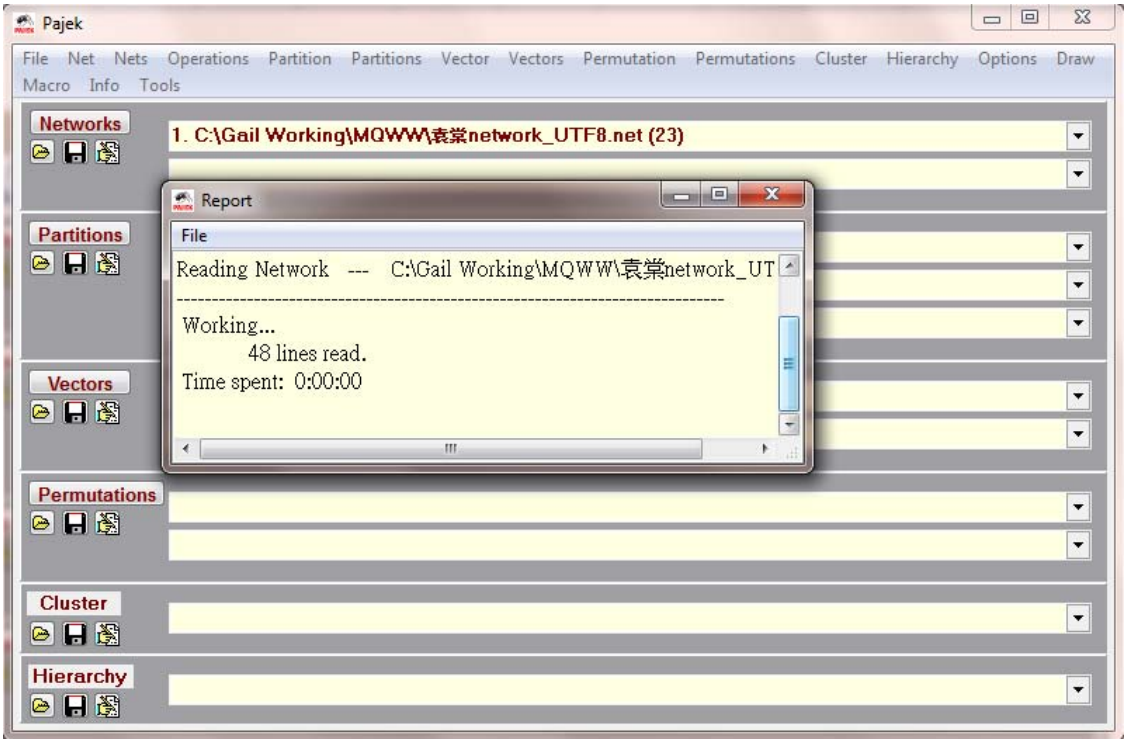
The default file name is “network_UTF8.net”. Change the file name to something that reflects your query, e.g., “袁棠_network_UTF8.net”. Then click Save.

The next step is use Pajek to open the exported file. Make sure you have installed Pajek on your machine first. (You can download it from CBDB’s website: go to Download -> Download Supporting Software -> pajek200.exe.)

Open the Pajek application. (The logo should look like this: 

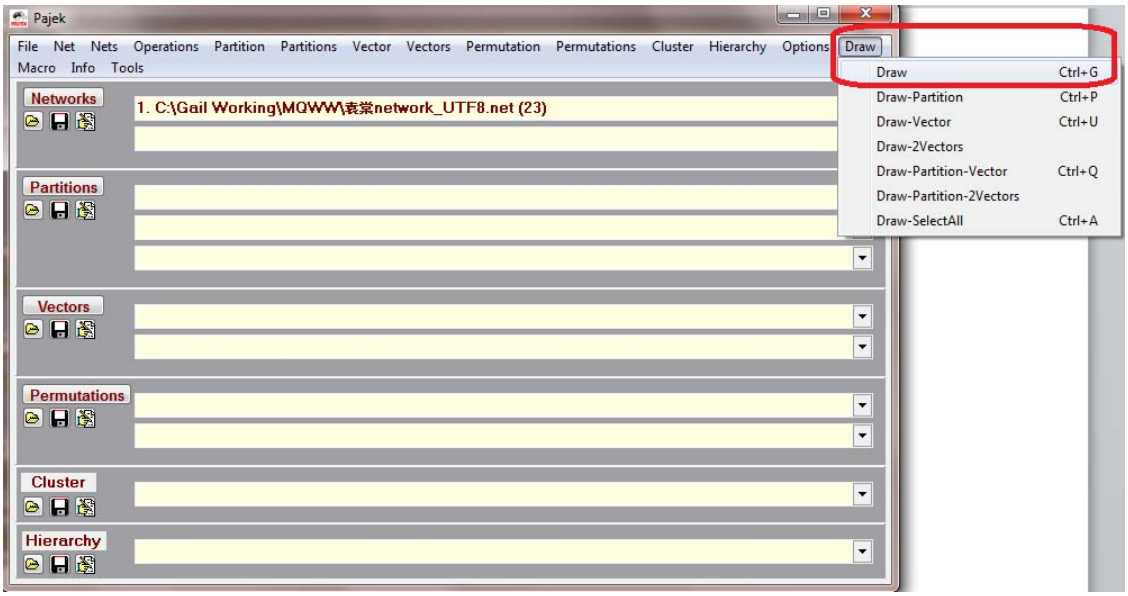
.) Your system should show the following window:

Click on the “Open file” icon --  under **Networks**. Choose the file you just exported. Pajek will load that file and prompt a “Report” window, like the following:

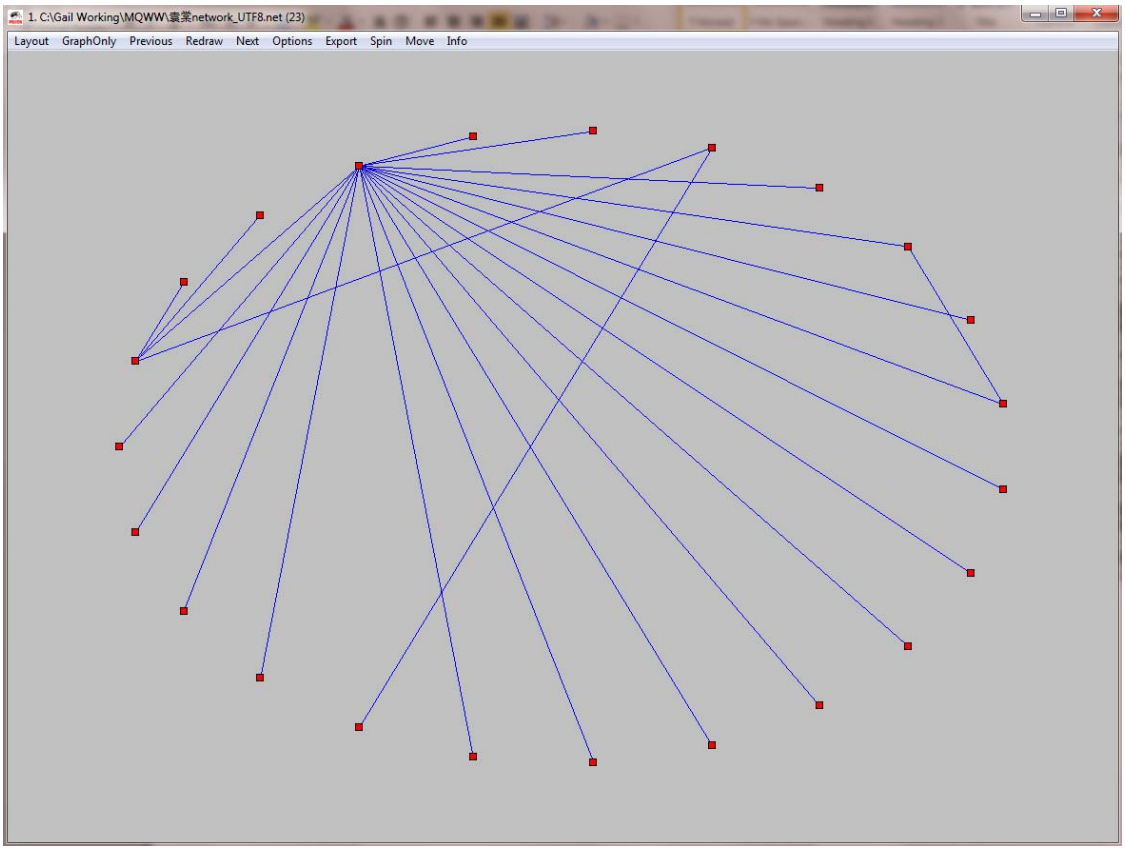


Just close the report Window and go back to the Pajek window.

On the top menu, click on “Draw”.

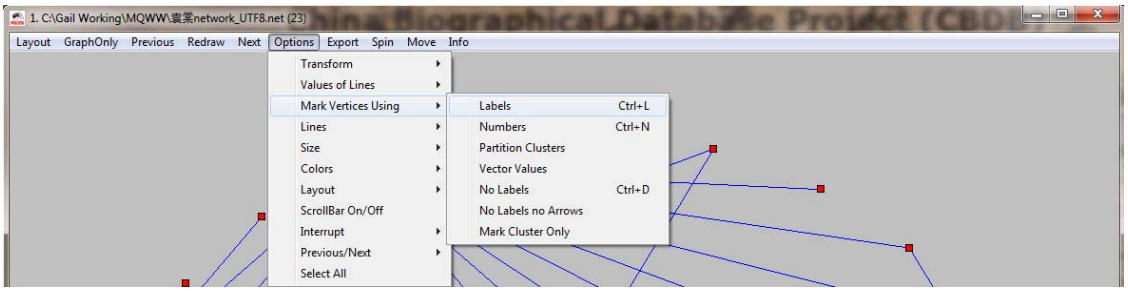


You will get a circular layout for the social network data, like the following:

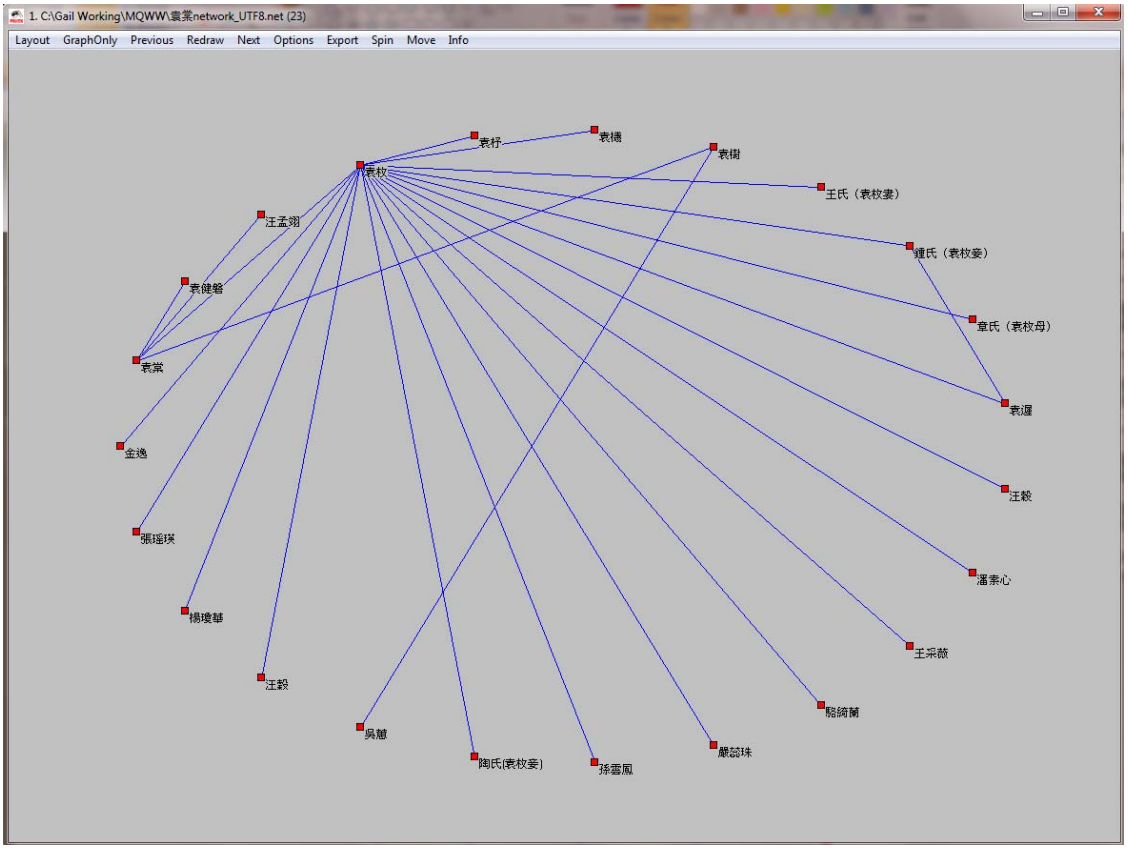


CBDB exports labels for vertices (the points for person names) and edges (the lines indicating relationships), along with colors for the vertices and edges to indicate the number of hops between a person and the subject. But the default setting in Pajek is to hide those labels and colors. You should change the settings in order to show the labels and colors correctly.

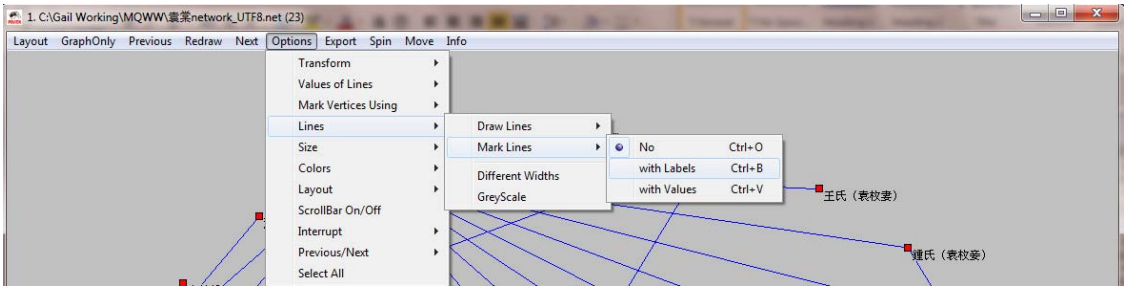
To show vertices labels, go to: Options -> Mark Vertices Using -> Labels.



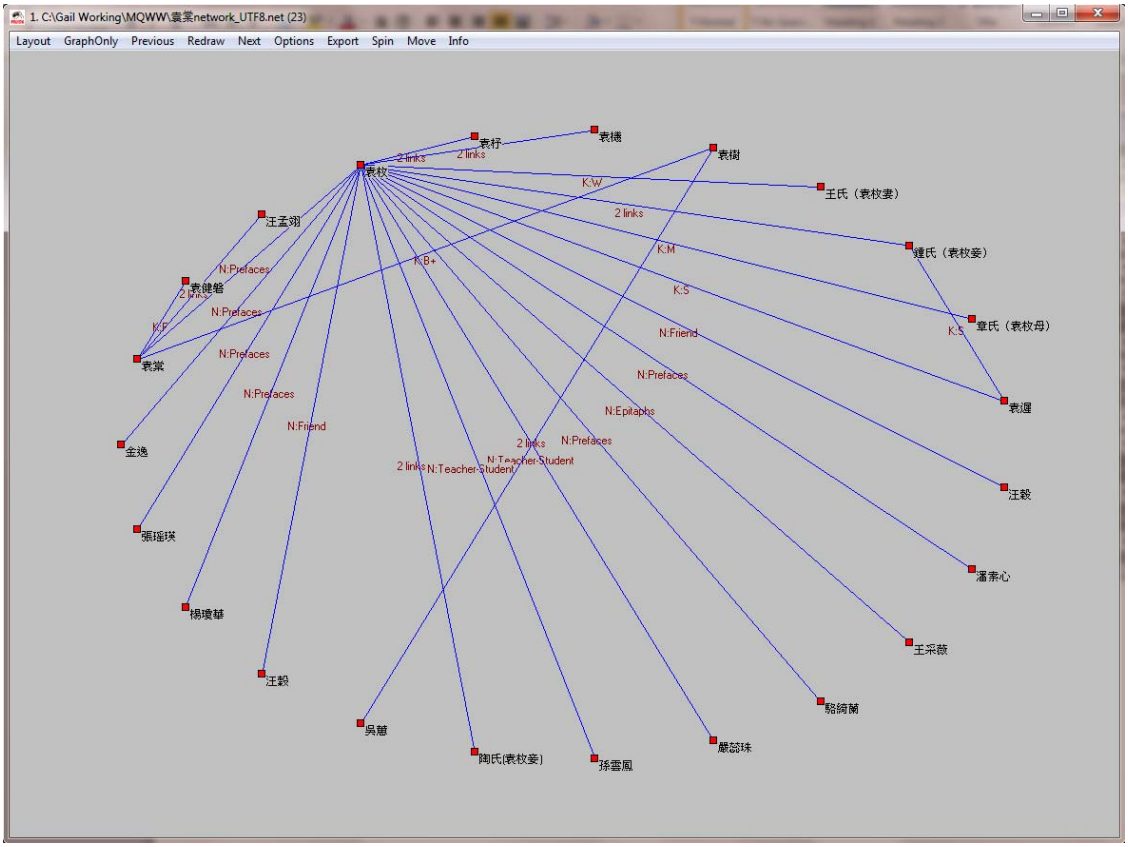
Then you will see the names are now displayed:



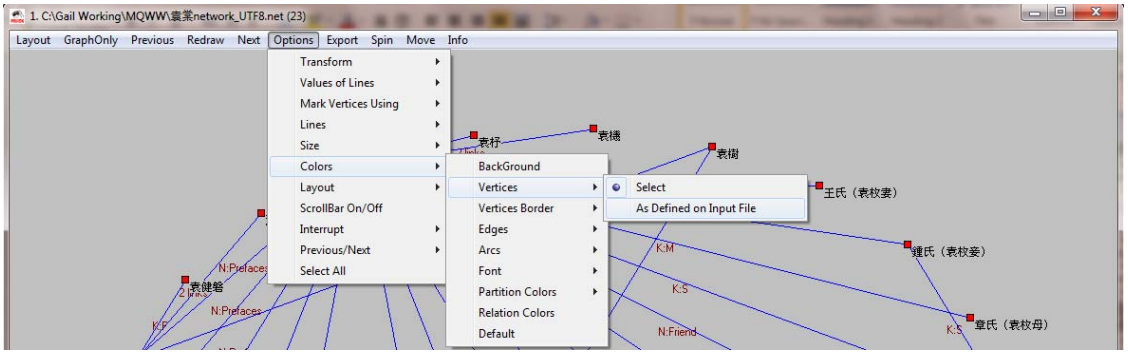
To show edge labels: Options -> Lines -> Mark Lines -> with Labels.



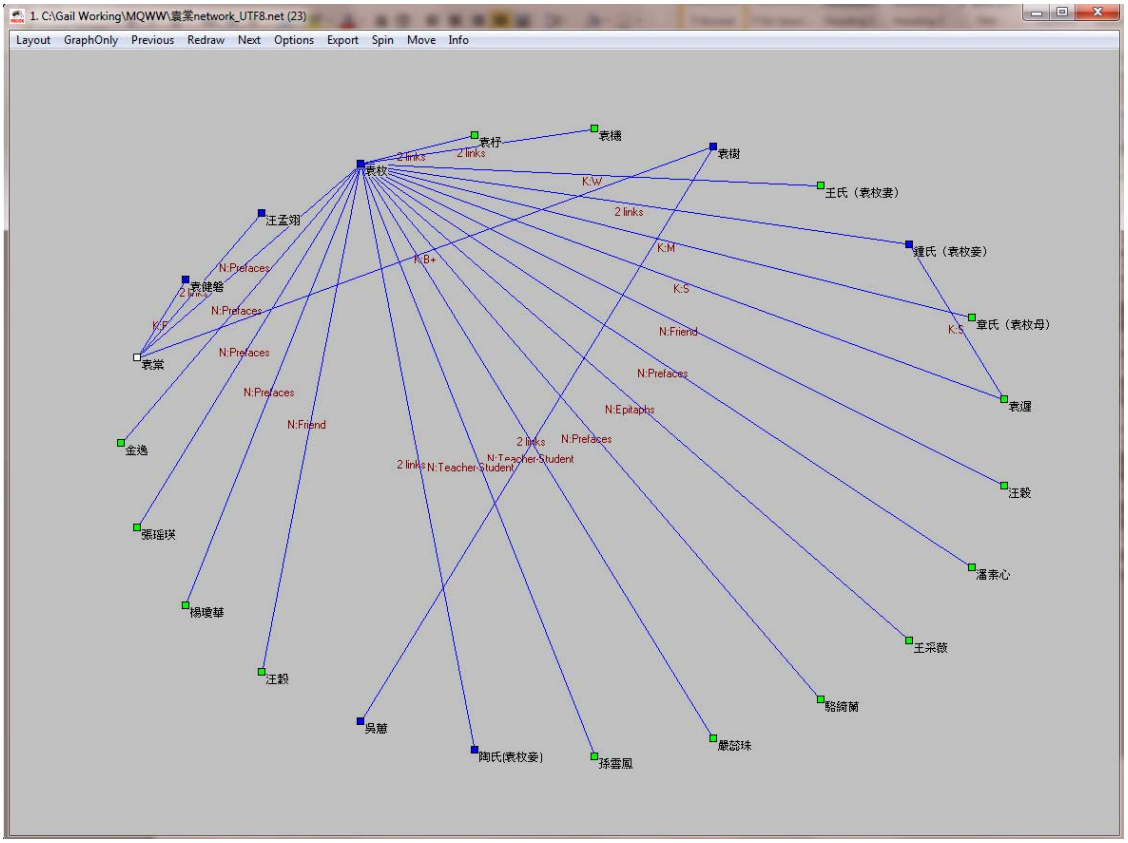
You can see the lines are all marked with labels:



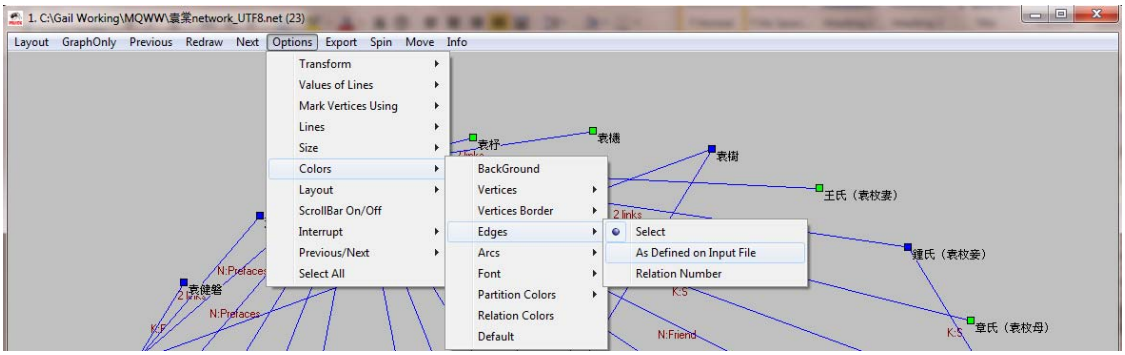
To change the colors of vertices: Options -> Colors -> Vertices -> As Defined on Input File.



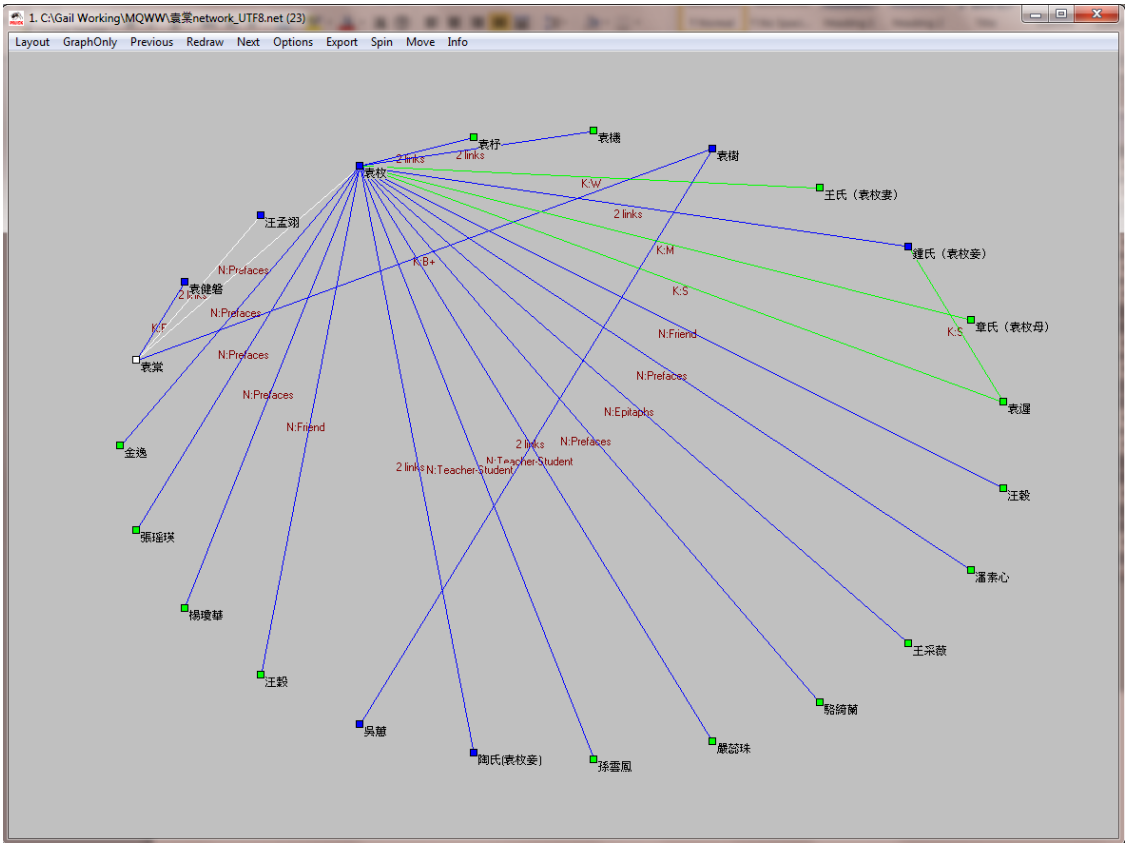
The colors should now be displayed, just as shown in the following image:



To change the colors for edges: Options -> Colors -> Edges -> As Defined on Input File.

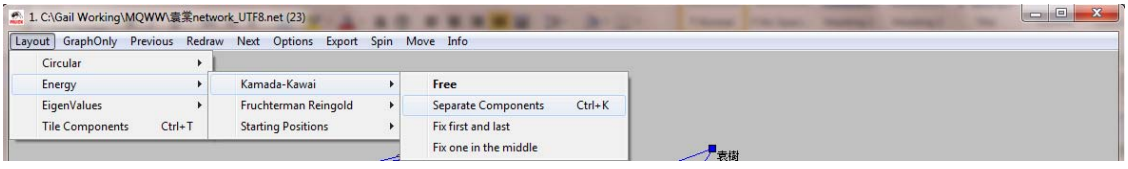


Then you get:

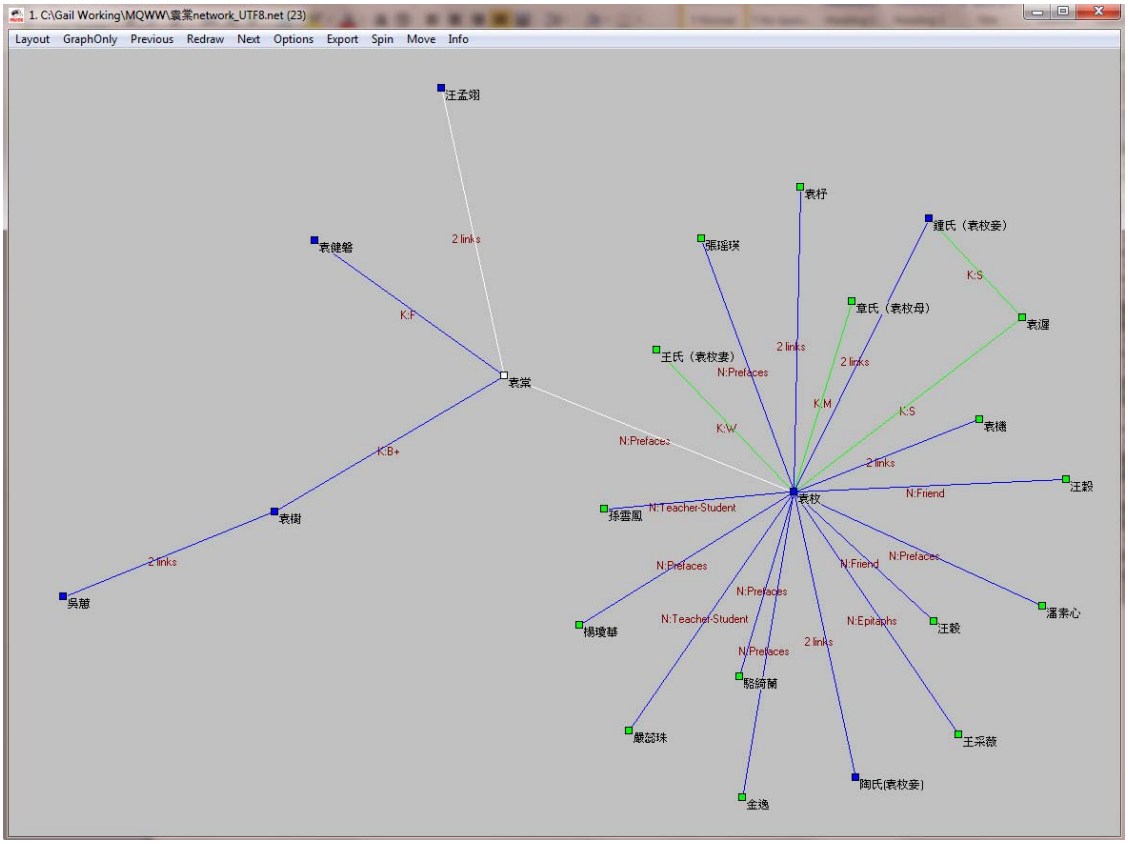


The last step is to change the layout from the circular format shown above in order to better observe the relationships surrounding the subject (in the above case, 袁棠 – the vertex with white color). We found that the Separate Component is often useful for observation.

To change the layout to Separate Component, go to: Layout -> Energy -> Kamada-Kawai -> Separate Components.



You will then get:



It is now easier to see the relationships among 袁棠's kin and associates. We can see that many of 袁棠's associates are actually related to 袁枚 from the above layout.

Note that the "N" and "K" leading the edge labels indicate non-kin and kin respectively.

Because Pajek only allows a single edge between two people, CBDB merges the multiple relations and notes this as "2 links", "3 links", etc. to show that there are more than one relation between the two people.