Introduction

Given a data matrix of cases-by-variables, a common analytical strategy involves hiding the cases to focus on relations among the variables. Examples of variables include individual characteristics, measured aspects of individual behavior or outcomes, and indicators recording membership of cases in categories. In this seminar, we examine situations in which the main interest is in relations among the cases. Examples of cases include individuals, groups and organizations. We will focus on models for social networks as a way to develop hypotheses about the structure and dynamics of social relations connecting these various units across levels of analysis. The classes will try to straddle substantive and analytical concerns and present them as components of a more general theoretical framework for the study of organizational behavior broadly construed.

Objectives

The general objective of the sessions is to discuss and reveal aspects of social relations through the current research work of the session organizers. The focus of the course is on the production and communication of new ideas, rather than possible taxonomies and classifications of existing ideas. Learning in "Social Networks" happens by discovering or creating new connections between apparently fragmented theoretical and analytical intuitions. Presenters will be guided by one main question: "What ideas and problems really matter for my work - and to me personally? Why?" The aim of the course is to inspire participants to develop similar questions about their own research.

Format

The course involves a series of interactive research seminars on contemporary aspects of social relations. Session organizers are members of the Social Network Analysis Research (SoNAR) Center and are all actively engaged in cutting-edge research on social relations. Much of the material discussed is new and not yet available in publications. It is essential that participants confront the readings listed in the syllabus before attending classes.

Participation

The course is open to all Doctoral Students at USI. However, students not enrolled in the PhD Program in "Management" will need to obtain

permission of the instructor prior to the beginning of the first class.

Evaluation

Regular attendance is expected. There will be one final written take home ("open book") exam. The final exam will be handed out at the end of the last day of class (Friday June 10h) and will be due by midnight of Monday June 20. The exam will be graded pass/fail only. Additional information on expectations and format of the final exam will be announced in class.

Calendar of activities and material

Classes will be held on Fridays between 3:00 and 6:00PM. The first class will be April 29th. The last class will be June 10th. Information on the class schedule and the class material is reported in the next pages. At the time of this writing the teaching room(s) have not yet been assigned. Participants are responsible for their own reading material.

Social Network Analysis Research (SoNAR) Center

The course is part of the learning activities organized by the Social Network Analysis Research (SoNAR) Center. Participants interested in methodological courses or hands-on workshops should consult the SoNAR website for additional learning opportunities: http://www.sonarcenter.eco.usi.ch/teaching-activities.htm.

Social networks and organizations

Spring 2016

Alessandro Lomi

Week	Date	Session organizers	Main topic
Week 1	29.04.2016	A. Lomi	Social relations and social networks
Week 2	06.05.2016	C. Stadtfeld & A. Lomi	Networks through time
Week 3	13.05.2016	P. Block & A. Lomi	Social situations and social mechanisms
Week 4	20.05.2016	V. Amati & A. Lomi	Networks and/as decisions
Week 5	27.05.2016	P.Zappa & A. Lomi	Multilevel networks
Week 6	03.06.2016	J.Lerner & A. Lomi	Categories and relations
Week 7	10.06.2016	A. Lomi	Post-network research

Final take home exam due: Monday June 13 Midnight

Week 1	Date: 29.04.2016
Session leader	Alessandro Lomi
Title	Social relations and social networks
Outline	We start by revisiting some of the basic analytical intuitions emerging from the "Cambrian Explosion" of theoretical ideas originated at Harvard University during the early 1970s. We will also try to identify some of the precursors and competitors of these ideas. Our discussion concentrates on how these ideas have transformed – and have been transformed by – contemporary research on social relations within, between and without organizations.
Reading material (*)	- Boorman, S.A., and White, H.C. (1976). Social structure from multiple networks. II. Role structures. American Journal of Sociology, 1384-1446; - White, H.C., Boorman, S.A., and Breiger, R.L. (1976). Social structure from multiple networks. I. Blockmodels of roles and positions. American Journal of Sociology, 730-780 - White, H.C. (1965-66). "Notes on the constituents of social structure." Lecture notes of the course "Social Relations" Harvard (Spring Term 1966).
Additional Material	- Boyd, J.P. 1990. Social Semigroups: A Unified Theory of Scaling and Blockmodeling as Applied to Social Networks. Fairfax, VA: George Mason University Press. - Levi-Martin, J. 2006. Jointness and Duality in Algebraic Approaches to Dichotomous Data. Sociological Methods Research, *35.2: 159-192.* - Lévi-Strauss, C. 1963 "Social Structure," in Claude Lévi-Strauss, Structural Anthropology, chap.15: 277-323. Basic Books. New York. - Pattison, P. E. 1993. Algebraic Models for Social Networks. Cambridge University Press. - Pattison, P., Wasserman, S., Robins, G., and Kanfer, A. M. (2000). Statistical evaluation of algebraic constraints for social networks. Journal of Mathematical Psychology, 44.4: 536-568.
About	Alessandro Lomi directs the Social Network Analysis Research (SONAR) Center at the University Italian Switzerland, Lugano (http://www.sonarcenter.eco.usi.ch/). Check the SONAR Center website for additional opportunities to learn about social networks.

(*) Participants are expected to read this material carefully before attending the first class. Please read White, H.C., Boorman, S.A., and Breiger, R.L. (1976 – Part I) before Boorman, S.A., and White, H.C. (1976 – Part II)

Week 2	Date: 06.05.2016
Session leader	Christoph Stadtfeld and Alessandro Lomi
Title	Application of Statistical Methods for Social Networks Through Time
Outline	This class provides an overview of statistical methods for the analysis of social networks through time and illustrates their application in empirical social science studies. The first part of the lecture classifies different methods and, in particular, distinguishes actor-oriented from tie-oriented methods, auto-regressive from model-based methods, and methods for panel data from methods for time-stamped data. The second part of the lecture discusses recent empirical studies that make use of those methods.
Looking backward	- Butts, C. T. (2008). A relational event framework for social action. *Sociological Methodology*, *38*(1), 155-200. - Robins, G. (2013). A tutorial on methods for the modeling and analysis of social network data. *Journal of Mathematical Psychology*, *57*(6), 261-274. - Snijders, T. A. B. (2011). Statistical Models for Social Networks. Annual Review of Sociology, 37, 129-151. - Snijders, T. A. B., Van de Bunt, G. G., and Steglich, C. E. (2010). Introduction to stochastic actor-based models for network dynamics. *Social networks*, *32*(1), 44-60.
Looking forward	- Christoph Stadtfeld, Daniele Mascia, Francesca Pallotti, and Alessandro Lomi (2016) Assimilation and differentiation: A multilevel perspective on organizational and network change. Social Networks, 44: 363-374. - Christoph Stadtfeld, and Alex Pentland (2015). Partnership Ties Shape Friendship Networks: A Dynamic Social Network Study, Social Forces, 94.1: 453-477.
About	Christoph Stadtfeld is an Assistant Professor of Social Networks at ETH Zürich. He holds a PhD from Karlsruhe Institute of Technology and has been postdoctoral researcher and Marie-Curie fellow at the University of Groningen, the Social Network Analysis Research Center in Lugano, and the MIT Media Lab. His research focuses on the development and application of theories and methods for social network dynamics.

Week 3	Date: 13.05.2016
Session leader	Per Block and Alessandro Lomi
Title	Friendship networks and social situations
Outline	In this class we will discuss how we can understand the evolution of friendship networks w.r.t. the different network evolution mechanisms as outlined in the literature. Special attention is paid to the relation between the abstract mechanisms and the social situations in which friendships are exacted. The relation between the different mechanisms (the interaction) is discussed theoretically and some empirical findings are presented
Looking backward	- Blau, P. M. (1977). A macrosociological theory of social structure. American Journal of sociology, 26-54. - Feld, S. L. (1981). The focused organization of social ties. American Journal of Sociology, 1015-1035. - McPherson, M., Smith-Lovin, L., and Cook, J. M. (2001). Birds of a feather: Homophily in social networks. Annual Review of Sociology, 415-444. - Rivera, M. T., Soderstrom, S. B., and Uzzi, B. (2010). Dynamics of dyads in social networks: Assortative, relational, and proximity mechanisms. Annual Review of Sociology, 36, 91-115.
Looking forward	- Block, P. (2015). Reciprocity, transitivity, and the mysterious three-cycle. Social Networks, 40, 163-173. - Block, P., and Grund, T. (2014). Multidimensional homophily in friendship networks. Network Science, 2(02), 189-212
About	Per Block is ETH Fellow and lecturer at the ETH Zürich. His research interests include the statistical modelling of social networks, the evolution of friendship networks and social mobility

Week 4	Date: 20.05.2016
Session leader	Viviana Amati and Alessandro Lomi
Title	The role of actors' decision in network formation
Outline	Network models derived from random graph theory (e.g. Markov graph and ERGMs) implicitly assume that an observed network is shaped by actors' decisions to link to others. However, the derivation of their form do not make this micro-foundation explicit. In some contexts this render the interpretation of the model parameters counter-intuitive, especially for political and economic networks. In this class we discuss how concepts from random utility theory and game theory can be used i) to link random graph models to the outcome of processes in which actors form ties attempting to maximize a utility function; ii) to interpret the parameters of random graph models in a more intuitive way.
Looking backward	- Jackson M.O. (2008), Network formation. Chapter in The New Palgrave Dictionary of Economics (2008), Second Edition. Edited by Durlauf S.N. and Blume L.E. - Robins G., Pattison P., Kalish Y., and Lusher D. (2007). An introduction to exponential random graph (p*) models for social networks. Social Networks, 29(2), 173-191. - Train, K. E. (2009). Discrete choice methods with simulation. Cambridge university press. Chapters 2 and 3. Book available at http://eml.berkeley.edu/books/choice2.html
Looking forward	- Amati V., Brandes U. (2012). On ERGMs as the Outcome of Network Formation Game. Presentation at Sunbelt XXXII. - Amati V., Brandes U. (2013). Interpreting ERGMs Near-Degeneracy as Socially Desirable Equilibrium. Presentation at Sunbelt XXXIII.
Notes	Viviana Amati is a postdoctoral researcher at the University of Konstanz and a postdoctoral fellow at the University of Italian Switzerland. Her main interests include the use of elements of game theory to provide a micro-foundation for statistical network models and point out actor's agency in network formation, the development of methods for estimating the parameters of stochastic models, and the application of these models to analyse relational data.

Week 5	Date: 27.05.2016
Session leader	Paola Zappa and Alessandro Lomi
Title	Organizations as Multilevel Network Systems: Theory and Empirical Tests
Outline	In this class, we will discuss how organizations can be better understood as multilevel network systems, consisting in a combination of social networks and formal organizational structures. We will pay special attention to illustrate how this conceptualization allows better apportioning the contribution of networks and formal structures to processes of knowledge transfer and sharing across intra-organizational boundaries. We will introduce a suitable methodological approach and present some empirical findings.
Looking backward	• Brass, D. J., Galaskiewicz, J., Greve, H. R., and Tsai, W. 2004. Taking stock of networks and organizations: A multilevel perspective. Academy of Management Journal, 47(6): 795-817. • McEvily, B., Soda, G., and Tortoriello, M. 2014. More Formally: Rediscovering the Missing Link between Formal Organization and Informal Social Structure. The Academy of Management Annals, 8(1): 299-345. • Phelps, C., Heidl, R. and Wadhwa, A. 2012. Knowledge, Networks, and Knowledge Networks: A Review and Research Agenda. Journal of Management, 38(4): 1115-1166. • Simon, H. A. 1962. The architecture of complexity. Proceedings of the American Philosophical Society, 106(6): 467-482.
Looking forward	• Zappa, P., and Lomi, A. 2015. The analysis of multilevel networks in organizations: Models and empirical test. *Organizational Research Methods*, 18(3), 542-569. • Zappa, P., and Robins, G. 2016. Organizational learning across multi-level networks. *Social Networks*, 44(1): 295-306.
About	Paola Zappa is Postdoctoral Fellow at USI Lugano. Her research interests include the interaction between formal and informal processes of knowledge creation, transfer and adoption within organizations. She addresses these issues through a social network lens.

Week 6	Date: 03.06.2016
Session leader	Juergen Lerner and Alessandro Lomi
Title	Team production in open organizations
Outline	Theory predicts that objects with strong membership to categories have higher appeal to audiences and the online encyclopaedia Wikipedia is no exception in this respect. Indeed, we show that articles with more diverse topics tend to receive lower quality evaluations. However, more diverse teams of Wikipedia editors tend to write better articles and this quality improvement is especially high for diverse articles. We give a brief hands-on tutorial for software that can extract fine-grained information about the composition, structure, and dynamics of Wikipedia teams. Please download the latest version of visone from http://visone.info/ and download the file WikiEvent.jar from http://algo.uni-konstanz.de/software/wikievent/ An online tutorial relevant for this lecture is: http://visone.info/wiki/index.php/Wikipedia_edit_networks_(tutorial)
Looking backward	- Hannan, M. T. (2010). Partiality of memberships in categories and audiences. Annual Review of Sociology, 36, 159-181. - Uzzi, B., Mukherjee, S., Stringer, M., and Jones, B. (2013). Atypical combinations and scientific impact. Science, 342(6157), 468-472. - Wuchty, S., Jones, B. F., and Uzzi, B. (2007). The increasing dominance of teams in production of knowledge. Science, 316(5827), 1036-1039.
Looking forward	Brandes, U., Kenis, P., Lerner, J., and van Raaij, D. (2009). Network analysis of collaboration structure in Wikipedia. In Proceedings of the 18th international conference on the World Wide Web (pp. 731-740). ACM.
About	Juergen Lerner has a MSc in Mathematics and a PhD in Computer Science and is currently postdoc at the University of Konstanz and the USI Lugano. His research is concentrated on social network analysis and visualization and his work is characterized by tight collaboration with social scientists. Application areas include political event networks, networks with negative ties, personal networks, and online peer-production communities, such as Wikipedia.

Week 7	Date: 10.06.2-16 (Last class)
Session leader	Alessandro Lomi
Title	Post-network research
Outline	We used to believe we knew a lot about "Structure," "Culture," "Agency," "Identity", and even "Method" (all with Capital letters). We no longer do. This may be the most valuable and enduring contribution of the study of social relations to our understanding of organizations.
What is "structure"?	• Abbott, A. (1995). Things of boundaries. Social Research, 857-882 • Butts, C.T. (2009). Revisiting the foundations of network analysis. *Science* 325:414-416. • Berman, P., Moody, J., and Faris, R. (2002). Networks and history. Complexity, 8.1:61-71 • Chase, I. D., Tovey, C., Spangler-Martin, D., and Manfredonia, M. (2002). Individual differences versus social dynamics in the formation of animal dominance hierarchies. Proceedings of the National Academy of Sciences, 99(8), 5744-5749. • Tilly, C. (2004). Social boundary mechanisms. Philosophy of the social sciences, 34(2), 211-236.
What is "culture"?	• Breiger, R. L. (2000). A tool kit for practice theory. Poetics, *27*.2: 91-115. • Pachucki, M. A., and Breiger, R. L. (2010). Cultural holes: Beyond relationality in social networks and culture. Annual Review of Sociology, *36*, 205-224.
What is "agency"?	• Emirbayer, M., and Mische, A. (1998). What is agency? American Journal of Sociology, 103(4), 962-1023. • Gibson, D. R. (2011). Avoiding Catastrophe: The Interactional Production of Possibility during the Cuban Missile Crisis. American Journal of Sociology, *117*(2), 361-419. • Schelling, T. C. (1998). Social mechanisms and social dynamics. In Hedström, P., and Swedberg, R. (Eds) Social Mechanisms: An Analytical Approach to Social Theory, 32-44. Cambridge University Press. • White, H. (1993). Values come in styles, which mate to change. In Hechter, M., Nadel, L., and Michod, R. E. (Eds.) The origin of values: 63-91. Aldine Transaction.
What is "identity"?	• Padgett, J. F., and Ansell, C. K. (1993). Robust Action and the rise of the Medici, 1400-1434. American Journal of Sociology, 1259-1319.

	- Padgett, J. F., and Powell, W. W. (2012). The emergence of organizations and markets. Princeton University Press. - Tilly, C. (2000). How do relations store histories? Annual Review of Sociology, *26*, 721-723. - Zuckerman, E. W., Kim, T. Y., Ukanwa, K., and Von Rittmann, J. (2003). Robust Identities or Nonentities? Typecasting in the Feature-Film Labor Market1. American Journal of Sociology, *108*.5: 1018-1073. - White, H.C., and Godart, F.C (2007) Stories from Identity and Control. Sociologica, 3: 1-16
What is "method"?	- Abbott, A. (1992). From causes to events: Notes on narrative positivism. Sociological Methods and Research, 20: 4: 428-455. - Abbott, A. (1997). Of time and space: The contemporary relevance of the Chicago School. Social Forces, 75(4), 1149-1182. - Abbott, A. 1988. Transcending General Linear Reality. *Sociological Theory*, 6. 2: 169-186 - Breiger, R. L., and Melamed, D. (2014). The duality of organizations and their attributes: Turning regression modeling 'inside out'. Research in the Sociology of Organizations, 40, 263-275. - Butts, C. T. (2008). A relational event framework for social action. Sociological Methodology, 38(1), 155-200. - Omar Lizardo. 2012. Analytical sociology's superfluous revolution: Comment on Little." Sociologica: 1/2012. - Mische, A. (2011). Relational sociology, culture, and agency. The Sage Handbook of Social Network analysis, 80-97 - Mohr, J. W., and White, H. C. (2008). How to model an institution. Theory and Society, 37.5: 485-512. - Padgett, J. F., Lee, D., and Collier, N. (2003). Economic production as chemistry. Industrial and Corporate Change, 12(4), 843-877.