PRIYADARSHINI ENGINEERING COLLEGE

A COMPREHENSIVE ANALYSIS OF SOCIAL AND ECONOMICAL INTERACTIONS

PHASE - 4

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Social Network Analysis

Introduction

What is Network Analysis?

 Social network analysis is a method by which one can analyze the *connections* across individuals or groups or institutions. That is, it allows us to examine how political actors or institutions are *interrelated*.

Network Analysis

- The advantage of social network analysis is that, unlike many other methods, it focuses on interaction (rather than on individual behavior).
- Network analysis allows us to examine how the configuration of networks influences how individuals and groups, organizations, or systems function.

Network Analysis

 It can be applied across disciplines—there are social networks, political networks, electrical networks, transportation networks, and so on.

History of (Social) Network Analysis

- First, let's discuss the history of network analysis, to give an idea of what sorts of questions can be posed. Then, we'll discuss some basic concepts.
- Much early research in network analysis is found in educational psychology, and studies of child development. Network analysis also developed in fields such as sociology and anthropology.

History of Social Network Analysis

 In the 19th century, Durkheim wrote of "social facts"—or phenomena that are created by the interactions of individuals, yet constitute a reality that is independent of any individual actor.

History of Social Network Analysis

- At the turn of the 20th century, Simmel was one of the first scholars to think in relatively explicit social network terms. He examined how third parties could affect the relationship between two individuals—and he examined how organizational structures or bureaucracies were needed to coordinate interactions in large groups.
- (See "<u>The Number of Members in Determining the Sociological Form of the Group</u>")

• One of the first examples of empirical network research can be found in 1922, in Almack's "The Influence of Intelligence on the Selection of Associates." Almack asked children in a California elementary school to identify the classmates with whom they wanted as playmates. He then correlated the IQ's of the choosers and the chosen, and examined the hypothesis that choices were homophilous.

- In 1926, Wellman recorded pairs of individuals who were observed as being together frequently. She also recorded trait (or attribute) data, including the student's height, grades, IQ, score on a physical coordination test, and degree of introversion versus extraversion (based on teacher's ratings). She then examined whether interaction was homophilous.
- (see "The School Child's Choice of Companions", Journal of Educational Research 14: 126-132.)

• In 1928, Bott took an ethnographic approach examine the behavior of preschool children in Toronto. She identified five types of interaction: talking to one another, interfering with one another, watching one another, imitating one another, or cooperating with one another. She then used "focal sampling", observing one child each day.

 Note that Bott's work also was a harbinger of the network research which was to follow, in that she organized her data into matrices, and discussed her results in terms of the linkages between individuals.

- In "The Companionships of Preschool Children", Hagman (1933) both observed interaction throughout the term, and interviewed children to measure their recollections of their interactions earlier in the term.
- (University of Iowa Studies in Child Welfare)

- Note that these studies raise several issues
 - How to link attributes (such as IQ) to interaction
 - The difference between observational approaches and relying on individual's own accounts of their patterns of interactions.
 - The many different ways in which individuals can interact.
 - How to think about longitudinal aspects of interaction.

- In 1933, the New York Times reported on the <u>new</u> <u>science</u> of "psychological geography" which "aims to chart the emotional currents, cross-currents and undercurrents of human relationships in a community".
- Jacob Moreno analyzed the interconnections across 500 girls in the State Training School for Girls, and the interconnections of students within two NYC schools.
- Moreno concluded that many relationships were nonreciprocal—and that many individuals were isolated.
- Moreno's quantitative method to map relationships is called "sociometry".