

Introduction

Tuesday Morning

Social network concepts are abundant. From the emergence of web based networking tools and collaborative filtering, to the popularity of concepts like tipping points, structural holes, social capital, embeddedness, and network organizations, network analysis seems to be all around us. In academic organizational research, network analysis has been used to study organizational phenomena at the small group, organizational, institutional, and societal level. Despite its growing popularity among practitioners and researchers, many people find it hard to begin using social networks analysis because its methods and software programs seem too daunting or complex. This workshop addresses this issue by presenting an introduction to social network analysis that is directed at research-practitioners. Participants will learn about network theory and research while gaining hands-on skill in collecting, analyzing, and presenting social networks data.

Objectives:

After this section, you should be able to:

- Describe (briefly) the history of the field
- Describe different relations that can be analyzed using SNA
- Understand that Social Relations have implications on behavior

**Goals of LINKS Center Intro
Workshop**

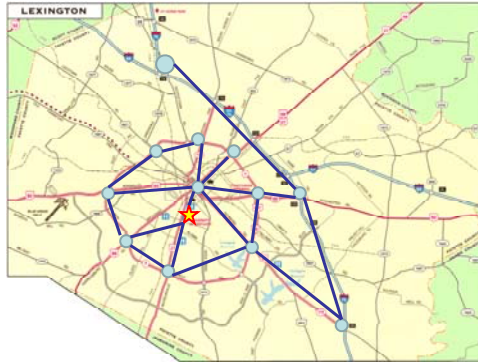
Squeeze an entire PhD seminar into 3 days!

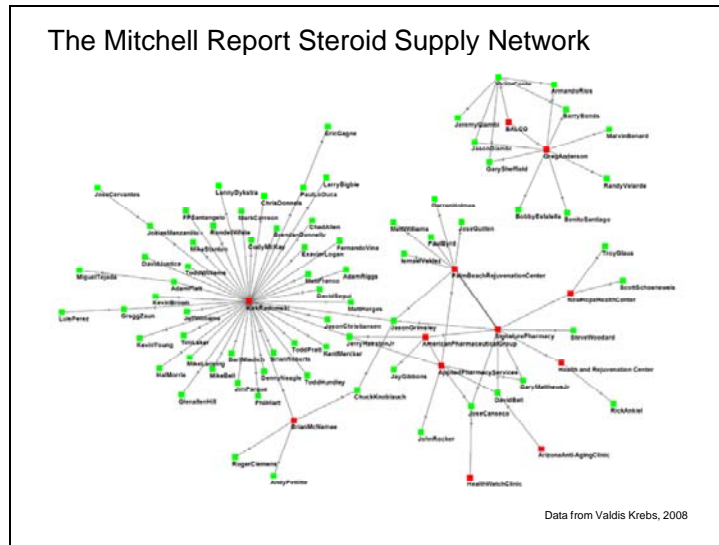
Introduction to Core Social Network Concepts

- SNA Data
 - Centrality
 - Brokerage
 - Cohesion
 - Hypothesis Testing
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- Introduction to UCINET & NetDraw

Slide 3

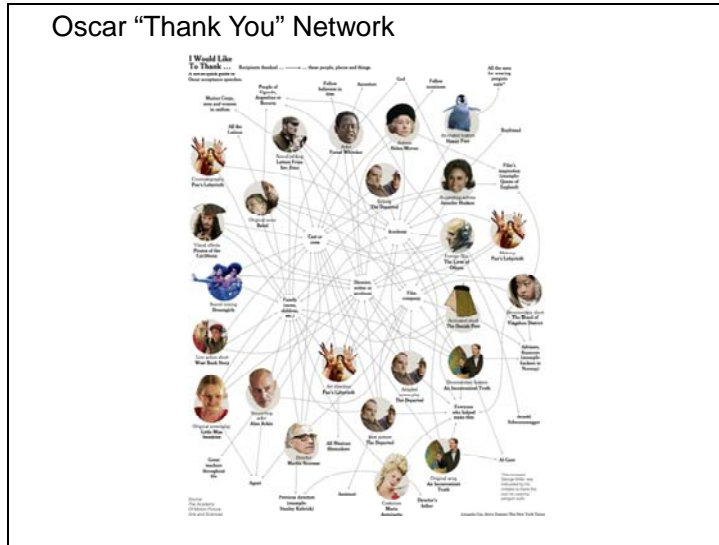
Networks are Everywhere

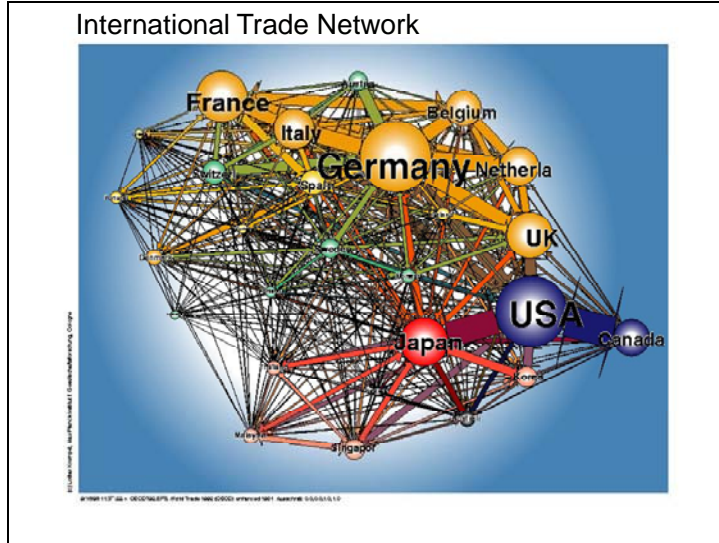




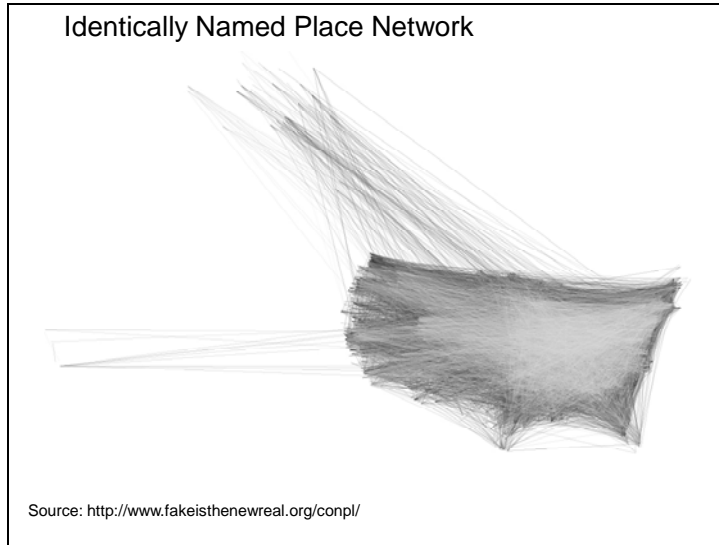
2009 LINKS Center Summer Workshop

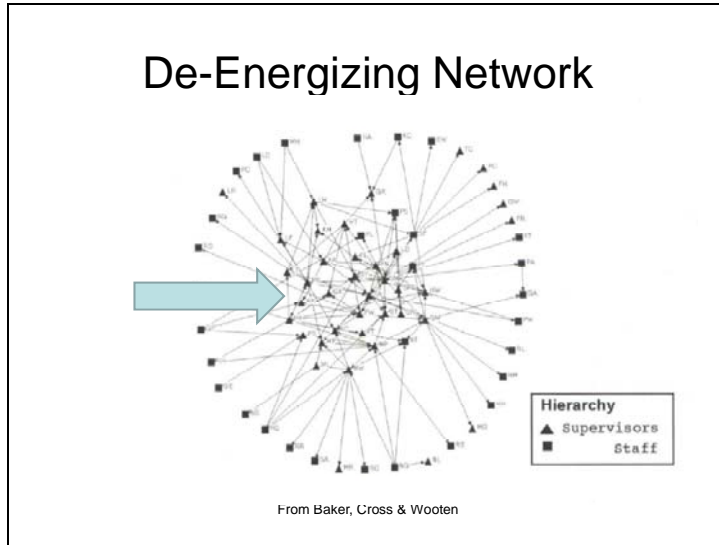
Slide 5





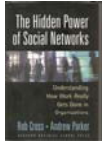

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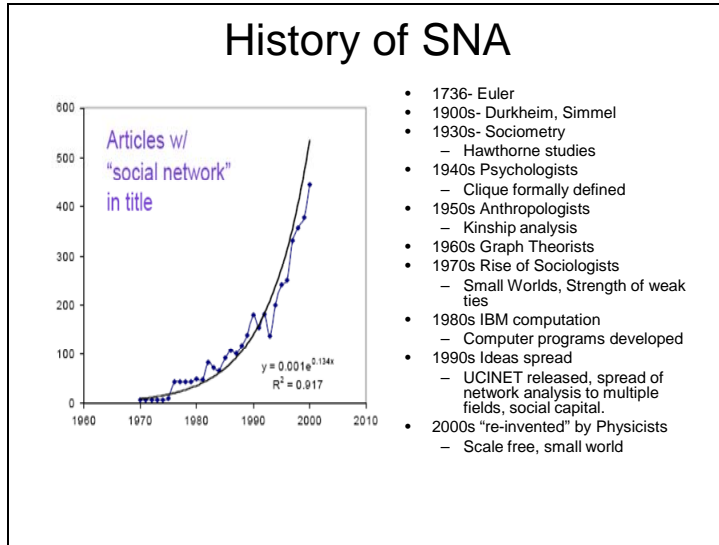




Growth in Multiple Areas

- Pop Culture
 - Online “social network sites”
 - Kevin Bacon
- Business Practitioners
 - New consulting tools
 - Knowledge management
- National Security
 - Department of Defense
- Academia
 - In multiple fields from communication to epidemiology



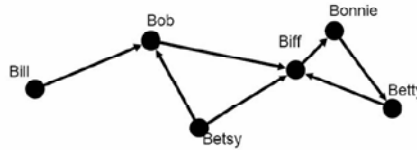


Popular Social Network Theories

- Small World Phenomenon
- Strength of Weak Ties
- Embeddedness
- Social Capital

What is a Network?

- A set of dyadic ties all of the same type, among a set of actors



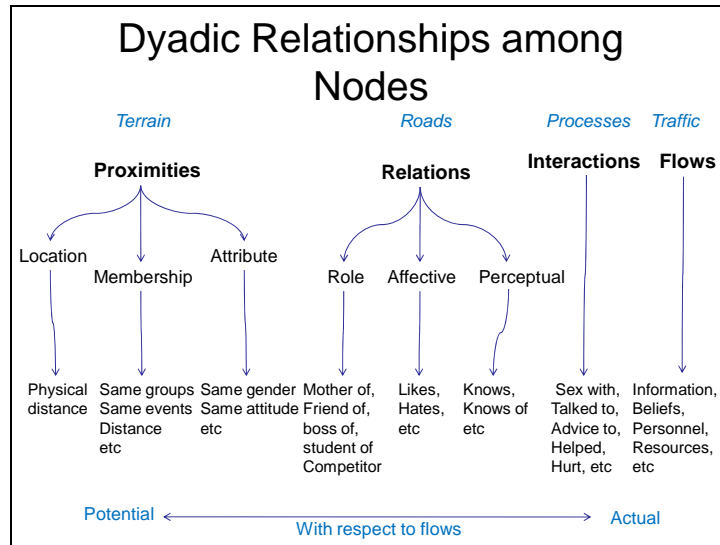
Basic Concepts

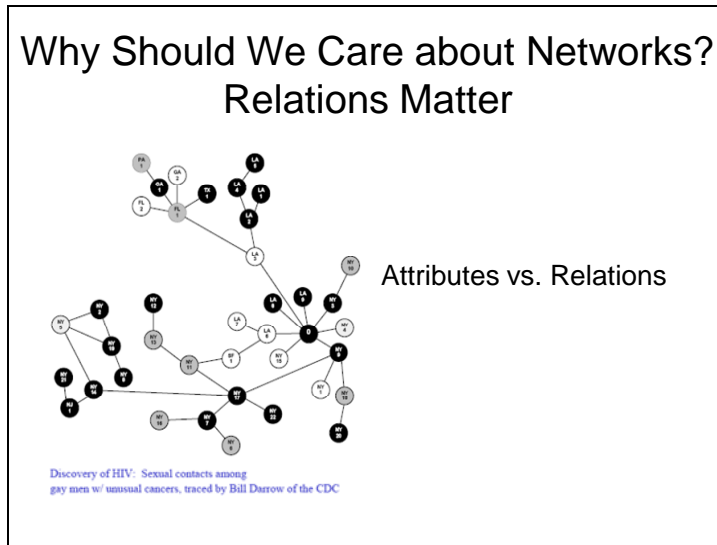
Node Types (actors)

- Persons
- Organizations
- Countries
- Animals
- Words
- Web pages
- Families

Relations (ties)

- Kinship
- Communicates with
- Trusts
- Does business with
- Outsources to
- Does heroin with
- Members of same club
- Gets energy from

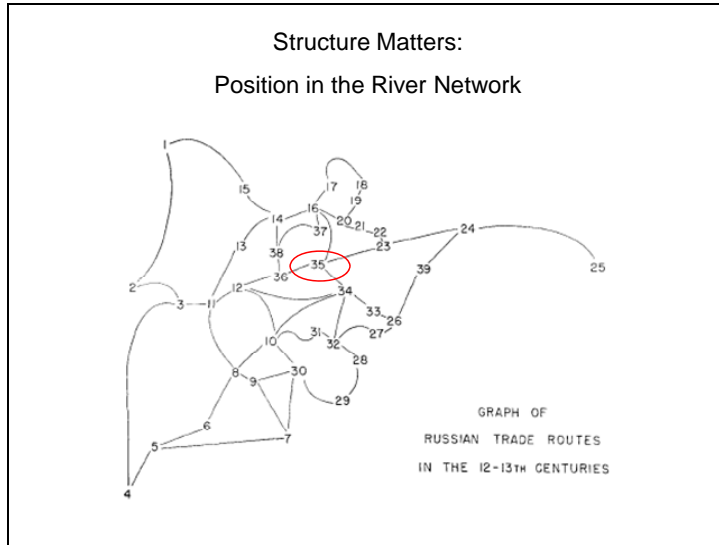


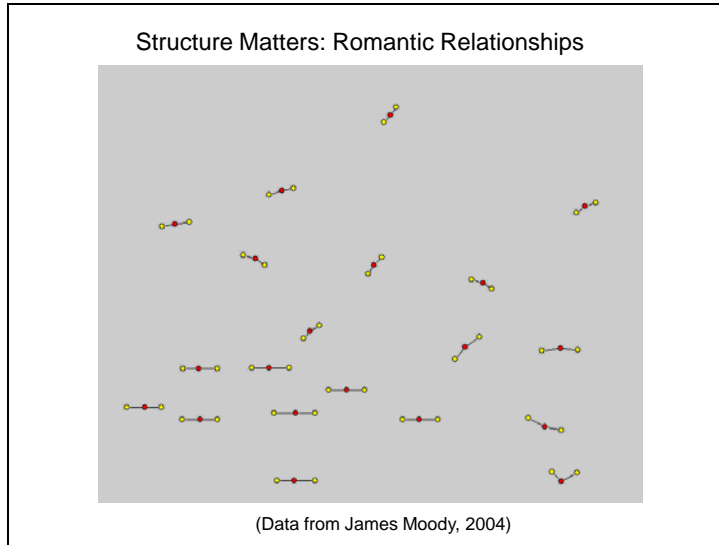


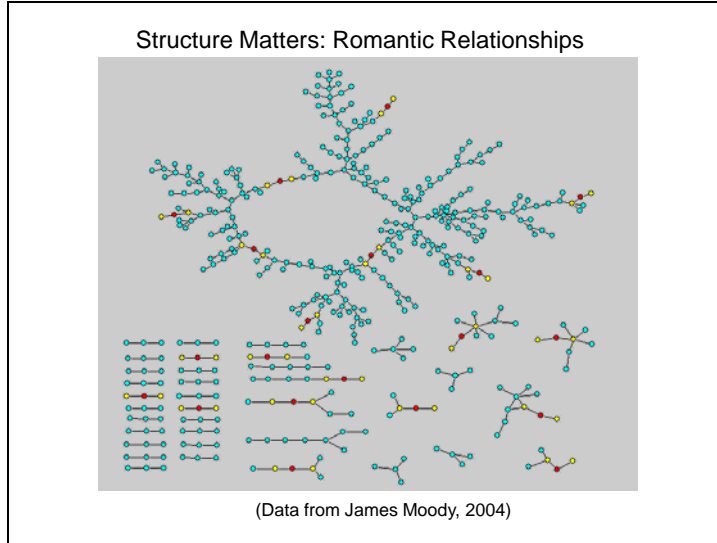


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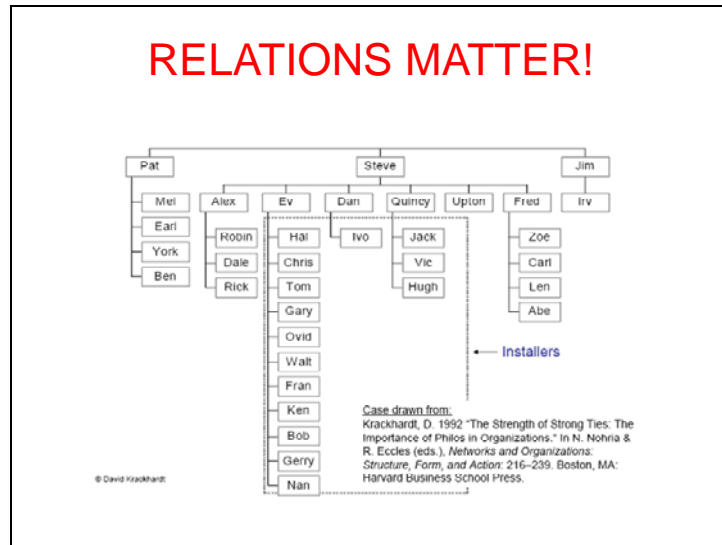


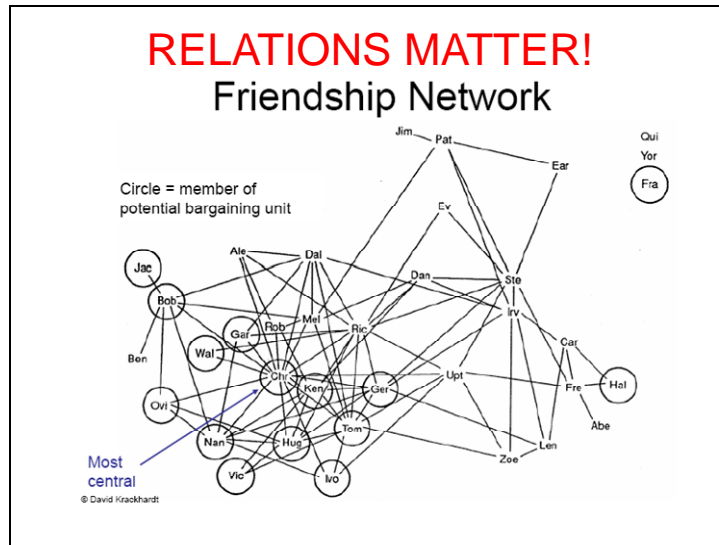
Basic Assumptions of Network Analysis

RELATIONS MATTER!

- People influence each other
- Ideas & material flow through relationships







Mainstream Logical Data Structure

- 2-mode rectangular matrix in which rows (cases) are entities or objects and columns (variables) are attributes of the cases
- Analysis consists of correlating columns
 - Emphasis on explaining one variable

ID	Age	Education	Salary
1			
2			
3			
4			

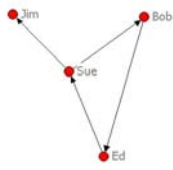
Network Logical Data Structures

Friendship

	Ed	Sue	Jim	Bob
Ed	-	1	0	0
Sue	0	-	1	1
Jim	0	0	-	0
Bob	1	0	0	-

Email Communication

	Ed	Sue	Jim	Bob
Ed	-	4	0	2
Sue	0	-	5	1
Jim	0	0	-	0
Bob	3	0	4	-



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graph TD
    Ed((Ed)) --- Sue((Sue))
    Sue --- Jim((Jim))
    Sue --- Bob((Bob))
    Ed --- Bob
    
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- Individual characteristics only half the story...**RELATIONS MATTER!**
- People influence each other, ideas & material flow
- Values are assigned to pairs of actors
- Hypotheses can be phrased in terms of correlations between relations

Relational Data & Attribute Data

	Ed	Sue	Jim	Bob
Ed	-	1	0	0
Sue	0	-	1	1
Jim	0	0	-	0
Bob	1	0	0	-

Relational Data

	Gender	Education	Salary
Ed	0	14	50000
Sue	1	15	99000
Jim	0	12	65000
Bob	0	8	15000

Attribute Data

SNA provides the ability to combine relational data with attribute data (e.g., homophily, heterogeneity, etc)

**What is Unique about Social
Network Analysis?**

- Phenomenon studied
 - distinctive type of data, it's about relations
- How we study it
 - Distinctive tools, "traditional" statistical methods don't always apply
- How we understand it
 - Perhaps one "network perspective", but multiple theories

For More Information

Specialized Conferences

- Sunbelt Social Network Conference
- The United Kingdom Social Network Conference
- Intra-Organizational Network Conference (ION)

Organizations

- International Network of Social Network Analysis (INSNA.org)

Fun Applications of SNA

- Oracleofkevinbacon.org
 - 6 degrees of Kevin Bacon
 - Can you find anyone with a Bacon score > 4?
- Theyrule.net
 - Board overlaps of top corporations
