

Chapter 14

Analyzing your own network

Without question the best way to learn about how to collect personal network data and understand the analysis is to analyze your own network. It is difficult to understand many of these concepts abstractly. By going through the process yourself and seeing how these procedures relate to your own social context, you can better understand how you will use this approach with a set of respondents, and how to interpret the results.

As was mentioned in an earlier chapter, there is a software program called Egonet that can be used to collect and analyze personal network data. As of this writing there are two versions of this program. One is a Java-based program that is available for free on Sourceforge, a web site for posting and downloading open-source computer software. Java-based programs can in theory run on multiple platforms, such as Windows, MAC, and Linux. This version was posted by the original programmer and has since been modified to include additional features. The idea of open-source programs is that users will add enhancements that can then be shared with other users. The software is always free of charge.

Another version was developed by MDLogix (www.mdlogix.com) of Baltimore, Maryland. The MDLogix version is written in Delphi, a product of Borland. Delphi runs in Windows, but can also run on a Mac using a Windows emulator. Although the two programs are designed in a similar way, the MDLogix version currently has a much more sophisticated visualization module. This is extremely helpful when conducting qualitative interviews with respondents using their personal network data. A 60-day trial

version of the MDLogix Egonet can be downloaded from their website. After that there is a fee to register the copy.

For our purposes we will refer to the free version available on Sourceforge. To use the software you will have to download and install Java, and then download and install Egonet. To download Java go to www.java.com and click Free Java Download and follow the instructions. To Download Egonet go to www.sourceforge.net, search for Egonet and follow the instructions to download the program. Since Egonet is written in Java you must have the Java environment installed on the computer running it or it will not work. Also be aware that there is a web-based version of the Java Egonet that will also be made available in the future. This will allow you to conduct personal network interviews over the Internet, much like many web-based surveys are conducted over the Internet.

Once you have downloaded Egonet you will notice a few files. Two of them will be of particular interest. EgoAuthor.exe is the program to create a study while EgoClient.exe is the program to collect and analyze the data. We are going to create a small study for you using my network as an example.

Begin by double-clicking the file EgoAuthor.exe. You should get a screen that looks something like Figure 14.1. You are looking at the setup screen for creating a study. The currently selected tab is the Study tab. This is where you name the study which in this case is called Sample Study. You have also named the path to where you want to store the study. This could be on your local drive, like we have here, or a network drive that is accessible by several different computers. Finally, we have to choose the number of alters we want to ask about. This version of Egonet forces all

respondents to choose the same number of alters. In this case we are going to ask for 40 alters.

Figure 14.2 shows the screen when the Ego tab is highlighted. This is where you will create questions to ask the respondent (in this case you) questions about themselves. I will show you two types of questions that you may recall from Chapter 4 – categorical and numeric. Figure 14.2 was created by clicking the New button at the bottom of the screen which tells the program you want to create a new question for the respondent. In this case we have named the question Sex in the Title box. In the Question box we have typed the text of the question. The Citation box is reserved for cases where you may have borrowed questions from an existing research article and want to keep track of that. The Question Type box defaults to Ego for this tab, meaning this is a question you are asking the respondent about themselves. For this question the Answer Type is Categorical and the program shows that we have not yet selected the response categories. Follows Question is used to skip blocks of questions based on an answer. In this case we will not skip questions. Set Link at the bottom of the screen would be used to conditionally ask questions, but we will ignore that for this study.

In Figure 14.3 you can see the dialog box that appears when you click on Selections. This is where you will create the response items for the question about the respondent's sex. In this figure we have already entered Male as value 1, and we are about to enter Female as value 2. When you are done you can press OK.

Figure 14.4 shows the addition of a question about the respondent's age. Since respondent is going to answer the question in years this is not a categorical variable, it is numeric. There is no need to define response items under Selections because the

respondent will simply enter their age in years. We have now entered all the questions we will ask the respondent about themselves. This first module is much like any other survey. This would be the place where you ask the respondent to report things about themselves (outcomes) that you might want to predict, such as whether they smoke, are depressed or engage in risky sexual behavior. This is also where you would ask questions about them that you might want to use as *covariates* to explain outcomes. Keep in mind that you can put in as many questions as you like. However, you must balance the burden of answering these questions with the questions about alters.

You can see that Figure 14.5 has moved to the next tab called Alter Prompt. This is where you will list the question, or list of questions that you will use to elicit the names of alters. Recall from Chapter 5 that these are called name generators. In Figure 14.5 we have one question that asks respondents to list 40 people that they know. In this case knowing is defined as by sight or by name with contact in the past two years. There is nothing particularly right about that definition. You must create a definition appropriate for your study. For example, if you were studying the social support network of respondents you would want the name generator to reflect that.

In Figure 14.6 we have moved on to the next tab called Alters. This is where you will create questions to ask the respondent about each alter (see Chapter 6). Keep in mind that this is typically the longest part of a personal network interview. There is no way to shortcut these questions, so be careful not to ask questions here that you are not likely to use. You can see from Figure 14.6 that I have already entered two questions (Asex and AAge) and am currently entering a third called Aclose. The format for entering questions is very similar to those for the Ego tab about the respondent. The only

difference is that you will use the symbol \$\$ to refer to the alter in the question. The current question (Aclose) is asking the respondent a categorical question about how close they are to each alter on a scale of 1 to 5. These have been entered in the dialog box. Notice the box titled Question near the top of the screen. The text says “How close are you to \$\$?” You will see when the data are being collected, Egonet will substitute the name of each alter for the \$\$.

Figure 14.7 shows the addition of yet another categorical question called Amet which asks the respondent how they met the alter. In this case we have six different ways they could have met, along with a general category called Other. As I mentioned in Chapter 6, I prefer asking how people met rather than how they know them as the question tends to be more informative. Notice that I have not used the category Friend, which tends to be used liberally by respondents to refer to many types of people from different social contexts.

In Figure 14.8 we have moved to the final module for constructing the study – the question used to get the respondent to evaluate the tie between alters. For this study we created one question called Tie that the respondent will use to evaluate the relationship between alters. You can have more than one question, and you can ask questions conditionally, but again you must be careful not to ask too many. Recall from Chapter 7 that the number of tie evaluations is given by $N(N-1)/2$. For 40 alters that will be 780 evaluations. With two tie questions it doubles to 1,560 evaluations. Of course, by making the second question conditional the number of evaluations can be reduced.

Figure 14.8 shows the question I often use, the likelihood that the two alters talk to each other independently of the respondent. Notice that in the box labeled Question

the text uses \$\$1 and \$\$2 to refer to the alters. Egonet will automatically substitute the alters' names for the \$\$1 and \$\$2. In the dialog box titled Category Options we have entered three possible answers to the questions – Not at all likely, Somewhat likely and Very Likely. Notice that Very Likely is highlighted in red. This was accomplished by using the Make Selected Item Adjacent button in the lower right corner of the dialog box. This indicates that this response will be used to indicate a 1 for structural metrics that require binary data while the other two responses will be coded as 0.

You have now created an Egonet study and you are ready to begin entering data for yourself as a respondent. Using the file menu at the top left of the screen, save the study and exit this program. Locate the EgoClient.exe file and double-click it. You should see a screen similar to that shown in Figure 14.9

On this screen you first must select a study by clicking on the Select Study button. Go to the location where you saved the study and select it. Then click the Start Interview button at the bottom of the screen. This will bring up a screen that looks like Figure 14.10. The text of the first question about the respondent appears under Questions About You – in this case Are you male or female? The response items appear by Answer and can be select with either the mouse using the radio button, or by typing in the number next to the item. As the answers are entered a bar will appear at the bottom of the screen indicating the progress towards completing the interview. Answer the two questions in the Ego module.

Figure 14.11 shows the Alter Prompt module. Here you can see I have entered a number of names, and am about to enter one for Jose Luis Molina. At this point you should enter the names of 40 people you know given the definition of knowing that is

provided. Once you have entered all 40 names the program will move to the next module. You will have to provide 40 names for the program to advance. Try not to use cell phones or other lists to generate the names. You can use anybody that fits the definition of knowing, no matter whom they are or where they live.

Figure 14.12 shows the next screen after all 40 names have been listed. The screen shows the first alter question, and it is being asked about the first alter I selected, my wife Alicia McCarty. The program will run through all of the questions about her, then move on to the next alter and do the same. The MDLogix version of this program allows you to choose whether the respondent will answer all questions about each alter before moving to the next alter, or answering one question about all alters before moving to the next question. Once you have answered all questions about all alters the program will move to the final data collection module.

Figure 14.3 shows the screen for evaluating the ties between alters. On this screen the program asks about the relationship between Alicia and my son Sean. I have indicated that it is Very Likely that they talk to each other independently of me. Notice the progress bar at the bottom of the screen. It shows that I have completed about 15 percent of the interview. In terms of questions the tie evaluations represent the vast majority of questions. But they tend to go very quickly. That's because people tend to list alters in groups, and many groups do not interact. For example, I have many colleagues that neither Alicia nor Sean will interact with. Egonet defaults to a null tie (zero) so it is easy to hit Enter and accept that as the tie evaluation. Typically respondents can do each evaluation in a few seconds. For 990 evaluations that is less than an hour.

Figure 14.4 shows the screen where I have finished entering the data about my 40-alter personal network. You can see the progress bar at the bottom of the screen has moved all the way to the right. The program defaults to the Interview tab showing the list of answers to each question, beginning with the first question about the respondent, in this case whether the respondent is male or female.

Figure 14.5 shows the screen for the Statistics tab, starting with a summary of the structural metrics. This screen lists the alter who is the most degree, close and between central. In my case that is my wife, Alicia McCarty, who talks to many different people in my network. This may not be the case for your network. You can also see that my network has 18 cliques, but only one component. My network tends to be less compartmentalized than other networks.

Figure 14.16 shows the Compositional Summary of my personal network. Recall that you answered four questions about each alter. This screen summarizes those four questions across the 40 alters. For example, the majority of my personal network are men (65 percent), and the average age is 44 years old. I consider 40 percent of my network to be Very Close and none to be Not at All Close. The largest relation category for my network is Work (35 percent) followed by Relative by Marriage (25 percent). Depending on your own circumstances, the type of people in your network are probably different from mine.

Figure 14.17 shows the graph for my personal network. The visualization algorithm is called an FRLayout. This screen is one of the most useful for analyzing your network or conducting qualitative interviews. From this screen it is easy to see the structural importance of Alicia in my network. Were she not in my network, the group at

the upper right containing my brother Doug McCarty would be a component on its own. Were she and my son Sean not in my network then my in-laws at the upper left would also become their own component. In my network my son links my in-laws to other parts of my network because he and his roommate rent a condominium from my sister and brother-in-law.

The remainder of my network consists of a mix of people I work with at the University of Florida, a social group that mixes with that group and a group of colleagues who I know through the discipline of anthropology. Cognitively, my network consists of five distinct groups – blood family, family by marriage, my immediate work, my social group, and colleagues I interact with through anthropology and social network research. A different tie question or name generator might generate a different looking personal network.

The panes at the bottom of the screen allow you to manipulate the graph by using the label, color, size and shape of the nodes with the alter information you collected. Let's do that by clicking on the Node tab in the lower panel. Now select Asex for the Question and choose to make Males Squares and Females Circles. You can see how the graph changes to reflect your choice. Now let's select Aclose for the Question and size the nodes by the response, making nodes larger if they are closer. Finally, select Amet for the Question and apply different colors to each category. Now click the small down arrow right above the Graph Tab. This is reflected in Figure 14.18.

Now we can see some patterns in my network. The visualization allows us to easily combine composition and structure. We can see how I have a two family groups, a social groups and a large work group that actually contains (at least) two subgroups.

Now let's color the graph using one of the structural measures. Close to the bottom of the screen there is a button labeled 'Apply structural measures to nodes'. Click that then click the radio button for Betweenness centrality. You can see in my network that Alicia is overwhelmingly more between central than anyone else. Within my work network, Scott Richards is more between than others, and on the lower left, Carol and Russ Bernard are also between.

As a way to help you understand your own network, here are a series of questions you can ask yourself:

- Does the network have more than one group? If so, are they components (completely detached) or are they linked by people?
- Who are the people that link the groups? What role do they play in your network? Are they people that could take advantage of their position?
- Do you have isolates in your network; that is people who are not connected to anyone? What would happen if you tried to introduce one of these isolates to someone on a group? Would that make you uncomfortable? Why or why not?
- What would happen if you introduced someone from one group to another group? Would that make you uncomfortable?
- Are the groupings in your network detached by distance? If not, what makes one group unlikely to contact another?
- For those that tend to be marginally attached, would you feel comfortable talking to them about a job opportunity?

- When thinking about talking to specific people in your network about something private, does the structure of your network make a difference as to who you would or would not talk to?
- Would you like to have all of the people in your network interacting or do you like having separation between groups?

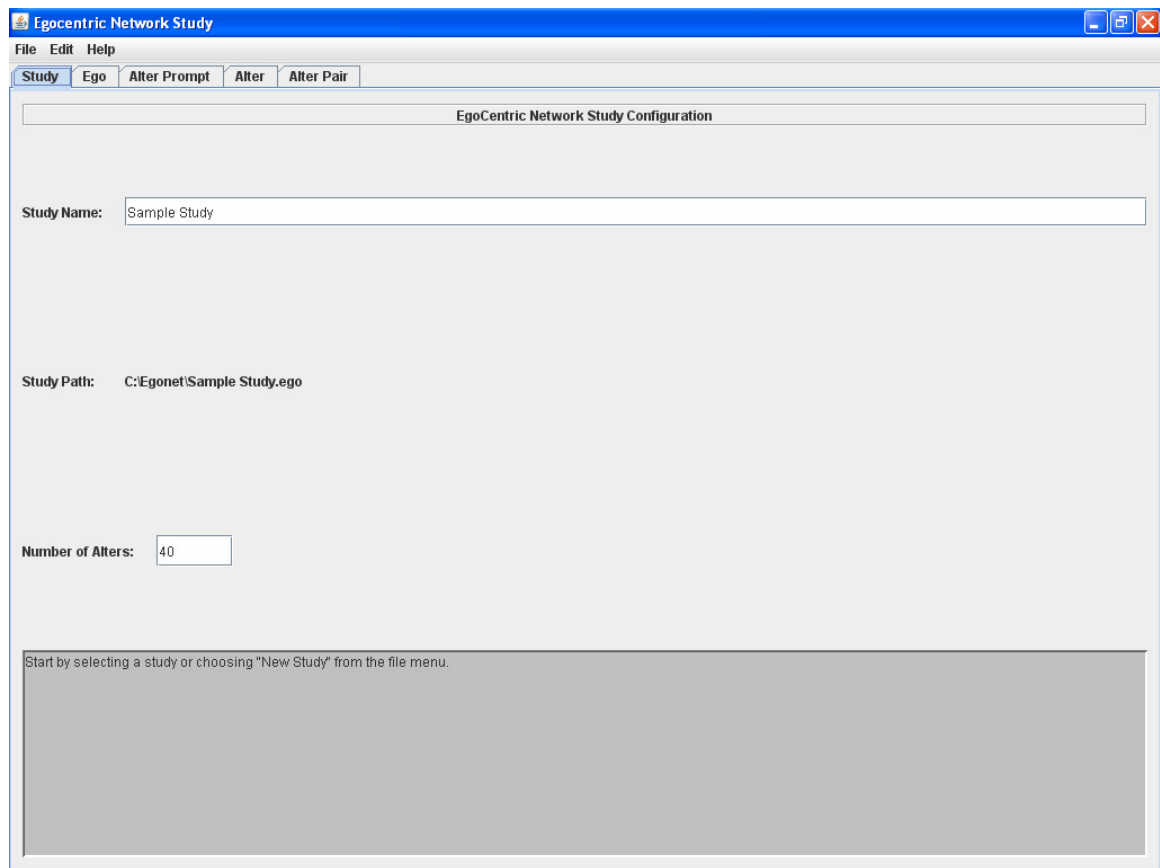


Figure 14.1

Egocentric Network Study

File Edit Help

Study Ego Alter Prompt Alter Alter Pair

Ego

Sex

Title: Sex

Question: Are you male or female?

Citation:

Question Type: Ego No Selections

Answer Type: Categorical Selections

Follows Question: none

Question Link: < none >

New Set Link Delete

Figure 14.2

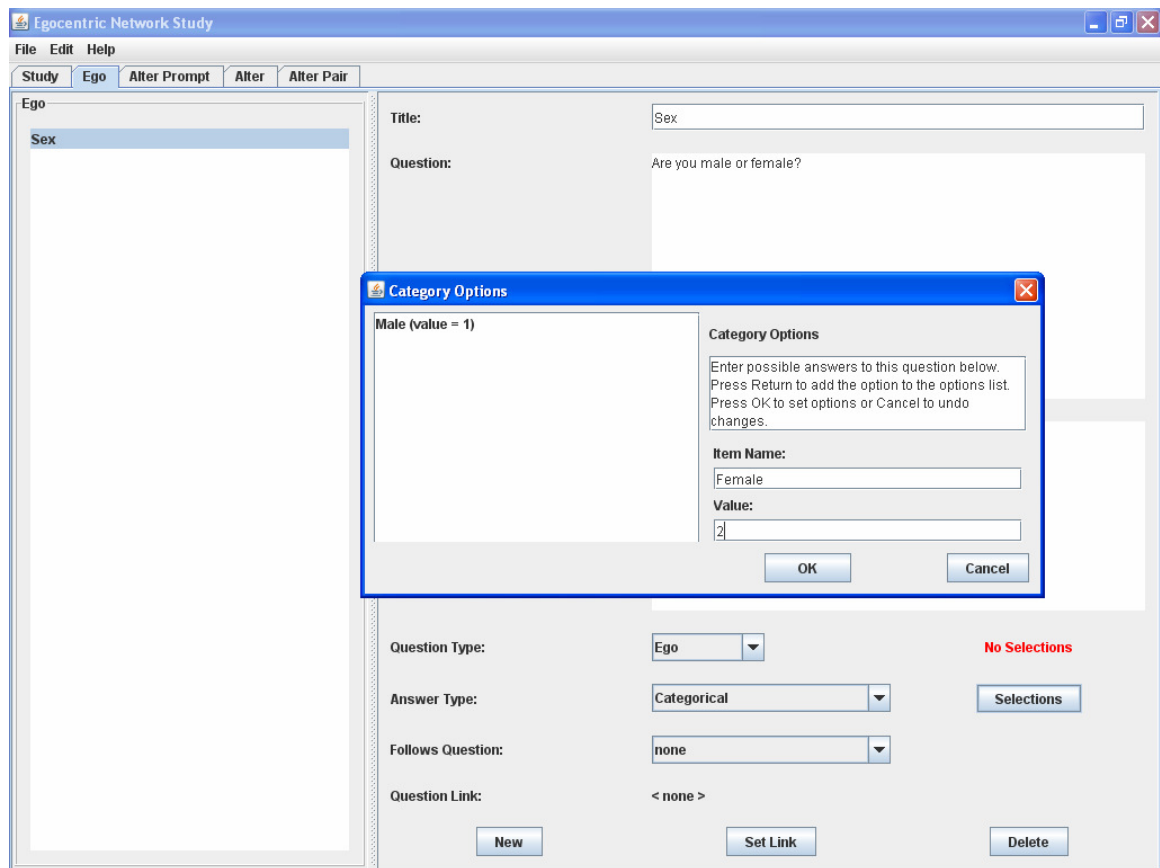


Figure 14.3

Egocentric Network Study

File Edit Help

Study Ego Alter Prompt Alter Alter Pair

Ego

Sex

Age

Title: Age

Question: How old are you?

Citation:

Question Type: Ego

Answer Type: Numerical

Follows Question: Sex

Question Link: < none >

New Set Link Delete

Selections

Figure 14.4

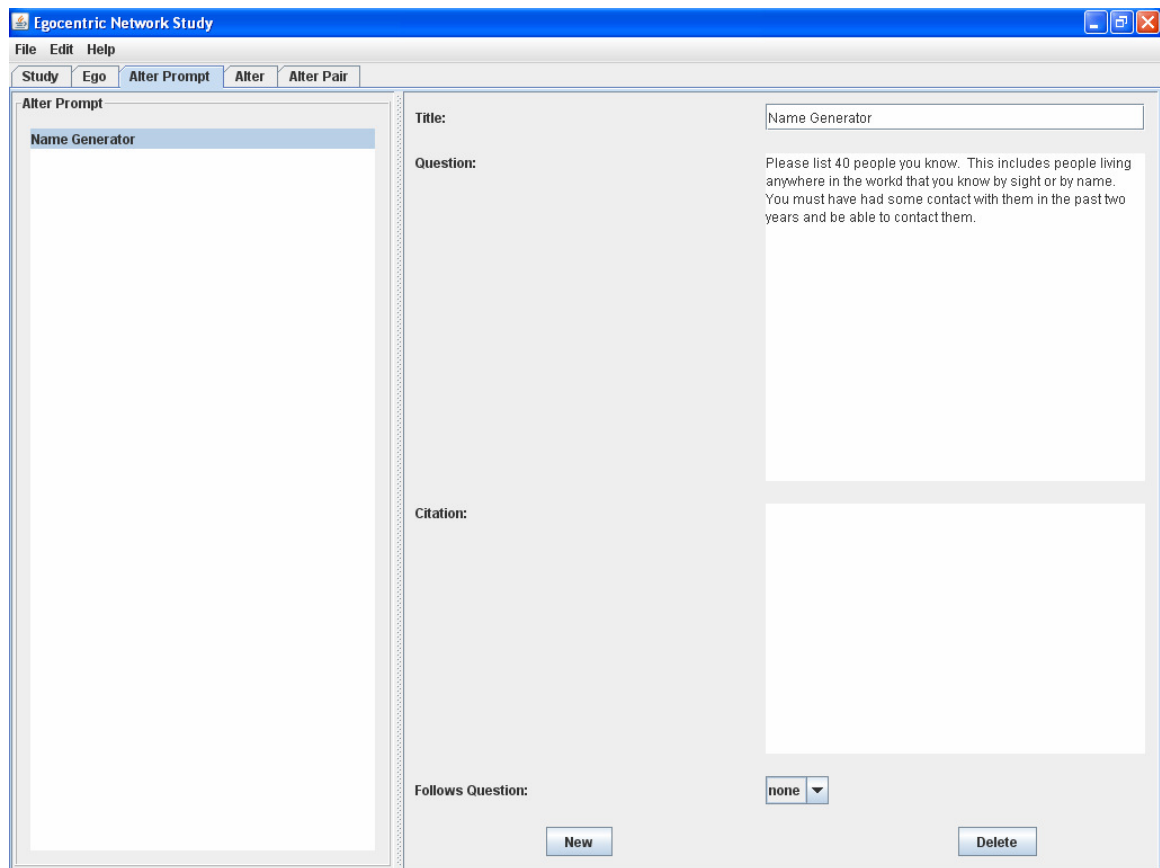


Figure 14.5

Egocentric Network Study

File Edit Help

Study Ego Alter Prompt Alter Alter Pair

Alter

Asex
AAge
Aclose

Title: Aclose

Question: How close are you to \$\$?

Citation:

Category Options

Not at all close (value = 1)
Not Very Close (value = 2)
Somewhat Close (value = 3)
Close (value = 4)
Very Close (value = 5)

Category Options

Enter possible answers to this question below.
Press Return to add the option to the options list.
Press OK to set options or Cancel to undo changes.

Item Name:

Value:

OK Cancel

Question Type: Alter

Answer Type: Categorical

Follows Question: AAge

Question Link: < none >

No Selections

Selections

New Set Link Delete

Figure 14.6

Egocentric Network Study

File Edit Help

Study Ego Alter Prompt Alter Alter Pair

Alter

Asex
AAge
Aclose
AMet

Title: AMet

Question: How did you meet \$\$?

Citation:

Category Options

Blood relative (value = 1)
Relative by marriage (value = 2)
Work (value = 3)
Through someone (value = 4)
Church (value = 5)
Neighbor (value = 6)
Other (value = 7)

Category Options

Enter possible answers to this question below.
Press Return to add the option to the options list.
Press OK to set options or Cancel to undo changes.

Item Name:

Value:

OK Cancel

Question Type: Alter

Answer Type: Categorical

Follows Question: Aclose

Question Link: < none >

No Selections

Selections

New Set Link Delete

Figure 14.7

Egocentric Network Study

File Edit Help

Study Ego Alter Prompt Alter Alter Pair

Alter Pair

Tie

Title: Tie

Question: What is the likelihood that \$\$1 and \$\$2 talk to each other independently of you?

Citation:

Category Options

Not at all likely (value = 0)
Somewhat likely (value = 1)
Very likely (value = 2)

Category Options

Enter possible answers to this question below.
Press Return to add the option to the options list.
Press OK to set options or Cancel to undo changes.

Item Name: Very likely

Value: 2

Delete selected item Mark selected item adjacent

OK Cancel

Question Type: Alter Pair

Answer Type: Categorical

Follows Question: none

Question Link: < none >

No Adjacency Selections

Selections

New Set Link Delete

Figure 14.8

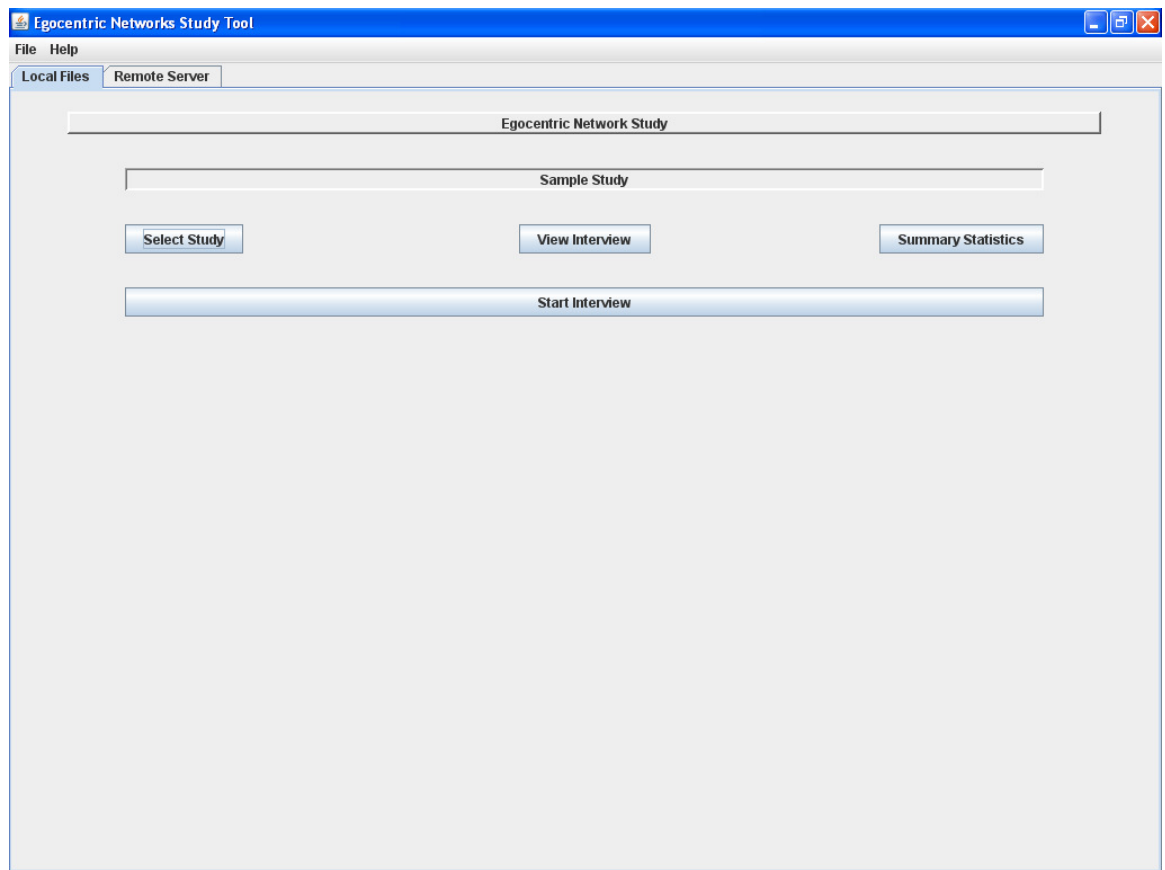


Figure 14.9

Egocentric Networks Study Tool

File Help

Questions About You

Are you male or female?

Answer: ☒ (1) Male

☐ (2) Female

Previous Question

Next Question

Figure 14.10

Egocentric Networks Study Tool

File Help

Whom do you know?

Please list 40 people you know. This includes people living anywhere in the world that you know by sight or by name. You must have had some contact with them in the past two years and be able to contact them.

McCarty, Alicia (value = -1)
McCarty, Sean (value = -1)
McCarty, Tom (value = -1)
Barnes, Kate (value = -1)
McCarty, George P. (value = -1)
McCarty, Diana (value = -1)
McCarty, Doug (value = -1)
McCarty, Haiyen (value = -1)
Landis, Amy (value = -1)
Landis, Ed (value = -1)
McCarty, George E. (value = -1)
Buckner, Lore (value = -1)
Richards, Scott (value = -1)
Girson, Mark (value = -1)
Smith, Martin (value = -1)
Kidd, Kenneth (value = -1)
Collins, Clinton (value = -1)
Smith, Stan (value = -1)
Fletcher, Janet (value = -1)
Bernard, Russ (value = -1)
Bernard, Carol (value = -1)

Your Acquaintances

Enter the names of 40 people. After entering 40 names you can continue.

First Name:
Jose Luis

Last Name:
Molina

Delete selected item

Previous Question

Next Question

Figure 14.11

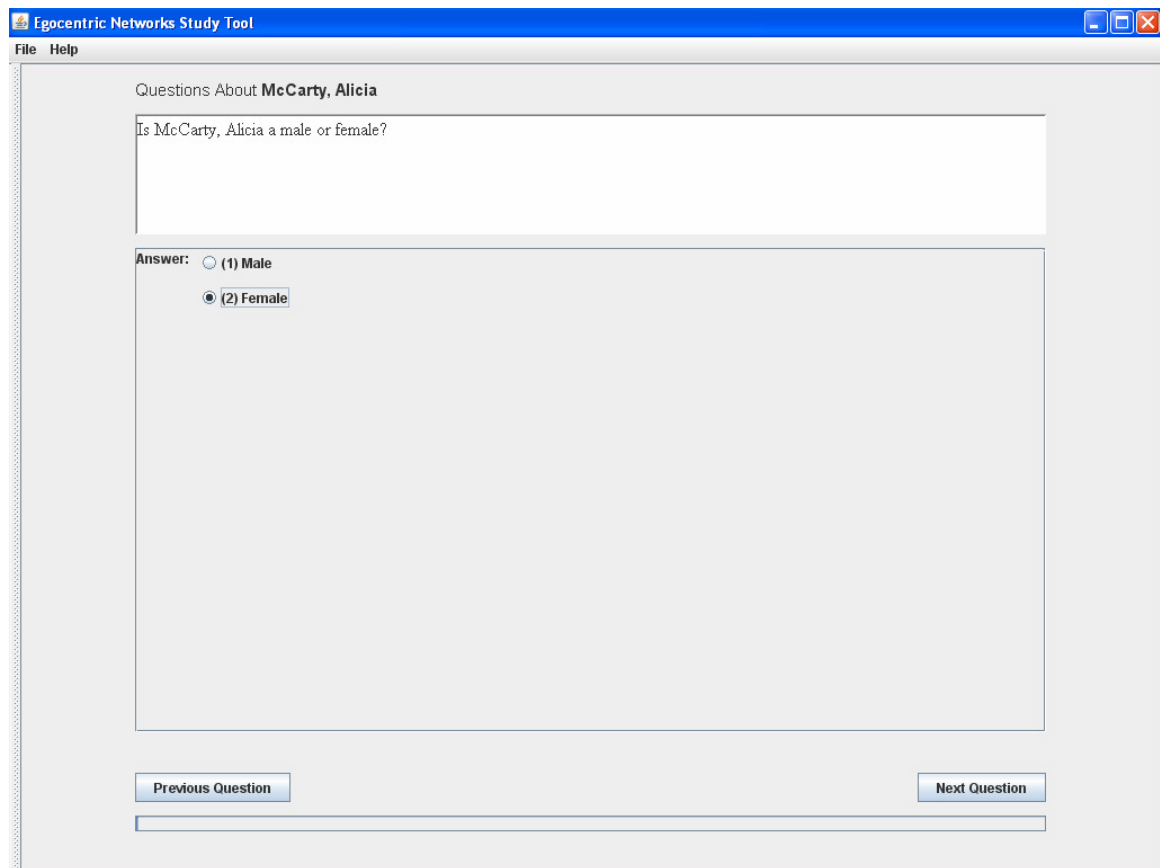


Figure 14.12

Egocentric Networks Study Tool

File Help

Questions About **McCarty, Alicia** and **McCarty, Sean**

What is the likelihood that McCarty, Alicia and McCarty, Sean talk to each other independently of you?

Answer: ☐ (0) Not at all likely
☐ (1) Somewhat likely
☒ (2) Very likely

Previous Question Next Question

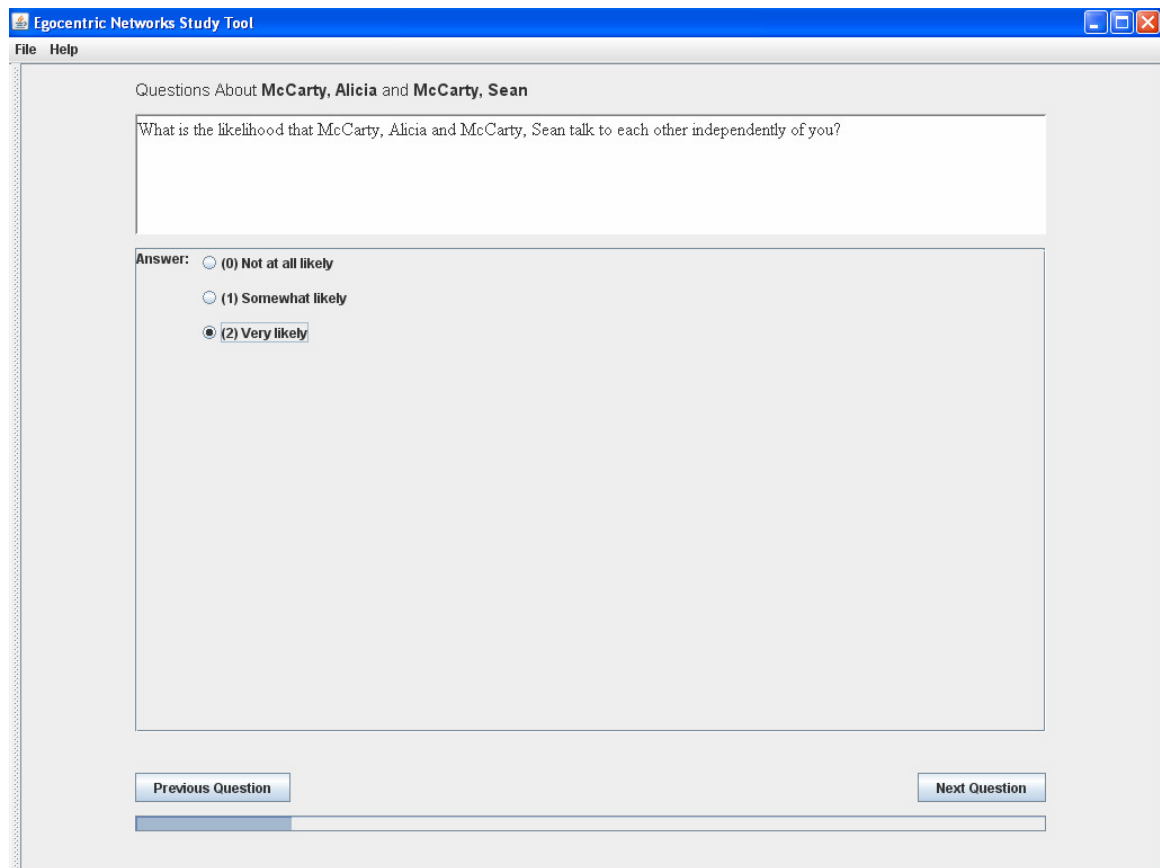


Figure 14.13

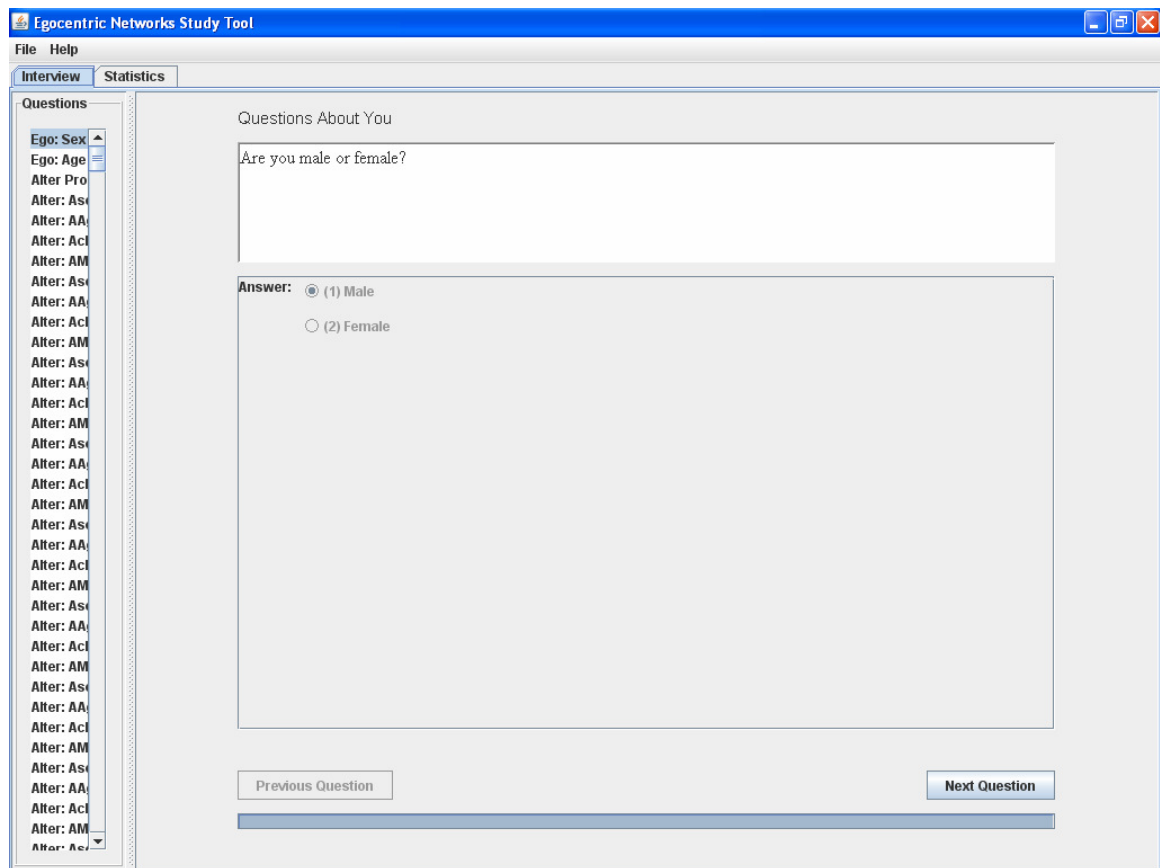


Figure 14.14

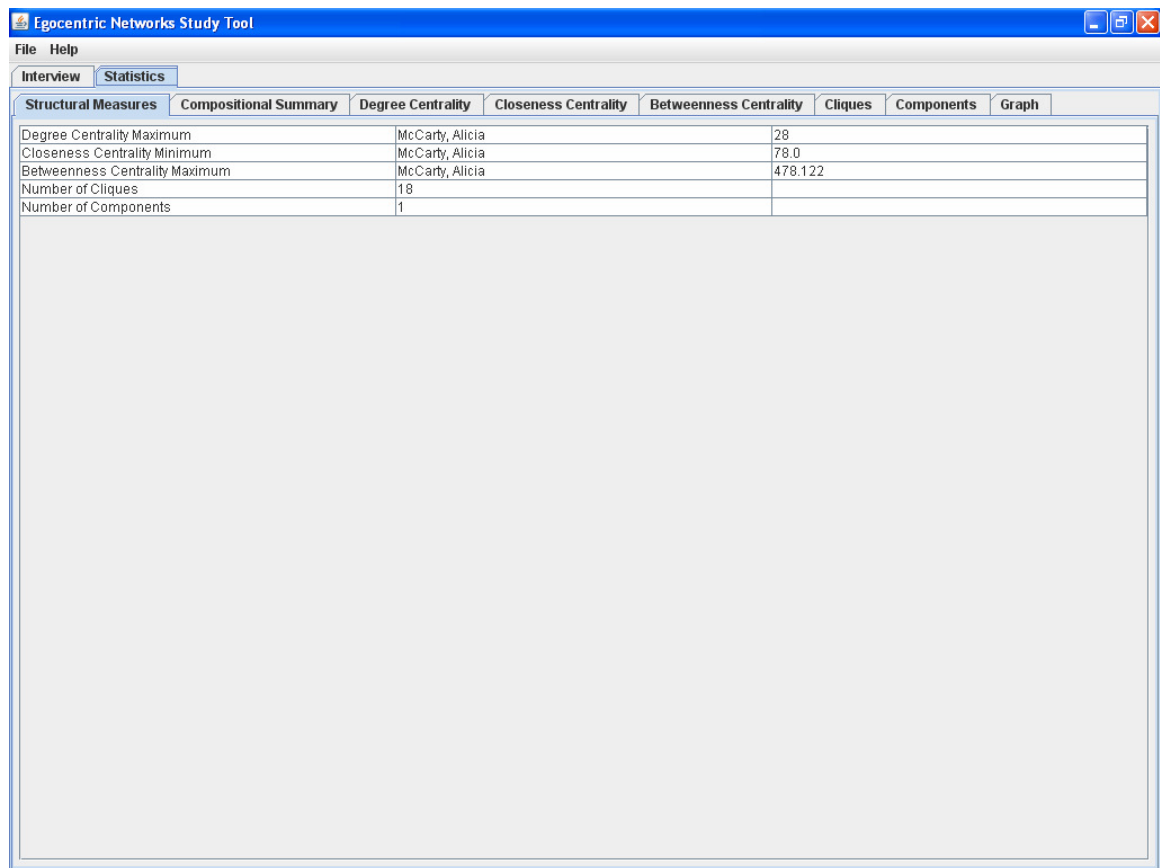


Figure 14.15

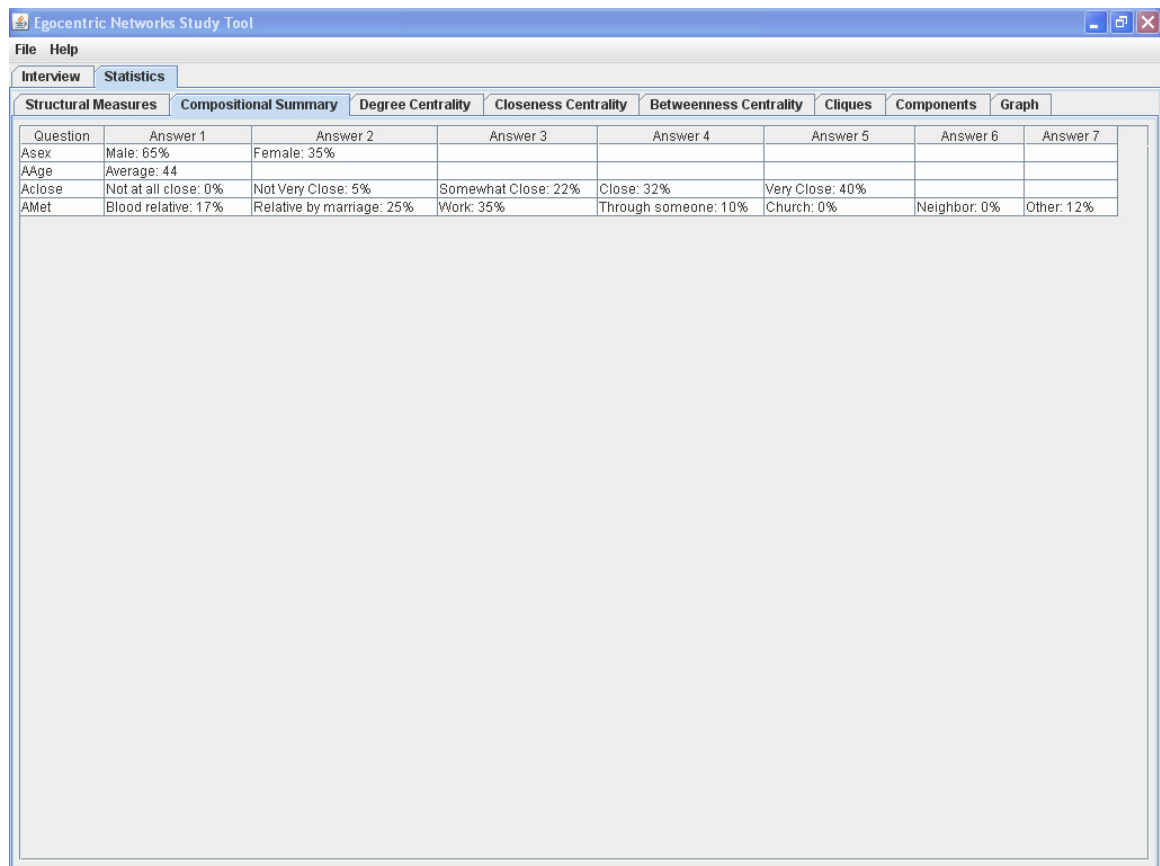


Figure 14.16

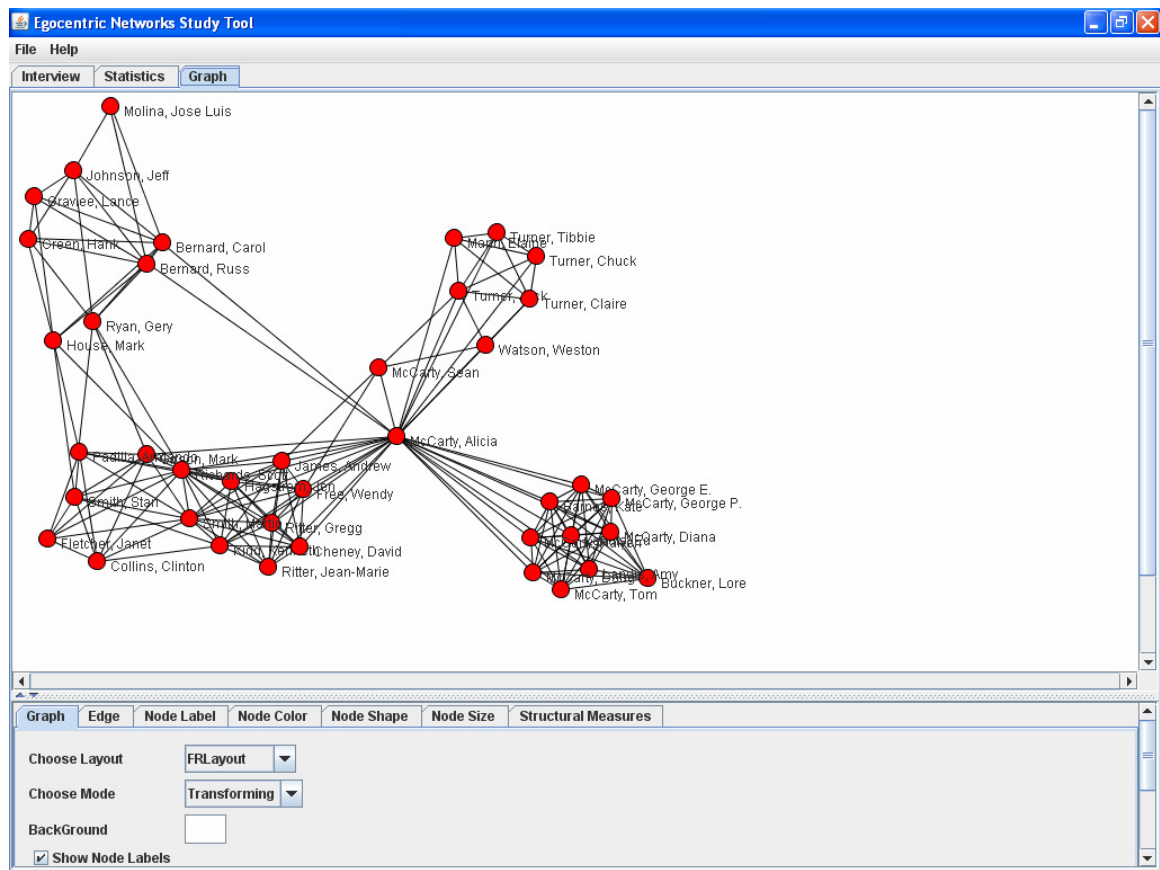


Figure 14.17

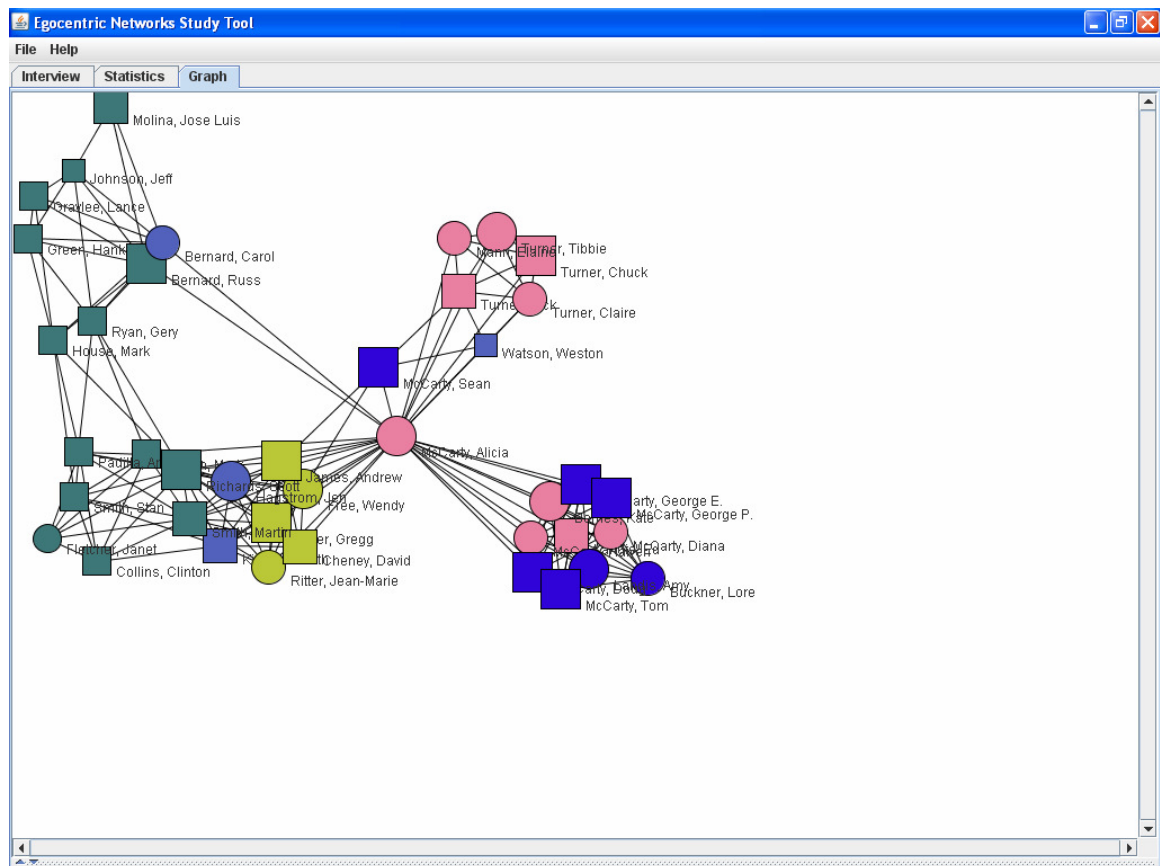


Figure 14.18