Zoe Rehnberg
28 March 2014

At this point in the research process, I am still gaining familiarity with network data and with the processes of network analysis. I am independently working through the chapters of Hanneman and Riddle's *Introduction to Social Network Methods*, consulting and sharing with Professor Lin after every few chapters.

Through the first half of the text, the authors have focused on explaining basic network visualization and important terminology. Data is characterized as "network" instead of "conventional" when it consists of actors and the relations between those actors and not of actors and their attributes. In network data, nodes are not independent – one actor's presence in a network is dependent upon the presence of others in that network. This dependence between data pointsrequires different analysis techniques than with conventional data. In order to gain power, network data is most often analyzed as binary (the presence or absence of a tie), though it can be sampled as nominal, ordinal, or interval.

Once collected, network data can be visualized in two main ways: through graphs and through matrices. Graphs provide an easy way to visualize the structure of a network through nodes and edges and can be expanded to include information about actor and relational attributes. Matrices, on the other hand, can be beneficial when networks are too complex to clearly view in a graph and they most commonly identify the presence or absence of ties between actors. Looking at the symmetry of a matrix above and below the diagonal line indicates the degree of reciprocity of the relations, important in directed tie networks.

Focusing on the number and type of relations between actors is a basic way to analyze a network and can give a simple understanding of the connectedness of nodes. The distance and connections between nodes, however, can be defined in many different ways and definitions must be clearly specified.Sub-structures within a network, both macro and micro, show that actors are embedded in non-random ways. Basic macro-structures include the clustering of nodes into high-density neighborhoods and the forming of hierarchies among actors. To gain a different perspective on larger structures within a network, analysts will also examine ego-networks, or the group of nodes and relations connected to a single focal node. Such micro-structureshighlight the embeddedness of individual actors within macro-structures and within the network as a whole.

Throughout the remainder of the semester, I will finish reading throughHanneman and Riddle's text, delving more deeply into current statistical methods for analyzing network data. The future of my research is not yet clear, but may involve looking into the reliability of these existing network analysis tools.