

NETWORK ANALYSIS 1

SOCIOLOGY 6008HF FALL 2017

Class meets: Wednesdays 12 PM - 2 PM, Room 240, 725 Spadina

INSTRUCTOR

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Network analysis is the serious study of social structure, hence an essential aspect of virtually every substantive sociological topic. This course will approach a variety of topics: core concepts, arguments, findings, ways of collecting and analyzing data. The emphasis will be on generally important ideas, more than methodological detail.

The course will begin with Mark Granovetter's essay "The Strength of Weak Ties," a classic not only in network analysis but in social science (it is a Social Science Citation Classic). This introduces costs and benefits of different kinds of network structure for people and for groups, and the interconnections of personal networks with the whole networks of which they are a part. We next consider important topics in ego centric networks, followed by topics in the study of whole networks.

For ego networks, we consider core topics. Why are weak ties strong in some ways? How can we measure tie strength? Weak ties are thought to be strong in part because they are more diverse than strong ties, which are more subject to homophily (the human preference to make friends with people who are like themselves in characteristics important in their societies). What are the core arguments and findings about homophily? For individuals, social capital is the good things people may access through their contacts. Interpretations include the number or strength of one's ties, the status and resources of those one knows, their variety, and the ways they are connected to each other. How can we measure social capital in the sense of network diversity? If network diversity is a form of social capital, what profits does social capital provide?. Possible benefits of the "right" kind of network include the economic (early promotion, getting better jobs or pay, trading opportunities), cultural (cultural capital in the sense of knowing more about a wider range of genres, as well as the Bourdieu sense of knowing more about high status culture), personal (especially personal autonomy), social support, and health. This leads to consideration of networks and inequality. We will constantly ask how and why various forms of personal social capital are unequally distributed, and how this contributes to both mobility and the reproduction of inequality.

As well as networks centered on individual actors, network analysts deal with whole networks such as all the friendships in a high school or all the formal and informal ties within an organization. We will first consider how to identify the overall structure of a network. and how to identify actor locations within the network, giving a more powerful reading of structural position than actor-centered networks can provide. We will consider how whole networks and locations

within them affect important social processes: influence, diffusion, and creativity. We then conclude with two rich classic essays by Simmel.

We cannot include everything in this course, but students should know that there are rich literatures on networks and culture, health, work and occupations, race and ethnicity, immigration, crime and deviance, organizations, markets, and indeed every substantive area in sociology.

EVALUATION

Class participation, 10%. Based on regular attendance, taking turns at leading off class discussions, and contributions to our discussions.

Reaction papers, 10%. Each week after the first week, you will hand in a 1-2 page commentary on parts of the readings to be discussed that week. The reaction papers must be handed in when you come to class. Late ones are not useful and not accepted. Please do a minimum of mere summary; instead, *discuss* aspects of the readings. You will receive 1% for each reaction paper you hand in, up to 10%.

Essay proposal, 20%. The proposal is an outline of your proposed topic and argument (MAXIMUM 5 pages, double spaced, normal font and margins) with a suggested list of readings. The proposal is due October 18, and will be returned with grade and comments October 25. Please do discuss your plans with me before finalizing your proposal. Your topic can be anything you are interested in, but you must take a social network analysis approach to it. You have a choice of three formats: library research paper, research proposal, or research paper. A library research paper is a literature review in which you develop a new argument based on previous work and your reflections upon it. It is similar to the literature review and hypothesis development section of a standard journal article. A research proposal goes further by proposing ways to collect and analyse data to test the argument you develop. It is similar to the literature review AND methods sections of a standard journal article. A research paper goes all the way, including data analysis, results and discussion. The format you choose depends on how far along you are with work on your chosen topic. Past students have found all three formats useful in moving their work forward. Cote and Erickson (2009), listed below in the section on networks and inequality, is an example of a paper that began as a research paper for this course.

Essay, 60%. The essays are due December 22.

USEFUL RESOURCES

Journals

Network analysis is very widespread and good network papers appear in all serious journals. However, some journals specialize in network analysis:

Social Networks is the main journal of the International Network for Social Network Analysis. It is a formal journal for the network specialist, and especially good for more technical work.

Connections is a more informal mix of newsletter, abstracts, announcements, think pieces etc. It is also published by INSNA.

Journal of Social Structure (<http://www.cmu.edu/joss>) is another INSNA peer-reviewed journal, but is an online journal, which allows especially lovely diagrams and animations.

INSNA website

www.insna.org

This includes access to Connections online, and information about how to join the very friendly and helpful listserv SOCNET. People, including students, often send in requests for help — and get it. The website includes many other resources: data sets, conference announcements, reading lists, software etc.

Another interesting site: www.orgnet.com/index.html. These has pictures of networks and short descriptions and analyses of each.

Books

There is no fully satisfactory text in this area but there are two fairly recent, clear introduction to the history of the field and some of its major methods:

Scott, John. 2001. *Social Network Analysis: A Handbook*. Thousand Oaks, CA: Sage. See especially chapters 1 and 2.

Another introductory book is:

Degenne, Alain and Michel Forse. 1999. *Introducing Social Networks*. London: Sage. Compared to Scott, Degenne and Forse is stronger on European research, gives more substantive applications, and gives more technical details like formulae.

Another very recent introduction is:

Giuffre, Katherine. 2013. *Communities and Networks: Using Social Network Analysis to Rethink Urban and Community Studies*. Cambridge, UK: Polity Press. Giuffre is very well written, applies network analysis to a range of classic studies, and provides both clear explanation of basic network concepts and clear guidelines for doing analysis with UCINET.

There are a number of good introductions to a range of network topics in:

Scott, John, and Peter Carrington. 2011. *The Sage Handbook of Social Network Analysis*. London: Sage.

The most comprehensive guide to network concepts and data analysis is:

Wasserman, Stanley and Katherine Faust. 1994. *Social Network Analysis: Methods and Applications*. Cambridge, UK: Cambridge University Press.

There is a more recent update on methodological developments:

Carrington, Peter J., John Scott and Stanley Wasserman (eds.). 2005. *Models and Methods in Social Network Analysis*. Cambridge, UK: Cambridge University Press.

Everyone should read one chapter from this book:

Marsden, Peter V. "Recent Developments in Network Measurement." Pp. 8-30 in Carrington et al.

This provides an excellent up-to-date survey of measurement, and is invaluable for anyone interested in network research. For those interested in diffusion, Valente's chapter is very useful. Huisman and van Duijn provide a good review of current network analysis computer programmes. Freeman has a chapter on making pictures of networks; for some neat examples see the articles by Powell et al. and Moody et al. in the interactive online version of AJS, vol. 110 #4 (January 2005).

For those who are seriously interested in social capital, there are several very good edited collections. These include:

Lin, Nan, and Bonnie H. Erickson (eds.). 2008. *Social Capital: An International Research Program*. Oxford: Oxford University Press.

Lin, Nan, Yang-chih Fu, and Chih-jou Jay Chen, editors. 2014. *Social Capital and its Institutional Constraints*. New York: Routledge.

The Network Comprehensive Exam Reading List

This course is meant to be an introduction to network analysis that will, among other things, help prepare those students writing a comprehensive examination in network analysis. Almost all the course readings come from the comp reading list. The list is longer, however, and is a good source of further readings essential to the field.

September 13

Introduction: Thinking Structurally

Overview of the course, introductions by potential participants.

Readings

Emirbayer, Mustafa. 1997. "Manifesto for a Relational Sociology." *American Journal of Sociology* 103: 281-317.

Additional, not required reading:

Blau, Peter M. 1977. "A Macrosociological Theory of Social Structure." *American Journal of Sociology* 83:26-54.

Guiffre, Katherine. 2013. *Communities and Networks: Using Social Network Analysis to Rethink Urban and Community Studies*. Cambridge, UK: Polity Press. Chapter 1.

For real beginners, see Scott (2000) chapters 1 and 2, and sections of Guiffre of interest.

September 20

Why are weak ties strong? Major Arguments

Granovetter (1973) pioneered the analysis of the "strength of weak ties" for both persons and communities. We will begin the course with personal networks, and later consider whole networks.

While Granovetter argues weak ties are strong for individuals when the weak ties are

bridges, Lin (2001) points to the kinds of resources that alters control, and Burt (1993) argues for the social structure of ties among ego and alters. Coser (1975) gives a different but related kind of argument linking network diversity to useful personal outcomes such as autonomy and abstract thought. Erickson (2003) discusses the value of diversity more generally. Killworth et al. (1990) show that people have large numbers of weak ties, far more than strong ties. So their sheer number may provide advantages at times.

Readings

- Burt, Ronald S. 1997. "The Contingent Value of Social Capital." *Administrative Science Quarterly* 42: 339-365.
- Coser, Rose Laub. 1975. "The Complexity of Roles as a Seedbed of Individual Autonomy." Pp. 237-262 in Louis A. Coser (ed.), *The Idea of Social Structure: Papers in Honor of Robert K. Merton*. New York: Harcourt Brace Jovanovich.
- Erickson, Bonnie H. 2003. "Social Networks: The Value of Variety." *Contexts* Vol. 2, No. 1: 25-31.
- Granovetter, Mark. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78:1360-80.
- Killworth, Peter. et. al. 1990. "Estimating the Size of Personal Networks." *Social Networks*. 12: 289-312.
- Lin, 2001. "Building a Network Theory of Social Capital." Pp. 3-29 in Nan Lin, Karen Cook, and Ronald S. Burt (eds.), *Social Capital: Theory and Research*. New York: Aldine de Gruyter.

September 27

Tie strength and homophily

This set of readings includes classic citations concerning core elements of the major arguments about tie strength. First, how should we measure the strength of a tie (Marsden and Campbell 1984)? Just skim this classic "must cite" piece and move right along to Marsden and Campbell (2012) who bring the issues up to date. Closer relationships link people who are more similar to each other (Marsden (1987), and also Erickson (1996), below, Table 3, page 257). Stronger ties show more homophily because of personal choice, structured opportunities, or both (Feld 1982, McPherson, Smith-Lovin and Cook 2001). DiPrete et al.(2011) give a more recent, interesting comparison of homophily in weak and strong ties. Some of the findings are surprising and debatable.

The optional reading by Wimmer and Lewis (2010) makes the useful point that what looks like group homophily is often subgroup homophily. The optional reading by McPherson and Smith-Lovin (1987) shows that homophily sometimes works in a two stage process in which people choose voluntary associations that people like themselves are more likely to choose, so they make contact with people somewhat similar to themselves, and then choose to make friends with association members who are very like themselves. The optional reading by Rivera et al. is not a true network paper, since it is about dyads, but it includes useful material on homophily and other topics important for our course.

Readings:

- DiPrete, Thomas A. et al. 2011. "Segregation in Social Networks Based on Acquaintances and Trust." *American Journal of Sociology* 116: 1234-83.
- Feld, Scott. 1982. "Social Structural Determinants of Similarity among Associates." *American Sociological Review* 47:797-801.
- Marsden, Peter V. 1987. "Core Discussion Networks of Americans." *American Sociological Review* 52:122-31.
- Marsden, Peter V. and Karen E. Campbell. 1984. "Measuring Tie Strength." *Social Forces* 63:482-501.
- Marsden, Peter V. and Karen Campbell. 2012. "Reflections on Conceptualizing and Measuring Tie Strength." *Social Forces* 91: 17-23.
- McPherson, J. Miller, Lynn Smith-Lovin and J. M. Cook. 2001. "Birds of a Feather: Homophily in Social Networks." *Annual Review of Sociology* 27:415-44.

Additional, not required readings:

- McPherson, J. Miller and Lynn Smith-Lovin. 1987. "Homophily in Voluntary Associations." *American Sociological Review* 52:370-379.
- Rivera, Mark, Sara Soderstrom and Brian Uzzi. 2010. "Dynamics of Dyads in Social Networks: Assortative, Relational, and Proximity Mechanisms." *Annual Review of Sociology* 36:91-115

Wimmer, Andreas and Kevin Lewis. 2010. "Beyond and Below Racial Homophily: ERG Models of a Friendship Network Documented on Facebook." *American Journal of Sociology* 116: 583-642.

October 4

The Social Capital in Weak Ties: Theory and Measurement with the Position Generator

Lin and Erickson (2008) give a recent discussion of the popular and productive "position generator" approach to the social capital in weak ties. Erickson (2004) extends the basic approach to include gender and shows the social sources of gendered social capital in Canada. Van der Gaag et al. compare different kinds of measures of social capital. Kadushin (2004) offers a thoughtful critique of recent work on social capital.

The non-required readings include the original position generator paper (Lin and Dumin 1986). Van Der Gaag and Snijders (2005) is the original paper on the resource generator and shows that there are different kinds of resources available through networks and their availability is linked in different ways to personal attributes. Verhaeghe, Putte, and Roose (2013) show that the position generator is robust in the sense that it does not matter which particular occupations one chooses from those at a given level of occupational status.

Readings

- Erickson, Bonnie H. 2004. "The Distribution of Gendered Social Capital in Canada." Pp. 27-50 in Henk Flap and Beate Volker (eds.), *Creation and Returns of Social Capital: A New Research Program*. London and New York: Routledge.
- Kadushin, Charles. 2004. "Too Much Investment in Social Capital?" *Social Networks* 26: 75-90.
- Lin, Nan and Bonnie H. Erickson. 2008. "Theory, Measurement, and the Research Enterprise on

Social Capital.” Pp. 1-26 in Nan Lin and Bonnie H. Erickson (eds.), *Social Capital: An International Research Program*. Oxford, UK: Oxford University Press.

Van der Gaag, Martin, Tom A. B. Snijders, and Henk Flap. 2008. “Position Generator Methods and Their Relationship to Other Social Capital Measures.” Pp. 27-48 in Nan Lin and Bonnie H. Erickson (eds.), *Social Capital: An International Research Program*. Oxford, UK: Oxford University Press.

Additional, not required readings

Lin, Nan, and Mary Dumin. 1986. “Access to Occupations through Social Ties.” *Social Networks* 8:365-86.

Van Der Gaag, Martin, and Tom A.B. Snijders. 2005. “The Resource Generator: social capital quantification with concrete items.” *Social Networks* 27: 1-29.

Verhaeghe, Pieter-Paul, Bart Van de Putte, and Henk Roose. 2013. “Reliability of Position Generator Measures across Different Occupational Lists: A Parallel Test Experiment.” *Field Methods* 25: 238-261.

October 11

The Social Capital in Weak Ties: Important “Profits”

The classic example of a “profit” gained from weak ties is getting a job. Lin (1999) gives an overview of status attainment research with emphasis on social capital approaches, while Granovetter (1995) overviews a quarter century of work inspired by his original book *Getting A Job*. Two more specific articles extend our understanding of processes by which social capital does, or does not lead to jobs. Erickson (2001) combines job results for individual employees with employer hiring strategies in the Toronto security industry. Marin (2011) and Smith (2005) both discuss when and why network members who could provide job leads fail to do so. Smith studied inner city black people and stresses the role of neighbourhood context, while Marin studied relatively privileged Torontonians and focuses more on strength of tie and open versus closed occupations. McDonald et al. (2009) show class, race and gender differences in receiving job opportunity information (differences that favour white men).

Social capital is also an important predictor of health. To keep this week’s list reasonable I have put some exemplary papers in the optional section. Moore et al. (2009) show that Montrealers with more diverse networks are less likely to be obese. Song (2010) shows that network diversity protects against depression. Verhaeghe and Tampubolon (2012) link neighbourhood deprivation to weaker social capital and hence to health – and also show that ties to higher status people are positive social capital good for health, while ties to lower status people are the opposite. Erickson (2009) shows some of the mechanisms that may be at work: network diversity leads to two valuable health resources, money and mastery. There is a large literature on networks and health.

Other important “profits” include money and mastery (Erickson 2009), diverse cultural repertoires (see Erickson 1996 below, in the section on networks and inequality), and political activity and influence.

Readings

- Erickson, Bonnie H. 2001. "Good Networks and Good Jobs: The Value of Social Capital to Employers and Employees." Pp. 127-158 in Nan Lin, Karen Cook, and Ronald S. Burt (eds.), *Social Capital: Theory and Research*. New York: Aldine de Gruyter.
- Granovetter, Mark. 1995. "Afterword 1994: Reconsiderations and a New Agenda." Pp. 139-182 in Mark Granovetter, *Getting A Job: A Study of Contacts and Careers, Second Edition*. Chicago and London: University of Chicago Press.
- Lin, Nan. 1999. "Social Networks and Status Attainment." *Annual Review of Sociology*, 25:467-87.
- Marin, Alexandra. 2011. "Don't Mention it: Why People Don't Share Job information, When The Do, and Why It Matters." *Social Networks* 34: 181-192.
- McDonald, Steve, Nan Lin, and Dan Ao. 2009. "Networks of Opportunity: Gender, Race, and Job Leads." *Social Problems* 56: 385-402.
- Smith, Sandra Susan. 2005. "'Don't put my name on it': Social Capital Activation and Job-Finding Assistance among the Black Urban Poor." *American Journal of Sociology* 111:1-57.

Additional, not required readings

- Bonnie H. Erickson. 2009. "The Context Challenge: Generalizing Social Capital Processes Across Two Different Settings.." Pp. 93-114 in Ray-May Hsung, Nan Lin, and Ronald L. Breiger (eds.), *Contexts of Social Capital: Social Networks in Markets, Communities, and Families*. New York: Routledge.
- Moore, Spencer, et al. 2009. "Association of individual network social capital with abdominal adiposity, overweight and obesity." *Journal of Public Health* 31: 175-183.
- Song, Lijun. 2010. "Social Capital and Psychological Distress." *Journal of Health and Social Behavior* S2(4): 478-492.
- Verhaeghe, Pieter-Paul and Gindo Tampubolon. 2012. "Individual social capital, neighbourhood deprivation, and self-rated health in England." *Social Science & Medicine* 75: 349-357.

October 18 **ESSAY PROPOSALS DUE***Social Networks and Inequality*

Those higher in stratification systems develop richer networks with more social capital of all kinds, and network advantages produce stratification advantages. Often, alas, networks are powerful means of reproduction of inequality. The readings below include stratification of different types, including socio-economic (status hierarchies, occupational structures, neo-Marxian class, Bourdieu-style models of class and capitals) as well as gender and ethnicity. The optional readings include work on several European countries.

Readings

- Côte, Rochelle and Bonnie H. Erickson. 2009. "Untangling the Roots of Tolerance: How Forms of Social Capital Shape Attitudes toward Ethnic Minorities and Immigrants." *American Behavioral Scientist* 52:1664-1689.
- DiMaggio, Paul and Filiz Garip. 2011. "How Networks Externalities Can Exacerbate Intergroup Inequality." *American Journal of Sociology*. 116:1887-1933

Erickson, Bonnie H. 1996. "Culture, Class, and Connections." *American Journal of Sociology*. 102:217-251.

Flap, Henk and Beate Volker. 2008. "Social, Cultural, and Economic Capital and Job Attainment: The Position Generator as a Measure of Cultural and Economic Resources." Pp. 65-80 in Nan Lin and Bonnie H. Erickson (eds.), *Social Capital: An International Research Program*. Oxford, UK: Oxford University Press.

Tilly, Charles. 2005. "Durable Inequality." Pp. 71-90 in Charles Tilly, *Identities, Boundaries and Social Ties*. Boulder, CO: Paradigm.

NOTE: the Tilly chapter is a very condensed version of a small book, which is much easier to understand if you have problems with the chapter. See Charles Tilly, 1998, *Durable Inequality*, University of California Press.

Additional, not required readings

Angelus, Robert and Robert Tardos. 2008. "Assessing Social Capital and Attainment Dynamics: Position Generator Applications in Hungary, 1987-2003." Pp. 394-420 in Nan Lin and Bonnie H. Erickson (eds.), *Social Capital: An International Research Program*. Oxford, UK: Oxford University Press.

Ferrand, Alexis, Lise Mounier and Alain Degenne. 1999. "The Diversity of Personal Networks in France: Social Stratification and Relational Structures." Pp. 185-224 in Barry Wellman (ed.), *Networks in the Global Village*. Boulder, CO: Westview Press.

Wright, Erik Olin and Donmoon Cho. 1992. "The Relative Permeability of Class Boundaries to Cross-Class Friendships: A Comparative Study of the United States, Canada, Sweden, and Norway." *American Sociological Review* 57:85-102.

October 25

Strong ties: their nature and sources

While weak ties can be strong, this does not mean that strong ties are entirely weak. Strong ties are a person's strongest source of social support.

This week, we focus on what close tie networks are like and how they are formed. Wellman (1979) is the first of many reports on close tie networks in East York, Toronto. Fischer (1982) describes networks and network formation in places of varying size in California. Moore (1990) examines gender differences.

McCarty et al. (1997) compare personal networks as observed by several methods (including all those used in the required readings) and show that closer ties are, compared to weaker ones, fewer in number, longer in duration, more frequently contacted, more densely interconnected, closer in space, and more often kin. Boase and Wellman (2006) review the role of the internet in today's networks.

Supplements also include McPherson et al. (2006), comparing discussion networks over time in the US. This paper got great attention at first because it seemed to show that social isolation has increased greatly. However, Fischer (2009) argues the McPherson et al. (2006) findings may be artifactual. McPherson et al. (2009) reply. More recently, a GSS experiment shows that the apparent differences in discussion networks come from differences in where the "discuss important matters" question appears in the questionnaire!

Readings

- Fischer, Claude S. 1982. *To Dwell Among Friends*. Chicago: University of Chicago Press. Chapters 3, 7-10.
- McPherson, Miller, Lynn Smith-Lovin and Matthew E. Brashears. 2006. "Social Isolation in America: Changes in Core Discussion Networks Over Two Decades." *American Sociological Review*. 71:353-375
- Moore, Gwen. 1990. "Structural Determinants of Men's and Women's Personal Networks." *American Sociological Review* 55: 726-35.
- Wellman, Barry. 1979. "The Community Question: The Intimate Networks of East Yorkers." *American Journal of Sociology*, 84(5): 1201-33.

Additional, not required readings

- Boase, Jeffrey and Barry Wellman. 2006. "Personal Relationships: On and Off the Internet." *Handbook of Personal Relations*. Edited by Dan Perlman and Anita L. Vangelisti. Cambridge University Press.
- Fischer, Claude. 2009. "The 2004 GSS finding of shrunken social networks: An artifact?" *American Sociological Review* 74(4), in press.
- McCarty, C., H. R. Bernard, P. D. Killworth, G. A. Shelley, and E. C. Johnsen. 1997. "Eliciting Representative Samples of Personal Networks." *Social Networks* 19:303-323.
- McPherson, Miller, Lynn Smith-Lovin, and Matthew E. Brashears. 2009. "Models and marginals." *American Sociological Review*, 74(4), in press.

November 1

Networks and Social Support

People do not need only jobs: they need companionship, emotional support, help with everyday problems, care when ill, and other forms of social support that show the strength of strong ties. Fischer (1982) discusses social support in his California networks. Wellman and Wortley (1990) consider which kinds of support come from which kinds of relationships or alters. Uehara (1990) links network structure to exchange processes and forms of support. Plickert et al. (2007) discuss reciprocity in support. Schafer and Vargas (2016) is a recent example of research showing that the benefits of strong ties, like the benefits of weak ties, are not equally distributed but are linked to inequality.

In the optional readings, Chua (2013) shows that people in different subcultures link kinds of support and the kinds of alters who supply it in different ways. Desmond (2012) considers how the urban poor cope with crises.

Readings

- Fischer, Claude. 1982. *To Dwell Among Friends*. Berkeley: University of California Press. Chapters 11-12.
- Plickert, Gabriele, Rochelle R. Cote, and Barry Wellman. 2007. "It's not who you know, it's how you know them: Who exchanges what with whom?" *Social Networks* 29: 405-429.
- Schafer, Markus, and Nicholas Vargas. 2016. "The Dynamics of Social Support Inequality: Maintenance Gaps by Socioeconomic Status and Race." *Social Forces* 94:1795-1822.
- Edwina. 1990. "Dual Exchange Theory, Social Networks, and Informal Social Support." *American Journal of*

Sociology 96:521-57.

Wellman, Barry and Scot Wortley. 1990. "Different Strokes from Different Folks: Community Ties and Social Support." *American Journal of Sociology* 96:558-88.

Additional, not required readings:

Chua, Vincent. 2013. "Contextualizing 'networked individualism': The interplay of social categories, role relationships and tasks." *Current Sociology* 61 (5-6) 602-625.

Desmond, Matthew. 2012. "Disposable Ties and the Urban Poor." *American Journal of Sociology* 117: 1295-1335.

November 8

Reading Week, no class

November 15

The Structure of Whole Networks

Readings above emphasized the collection of ties centered on one social actor; but much of network analysis deals with the overall structure of an entire network.

Erickson (1988) includes a basic introduction to three broad approaches to network structure: structural equivalence, clique analysis, and spatial models.

White et al. (1976) give the original, classic statement on structural equivalence, while Doreian (1999) provides a more readable introduction. Anheier et al. (1995) give a lovely example that links structural equivalence to inequality and the theories of Bourdieu. Padgett and Ansell give a now classic analysis of the structural roots of Medici power.

Childress and Friedkin (2012) give a fine recent application of Friedkin's model of influence structures in whole networks. Marsden and Friedkin (1993) give a more technical overview of this kind of model.

Breiger (1974) discusses ways that groups link people and people link groups in a "dual" structure. Numerous studies have taken off from this classic.

Readings

Anheier, Helmut K. Jurgen Gerhards, and Frank P. Romo. 1995. "Forms of Capital and Social Structure in Cultural Fields: Examining Bourdieu's Social Topography." *American Journal of Sociology* 100:859-903.

Breiger, Ron. 1974. "The Duality of Persons and Groups." *Social Forces* 53:181-190.

Childress, Clayton and Noah Friedkin. 2012. "Cultural Reception and Production: The Social Construction of Meaning in Book Clubs." *American Sociological Review* 77:45-68.

Erickson, Bonnie H. 1988. "The Relational Basis of Attitudes." Pp. 99-121 in Barry Wellman and S. D. Berkowitz (eds.), *Social Structures: A Network Approach*. Cambridge, UK: Cambridge University Press.

White, Harrison C., Scott Boorman, and Ronald Breiger. 1976. "Social Structure from Social Networks. I. Blockmodels of Roles and Positions." *American Journal of Sociology* 81: 730-750.

Additional, not required readings

Doreian, Patrick. 1999. "An Intuitive Introduction to Blockmodelling with Examples." *Bulletin*

de Methodologie Sociologique 61: 5-34.

Mardsen, P.V. & Friedkin, N.E. 1993. "Network studies of social influence." *Sociological Methods & Research* 22: 127-151.

Padgett, John and Christopher K. Ansell. 1993. "Robust Action and the Rise of the Medici, 1400-1434." *American Journal of Sociology* 98: 1259-1319.

November 22

Actor locations and local tendencies within whole networks

One powerful form of actor location in a whole network is the actor's centrality. Freeman (1979) gives the classic development of three forms of centrality, all still in much use today. Bonacich extends and modifies centrality concepts in a model also much in use. Erickson and Nosanchuk (1984) show how powerful one kind of centrality, indegree, can be in forming positive or negative reputations and status. Faris and Felmlee use another form of centrality, betweenness centrality, and its links to power, influence and aggression.

There has recently been a strong surge of development of "exponential random graph" (ERG) models of local tendencies within whole networks. Important tendencies include reciprocity and transitivity. Robins et al. (2007) give an introduction to the basic form of the model. Wimmer and Lewis (2010) use recent and sophisticated versions of this approach and link us back to issues of homophily and its roots. McFarland et al. (2014) use a very sophisticated version and link the micro to the meso by showing how school-level variables shape how micro-level processes operate, leading to a wide variety of overall network structures.

Readings

7. "Power and Centrality: A Family of Measures." *American Journal of Sociology* 92:1170-82.

Erickson, Bonnie H. and T. A. Nosanchuk. 1984. "The Allocation of Esteem and Disesteem." *American Sociological Review* 49:648-658.

Freeman, Linton. 1979. "Centrality in Social Networks: Conceptual Clarification." *Social Networks* 1:215-239.

McFarland, Daniel A., James Moody, David Diehl, Jeffrey A. Smith, and Reuben J. Thomas 2014. "Network Ecology and Adolescent Social Structure." *American Sociological Review* 79: 1088-1121.

Robins, Gary, Pip Patterson, Yuval Kalish, and Dean Lusher. 2007. "An introduction to exponential random graph (p*) models for social networks." *Social Networks* 29: 173-191.

Wimmer, Andreas and Kevin Lewis. 2010. "Beyond and Below Racial Homophily: ERG Models of a Friendship Network Documented on Facebook." *American Journal of Sociology* 116:583-642.

Additional, not required readings

Robert and Diane Felmlee. 2011. "Status Struggles: Network Centrality and Gender Segregation in Same- and Cross-Gender Aggression." *American Sociological Review* 70:48-73.

November 29

Innovation, Diffusion, and Influence

There is a massive literature on how both good and bad things flow through social

networks.

The classic readings is Coleman, Katz and Mendel (1957). Van den Bulte and Lillien (2001) is one of several papers that analyses this historic data set in new ways and argues for a different view of how medical innovations diffuse. (Ron Burt has another one; remind me to tell you how he saved this treasure from immanent ruin). Recall that Granovetter argued weak tie bridges are critical to the diffusion of information through networks. Arai and Van Alstyne (2011) discuss the conditions under which strong ties diffuse important information more effectively, while Centola and Macy argue that challenging innovations require multiple channels to diffuse well. In the optional section, Lai and Wong (2002) examine the diffusions of a rumour, and Valente (2005) gives a technical over view of network diffusion models. I have omitted the huge and ever growing literature on the diffusion of disease and of both good and bad health practices.

Above we have already seen models of influence in networks (Marsden and Friedkin 1993) and an interesting application (Childress and Friedkin 2012). Here I add Erickson (2006) on influence models for personal networks. Cote and Erickson (2009), above, is also a “personal networks and influence” paper.

Some kinds of networks, or network locations, are better than others for generating creativity in the form of good new ideas (Burt 2004), or critically acclaimed and commercially successful computer games (De Vaan, Stark and Vedres 2015) or Broadway musicals (Uzzi and Spiro 2005).

Readings

- Arai, Sinan and Marshall Van Alstyne. 2011. “The Diversity-Bandwidth Trade-off.” *American Journal of Sociology* 117:90-171. Read pages 90-110.
- Burt, Ronald S. 2004. "Structural Holes and Good Ideas." *American Journal of Sociology*. 110:349-399.
- Centola, Damon and Michael Macy. 2007. “Complex Contagion and the Weakness of Long Ties.” *American Journal of Sociology* 113: 702-34.
- Clayton Childress and Noah Friedkin, 2012, "Cultural Reception and Production: The Social Construction of Meaning in Book Clubs," *American Sociological Review* 77:45-68.
- Coleman, James. Elihu Katz and Herbert Menzel. 1957. “The Diffusion of an Innovation among Physicians.” *Sociometry* 4:253-270.
- De Vaan, Mathijs, David Stark, and Balazs Vedres. 2015. Game Changer: The Topology of Creativity.” *American Journal of Sociology* 120: 1144-94.
- Erickson, Bonnie H. 2006. “Persuasion and perception: new models of network effects on gendered issues.” Pp. 293-322 in Brenda O’Neill and Elisabeth Gidengil (eds.), *Gender and Social Capital*. New York: Routledge.
- Marsden, P.V. & Friedkin, N.E. 1993. “Network studies of social influence.” *Sociological Methods & Research* 22: 127-151.
- Uzzi, Brian and Jarrett Spiro. 2005. “Collaboration and Creativity: The Small World Problem.” *American Journal of Sociology* 111: 447-504 (read 447-465).
- Van den Bulte, C., and Lillien, G.L. 2001. “Medical Innovation revisited: social contagion versus marketing effect.” *American Journal of Sociology* 106: 1409-1435.

Optional, not required readings

Lai, Gina and Odalia Wong. 2002. "The Tie Effect on Information Dissemination: The Spread of a Commercial Rumor in Hong Kong." *Social Networks*. 24:49-75.

Valente, Thomas. 2005. "Network Models and Methods for Studying the Diffusion of Innovations." Pp. 98-116 in Carrington, Peter J., John Scott and Stanley Wasserman (eds.), *Models and Methods in Social Network Analysis*. Cambridge, UK: Cambridge University Press.

December 6

Classic Theory: Two by Simmel

This little book includes "The Web of Group Affiliations," directly related to many issues in this course, and "Conflict," a key discussion of the connections between this basic social process and social structure. Both are seminal works, and Simmel is the most "networky" of the founding sociologists.

Simmel, Georg. 1955. *Conflict and the Web of Group Affiliations*. Glencoe: Free Press.

POSSIBLE MINI-CONFERENCE

After classes end: I will invite students to have a session in which they will each do a 20 minute presentation based on their essay. This is a useful way to get timely feedback from me and from fellow students, before finishing off the essay. It is also great practice for conference presentations. It is entirely voluntary and does not contribute to your grade. It's up to you. We will discuss and decide in class towards the end of the class.