

1997 CALENDAR

<p>January</p> <ul style="list-style-type: none"> • Linguistic Society of America. Jan 2-5. Chicago. • Third Annual Organization Science Winter Conference. Jan 2-5. Park City, Utah, USA 	<p>February</p> <ul style="list-style-type: none"> • Sunbelt International Social Networks Conference. Feb 13-16. San Diego, CA • WSCG97: The Fifth Int. Conf. in Central Europe on Computer Graphics and Visualization 97. Feb 10-14. Plzen, Czech.
<p>March</p> <ul style="list-style-type: none"> • Conference on Human Factors in Computing Systems. Mar 22-27. Atlanta, GA. • 3rd Italian Conference on Algorithms and Complexity. Mar 12 -14. Rome, Italy • Society For Applied Anthropology. Mar 4-7. Seattle, WA.. • American Ethnological Society. Seattle, WA. Mar 6-9 rh3y@virginia.edu. 	<p>April</p> <ul style="list-style-type: none"> • Association for the Study of Play. Apr 2-3 . Washington, DC. Deadline for abstracts: January 15, 1997. Contact Alice M Meckley 717/872-3390; ameckley@mu3.millersv.edu. • Society For Economic Anthropology. Apr 25-26. Guadalajara, Mexico. • Pacific Sociological Assoc. Apr 17-20. San Diego.
<p>May</p> <ul style="list-style-type: none"> • INFORMS. May 4-7. San Diego. • Society For Cultural Anthropology. May 16-18. San Francisco, CA 	<p>June</p> <ul style="list-style-type: none"> • International Network for Personal Relationships. June 28 - July 2. Oxford, Ohio.
<p>July</p> <ul style="list-style-type: none"> • EURO/INFORMS. Jul 14-17. Barcelona. 	<p>August</p> <ul style="list-style-type: none"> • Cognitive Science Society. Aug 7-10. Stanford http://www-csli.stanford.edu/cogsci97/cogsci97.html • Rural Sociological Society, 60th Annual Meeting. Aug 13-16. Toronto, Canada. Contact Paul Lasley, plasley@iastate.edu. • American Sociological Assoc. Aug 9-13. Toronto, Canada. • European Sociological Assoc. Aug 27-30. Colchester, UK. ESA97@essex.ac.uk • Academy of Management. Aug. 10-13. Boston.

- [American Political Science Assoc.](#) August 28-31. Washington, DC

September**October****November****December**

- [American Anthropological Assoc.](#) Nov 19-23. Wash., DC.

1998 CALENDAR

<p>January</p> <ul style="list-style-type: none"> • Linguistic Society of America. Jan 8-11 January. Grand Hyatt, New York, NY 	<p>February</p> <ul style="list-style-type: none"> •
<p>March</p> <ul style="list-style-type: none"> • Association for Computing Machinery (ACM). March 1-5, San Jose, California. 	<p>April</p> <ul style="list-style-type: none"> • Pacific Sociological Assoc. April 16-19. San Francisco, California. Cathedral Hill Hotel • INFORMS/CORS. Montreal, April 26-29. • Society for Applied Anthropology. April 22-26. San Juan, Puerto Rico. becky_joseph@nps.gov
<p>May</p> <ul style="list-style-type: none"> • Sunbelt International Social Networks Conference. May 28-31. Barcelona, Spain. 	<p>June</p> <ul style="list-style-type: none"> •
<p>July</p> <ul style="list-style-type: none"> • World Congress of Sociology. July 26 - Aug. 1, Montreal. 	<p>August</p> <ul style="list-style-type: none"> • American Sociological Assoc. Aug 21-25. San Francisco, USA • Academy of Management. August 9-12. San Diego, California. Marriott Hotel
<p>September</p> <ul style="list-style-type: none"> • American Political Science Assoc. September 3-6. Boston, MA. • ICES98: Second International Conference on Evolvable Systems: Biology to Hardware. Sept 24-26. Lausanne, Switzerland 	<p>October</p> <ul style="list-style-type: none"> • INFORMS. October 25 - 28. Seattle, WA

<p>November</p> <ul style="list-style-type: none">•	<p>December</p> <ul style="list-style-type: none">• American Anthropological Assoc. Dec. 2-6. Philadelphia, PA.
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1999 CALENDAR

January <ul style="list-style-type: none"> • 	February <ul style="list-style-type: none"> • Sunbelt International Social Networks Conference, Feb 17-21. Charleston, SC www.heinz.cmu.edu/project/INSNA
March <ul style="list-style-type: none"> • 	April <ul style="list-style-type: none"> •
May <ul style="list-style-type: none"> • 	June <ul style="list-style-type: none"> •
July <ul style="list-style-type: none"> • 	August <ul style="list-style-type: none"> • American Sociological Assoc. Aug 6-10: Chicago, Illinois. • Academy of Management. Aug. 8-11. Chicago, IL Hyatt Regency Chicago
September <ul style="list-style-type: none"> • American Political Science Assoc. Sept 2-5. Atlanta, GA 	October
November <ul style="list-style-type: none"> • American Anthropological Assoc. Nov 17-21. Wash., DC. 	December

NETWORK NEWS

INSNA Web Site. Due to technical and bureaucratic difficulties with the old server, the INSNA website has been moved to Carnegie Mellon. Find it at:

<http://www.heinz.cmu.edu/project/INSNA/>

On that site, you will also find a link to the current, online, issue of CONNECTIONS. Please send me feedback on the format!

John and Katie step down. This was John Skvoretz' and Katie Faust's last issue as editors of CONNECTIONS, having completed their 3-year term. I think they and their graduate assistant, Claire Youngblood, did a terrific job. I doubt if many people realize just how painful it is to compile and edit a hundred pages of well-chosen abstracts, announcements and articles.

The **new editor** is my colleague at BC, Candy Jones (jonescq@bc.edu). However, there is a plan, not yet approved by the INSNA board, to switch roles, so that Candy, who is ultra-organized, would handle subscriptions, while I would handle the editorship.

This was also Wojciech "Al" Stachura's last year as staff assistant handling subscriptions. He did a great job dealing with Elsevier (publisher of *Social Networks*) when they went through a chaotic period, resulting in many lost issues.



Sitges

1998 Conference. The '98 International Social Network conference will be held in Sitges (near Barcelona, Spain). The dates are Thursday, May 28 to Sunday, May 31, with some workshops on Wednesday, May 27. The meetings are jointly organized by:

- Alain Degenne Degenne@criuc.unicaen.fr
- José Luis Molina Jlm.OPS@hermes.asertel.es
- Thomas Schweizer Thomas.Schweizer@uni-koeln.de
- Tom Snijders T.A.B.Snijders@ppsw.rug.nl
- Frans Stokman F.N.Stokman@ppsw.rug.nl

- Evelien Zeggelink E.P.H.Zeggelink@ppsw.rug.nl

1999 Conference. The '99 conference will return to Charleston, South Carolina at the Hawthorn Suites Hotel. The dates are Feb. 17-21. Contact John Skvoretz (skvoretz-john@sc.edu) for information.

2000 Conference.

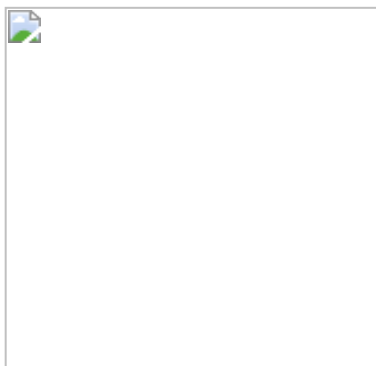


Vancouver (aerial view)

The new century will be ushered in by a new site: the '00 conference will be held in Vancouver, BC, hosted by Bill Richards. For information contact Bill at: (604) 251-3272 or 291-4119, or richards@sfu.ca.

Coordinator-Elect. When my 3-year term was up at the end of last year, no-one was nominated to replace me. Since I was happy to serve one more term, this did not pose a problem. However, we also failed to nominate a coordinator-elect, as required by the bylaws. Therefore, I am calling once again for nominations. Please email me (steve_borgatti@msn.com) your nomination. Thanks.

Steve Borgatti
INSNA Coordinator



Ties & Bonds

Ties & Bonds is a regular column written by Barry Wellman. The contents of this column are solely determined by Barry Wellman and do not necessarily reflect the opinions or concerns of INSNA. Contact Barry at wellman@chass.utoronto.ca.

BBS

Endre Sik is the new president of the Hungarian Sociological Association.... **Charles Wetherell** (Hist) & associates at U Cal - Riverside have received a \$2.3M NIMH family studies grant to analyze the networks of anglos and latinos in Southern California.... **Miguel Guilarte** now Associate Dean, Human and Organization Development, The Fielding Inst, Santa Barbara CA 93105-3544 (mguilarte@fielding.edu).... **John Walsh** promoted to tenured Assoc. Prof of Soc, U Illinois - Chicago.... **Barry Wellman** (Soc, U Toronto) has received an \$80K SSHRCC research grant to study computer networks as social networks.... **Steve Cole** returned to US, 4/97, from U Queensland (Australia) to be at Russell Sage Fdn, NYC.... Replacing long-term (& founding) editor Steve Duck, Mark Fine will edit the *Journal of Social and Personal Relationships* starting in 1998.... **Nan Lin** (Duke) running for VP of the Amer Soc Assoc; **Alejandro Portes** running for Pres of the same assoc. Portes is moving to Princeton U....

....**Yanjie Bian** (Soc, U Minn) will be on leave 9/97-6/99 at the Division of Social Science, Hong Kong U of Sci & Tech. He's getting there in time for the big July 1 changeover; a catnet event for sure. (BTW, would someone please tell me why right-wing folks never mention that it was Margaret Thatcher -- with American right-wing acquiescence -- who agreed to this change of regime without consulting the folks living there. The standard explanations -- fresh water, electricity -- don't ring true for a HK government that has money to burn [on its new airport] that could have been spent on desalination and nuclear energy plants.) Yanjie is also the principal investigator of a 3-year grant from the Henry Luce Fdn. to study consumer behavior and material cultural in Tianjin, Shanghai, Wuhan and Haikou. He also has a \$84K grant from the Chiang Ching Kuo Fdn.

....**Gustavo Mesch** (Soc) awarded \$10K as the Dusty Miller Fellow, rewarding U Haifa (Israel) "outstanding young scholar" for 1997.... **Anatol Rapoport** elected honorary life president of Science for Peace (Canada).... **Melvin Oliver** has been doing well by doing good. First he won the 1995 C. Wright Mills award (with co-author Thomas Shapiro) for their *Black Wealth/White Wealth* book (Routledge). Second, he has moved from Soc, UCLA to be a principal VP of the Ford Fdn. in charge of giving away megamillions to build community and combat poverty. Melvin did an outstanding study of black community networks in LA a while ago.... **Michel Forsé** (Soc, U Lille I, France) & **Simon Langlois** (Soc, Laval, Que) have won the biannual award of the Saintours Fdn, Acad. des Sciences Morales et Politiques for their book, *Tendances Comparées des Sociétés Post-industrielles*.... Eight of the 21 most prolific recent sociology authors in the *ASR* or *AJS* are network analysts or fellow travelers: **Jim Coleman**, **Claude Fischer**, **David Knoke**, **Ed Laumann**, **Nan Lin**, **Gerald Marwell**, **Alejandro Portes** and **Eric Olin Wright**. (See Elisabeth Clemens, et al. "Careers in Print: Books, Journals and Scholarly Reputations," *Am J of Soc* 101 (9/95).

....**Claude Fischer** (Soc, U Cal-Berkeley) won the 1996 Lifetime Contribution award from the Amer Sociological Assoc's "Community and Urban" section.... **Beverly Silver** (Soc, Johns Hopkins) won the 1996 Distinguished article award from the ASA's "Political Economy of the World System" section for "Labor unrest and world-system analysis: premises, concepts and measurement" and "World-scale patterns of labor-capital conflict: labor unrest, long waves, and cycles of world hegemony" (*Review*, 18, 1, Winter 1995).... **Leonard Pearlin** (Soc, U Maryland) won the 1996 Distinguished Contribution award from the ASA's "Mental Health" section, while **Charles Tilly** (Soc, Columbia U) won the 1996 Distinguished Scholarship award from the ASA's "Collective Behavior and Social Movements" section for *Popular Contention in Great Britain, 1754-1837* (Harvard U Press).

Steve Borgatti, Russ Bernard, Gery Ryan, Dave Kenny, Michael Schnegg, Bev Wellman and Barry Wellman will be in Geneva the last 2 weeks of July, 1997, teaching at the first all-Swiss summer graduate school in social science methods. Steve, Russ, Michael and Gery are doing qualitative research methods, Dave is doing multilevel analysis (ties/nets), while Bev and I are doing social network analysis.... Meanwhile **Stanley Wasserman** continues to give his annual (& wonderful) 1-week summer workshop in social network methods at the ICPSR, U Michigan.

CONFERENCE NEWS

If you share my interests in studying computer networks as social networks, I recommend the **Communications and Technology** section of the **International Communication Assoc** (largely American, despite its name). The CAT section at ICA's 5/97 Montreal conference was filled with germane papers. The next year's is in Jerusalem, 20-24 July 98, one of my favourite cities (although really hot in July). For further info visit <http://www.io.com/~icahdq/ica/ica.html>. Or call +1-512-454-8299 or email icahdq@uts.cc.utexas.edu. Paper submission deadline is 1 Nov 97. The CAT program chair is network analyst Leah Lievrouw, Lib & Info Sci, UCLA, Los Angeles 90095-1520. Tel: +1-310-825-1840; email: llievrou@ucla.edu (warning: she is sometimes slow to answer). What with the Barcelona Sunbelt in 5/98 (aptly named, we hope), there will be many junkets for non-Europeans next summer.

The **American Sociological Assoc** is meeting in beautiful downtown Toronto 9-13 Aug 97. (Warning it can be hot and muggy.) A lot of social network sessions are officially on the program, and we've infiltrated several others. For example, I am heading one on the internet -- inherently a social network. Bonnie Erickson is hoping to put together a networkers' party, probably at her husband's hapkido studio. Black belt rather than black tie.

You can also go to Montreal, 5/98 for the **International Sociology Assoc's World Congress**, 26 July - 1 Aug. (It's usually a bit cooler than Toronto.) INSNA is now an affiliated society with the ISA, and in return we get the right to hold 2 sessions. I'm organizing them: wellman@chass.utoronto.ca (please no archaic, intrusive phone calls). The deadline for submitting a 2-3 page abstract is 1 Feb 98 (email is fine). However, if you think you'd probably like to participate, I would dearly love to know this asap as I may be able to get us more sessions if the demand is there. Or else, we could meet off-premises as we once did for the Toronto World Congress.

Peter Carrington is organizing another network analysis session for the ISA's Research Committee on Logic and Methods of Research. You can contact him at: pjc@watarts.uwaterloo.ca. I don't know what Peter's deadline is; it may well be earlier than mine. INSNA (thru me) is co-organizing this session so that Peter and I can coordinate papers.

SUMMER READING

Shalom Yoran's *The Defiant* (NY: St. Martin's Press, 1996) tells of the author's 4 years as a partisan against the Nazis in the Polish-Belarus woods. Partisan survival and fighting was very much of a network activity rather than rigidly organized groups. Not as heavy going as some might think.

I'm currently enthralled by Emmanuel Le Roy Ladurie, *The Beggar and the Professor: A Sixteenth-Century Family Saga* (U Chicago Pr.) Written with as much verve and intimacy as a good novel, it provides a rich texture of everyday life of the Swiss-based Platter family. Lots of travel, sex, health-care, conflict and social support. Of course, I particularly like the way it shows how much non-local travel and networking went on, and the support it gives for Bev Wellman's findings that "alternative health-care" is whatever the official medicine of the time says it isn't. Originally published as *Le siècle des Platter, 1499-1628. Tome premier: Le mendiant et le professeur* (Lib. Arthème Fayard). That "tome premiere" suggests more good stuff to come. Ladurie, a Paris-based *Annaliste* doyen, also wrote the wonderful *Montaillou*, a community study of a late Middle Ages French Pyrenean village.

COMPUTER TOOLS

My favourite **search engine** is *Alta Vista* because of its strategy of empirically inducing ongoing search categories from the hits it first finds. By contrast, Yahoo, et al. pre-determine categories. Of course, the AV strategy is an essential part of social network analysis, especially the philosophy of blockmodelling and fuzzy sets, while Yahoo is the kind of old-line categorical thinking I denounced in the first chapter of Wellman & Berkowitz, *Social Structures* (JAI Press, 1997).

An even greater move towards **network-informed searches** has been proposed by Stephen Gallant, Belmont Research, Cambridge MA. He's received a patent (#5,317,507) for an algorithm that lets "a computer read a text for not only a key word but also for a constellation of words and their contextual relationship to that key word. For every word in a DB, the program creates a complex map with 300 coordinates" that correspond to individual concepts of 1+ words and are like 300 fixed nodes in a sea of terminology. Each document is assessed in terms of its relationship to all the nodes, with each document in a search weighted according to their importance. ["Adding Precision to a Data Search." *NY Times*, 13 June 94. For more info, you can buy the patent for \$3 from Patent & Trademark Office, Washington DC, 20231].

My favorite **bibliographic tool** is *Endnote 2 Plus* (Niles Associates, Berkeley CA), which runs on both Windows and Macs. It has all the features I like: lots of fields for keywords, et al.; ability to handle large DBs (I have 7,400 entries); good Boolean sorts; automatic reformatting for different journals' styles (with lots of templates provided plus the ability to create/modify your own). The latest version, 2.3, integrates well with *Word Perfect* and *MS Word*. While I avoid Bill's projects when I can, the *Word Perfect* integration is fine -- *Endnote* even shows up on the *WP* menu. It's tricks like this that make me fascinated with object oriented programming. I still don't fully get it, but my working understanding is that OOP facilitates software networks instead of discrete bounded programs. (Another defeat for categorical thinking, eh?)

I'm not personally using *Nud.ist 4* (the newest Windows version) for **textual analysis**, but the folks around me say it is much improved in interfaces and its ability to handle large files. (Sage [Thousand Oaks, CA] now distributes this through its Scolari division.)

Text analysis mavens might want to check out *Diction 4.0* for Windows which marks up text to identify their language's certainty, activity, optimism, realism, and commonality. I haven't tried it, but I'd love to apply it to transcripts of our university meetings. \$133 from Sage/Scolari.

I'm now considering buying the *Methodologist's Toolchest* (also for Windows via Sage/Scolari) although its \$304 price slows me down. It seems like a neat grab-bag: a "peer review emulator" which walks your article or proposal through the kinds of comments a reviewer might make; a "statistical navigator" to help select and justify appropriate research statistics; "ex-sample" to help determine sample size; "designer research" for research design, "which graph" to identify the proper graph to use, "data collection selection" to help pick a method, "measurement and scaling strategist" to help develop questions and choose measurement levels and "ethx" to keep you ethical. I'd love some feedback on this.

And when you write up your research, Sandia National Labs (Los Alamos, NM, which used to make H-bombs) has come up with graphical visualization software that analyzes connections between 3 million scientific papers. [Source: *Wired*, 1/97: 46].

UCINET 5.0 for Windows 95/NT by is almost ready for release! A beta version of the program is available on the web at www.analytictech.com.

CORPORATE AFFAIRS

Why Do Economists Drive Hondas? The classic putdown to economists is "If you're so smart, how come you're not rich?" Yet social and information networks soon render economists' supposedly superior knowledge useless, for as soon as they place buy/sell orders they provide to others information about their information. Unless one has truly unique information and is able to hide that knowledge, a variation on Gödel's theorem kicks in: you cannot understand a social fact and make much money from it because the market would soon adapt to render your understanding invalid. For example, economic statistics that once predicted to recessions now predict to when governments will make policy changes intended to ward off recessions. "To take my own sad case, do not believe your brilliant former student at the Univ of Chicago when he comes up with a scheme, in which other economists have invested, to make money out of a glitch in the foreign-exchange market. On that one, I lost half my \$10,000 in a weekend." [Donald McCloskey (Econ, U Iowa), "An Economic Uncertainty Principle," *Scientific American*, 11/94: 107].

Why Economists Should Only be Allowed to Drive Model Cars: "We economists like to talk about 'externalities.' In our models, the costs of job dislocation, health-care insecurities, rising family violence, environmental damage, and cultural collapse are all deemed 'external.' External to what? If we do not internalize these 'externalities,' we economists provide a serious disservice to this country." [Honors economics graduate Juinchi Semitsu's commencement address to U Cal Berkeley, as reported by the Knight-Ridder Newspapers via the *Toronto Star*, 24 May 96. BW: Will he/she sing the same tune post Ph.D?]

The Scam that Wasn't a Conspiracy but is Related to a Scandal: By now, even Canadian nationalists have accepted that the controversy about the Bre-X "gold find" in Indonesia was a case of almost-industrialized gold "salting" and not (as some had thought), a case of American mining giant Freeport McMoran conspiring (in cahoots with influential Indonesians) to drive the price of Bre-X stock down. (This was clearly a situation where having inside knowledge about when to buy and sell would have paid off big.) However, Freeport doesn't get off clean, because the Bre-X story highlighted the "virtual colony" Freeport operates in its huge gold and copper

mines in Irian Jaya (western New Guinea), Indonesia. The Australian Council for Overseas Aid reported (94/95), Freeport security personnel "engaged in acts of intimidation, extracted forced confessions, shot 3 civilians, disappeared 5 Dani villagers and arrested and tortured 13 people." In a twist of diffusion of innovation, the Amungme people of the area have filed a \$6-billion lawsuit against Freeport in its New Orleans home town. [*Next City*, 1/97: 21]. Sounds like a great TV show for *Law and Order*.

Interlocks: Corporate interlock research has long been a network speciality, although less active in the past decade. SEI Financial Services now sells a database (on 2 CDS) that spells out for the first time which pension funds own which of \$180 billion of Canadian corporate stock. (For example, Gryphon Investment Counsel held 6.5 million Bre-X shares, once worth C\$142 million, now worth nothing.) The CDS are updated 4x/year. They're not cheap (C\$1,000/yr). For info, contact Mary Garrone at SEI. [Source: Andrew Willis, "Data Base Reveals Who Owns What." *Toronto Globe & Mail*, 23 May 97].

For another source of data, you might check Richard Barnett & John Cavanagh, *Global Dreams: Imperial Corporations and the New World Order* (NY: Simon & Schuster, 1994). It's a semi-popular account, written by folks at the Washington-based Inst for Policy Studies. One lovely anecdote: After Texas Instruments got the US government to negotiate to protect its microchip expertise and market from Japanese competition, it moved chip design to East Asian places with low labor costs and trained people: Baguio, Philippines and Bangalore, India.

The Old Boy Network Didn't Know Itself: The new British Labour government has just removed regulatory authority from the London Stock Exchange. Perhaps this note from the *ancient* Major/Conservative regime helps explain why: "Unlike the more sophisticated American system, [the LSE] does not have the ability to match old school friends, golfing partners, or club membership lists in a cross-checking system that could throw up a key connection." [Philip Robinson, "Alarm Bells Ring" *London Daily Telegraph*, 9 July 94: B2].

Behind Every Tory: Why didn't the British Conservatives jump to the centrist Social Democratic Party? Ivor Crew & Anthony King argue (in *SDP*, Oxford U Press) that the wives of Tory MPs dissuaded their husbands from defecting, for fear of losing their networks and incomes. "Most of my consultancies disappeared within 3 weeks," says Christopher Brocklebank-Fowler, the lone Tory MP who joined the SDP before the last election." [*Economist*, 14 Oct 9].

TransNationals: Corporate Watch has a website dedicated to monitoring the activities of transnational corporations, including their social, ecological and economic impacts. The website also includes: a guide on how to research transnationals; analyses of corporate globalizations; news from various sources such as the Malaysia-based 3d World networks; links to 100s of other websites with analyses of, or information, produced by transnationals. It's a joint product of the Transnational Resource & Action Ctr and the Inst for Global Communications. Site address: <http://www.corpwatch.org>. For info, contact Joshua Karliner, tel: +1-415-561-6567; fax: +1-415-561-6493; email: trac@igc.org. [Press release, 12 Nov 96: I haven't checked the site.]

New Career Opportunities for TransNational Watchers: "Investigators have uncovered a series of spy networks that have penetrated many of the world's major oil companies, including Shell, British Petroleum and Mobil.... An internal briefing paper by 1 US oil company states, 'We are now aware of the existence of many highly organized, sophisticated networks of corruption operating on an international scale.' The discovery has triggered a hunt for moles.... [But] because payments are often concealed in Swiss or Panamanian banks, proving that a spy is at work can be difficult. [BW: Which re-raises the question: Why, really, did George Bush/US invade Panama?]. The US oil company says, 'Vendors, suppliers and subcontractors have often felt intimidated by these brokers, who often provide convincing evidence of their ability to steer an award in the direction that suits them. If vendor A will not engage their services, they will threaten to represent vendor B and ensure that vendor A is disadvantaged.' [BW: The beauty of structural holes.] Usually, an information broker concentrates on trying

to make a deal with the vendor most likely to win, because the information broker gets paid 'commission' -- 2 to 4% of the contract -- only if his or her vendor gets the contract. Sometimes a broker in 1 city will obtain inside information and pass it to a broker in another city, who in turn passes it to a supplier, and then the commission is split." In other words, the friend of my friend is a mark! [*Wall Street Journal*, via *Toronto Globe & Mail*, 10 Jan 94].

Global Business Network: The GBN was founded in 1988 as a think tank/consulting company. There is no formal membership; "one simply gets more and more tangled in its swirling mists. I was first asked to join a discussion on the network's private BBS. Then I started receiving books that members thought I might find interesting. Then I got invited to gatherings at fascinating places, from Aspen to Amsterdam. Finally, I was asked to help GBN project the future, regarding subjects about which I had expertise. By then, the network seemed natural." For example, one futurology seminar had folks from the Singapore Min of Defense, the Australian Min of Taxation, the Mexican Stock Exchange, the London Stock Exchange, Volvo, Fiat, Petroleos de Venezuela, Allstate, DuPont, Arco, Saatchi & Saatchi, Amex, and the Club of Rome. For spice, there were Jon McIntire, former manager of the Grateful Dead and theoretical neurophysiologist William Calvin. The agenda for 1 day was labeled "The Restructuring of the World Economy." "People are hungry for new views and outside-the-box thinking. 'Systematic shows will make or break companies,' says 1 GBN client. 'Little curiosities today could be major trends tomorrow.'" [Joel Garreau [author of *Edge City & The 9 Regions of North America*], "Conspiracy of Heretics," *Wired*, 11/94: 98-106, 154-58].

When Elites Get Studied, They Don't Like It: The British House of Lords got in a tizzy when ACT, a private investigations firm, sent leaflets to the members offering to obtain people's bank statements, telephone bills and details of their salaries. ACT offered to supply a company's client list, plans for public financing and other details. Its leaflet suggested, "It's not who you know. It's what you know about who you know." [*Economist*, 23 April 94: 61]

CURRENT AFFAIRS

Annals of Scientific Paranoia: As soon as I heard that 60s Harvard undergrad Ted Kaczynski was charged with being the Unabomber, I started wondering if I'd been his TA then. My fears were not alone. FBI agents "were disappointed with many of the scientists they interviewed. They found them a trying, arrogant lot. One agent said, 'They called us all the time. "Did you get a suspicious package?" we asked. No, no package, but they want us to protect them anyway. They thought their accomplishments would make them targets.'" [Anne Eisenberg, "Among the Papers in Kaczynski's Cabin," *Scientific American*, 6/96: 25].

The Transitoriness of Strong Ties: "Throughout Mao's career the most persistent pattern has been one of building and then breaking personal ties with associates, first with superiors, and then with subordinates, and especially potent successors.... [The] story of Mao's falling out with colleagues is in fact the history of the Chinese Communist movement. For once Mao achieved some position of authority in the Party, he began a remarkable pattern of intimacy followed by abandonment." [Lucien Pye, *Mao Tse-Tung*, Basic Books, 1976: 271-72].

BW: Lucien Pye also wrote a remarkable book in which he attributed the failure of Burmese development to Burmese boys' extended period of breast feeding [*Politics, Personality, and Nation Building: Burma's Search for Identity*. New Haven: Yale University Press. 1968.] And with respect to the turnover in Mao's pals, recall that

among stable East Yorkers (Toronto), only 27% of active ties were around ten years later (Wellman, et al. *Social Networks*, 1997).

Towards a Networked Europe: "In my view it is of critical importance to distinguish between institutional Europe, the Europe of Brussels and the statist Europe of the commissars, on the one hand, and the real Europe, on the other. What we have seen is a sort of hijacking of the concept of Europe, a usurpation. Brussels Europe was always a small club from which half of Europe was excluded. That is very different from the real Europe which consists of millions of economic and personal relationships, mixed marriages, movements of people, contacts, and acquaintances. Each of us can take a notebook from his pocket and it will turn out that 80% of the addresses in contains go to make up this European network. That is at least as important as the Treaty of Maastricht. [Hans Magnus Enzensberger, "Back to the Future," *NY Review of Books*, 17 Nov 94: 43].

US Military Now Surfing: No, this is not the kind of surfing exulted in by Robert Duvall in "Apocalypse Now." The military's School of Information Warfare and Strategy has developed a course of study around the *Third Wave* notions of Alvin and Heidi Toffler. (BW: Newt Gingrich likes them too; but to be fair, the Tofflers aren't all bad, even if they are derivative.) The military particularly likes the Tofflers' "wave theory" that society -- and war -- is passing into a post-industrial information age from a second wave industrial era. (BW: Didn't Daniel Bell say this 30 years ago? Just to confuse things, the data are much more equivocal: It depends on who/what you count as being in the information sector.) [Gary Stix, "Fighting Future Wars," *Scientific American*, 12/95: 96].

COMMUNITY AFFAIRS

Community and Migration: When Togolese refugees from repression fled to neighboring Benin, many were taken in by kin. "It's the first time in the experience of the UN High Commissioner for Refugees that private citizens have taken in people," said UN mission chief, Guinet Guibre-Christos. "It must be West African hospitality." However, after years of living together, the prolonged togetherness and crowding are taking their toll. [*Toronto Globe and Mail*, 26 Nov 94: D4].

Community Saved: Toronto's St. Stephen's Community House (near where I live) has set up a "Neighbours Helping Neighbours" project. It links people by forming circles of 4 to 5 helpers around each senior or disabled person. [*Drum*, 9/94: 5].

Community Liberated: "You may have read that the San Luis Obispo [CA] city council was considering an addition to the city's general plan that would require front porches on new residential construction, with the explicit intention of fostering neighborhood interaction.... Artificial attempts to preserve the closeness of this community will probably be overwhelmed by the inevitable reasons why a growing population turns away from relationships that are arbitrary and involuntary. The front porches of our neighborhood are almost always vacant. It has to do with the ever-expanding range of choices we have. When we gain a new freedom, we tend to exploit it immediately without realizing what we're giving up." [Ken Broomfield's letter to the editor, *Byte* (computer magazine), 8/94: 18.]

Community Subcultural: Catherine Hughes & Jane Morrigan are a lesbian couple living in rural Pictou, Nova Scotia. "Allies are not always obvious," said Morrigan. "We've won over some conservative farmers because they admire hard workers, and at the same time we've been betrayed by some of our sisters." Hughes won a bronze medal for the 1,500 meter race in the 1994 Gay Games in New York City. She said, "[We hoped] that

during the games we'd find solidarity and tolerance and solidarity and deviance, and that is exactly what we discovered right from the start." Morrigan continues, "I also loved being in the city, among so many different kinds of people, all of whom seemed to be getting along. New Yorkers who weren't queer were stopping to give us directions and chat. It seemed to me that for them we were just another ethnic group.... Even though people back home warned us to be careful, particularly when riding the subways, I have to tell you that after a couple of days I felt safer here than at home." [Michael Kaufman, "A Lesbian Farm Couple Expand their Horizons," *NY Times*, 29 June 94].

Community Multicultural: "Networking -- now being recognized by feminist historians as a method by which many women exerted power and influence in response to their exclusion from official channels was [English africanist Mary] Kingsley's forte [at the turn of this century]... At the most basic level, Kingsley attempted to form a consolidated anti-Colonial Office pro-trader caucus by building bridges between different sets of interests, regardless, as Kingsley put it, 'who they ate foo foo with'. She introduced the 'malaria man' Ronald Ross to Matthew Natah, Acting Governor of Sierra Leone; the anthropologist Ling Roth to the Liverpool merchant John Holt; and Holt to the financial Editor of the [London] Times.... [She] also attempted to draw prominent West Africans into her political network,... receiving much of her information from her correspondents in West Africa who were also frequent visitors to her London flat. 'I have had here quantities of blacks' she wrote.... [She also exploited the social contacts she held as a woman, receiving information from government officials', traders' and academicians' wives.... [It is a] legacy of networking and bridge building." [Deborah Birkett, "Networking West Africa," a review of Katherine Frank, *A Voyager Out: The Life of Mary Kingsley*. In *African Affairs*, 87, 1/88: 118-119.]

Community Connected: In Toronto and some US cities, community activists are setting up programs to provide homeless people with voice-mail boxes." [*Now* (Toronto), 1 June 95].

Community Lost: "I don't like videos. There's something squalid about a video store. The people look furtive, like drug addicts, as they take them out in stacks of 4 or 5. It's like people who drink alone. It's one thing to drink at a party, another to drink alone. One thing to go to an assembly hall and watch big illusions, another thing to take them home in a little can." [Novelist John Updike in the *NY Times*, reprinted in the *Vancouver Sun*, 13 April 96: H1].

Community ReFound: According to the *NY Times*, Bedford (Westchester County), NY is becoming the prime celebrity node. "The Hamptons are all Hollywooded out. Now we're getting serious Hollywood people," says real estate agent Sally Stano. Glenn Close often teams with Christopher Reeve to support the local school; where Susan Sarandon and Tim Robbins' kids also go. Plus the Ramones and Mariah Carey-Tommy Motolla. Karen Ramone says, "We BBQ. Chevy Chase will call and say, 'Hey, I've got some veal steaks defrosting' and we'll say, 'We'll bring the salad.' It's just getting the families together and having a great time." All is not great, despite \$24K/year property taxes. Advertising magnate Jerry Della Femina: "If there is one problem with Bedford, it's that the beautiful people like to see other beautiful people, and there are not enough places to go out and do that. It's a place for really confident beautiful people who don't need others around them constantly to confirm that they are beautiful." [Debra West, "Who Needs a House in Beverly Hills?" *NY Times*, 15 May 97].

Community Entrepreneurial: "Networks and partnerships are also an important part of community development. These provide mentoring to young companies, organize financing for new businesses, bring educators together with business, create opportunities for companies in the same industry for skills training, exports, or introduction of new production techniques." [David Crane, "Communities Taking Charge of their Economic Futures," *Toronto Star*, 4 Feb 95]. And Dewanna Lofton echoed the thought in an article written during the 1996 Charleston Sunbelt: "Networking Key to Black Business Success." In the *Columbia State*, she asserts, "The more people you know, the more potential access to resources you command." [22Feb96]. Wonder

if she took courses from Borgatti, Faust, Skvoretz and Willer?

Community Capitalized: Richard Liebmann-Smith, an editor of *American Health Magazine*, has written a humor piece: "Managed Caring (tm)". In the spirit of the US health HMOs, it's "a whole new way of thinking about friendship, combining all the advantages of a 'traditional' friendship with important cost-saving features. Under the Plan, you choose your friends from a pre-screened Friendship Providers. All of your friendship needs are met by members of your Managed Caring panel.... Your friendship needs are coordinated by a designated Best Friend, who Cares about the quality of all your Friendships.... The only time you can see a friendship Provider without first consulting your Best Friend is in the event of a Friendship Emergency.... Typical Friendship Procedures covered include (but are not limited to): Chewing the fat, slinging the bull, shooting the breeze, ... holding your hand.... Ineligible services include drinking in excess of 6 ounces of alcoholic beverages, lending sums in excess of \$5, going the extra mile, exchanging ethnic or dirty jokes, and sex." [received on the net, 30 Nov 94].

SMALL WORLDS

Six Degrees of CyberSpace: A website promises that if you register, it will provide a means for linking you with old longlost friends or people you want to be friends with. Check out: www.sixdegrees.com, run by MacroView Communications, NYC. Despite its name, the site is restricted to finding out 3d-order connections. Moreover, you can't skip links. If Bob wants to contact Ted, he'll have to go through Carol. "This reaches those with large numbers of acquaintances as they become the hub of a network of relationships. It also keeps personal information private: those who already know you can contact you directly." The website (and similar ones) are free: founders want to make money by selling the demographic information you need to impart if long-lost ties are going to find you. [*Economist*, 3 May 97: 59].

And if that doesn't work, *Looking4U Web* lets you post the name of the person you're looking for, along with the year and location in which you last saw them, your name and a short message. Should any long-lost friend come across the site, they'll find your posting if they enter their name and check for messages. It's: www.looking4u.com.

For a more laid-back approach, "Old Friends Information Services," does the looking for you. "Childless friends, high-school chums, army buddies, your first sweetheart: Let us put you back in touch." says their ad in the *Atlantic Monthly* (11/95: 26). \$70 starts the search; \$50 more when the person is found. Contact 800-841-7938.

Reportedly, fashion folks play "Six Degrees of Gavin Macon," a designer who apprenticed with lots of 7th Avenue stars before making it big in Paris. "The rules hold that all links be made through designers. For example, Donatella Versace works with her brother Gianni, who once designed for Complice, as did Claude Montana, who worked for Lanvin, which has hired Ocimar Versolato, for whom Gavin Macon answered the phone... Hubert de Givency once hired Gavin Macon to sharpen his pencils." There's a web page, of course. [*NY Times Magazine*, sometime in 1997].

Oh yes, there's the "Six Degrees of Kevin Bacon" web/net game in which folks supposedly trace the interconnections of all those who've been in movies with KB, or have been in movies with those who've been in movies with KB, etc. Rumor has it that this was started by KB's publicists, for who else would want it known they're that close to this ultra-boring actor? An Erdős number is one thing [mine is two; thank you Ove!], but a

KB number should stay in the closet.

What bothers me about most of these small world accounts is that they don't give Stan Milgram credit, referring back either to John Guare's play/movie, "Six Degrees of Separation" or to a pop article someone once read somewhere that summarizes Milgram. But I can't wait to hear about "Six Degrees of Lin Freeman" or of Stan Milgram himself.

Harvard Links: The Harvard Alumni Association has formed "The Professional Connection." Any alumnus can use it to contact more than 10K fellow graduates who have volunteered to share their time, experience, and expertise with the Harvard community, thus providing "access to a vastly expanded 'circle of friends.'" Contact sean_buffington@harvard.edu for information. [*Harvard Graduate School Alumni Association Newsletter*, Winter, 1997: 5].

Chaining with Liz and Lauren: Carol Farkas, a longtime volunteer at NYC's Sloan-Kettering Cancer Center [BW: Didn't her family own Alexander's?] sent a letter 6/96 to 24 couples in her Upper East Side network, asking each to donate \$10 and also send the letter on to 10 friends. The letter has since raised more than \$251K, and has "spread like a computer virus." Elizabeth Taylor got it & passed it on, as did Mike Nichols, Gregory Peck, Lauren Bacall, Katie Couric & the designer Issac Mizrahi. [BW: For a guide to these names, read *People* magazine.] Liz sent her letter to Roddy McDowell, Carrie Fischer & the photographer Firooz Zahedi, who sent it to Gregory Peck, who sent to Lauren Bacall, who sent it to Cynthia O'Neal > Peter Wooster (interior designer) > Jane-Howard Hammerstein (screenwriter) > author Betty Rollins > writer Delia Ephron > producer Susan Thomases, a FOB and Hilary. Spoilspout Barbara Walters did not send it. "I do not like chain letters, period. There's always the feeling that if I throw this away, my life is going to end." [Elisabeth Bumiller, "Pushing the Envelope of Fund-Raising." *NY Times*, 3 April 97].

Finding Those on the Lam: If you don't want to be found, beware the Detective Information Service who use cyberspace and telephone to check investment promoters, locate missing heirs, drum up deadbeats, and find old flames that want to burn alone. All for \$225. Contact MPC Telecom in Annandale VA. It's run by Frank Dillion, a retired general who was director of the Air Force Office of Special Investigations. (And here I thought that only the KGB was privatizing.) [Leslie Eaton, "Gumshoes of Cyberspace Out to Save Investors Pain." *NY Times*, 18 Aug 94: C1].

HEMINGWAY UPDATED

"He was an old man who sat alone at the keyboard in the room overlooking the Gulfstream and he had gone 84 days now without saving a file. In the first 40 days the boy had been with him showing him the ways of DOS and the smooth, seamless features of WP6.0. But after 40 days the boy had left believing that the old man was *tech-illiterate*, which is the worst form of unlucky...."

"...I am old and it is hard to learn the new ways."

"Chill, *viejo*. It just takes a little practice."

"Perhaps," the old man had told the boy. "You are lucky. To you, reveal Codes and Table Edit are like old friends with whom you share a glass of crystal springwater. Macros and decimal tabs are as comfortable for you as an old dog asleep in the sun...."

"...There! The forever taunting Courier 12 point had disappeared, and in its place was C:\WPDOCS\CALAMARI. The letter was saved, and the old man felt salvation.

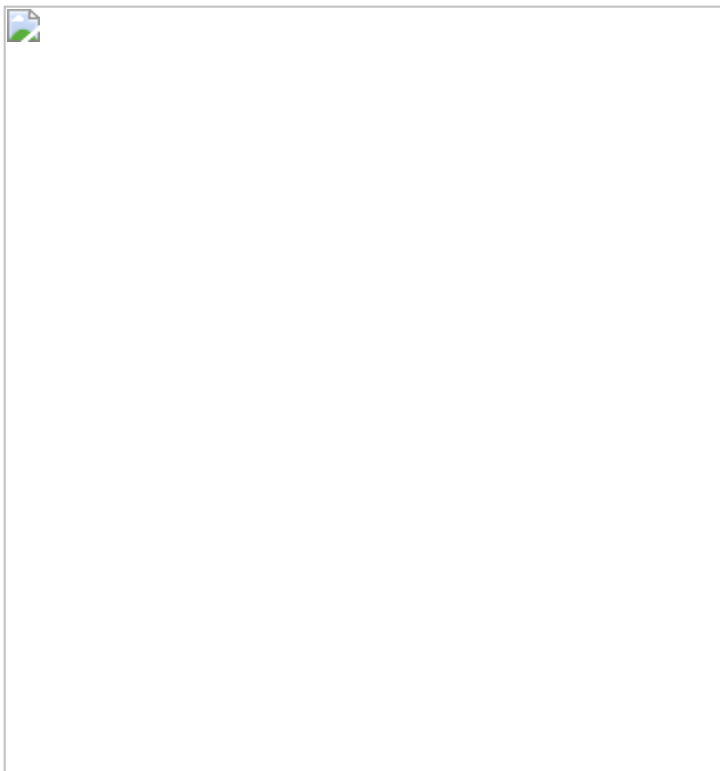
"There are those who catch the blue marlin or fly through cyberspace and the Internet. There are those who brag and sing of their skills at advanced macros and merges. But the old man was happy. He could hold his head up high as he walked through the dusty bookstores and gleaming computer showrooms of the mall. He knew, even if no else did, that he had persevered. He had fought with the File Manager and he had won. It was good."
[excerpts from the start, middle and end of Dennis Kessinger, "The Old Man and the C Drive," *WordPerfect: The Magazine*, 2/95: 70]

SHORT SCHTICKS

Shameless Plugs: JAI Press (Greenwich, CT) is republishing for summer, 1997, Barry Wellman and S.D. Berkowitz, *Social Structures: A Network Approach*. It's largely the same book that Cambridge University Press published, except that I've written a short new updating preface (essentially an opinionated guide to the past decade's developments) and an edited version of Mark Granovetter's classic "embeddedness" article has been substituted for John Delaney's article.

And just off the virtual presses: Laura Garton, Caroline Haythornthwaite and Barry Wellman, "Studying Online Social Networks" is the leading article in the web-based (but refereed) *Journal of Computer-Mediated Communication* 3, 1 (June, 1997). Instead of writing us for reprints; look in the ether at <http://www.usc.edu/dept/annenberg/vol3/issue1/>

A Guide to Thesis Advice: The following was allegedly written by a U Toronto doctoral student (not mine, of course). [Source: *Toronto Globe and Mail Report on Business Magazine*, 11/94].



To Give Your Thesis That Well-Worn Look: *Schmutz Clogged* is the name of a new typeface from the Image Club, guaranteed to make your laser-printed document look like it came from the old Underwood Upright that I typed my high school term papers on. Contact <http://www.imageclub.com/store>.

Documenting Your Fame: I know that I only check myself in the SSCI to find out who else is citing me, I only count the number of citations once per year (at merit raise time), and I cite myself only when appropriate (which is a lot of course). Others may not be as discreet. So Richard Wright (U Scranton) has devised a formula to quantify academic clout which discounts self-citations: $C_2 = C_1 + C_1/P_1P_2$ where C_2 is the adjusted citation count, C_1 is the total number of publications not authored by the scholar, P_1 written by a scholar that cite his/her work, and P_2 is the total number of publications written by a scholar that contains self-citations. [*Lingua Franca*, 4/97: 9-10].

File for Future Reference: An ad in the scholarly gossip magazine, *Lingua Franca* (4/97: 13): "Student Disciplinary Actions; Tenure Disputes. Law offices of Jeffrey Duban, NY, 212-583-1600. Litigation Practice including Faculty & Student Disciplinary Actions and Dismissals; Promotion & Tenure Disputes; Academic Contracts. A former professor, Duban received his Ph.D. in Classical Philology from Johns Hopkins in 1975."

Congratulations: A note in its typographical entirety that I recently received from Andrew Abbott (Soc, U Chicago):

"Well then, best wishes. Felicitations. Congratulations. I am very pleased to hear about your _____, which has already seized the imagination of an entire generation of _____. This classic work, noted especially for its _____, _____ and _____ has already figured prominently in the _____ of _____. Again, my best wishes upon this important occasion.

CONNECTIONS 20(1):16-34
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The Search for Social Physics⁽¹⁾.

H. Russell Bernard
Anthropology Department, University of Florida

Peter Killworth
Southampton Oceanography Centre

Russ:

This talk will be a bit unusual it will be a joint talk because we're a team, and have been for almost precisely 25 years. During that time we have written 40-odd papers about a variety of topics in social networks, all stemming from our belief that social networks are amenable to approaches which combine soft and hard science.

Peter:

By soft science we mean, science conducted on phenomena that don't tend to come with numbers already attached. And by hard science we mean science that has been around long enough to have acquired the ability to have numbers already attached.

Russ:

What have we learned?

That different disciplinary perspectives lead to different questions. That the results of our collaboration are more interesting than either of us could hope to have produced on our own. And that any success we've had comes from respect for each other's discipline -- in sum, that the combination of a naturalist's and a theoretician's skills can be greater than the sum of the two.

What have we learned substantively?

Peter:

We began our career in social network analysis by gathering data about interactions between individuals. This seemed to us, and still does, to be the basic building block for network knowledge and theory: if there are no interactions there can be no structure. At the time, in 1972, we were both spending a year at the Scripps Institution of Oceanography, just up the street here in San Diego. Russ went to sea with one of the research vessels and wanted to understand something about the social structure: how it formed among a group of people coming on board together, how it developed over time, and so on.

Using a card-sorting task, Russ asked each of the 50-or-so people on the ship to rank order their interactions with all the others. Coming off the ship after several weeks, Russ came to the physics department coffee break (every morning at 10:15 sharp in the venerable Warren Wooster's office) and asked "anybody here want to know the social structure of a vessel that gets all your data?" All of the seasoned ocean-going physicists in the room knew they weren't supposed to talk to people like Russ and didn't even look up.

Russ:

Not knowing any better, Peter, a theoretical oceanographer, said he thought it might be fun. And that was that.

The card-sorting method was, of course, used widely in cognitive science to study relations among items. We knew that people don't keep a list of sentences in their heads that grammar makes it possible for human beings to learn a finite number of words and produce an infinite number of sentences. Cognitive anthropologists like Kim Romney, Roy D'Andrade, Duane Metzger and Oswald Werner were applying this idea to study how people handled information of all kinds. It was clear that people didn't keep simple lists of animals, foods, illnesses, or kinship terms in their heads. The information about these cultural domains was arranged somehow in people's heads (hierarchically? non-hierarchically? in some kind of dynamic system that we'd now call "hypertext"?) so that people could retrieve it on the fly, as they needed it.

Peter:

Trained in linguistics and cognitive anthropology in the 1960s, Russ went to sea to apply that logic to the study of social structure: people could not possibly keep in their heads a list of all the people whom they knew much less a list that had all the information attached about their rights and obligations vis-a-vis each person whom they knew.

It was a pretty good idea at least it seemed like a good idea at the time but Russ had no clue about how to make it work. In his field, people who can count above ten without taking off their shoes are called "mathematical anthropologists." (Another definition is an anthropologist who numbers the pages...)

Russ:

Peter jumped on those data, applied something called the "Baltimore traffic problem algorithm," and Catij one of the family of clique-finders developed in the 1970s was the result. That was a real clue about the importance of a truly cross-disciplinary approach that ideas from totally different fields (in this case, maths applied to solving minimal transit times in traffic) could inform one another.

Peter:

Catij did a great job, actually. As an ethnographer, Russ naturally took the maps that Catij produced back to the people whom we studied, with me tagging along. The idea was that people could use their own understanding of the social structure to tell us if the mindless algorithm had produced a social structure that made sense, or had produced some senseless artifact. Even discounting the propensity of people to find pattern in, and make sense of, anything [something that would later prove useful in research that challenged our findings about informant accuracy] Catij found some surprising things. In one case, it found a strongly tied pair of people on one of the ships we studied a pair that was not much in touch with the rest of the people on the ship and that, it turned out, were said by others to be, er, a real pair.

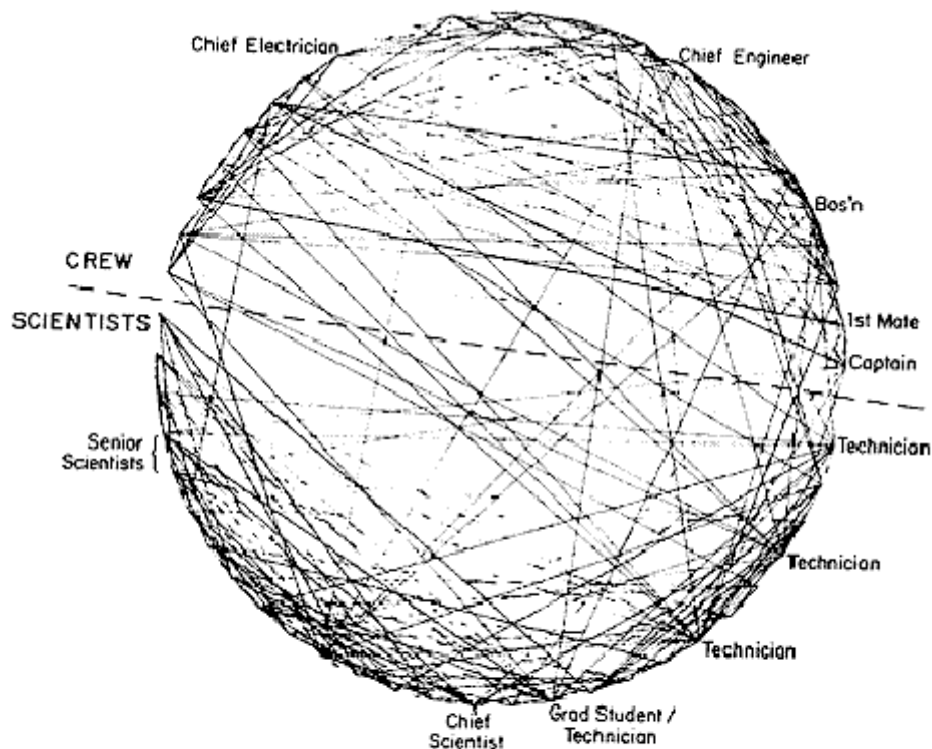


Figure 1. Interaction diagram from the Scripps ship. A connecting line is drawn between two individuals if there is a catij-row 1 link between them. Note the small number of connections between crew and scientists.

Russ:

I took Catij and applied it to the study of more than a dozen prison living units in two Federal penitentiaries. In the hundreds of groups among the living units we studied, the cliques always made sense. Prison staff would look at the output from Catij and see the patterns: these people in this group here are all whites from big cities in the North; these people are all southern Blacks; these people all committed the same crime. In a memorable case, though, Catij turned up a group of three strongly tied people whose connections made no apparent ethnographic sense: the three had committed different crimes, were mixed North and South, rural and urban, Black and White. The prison staff was stumped. We thought that Catij had finally created an artefact. Until, a week later, the three escaped together.

Peter:

"No," we told the people at the Federal Bureau of Prisons who had supported the research, Catij was not capable of predicting this sort of thing. But it did make us wonder about whether there might be socially meaningful uses of the sort of thing people were starting to do with social networks in the '70s.

Nonetheless, we -- and especially me, as a hard scientist -- were worried. This was too easy.

You see, for all the success of clique finding algorithms -- CONCOR, ours, and plenty of others -- we were uncomfortable with the results. All the data for these analyses were based on the question: 'who do you talk to?' or some variant thereof ('who do you send memos to in this office?' 'who do you interact with around here?' 'who do you communicate with?' 'who do you ask for advice from?').

Now, let's suppose that informants always tell what they understand to be the truth in response to our questions.

Russ:

Ignore the fact that even Franz Boas had reminded us generations ago that informants lie. The fact is, informants provide the only source of our data in most cases and we had this uncomfortable feeling that people just do not know too accurately whom they interact with.

Peter:

What if --oh, dear! -- the level of accuracy among informants was low? Garbage in/garbage out rears its head.

There were two possibilities: either the level wasn't sufficiently high to give us a signal to study, and we were fooling ourselves; or it was.

In the first case, we were dead in the water but we ought to find out. Meanwhile, in the second case when there was a signal to study we must somehow manipulate (smooth) the information we're given in order to get at we hope the underlying truth.

Russ:

By "truth," of course, we mean the behavior for which informant reports are a proxy. We stipulate that people construct their world. This constructed world is also a "truth." It's just not what we were studying. More on this in a bit.

Peter:

Data manipulation, especially smoothing to remove noise, is a standard feature of statistics, physics, etc. In those fields, however, we not only know how to do it, we know what we are doing as well, because we understand the underlying physics ("I'm not interested in tides because I'm looking at climate time scales -- hundreds of years -- so I can filter out the daily signals safely").

Catij was based on the presumption that informants have a blurry idea of the structure around them and builds in a particular kind of data smoothing mechanism. As we said, it seemed to work pretty well. But in the study of social networks (social structure) we have no idea what kind of smoothing is necessary because we don't know what kind of noise there is, and we don't know what the underlying physics are either.

We also are painfully aware that most 'theory' for social networks is intrinsically steady-state, whereas most theory for physics posits that 'the rate of change of quantity X is given by the sum of all these things. If X stays constant, then the sum balances to zero' which is a very different way of thinking. At all events, we are stuck with either smoothing -- in a manner we won't understand -- to get data we might be able to build a theory with; or not to smooth, and be stuck with loads of data noise that will probably obscure any advance in understanding.

Russ:

Here again, we found ourselves asking questions that neither of us would have asked on our own.

Peter:

Physicists don't often apply their craft to study the structure of social relations. But they should do.

Russ:

And anthropologists don't often ask whether their data sources are accurate -- or whether that accuracy can be measured. And, of course, they should. Hard scientists, however, ask that question all the time. For example, thanks to orbiting satellites, oceanography from space is big business. But nobody yet has figured out a way to measure the salt content of the ocean (something oceanographers desperately need) from space with any useful accuracy; and so there aren't any instruments flying to measure salt. It's just a waste of time and money.

So we needed to tackle the possibility that there just wasn't a signal to study. We began a study of informant accuracy in social network data. We looked for naturally-occurring groups whose real communication could be unobtrusively monitored and whose members we could ask questions like: "So, in the last [day], [week], [month], who did you talk to in this group?" We began with the deaf people in Washington, DC who had TTYs in their house instead of telephones. When the phone would ring, the lights in their house would flash and they'd know they had a call coming in. They could sit at the teletype and pound away: "Hi, Jane, this is Fred." "Hi, Fred, great to hear from you." This produced a running paper record so the amount of communications between all pairs of people in the study could be measured.

We moved on to monitoring the communications of a ham radio group, embroiling Lee Sailer in all this, and ended up looking at the communications of the infamous Group 35 the social networkers brought together by Linton Freeman to participate in the early experiments by the National Science Foundation of the effects on science productivity of e-mail.

We found the dreaded law that about half of what people tell you is incorrect. Some of the error involves failure to recall behaviors that did occur and some involves recall of behavior that didn't occur.

Peter:

After a decade of research, we assessed the problem by scouring the literature and putting it in perspective: it turned out the informant-accuracy problem had been recognized many, many times over the years, beginning, as Irv Deutscher reminded us, in 1934 with La Pierre's study of which hoteliers and restaurateurs would, and would not claim to accept Chinese in their establishments. People in nutrition had recognized, in print, that human beings were just awful at recalling accurately the foods they ate. There were plenty of studies on the problem and yet the problem remained a fugitive.

Why wasn't this one of the main issues occupying the efforts of social scientists?

**Russ:**

That's the sort of question a naive physicist asks his anthropologist research partner. I mean, it never occurs to the physicist that asking this question might be anything other than an invitation to do some interesting research on an interesting topic.

Peter:

To our surprise (which we now know to have been naive), our examination of informant accuracy met with immediate and fierce opposition. Some of our colleagues told us privately: "my informants don't lie to me." Well, no, they probably don't, but that uncomfortable feeling we mentioned a minute ago? That was confirmed.

Russ:

Informants didn't have to lie. They were just terrible at keeping any semblance of an accurate record in their head of whom they talked to yesterday, much less whom they interacted with over the last week or month which is, of

course, just the sort of thing they were asked to recall all the time by researchers.

Peter:

At UC-Irvine, though, Lin and Sue Freeman, Kim Romney, Katie Faust, and Sue Weller re-analyzed our data and reformulated the problem, asking in the process, a very interesting and different question. We had asked: are the instruments for gathering data about human behavior producing valid (accurate) measurements of human behavior? They asked: what do those instruments produce a valid measurement of, anyway? They found that when you ask people about whom they interact with, people tell you whom they think they usually interact with, whom they ought to interact with, given everything they already know about their place in the social structure.

With hindsight, we wonder now, what would be the results of applying the cultural consensus model to our accuracy data?

Russ:

In any event, we still think that the issue of informant accuracy remains one of the most pressing in the social sciences. Redefining the problem produced very important advances in our understanding of the emics of behavior how emically-defined social structure is created. But it does nothing to advance our understanding of the etics of behavior a topic we think deserves the attention of another generation of researchers.

Now, ignoring the accuracy problem, and supposing the emic description of social structure to be what we're after, all clique finders provide a limited description of that structure. The limitation derives from at least two sources: 1) the particular theory applied in finding subgroups in a set of relations and 2) the particular relations that are represented in the matrix to begin with. That is, if we ask people who in a group they owe money to, we'll get a matrix of debt relations. If we ask people who in the same group they like, we'll get a matrix of affect. There is no expectation that the matrices will be the same and, what's worse, we have no idea which, if either of those matrices is the best, or the right matrix to understand social structure, or even an adequate matrix for understanding a part of the social structure.

Peter:

Our reasoning was that any matrix of relations might or might not be important, but the rules governing the production of those relations surely must be important. So, taking our cue from the program of research envisioned by Ithiel de Sola Pool and Manfred Kochen in their 1959 article (published after an extraordinary underground career as the first article of the first issue of *Social Networks*), and from the small world experiments by Stanley Milgram, we asked: what determined who people know? What are the rules governing who people know and how they know each other?

This prompted two lines of research. One followed my normal instinct as a theoretician, the other Russ's as a naturalist. I have to say that the part following my instinct hasn't taken off half as well as the part following Russ's, which must prove something.

Anyway, we got into the business of building simple 'process' models of what the rules might be, with many features obviously of interest suppressed this is how I conduct the rest of my scientific life. We built three models over the next few years: a model of group dynamics (on the individual level); a rather successful pseudo-model of the small world process itself (on the scale of the US population); and a random model of human group evolution (on the scale of world populations).

I don't know what others got out of these models, but we had a hell of a good time.

Russ:

To return to the naturalist approach...

Peter had the idea of reversing the small world experiment. The small-world experiment told us a few numbers: there are 5.5 links between any two white people in the U.S. and there is exactly one more link between any white and any black person in the U.S. There is no question about how interesting these numbers are. They are the basis of a successful Broadway play and of a wildly popular Internet game (a pop-culture version of calculating Erdős numbers) in which people link film personalities (through a series of films) to Kevin Bacon, a popular current actor.

But these numbers do not tell us anything about the structure of the society. If we showed people a list of small-world targets, complete with the information about targets that Milgram had used (location and occupation), then people could tell us who would be their first link in a small-world experiment. This would give us many repetitions of the experiment for each informant at least the first link and by analyzing the information needed by informants to make their choice of a first link, we could find out something about how the small-world actually operated.

Peter:

Russ, the ethnographer, wondered: But what if Milgram had guessed wrong? Maybe if people were told the target's religion, then they'd make a different choice of a first link and the chains would all be different? We told a group of 40-some informants about the small-world experiment and then told them the names of 50 targets and nothing else. Informants asked us as many questions as they liked about those 50 targets and we provided the answers (often made up on the spot and, of course, recorded in case another informant asked for the same information). At the end of each of the 50 iterations, the informant told us the name of the first link he or she would choose in a small world experiment to reach each of the 50 targets, and why. That is, the informant told us which piece of information had proved useful in making the decision about that first link.

Christopher McCarty did the interviewing on this experiment. It was a tough experiment to conduct, but we learned several important things. First of all, we learned that experiments requiring interview sessions lasting up to 8 hours were possible if everyone, researchers and informants alike, had enough jelly donuts on hand. And we learned that Milgram was right: despite the fact that informants wanted to know a lot about targets (the targets's hobbies, association memberships, and religion, for example), in the end, location and occupation were mostly what people needed to know about a target in order to make a decision about that first link. (Have a look at Figure 3.)

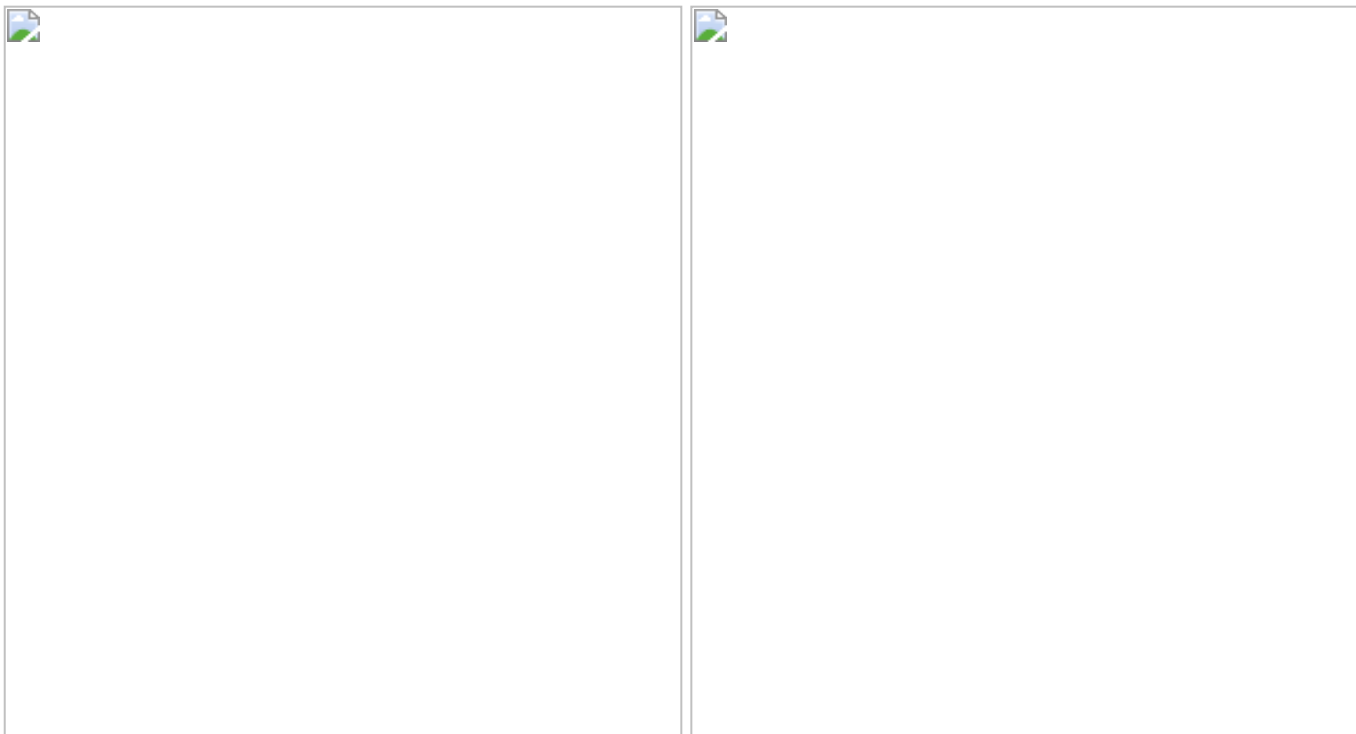


Figure 3. Two decision trees from INDEX. The reason for making the choice of question is shown (eg. LOCN means a location question) followed by the percent of time that question was asked in that position of the interview. The following splits follow the decision tree further. (a) trees starting with location of the target; (b) trees starting with sex of the target

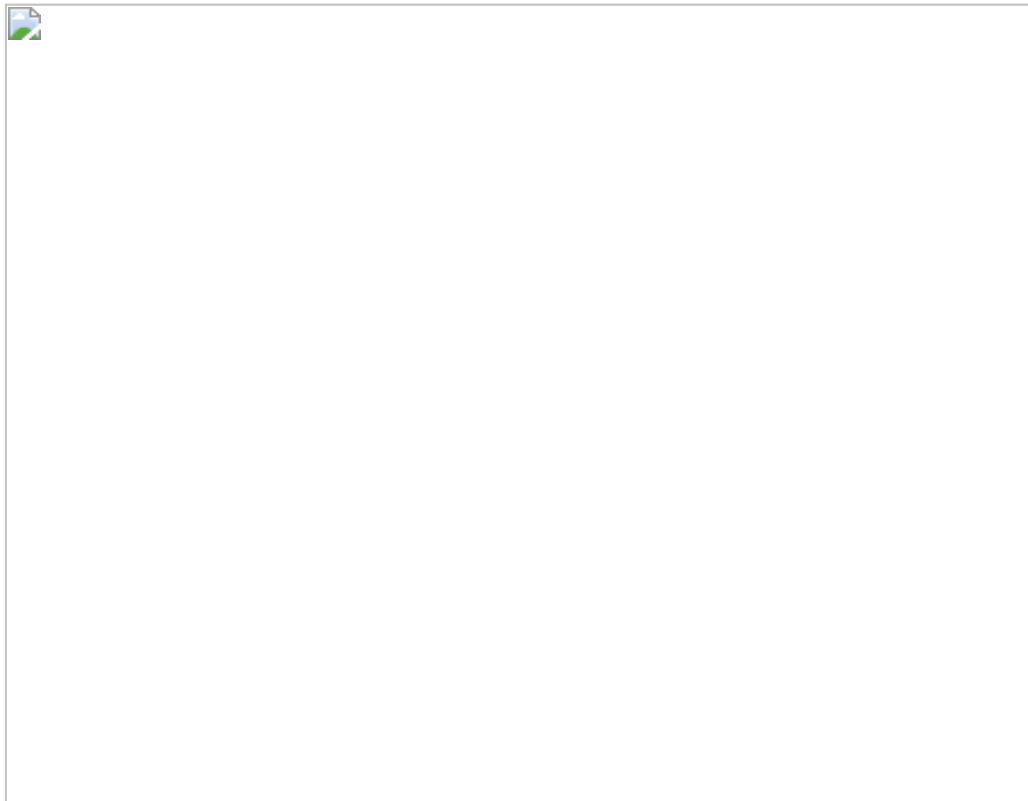
This was actually rather important, since by that time we'd already conducted the first of a set of reverse small experiments which cavalierly had assumed that location and occupation were all that people needed to know!

Russ:

We conducted our first RSW experiment with a list of 1,267 targets, but settled on a final list of 500 100 in each of 4 areas of the world, plus 100 in the country where the experiment was being conducted. In a series of reverse small world experiments using this final instrument, conducted with Paiute Indians and with other cultures in the U.S., as well as in Micronesia and Mexico, we explained the small-world experiment to informants. Then we showed them a list of the 500 names of people from around the world (the people were mythical, but the names were culturally appropriate), complete with location, occupation, hobbies and organizations, and asked informants to name their first link to each target. The things that people in the US find relevant to the task name, location, occupation, hobbies, organizations turn out to be the same as the things people in other cultures need to know to place an alter in their network.

Peter:

Both of us feel that the cross-cultural regularity discovered in this series of experiments remains for us among the most exciting results of our work. It turned out that informants 'chunked' the world in their heads the same way we did:



This was convenient, since it let us assemble the following remarkable picture:

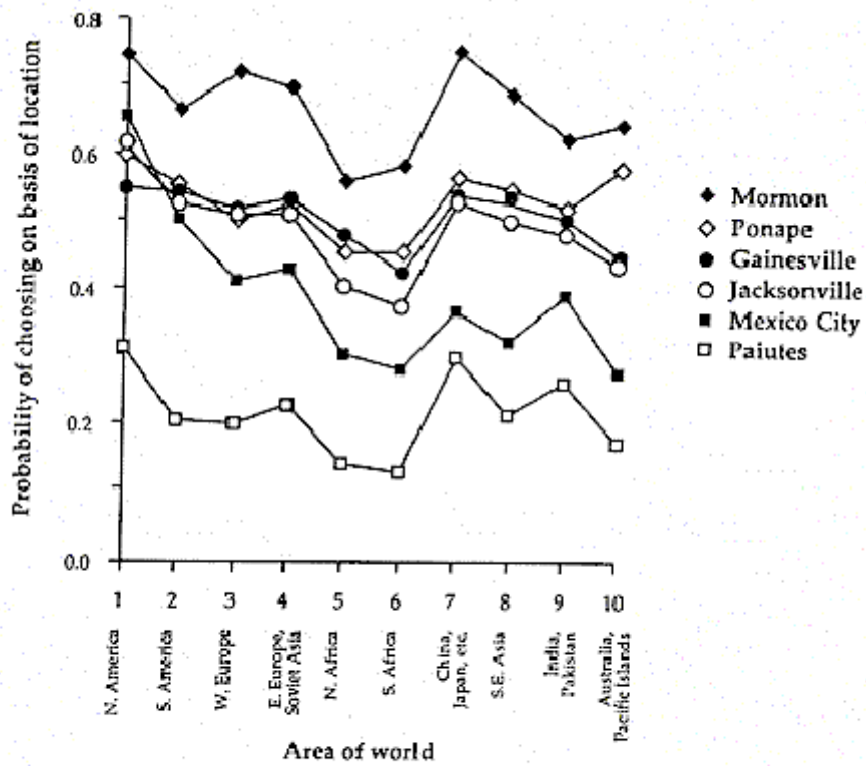


Figure 5. The probability of choosing on the basis of location for targets living in the 10 areas of the world, for informants in six cultures.

Along the base are -- in no specific order -- 10 areas of the world. The areas are North America; South America; Western Europe, and so on. The y-axis is the probability that informants in the various cultures would pick an intermediary on the basis of the target's location, when the target lived in each of these 10 areas. Remarkably, all the cultures are highly correlated, though with different offsets (Ponape Islanders, for example, have a bias against using location).

So something similar is happening inside people's heads from different cultures.

Russ:

You can play other games with these data. For example, suppose we create a similarity matrix between targets, based on how many informants select the same choice for a given pair of targets. If this matrix is hit with a multidimensional scaling in two dimensions, and the targets plotted by their location, recognizable, if slightly distorted, maps occur.



These maps provide convincing evidence of the enduring influence of Gerhard Mercator on the schooling systems of the world!

However, one non-trivial thing did show up. The size of the networks seemed to vary significantly between cultures (and between informants). Why?

Peter:

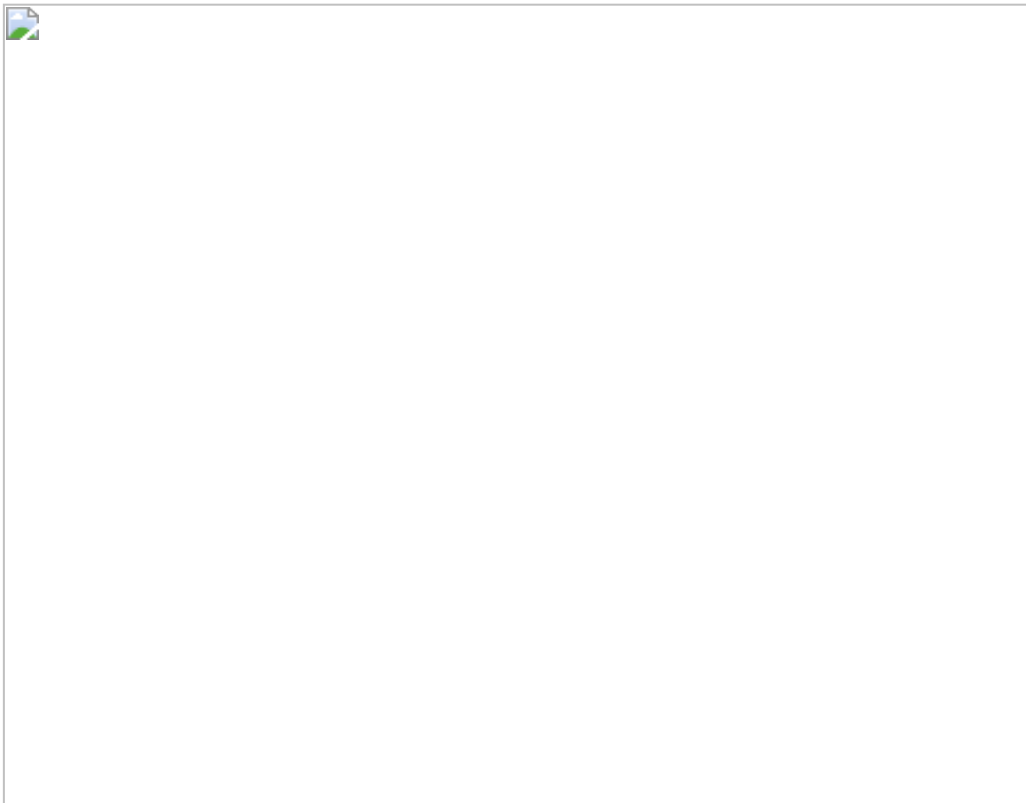
Well, all of this work gave us ideas about how the size of networks varied -- but we were working with but one definition of networks (and a specialized one at that). More recently, we extended our interests into what we hope are socially meaningful questions, in particular estimating the size of uncountable sub-populations -- populations like the homeless, and people who are HIV-positive and women who have been raped. In doing this, we've obtained en route much better estimates of how network size varies.

Russ:

Here's our first estimate, from 1978 of the size of people's social networks:



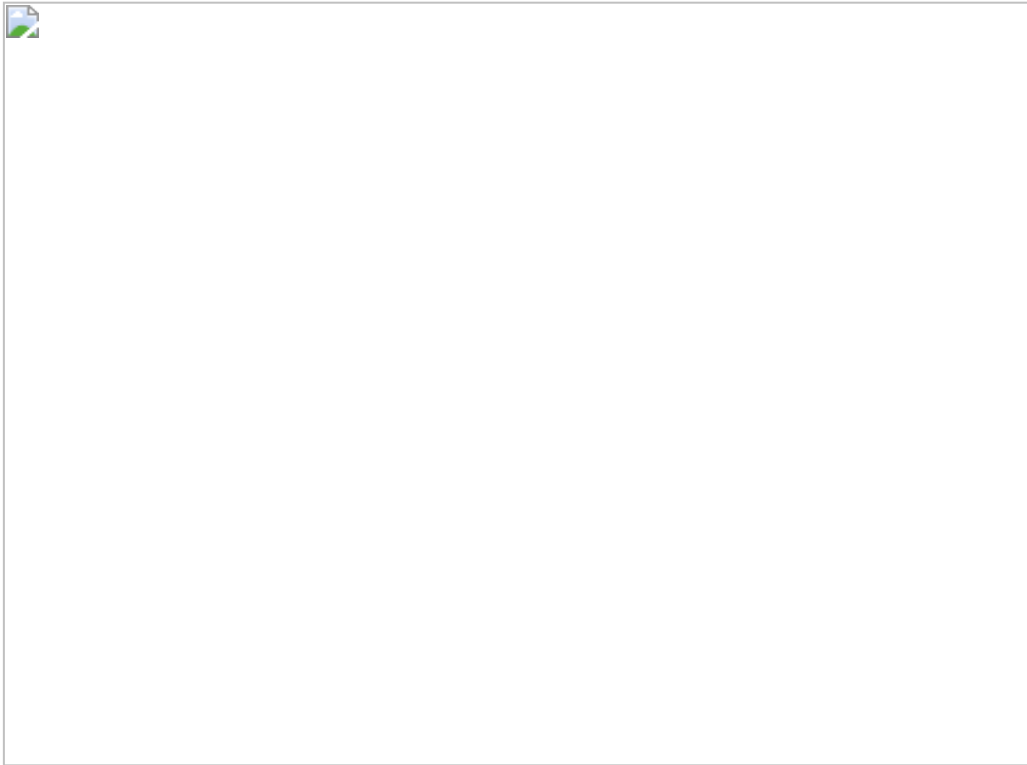
We made a cumulative histogram of the number of network alters generated as each new target on the list was presented. It's clear that with the usual 20/20 hindsight we didn't ask about enough targets.



Our prediction, based on a necessary extrapolation, was that ordinary Americans (represented by the extraordinary citizens of Morgantown, West Virginia who sat through this grueling experiment) would have about 250 people in their networks whom they could call on to be first links if Milgram were to have shown up and asked them to participate in a small world experiment. For estimating the size of the average global network in the U.S., that's a rather specialized definition with which to work, but we had to start somewhere....

Peter:

Our early estimate was in qualitative agreement with estimates made by Lin Freeman and Claire Thompson, using the phone book method pioneered by Pool (and reported in that classic Pool and Kochen paper). But we only had a point estimate of the average size of social networks. For developing any theory, we'd need to know about the distribution of network size. Nearly 20 years, and some experiments later, we are on a bit more solid ground. Here's a graph showing our current understanding of the distribution of network size for people across the U.S.:



This distribution may be wrong, but as far as we know, this is the only graph showing it. To see how we got it we have to backtrack a little.

Russ:

October, 1985, just a few weeks after the devastating earthquake in Mexico City. Rubble was everywhere and people had little fishing weights hung by nylon thread from light fixtures in offices across the city. If those little weights went even a couple of degrees out of plumb, people went for the exits and out onto the streets. The government claimed that 6000 people had died, but opposition newspapers and ordinary people everywhere thought that was a macabre joke and that the true figure was perhaps four times the official estimate.

One informant, to make his case, told me: "a lot more than 6,000 died because everyone, but everyone in this city knows someone who died." We could test that, using a very simple model.

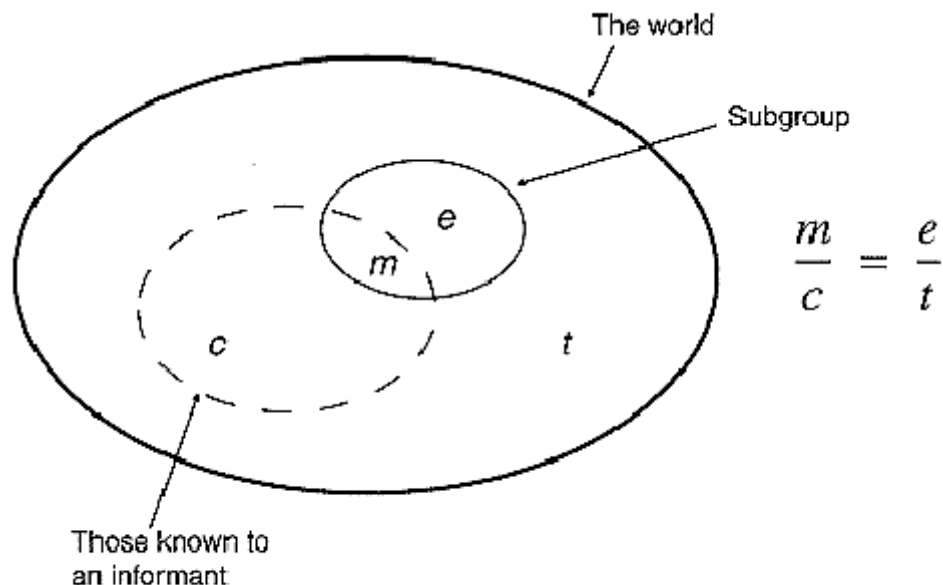


Figure 9. Simple schematic of model concept.

If this simplistic model were true then we could estimate the number of people who had perished in the quake. That is, if everyone knew the same number of people c , and if there were no overlap in who people knew, and we knew the size t of a bigger population in which some uncountable population of interest of size e was embedded and if we could find the probability p that anyone in t knew someone in e , or alternatively how many people m anyone knew in e , then in theory we could solve for e .

Peter:

Yes, well, if we had some ham, we could have some ham and eggs, if we had some eggs. This model demonstrates clearly that Russ had spent entirely too much of his life around mathmos. He called Gene Johnsen and me. Gene explained that this was a four-part combinatoric with just two knowable pieces: p and t . If we could estimate c , well, then we might get somewhere.

So, with the help of Scott Robinson and his students across Mexico, we ran a street-intercept survey and asked 400 randomly chosen people across Mexico City if they knew someone who had died in the earthquake. Twenty-three percent reported that they did. From this we could deduce what c had to be to give this figure. Later estimates suggested c was around 300. Of course, we had no way to test this, since we didn't know how large c should be for residents of Mexico City.

To make it worse, and most inconsiderately, c isn't a constant. We were able to show how the single number for c was a lower bound on the mean of c across informants, but to improve the estimate for c implied more and better data. We were confident that we could get this by asking informants to tell us whether they knew people in populations whose size we already knew and then working backward.

Russ:

And so, for the last ten years, working with Gene Johnsen and with two of our ex-students, Gene Ann Shelley and Christopher McCarty we've been developing what we call "network scale-up methods" for estimating the size of populations you can't count.

Peter:

And, along the way, studying the distribution of that fundamental quantum, c

Russ:

and we've actually made some measurable progress.

Our reverse-small world studies had told us that respondents mentally tag their network alters in terms of location and occupation, so in our first test of the model in the Mexico City study we asked people if they knew doctors, mailmen, bus drivers, TV repairmen, and priests (in addition to quake victims).

Peter:

Estimating a mean c for each sub-population or, more properly, as I said, a lower bound for this quantity gave answers varying by an order of magnitude, with low values based on mailmen and high values based on priests. Inverting this effect, we realized that some populations are simply more visible than others, making reports by respondents biased in one or another direction. Essentially our data suggested that if respondents knew a priest, they were aware of the fact; conversely, they might well know a mailman without being aware of it. We found, in other words, and to our horror, that informants could actually be unaware of information we felt they should know!

Russ:

In fact, this discrepancy with the simple theory became worse following a survey in Florida based on a different collection of subgroups. We asked people: Do you know any parents of twins? parents of triplets? police officers? surgeons? midwives? These data (which were collected in a survey in Gainesville, Florida by, among others, Tim Brazill) were reported by Gene Johnsen et al., in 1995.

The estimate of the average c for parents of twins was a mere 50, forcing us to accept that knowledge of twins is strongly under-reported or more likely under-known. That is, you can know someone at work or in voluntary associations for years and never find out that he or she has a twin sibling.

Peter:

Which led us to the not-very-original idea that how information propagates between people is an important part of the glue that ties folk together. To our knowledge, however, the work reported by Gene Shelley (et al., 1990) is original. In that study, Shelley tracked the ordinary things ("his sister had a baby last week") and extraordinary things ("his plane was hijacked last month") that people learn about their network alters across time. Some things take a long time to find out (one of Shelley's informants returned from a college reunion with information about people he hadn't seen in 25 years); some information propagates very quickly.

Russ:

It would turn out that certain facts about people propagate slowly because people who are defined by those facts have smaller networks. Our initial work on AIDS and HIV-positive populations confirmed this. Using data from the General Social Survey (GSS), Gene Johnsen et al. (1995) found that the estimated network size for AIDS victims was about one-third that for homicide victims. Since there was no a priori reason to suspect this to be the case, we concluded that information that someone has AIDS must spread very selectively in fact, to about one-third the number of people that information about being a homicide victim does.

Gene Shelley's ethnographic interviews with HIV+ persons showed clearly how this worked. The effect of being HIV+ was so stigmatizing and traumatizing, people just pulled back. Yes, they only told certain trusted alters about their HIV status, but their current, active networks were shrinking perhaps toward the number of people who could be trusted to know that HIV status.

Peter:

We have now identified two types of errors in the propagation of information that affect our estimates of network size and thus, of the size of populations. We call these transmission effects (stigma, for example) and barriers (location, for example) and those effects are the subject of our latest research.

In the last few years we've conducted large-scale surveys to ask a statistically significant group of respondents in detail about many sub-populations (some of known size, some of unknown size), so that we could examine each respondent's knowledge in some detail. One survey was limited to residents of Florida and the other was based on a national, representative sample.

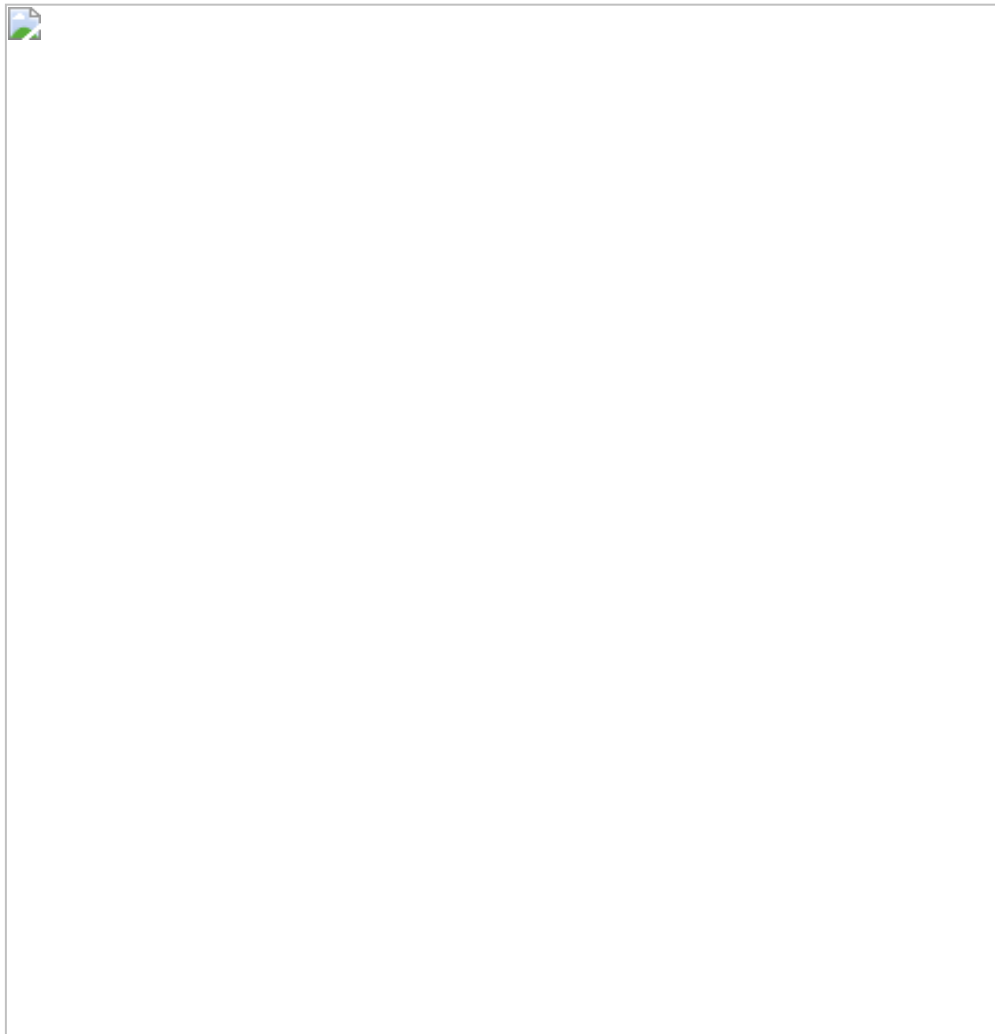
In the Florida survey, we asked respondents about 14 populations based on first names ("do you know someone called Michael?") together with asking how many people were known in other populations of known size (diabetics, licensed pilots, etc.). (The idea of using first names as a set of cues for populations of known sizes was Christopher McCarty's; see McCarty et al., 1997). We also asked about two populations of unknown size, described to telephone respondents as: "someone who is HIV-positive" and "someone who has the disease called AIDS."

That gave us, for each respondent, a pattern of responses, all with the same value of c . One can imagine various methods to deduce a suitable value of c for a particular respondent, and then that value could be used to back-estimate unknown sub-populations.

Our preference is for maximum likelihood methods. The idea is to compute a probability that the responses reported by a respondent could be produced with an individual network of size $c(i)$ (for respondent i). This probability is scanned over all possible values, and the $c(i)$ selected which maximizes that probability.

In the case of subgroups of known size, there is a formula which gives the maximum likelihood estimate of the network size $c(i)$. There is also an estimate of its standard error, which, not surprisingly, becomes more accurate as more (or larger) sub-populations are added, rather like the central limit theorem.

We can then play a similar maximum likelihood game on the populations of unknown size. We have a collection of respondents, each with a "known" c , and all their statements about how many they know in the sub-population of interest. There is thus a size of that sub-population which maximizes the probability of the pattern of reports observed. We also have a standard error of the size as well. Better accuracy is obtained with more people known or, roughly equivalently, simply more respondents.

**Russ:**

The Florida survey yielded very promising results. The best estimate of the average c was 108, and the estimated size of the HIV+ population of the U.S. was 1.6 million.

This value for HIV-positive is rather large compared with other estimates, but this survey used only Florida residents, and there is a disproportionately large number of AIDS victims and, we assume, HIV-positive individuals in Florida. If our methods are working, this would bias the result for HIV+ upwards.

We tested all this in the national survey. Based on what we'd learned, and the mistakes we'd made, in the Florida survey, we surveyed 1554 respondents selected to represent the U.S. We asked respondents about 32 sub-populations, including 29 of known size, and three (HIV-positive, rape victims, and homeless) of unknown size.

This method gave an estimate for the average network size c of 286, much larger than the number for Florida respondents and suspiciously like the number we'd found in our first estimate of c in 1978 based on the reverse-small-world experiment.

Here again is the distribution of c . Note the modal value of about 150, with a small number of respondents knowing many people. However, here we've gone back to the two early reverse small world studies and used those data as well (the white circles and the snowflakes).

To be sure, we think they were underestimates (so we increased the values by the relevant ratio); and the binning was different (so we adjusted the frequencies accordingly)...



and ... the values overlie rather well. There is something going on out there that is consistent between two totally different experiments. We find that pretty exciting!

Peter:

Values for the unknown sub-populations were found as:

- 800,000 +/- 43,000 seroprevalent in the U.S.;
- 526,000 +/- 35,000 homeless;
- and 194,000 +/- 21,000 rape victims in the last 12 months. (95% confidence intervals shown.)
-

The estimate for HIV sero-prevalence is in astonishing agreement with official estimates obtained by much longer and more expensive techniques.

Estimates for homelessness vary strongly; our estimate is much higher than official estimates and much lower than those from advocacy groups, but is very close to the estimate made by the urban institute a decade ago and still widely considered the best estimate available.

Our estimate for the number of rape victims lies in the middle of the range of estimates offered by various colleagues. Any estimate of this population is affected by different definitions of "rape," but our estimate is nearly identical to the one produced by the latest National Crime Victimization Survey.

Russ:

Social Science has made major achievements. Autism and anorexia are treatable conditions today the result of basic research on stimulus and response in human behavior. That same research, of course, also makes possible the effective marketing of cigarettes to children. The scientific study of management at the beginning of this century produced spectacular gains in productivity and spectacular gains in worker alienation as well. The insurance industry life, medical, home, auto is possible because of fundamental social research and on research about the theory of probabilities. The effective teaching of languages is possible because of sustained, systematic behavioral and cognitive research. Systematic, cross-cultural research has produced a theory of the second demographic transition for the developing world, not just for the industrialized world, with direct and immediate implications for the well-being of billions of people.

Peter:

We like some of these accomplishments and we don't like others. But all are examples of the serious impact of basic social science research. In the field of social networks, we think the most important task is the discovery of the rules governing who people know and why they know one another.

So, we close with the obligatory assessment of the field and the hortatory rhetoric that everyone expects. In every field of science, there are three broad questions of interest: 1) What is it? That is, what exactly is the nature of the phenomenon in which we are interested? 2) What causes it? and 3) What does it cause? These three questions are answered with description, theory, and prediction. Social network researchers, it seems to us, have done much to answer the first question.

Russ:

A lot of progress has been made in answering the second as well. From the earliest days of the field, there have been tantalizing indications that structural variables account for at least some of the variance in very important outcome variables: the distribution of resources, including wealth, information, and power; the morbidity of individuals and the probability that they will cope adequately with emotional distress. It seems to us that we now must provide a list of what we think can be predicted from social network variables.

This was also following in P and K's footsteps, and we hope others will follow ours.

Endnotes

1. Keynote speech given at the XVIIth annual Sunbelt International Social Networks Conference. Feb. 13, 1997, San Diego, California. The ordering of authors' names is alphabetical.

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Structural Holes: Unpacking Burt's Redundancy Measures

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In *Structural Holes*, Ron Burt (1992; 1995) describes a set of new measures based on ego networks. One key set of measures is concerned with the notion of redundancy. The general meaning of redundancy is clear: a person's ego network has redundancy to the extent that her contacts are connected to each other as well. However, the exact definition of the measures is shrouded in mathematical equations which are ambiguous at best.⁽¹⁾

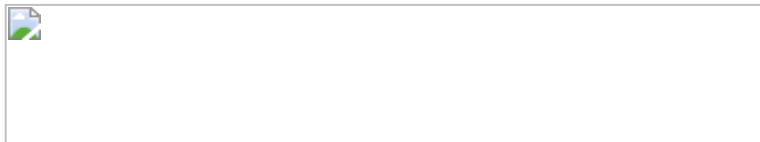
The purpose of this short note is to clarify how to compute the redundancy measures. At the end, I also comment briefly on the relationship between these measures and other well-known measures, such as ego-network density and betweenness centrality.

The Official Definition

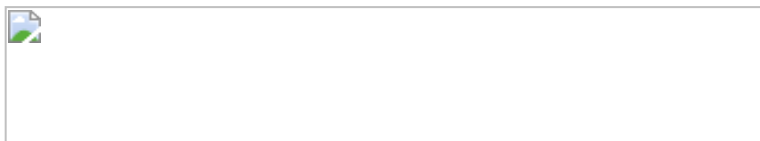
Burt defines the effective size of a person's ego network as

$$\sum_j \left[1 - \sum_q p_{iq} m_{jq} \right] \quad q \neq i, j \quad (1)$$

where



and



and Z is the data -- the matrix of network ties.

Let us assume that the network consists of a connected non-valued, undirected graph. That is, the data matrix Z contains only zeros and ones, and Z is symmetric so that z_{ij} equals z_{ji} . This allows us to simplify the math considerably. For example, Equation 2 becomes:



and Equation 3 becomes:



which further reduces to

$$m_{jq} = Z_{jq} \tag{3c}$$

since the maximum value Z will take on in a connected non-valued graph is necessarily 1.0.

This is an improvement, but before we do any calculating, we should be aware of one problem with these equations. Even though they are written in such a way as to yield a value for each node i in the network, these values are NOT correct for any node other than the center of the ego network. The reason is that Equation 1 contains nothing to exclude people (the j subscript) whom ego (the i subscript) has no relation to. This works for the center of an ego network because the center is by definition tied to every other node, but fails for all other nodes. So the summation over j in Equation 1 has to be done just for those j's that are part of i's network. A quick and dirty fix for binary data is this:

$$\sum_j m_{ij} \left[1 - \sum_q P_{iq} m_{jq} \right] \quad q \neq ij \tag{1b}$$

By multiplying by m_{ij} , we only add in the quantity in brackets when ego is tied to that particular j.

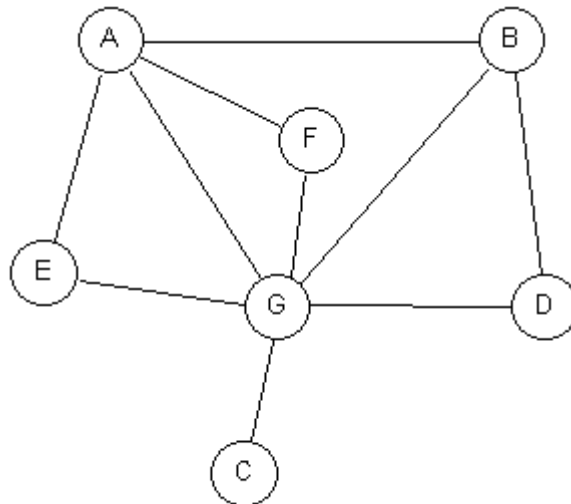


Figure 1. Adapted from Burt (1995:56)

First Run Through

Consider the network in Figure 1. The first thing we want to do (Equation 2) is transform the data to be row-stochastic. That is, if node A is tied to 3 others, then we give each one a weight of 1/3. So we have a matrix P that looks like this:

Table 1. The row-stochastic P matrix.

	A	B	C	D	E	F	G
A		0.25	0	0	0.25	0.25	0.25
B	0.33		0.0	0.33	0	0	0.33
C	0	0		0	0	0	1.00
D	0	0.50	0		0	0	0.50
E	0.50	0	0	0		0	0.50
F	0.50	0	0	0	0		0.50
G	0.17	0.17	0.17	0.17	0.17	0.17	

Let us focus on node G, whom we shall refer to as "EGO". EGO is connected to 6 people, so each is worth 1/6 of EGO's investment. Now we consider the relationships among these six. Person A is connected to three of EGO's people, so that means that Person A "covers" 3/6 or 50% of EGO's investment. Person B is connected with two of EGO's people, so they "redund with" 2/6 of EGO's alters. The redundancies for all of EGO's alters are given in Table 2:

Table 2. Redundancies in G's Ego Network

Node "G" is EGO	A	B	C	D	E	F	Total	Eff. Size	Efficiency
Redund. with EGO's other Alters:	3/6	2/6	0/6	1/6	1/6	1/6	1.33	4.67	77.8%

Summing the redundancies for each of EGO's alters, we get 1.33. We then subtract 1.33 from the number of alters (6), which gives us 4.67 as the effective size of EGO's network. Had none of EGO's alters been connected with any of the others, the effective size would have been 6. Thus, an effective size of 4.67 represents 77.8% efficiency.

Let us repeat the computation now, taking a different node as EGO. For example, let EGO be node A in Figure 2. EGO has four ties, so each is worth 1/4 (this is what Equation 2 works out). Now we look at each of those four ties to see how many of the other three each is connected to. Person B is connected to just one of EGO's alters (namely, G). Person E is connected to one. Person F is connected to one. And person G is connected to three. Putting this into a table, we get:

Table 3. Redundancies in A's Ego Network

Node "A" is EGO	G	B	E	F	Total	Eff. Size	Efficiency
Redundancy with EGO's other Alters:	3/4	1/4	1/4	1/4	1.50	2.50	62.5%

A Simpler Alternative

After you calculate total redundancy a few times, you realize that there is a simpler way to think about it. Redundancy is just the average degree of EGO's alters (not counting their tie to EGO). Consider Figure 1 again, with node G as EGO. The within-network degree of each of EGO's alters is {3,2,0,1,1,1}, and the average of these numbers is 1.33, which is what we obtained before. So the effective size of an ego network is just the actual size minus the average degree of the alters.

We can go a little further. The average degree of any network is closely related to its density. In fact it is obvious (2) that the average degree is equal to the density times $n-1$, where n is the number of nodes in the network. So Burt's redundancy measure is identical to ego network density, scaled by a factor of $n-1$. This in turn means that a simple formula for the redundancy of any ego network is:



where t is the number of ties in the network (not including ties to ego) and n is the number of nodes (excluding ego). We can then define effective size as:



Checking it Out

If you're a skeptical reader, you might be tempted to check these shortcuts against the examples in Ron's book. If you did that, you would quickly run into discrepancies. Don't let it shake your confidence: the errors are in the book, not the shortcuts!

For example, on page 53 of Structural Holes, Table 2.1 gives the effective sizes of six networks. One of them is ...

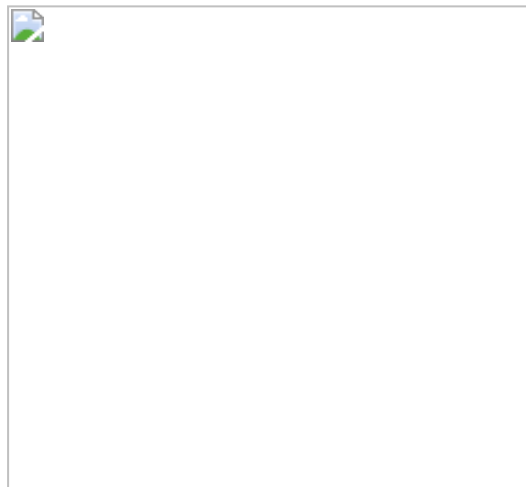


Table 2.1 gives the effective size of this ego network as 4, but this is clearly wrong: the effective size is 7, yielding an efficiency score of 0.875.

Interestingly, the wrong answer has considerable intuitive appeal. Even though there are 8 contacts, there are only 4 separate "pieces" or components of this ego network. A more efficient network would reach 8 separate components with 8 ties. But this is not the way effective size and efficiency were actually defined mathematically.

To see how the effective size measure behaves in practice, I computed it along with a number of other ego network measures on a network of 849 film-makers using the pre-release version of UCINET 5.0 for Windows 95/NT (Borgatti, Everett and Freeman, 1997). The data were compiled by Candy Jones (1993) and consist of who has worked on the same film with whom over a certain period of time. The correlation of Burt's effective size with the other variables is presented here:

Ego Network Measure	Corr. w/ Burt's Eff. Size
Size:	0.98
No. Of Ties:	0.95
Density:	-0.58

Avg. Distance:*	0.56
No. Of Components:	0.11
Prop. Of Components:	-0.03
Size of 2nd Order Neighborhood:	0.56
Reach Efficiency:	0.33

*Among connected ego networks

There are several results here that are worth pointing out. First, the correlation with ordinary network size is very high, which suggests that the efficiency rates don't vary a great deal (in this network), and that in practice the humble degree measure can substitute for effective size. Second, you may have expected the correlation with density to be 1.00, since effective size is just $n - (n-1)density$, which looks like a linear re-scaling. But n (network size) varies from person to person, so across different ego networks the re-scaling is not linear. Third, the correlation with the number of components in the ego network is non-existent, which means that the intuitive notion described above is in fact vastly different from the one that is actually defined.

The measure labeled "size of 2nd order neighborhood" counts the number of distinct nodes within two links of ego (i.e., ego's friends plus ego's friends' friends). The measure labeled "efficiency" is the size of the 2nd order neighborhood divided by the sum of degrees of ego's alters. It is large to the extent that ego's alters connect to *different* third parties. For a discussion of the logic behind this and related kinds of measures, see Borgatti and Jones (1996).

References

- Borgatti, S.P., M.G. Everett and L.C. Freeman. 1997. UCINET 5.0. Analytic Technologies.
 Borgatti, S.P. and C. Jones. 1996. "A Measure of Past Collaboration." *Connections* 19(1):58-60.
 Burt, Ronald S. 1995. *Structural Holes: The Social Structure of Competition*. Harvard University Press, paper back edition.
 Harary, Frank. 1972. *Graph Theory*. Addison-Wesley Publishing Company, 3rd printing.
 Jones, Candace. 1993. *Toward a Theory of Network Organization*. Ph.D. Dissertation, University of Utah.

Endnotes

1. Some people believe that mathematical notation is necessarily unambiguous. I don't. It seems to me that mathematical expressions are never fully specified, relying on context and shared knowledge to fill in the missing information.
2. See Harary (1972:14) for a discussion.

Last revised: 24 January, 2000

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Articles and Chapters

Alpert, C. J., and A. B. Kahng. 1997. Splitting an Ordering into a Partition to Minimize Diameter. *Journal of Classification*. 14: 51-74.

Many algorithms can find optimal bipartitions for various objectives including minimizing the maximum cluster diameter ("min-diameter"); these algorithms are often applied iteratively in top-down fashion to derive a partition P^k consisting of k clusters, with $k > 2$. Bottom-up agglomerative approaches are also commonly used to construct partitions, and we discuss these in terms of a worst-case performance for metric data sets. Our main contribution derives from a new restricted partition formulation that requires each cluster to be an interval of a given *ordering* of the objects being clustered. Dynamic programming can optimally split such an ordering into partition P^k for a large class of objectives that includes min-diameter. We explore a variety of ordering heuristics and show that our algorithm, when combined with an appropriate ordering heuristic, outperforms traditional algorithms on both random and non-random data sets.

Angle, J. 1996. How the Gamma Law of Income Distribution Appears Invariant Under Aggregation. *Journal of Mathematical Sociology*. 21(4): 325-58.

The Gamma Law of Income Distribution appears to be a scientific law because the gamma pdf 1) fits the range of shapes seen in income distributions, 2) is parsimonious, 3) appears to be scale invariant, i.e., to show invariance under population aggregation, and 4) the gamma pdf's shape parameter provides a convenient descriptor of the range of shapes seen in income distributions, allowing the apparent invariance between education and the shape of the income distribution to be simply described. The Gamma Law of Income Distribution cannot, however, be a scientific law because it is not scale invariant. An unconditional distribution of income is a mixture, i.e., the weighted sum, of variously shaped income distributions. People at different education levels have differently shaped income distributions. These distributions are well fitted by gamma pdfs making the correspondent unconditional distribution a gamma shape mixture. A gamma shape mixture is not in general a gamma pdf. Aggregating the income distributions of population segments together can give rise to gamma shape mixtures. Thus the Gamma Law is not scale invariant. However, under certain conditions a gamma shape mixture can be hard to distinguish from GAM ($*, l$), the gamma pdf whose shape parameter is $*$, the weighted average of the i 's, the shape parameters of the component gamma pdfs of the mixture. GAM ($*, l$) has the same mean as the shape mixture. These conditions allow the Gamma Law of Income Distribution to appear to be scale invariant. These conditions occur in geographically defined populations in the contemporary U.S. They are 1) the distribution of income conditioned on education is itself gamma distributed, 2) is invariant under aggregation, 3) most of the population has attained an education whose corresponding income distribution is fitted by GAM ($*, l$) where $i > 1$, 4) there is a close relationship between the shape of the income distribution and education, and 5) the distribution of people over education is approximately symmetric, unimodal, and peaked at its mode. The Gamma Law of (unconditional) Income Distribution appears to work because a Gamma Law of Income Conditioned on Education exists.

Banks, D. L., and K. M. Carley. 1996. Models for Network Evolution. *Journal of Mathematical Sociology*. 21(1-2): 173-96.

This paper describes mathematical models for network evolution when ties (edges) are directed and the node set is fixed. Each of these models implies a specific type of departure from the standard null binomial model. We provide statistical tests that, in keeping with these models, are sensitive to particular types of departures from the null. Each model (and associated test) discussed follows directly from one

or more socio-cognitive theories about how individuals alter the colleagues with whom they are likely to interact. The models include triad completion models, metric models, and the structural model. We find that many of these models, in their basic form, tend asymptotically towards an equilibrium distribution centered at the completely connected network (i.e., all individuals are equally likely to interact with all other individuals); a fact that can inhibit the development of satisfactory tests.

Barkey, K., and R. Van Rossem. 1997. Networks of Contention: Villages and Regional Structure in the Seventeenth-Century Ottoman Empire. *American Journal of Sociology*. March 102(5): 1345-82.

This article analyzes peasant contention in 17th-century Ottoman villages. The authors argue that peasant contention results from the position of the village in the regional structure, with village-level organization providing the means for contention. The article uses court records to reconstruct the formal and informal networks within and across villages in western Anatolia. Under conditions of state and market expansion, those villages in intermediate positions in the regional structure tend to experience the vagaries of these changes more than central or isolated villages. Those intermediate villages are also most prone to contention. Cooperative village organization is also found to promote contention.

Barnes, G. R., P. B. Cerrito, and I. Levi. 1996. Algebraic Structure of the Interaction Semigroup as Related to the Homogeneity of Network. *Journal of Mathematical Sociology*. 21(4): 295-323.

This paper addresses the development of a semigroup model of social networks. Data matrices which represent the perceived relationships between members of a social network are used to construct a (possibly infinite) data semigroup of derived relations defined by (real) matrix multiplication. This complex structure is analyzed by forming interaction semigroups. These semigroups are homomorphic images of the data semigroup. The corresponding congruences are generated by identifying products of finite order which are highly positively correlated. Several methods of generating the interaction semigroups are examined and are shown to generate nonhomomorphic semigroups. For each congruence, an associated triple of numbers can be defined which may serve as an indicator of the validity and/or a measure of the stability of the semigroup model. A series of hypothetical examples is developed to study how the algebraic properties of interaction semigroups reflect and uncover properties of associated networks. Specifically, relationships between homogeneity of a network and the algebraic structure of the corresponding interaction semigroup are addressed. The applicability of the above techniques to blockmodels is demonstrated.

Batchelder, W. H., E. Kumbasar, and J. P. Boyd. 1997. Consensus Analysis of Three-Way Social Network Data. *Journal of Mathematical Sociology*. 22(1): 29-58.

Three-way social network data occurs when every actor in a social network generates a digraph of the entire network. This paper presents a statistical model based on cultural consensus analysis for aggregating these separate digraphs into a single consensus digraph. In addition, the model allows estimation of separate hit and false alarm rates for each actor that can vary within each actor in different regions of the digraph. Several standard signal detection models are used to interpret the hit and false alarm parameters in terms of knowledge and response bias. A published three-way data set by Kumbasar, Romney, and Batchelder (*American Journal of Sociology*, 1994) is analyzed, and the model reveals that both response bias and knowledge decrease with distance from ego.

Bearman, P. 1997. Generalized Exchange. *American Journal of Sociology*. March 102(5): 1383-415.

Generalized exchange, in which sections of a tribe exchange women in a cycle and thus guarantee social solidarity, was induced from models of the norms governing classificatory kinship systems. A block model analysis of one aboriginal tribe yields sections that serve as marriage classes in a generalized exchange system, though the norms that govern kinship would fail to manifest, if followed, a cycle for exchange. Generalized exchange systems emerge from inequalities exogenous to the kinship system, specifically gerontocracy. Models of norms are weak predictors of actual exchange structures. Models of relations yield insight into the etiology of systems that build social solidarity from social exchange.

Beggs, J. J., J. S. Hurlbert, and V. A. Haines. 1996. Community Attachment in a Rural Setting: A Refinement and Empirical Test of the Systemic Model. *Rural Sociology*. 61: 407-26.

As they examine the complex issues currently facing rural America, rural sociologists draw increasingly on studies of community attachment. Because this research tradition has established the superiority of the systemic model, recent studies in rural and urban settings have focused on the conceptualization and operationalization of its components. We introduce four operational refinements to this model, and we test our refined model with data from one geographic area in southwest Louisiana. We find that, although our operational refinements improve our understanding of community attachment, additional refinements are necessary. We conclude by exploring the implications of community attachment studies for attempts to revitalize community in rural settings.

Bonacich, P., and E. J. Bienenstock. 1997. Latent Classes in Exchange Networks: Sets of Positions with Common Interests. *Journal of Mathematical Sociology*. 22(1): 1-28.

While it is known that positions in exchange networks are interdependent, little work has been done to develop a systematic procedure to determine the type and pattern of these interdependencies. Wording from an insight by Schubik (1984), this paper proposes a canonical form for such interdependence. The model does not depend on the existence of pre-existing categories of complementary positions, such as buyers and sellers or men and women. The model uses only network position to create classes of positions with linked fates. Simulation and experimental results are presented that support this schema. These findings lay the groundwork for the study of collusion in exchange networks: members of latent classes, who share a common fate, would be likely to form coalitions when free communication exists.

Braun, N. 1996. Why Fix It When It Ain't Broken? A Reply to Henning's Critique. *Journal of Mathematical Sociology*. 21(4): 379-88.

This rejoinder discusses Henning's arguments against my model for exchange systems with restricted market access. It also presents an alternative rational choice model that combines Henning's central demands with my original modeling idea (according to which restricted access has effects before the optimization). This alternative approach yields similar conclusions as my earlier analysis. A comparison with Henning's results (which refer to a scenario in which access restrictions explicitly enter the optimization program) suggests that the respective model implications depend crucially on the decision where and how restricted access is introduced into a model. From this perspective, Henning's negative assessment of my work is questionable because, in the absence of empirical evidence, he has no better rationale for modeling restricted access than I do.

Bulder, Bert, F. Leeuw, and H. Flap. 1996. Networks and Evaluating Public-Sector Reforms. *Evaluation*. 3(July):261-276.

Surveys of client satisfaction and network analysis of the Dutch Ministry of the Interior and a semi-independent executive agency in the Netherlands were used to investigate relationships between social capital and government reforms. Results indicated that social networks greatly contribute to the productivity of individual employees as well as organizations. It is argued that well-intentioned reorganizations or reforms can turn social capital into "sour" capital, leading to a deterioration in efficiency, effectiveness, and customer satisfaction.

Cheng, R., and G. W. Milligan. 1996. Measuring the Influence of Individual Data Points in a Cluster Analysis. *Journal of Classification*. 13: 315-35.

The problems of measuring the impact of individual data points in a cluster analysis is examined. The purpose is to identify those data points that have an influence on the resulting cluster partitions. Influence of a single data point is considered present when different cluster partitions result from the removal of the element from the data set. The Hubert and Arabie (1985) corrected Rand index was used to provide numerical measures of influence of a data point. Simulated data sets consisting of a variety of cluster structures and error conditions were generated to validate the influence measures. The results showed that the measure of internal influence was 100% accurate in identifying those data elements exhibiting an influential effect. The nature of the influence, whether beneficial or detrimental to the clustering, can be evaluated with the use of the gamma and point-biserial statistics.

Church, A., and Reid Peter. 1996. Urban Power, International Networks and Competition: The Example of Cross-Border Cooperation. *Urban Studies*. October 33: 1297-318.

This paper reviews the military sociology and popular literature on soldier isolation during force-projection operations and the (tele)communication resources available and used to lessen feelings of isolation. During World War 11 and the Cold War era (Korea and Vietnam Wars), soldiers were isolated. Communication with significant others and the larger society was primarily one-way (e.g., via letter mail, Victory-mail, radio, movies, audio tapes, and tape delayed television). During the late-Cold War (e.g., invasion of Grenada, peacekeeping missions, and the invasion of Panama) and more recently during the post-Cold War era (e.g., the Persian Gulf War, Los Angeles riots, and the Somalia relief effort), the diffusion of one-way, and revolution in twoway communication media f e.g., telephones, video tapes, voice-mail, live television, and e-mail) resulted in a continued decrease in isolation for soldiers. Notwithstanding, there is a consistent and salient need among soldiers and families to continue to lessen isolation and separation. Although there has been a revolution in types of communication media (CM) available during force-projections, use across military operations has been evolutionary. In other words, high-tech has not displaced lowtech, but supplemented it. Recognizing that new and old CM are an ever-evolving and important element of the post-Cold War soldiers' experience, the authors stress the importance of social science research in ascertaining the social implications of regulating CM in military and other social institutions.

de Leeuw, J., and P. J. F. Groenen. 1997. Inverse Multidimensional Scaling. *Journal of Classification*. 14: 3-21.

For metric multidimensional scaling much attention is given to algorithms for computing the configuration for fixed dissimilarities. Here we study the inverse problem: what is the set of dissimilarity matrices that yield a given configuration as a stationary point? Characterizations of this set are given for stationary points, local minima, and for full-dimensional scaling. A method for computing the inverse map for stationary points is presented along with several examples.

Doreian, P., R. Kapuscinski, D. Krackhardt, and J. Szczypula. 1996. A Brief History of Balance Through Time. *Journal of Mathematical Sociology*. 21(1-2): 113-31.

We present methods for establishing the amount of reciprocity, transitivity and group balance (a generalization of structural balance) in sociometric structures. These methods are applied to the second time series of sociometric data provided by the Newcomb (1961) study. The amount of reciprocity was above chance levels at the outset and showed no systematic variation thereafter. Transitivity has a very different time scale. it climbed steadily through the first nine weeks and remained stable thereafter. While consistent with chance at the beginning of the study period, it grew to above chance levels at week 3. Group imbalance declined throughout the entire period. The reasons for these different time scales are discussed.

Everett, M. G., and S. P. Borgatti. 1996. Exact Colorations of Graphs and Digraphs. *Social Networks*. 18: 319-31.

A coloration is an exact regular coloration if whenever two vertices are colored the same they have identically colored neighborhoods. For example, if one of the two vertices that are colored the same is connected to three yellow vertices, two white and red, then the other vertex is as well. Exact regular colorations have been discussed informally in the social network literature. However they have been part of the mathematical literature for sometime, though in a different format. We explore this concept in terms of social networks and illustrate some important results taken from the mathematical literature. In addition we show how the concept can be extended to ecological and perfect colorations, and discuss how the CATREGE algorithm can be extended to find the maximal exact regular coloration of a graph.

Feld, S. L. 1997. Structural Embeddedness and Stability of Interpersonal Relations. *Social Networks*. 19: 91-95.

The amount of structural embeddedness of a tie between two individuals is defined as the extent of overlap of social relations between those two individuals, and presumably reflects the extent of shared foci of activity that bring these individuals together with the same others. It is suggested that, in comparison with other strengths of ties (e.g. strengths of feelings, and frequencies of interactions), structural embeddedness: (1) is less under individuals' control, and therefore (2) tends to be more stable.

Analyses of data on the relationships among male students at one small liberal arts college in November and April of their first year in college support the expectation that structural embeddedness is relatively stable, and tends to have some effect on other strengths of ties as well as the continuity of relationships.

Flache, A., and M. W. Macy. 1996. The Weakness of Strong Ties: Collective Action Failure in a Highly Cohesive Group. *Journal of Mathematical Sociology*. 21(1-2): 3-28.

Following Homans, exchange theorists have modeled informal social control as an exchange of peer approval for compliance with group obligations. The exchange model predicts higher compliance in cohesive networks with strong social ties. However, previous specifications failed to incorporate bilateral exchange of approval. Computer simulations using a Bush-Mosteller stochastic learning model show that bilateral exchanges evolve more readily than multilateral, causing social control to flow into the maintenance of interpersonal relationships at the expense of compliance with group obligations, a structural form of the "second-order free-rider problem."

Frank, Kenneth A. 1996. Mapping Interactions within and between Cohesive Subgroups. *Social Networks*. 18(2): 93-119.

The structure of interactions and the pattern of influence in an organization can be characterized in terms of a map of interactions within and between cohesive subgroups. I extend the work of Festinger, Schachter and Back (*Social Problems in Informal Groups*, 1950 Stanford University Press) who constructed a map based on the patterns of communication within and between apartment courts. In order to generalize Festinger et al.'s approach, I substitute a posteriori subgroups for Festinger et al.'s apartment courts, and I replace the distances of a physical geography with those of a metric multidimensional scaling. I apply the technique to data indicating professional discussions among teachers in a high school. After confirming that discussions are concentrated within a posteriori subgroups at a level that is unlikely to have occurred by chance alone, I construct a map of discussions within and between the cohesive subgroups. The map allows me to characterize the process of influence at the teacher and school levels through which the school responds to external conditions, and I argue that a map based on blocks of structurally similar actors does not sustain a comparable characterization.

Frey, C. U., and C. Rothlisberger. 1996. Social Support in Healthy Adolescents. *Journal of Youth and Adolescence*. 25(1): 17-31.

Social support is examined in a representative sample of 141 healthy adolescents. By means of a revised version of the Mannheim Interview on Social Support, the number, type, perceived adequacy (satisfaction), and quality (importance) of the social relationships available were assessed. While peers were found to provide prime supportive functions in day-to-day matters, the social support provided by parents has a stress-buffering effect in emergency situations. The role of other family members is discussed. Differences in gender and education are moderate. The data suggests the adequacy of social support and social integration, contrary to the traditional view of adolescence as a time of crisis and conflict.

Gigone, D., and R. Hastie. 1997. The Impact of Information on Small Group Choice. *Journal of Personal and Social Psychology*. 72(1): 132-40.

The impact of information on an aggregate decision is directly related to the number of members of the aggregate who know the information prior to the group decision. This experiment obtains this common knowledge effect in small group choice. Group discussion affects group choice in some cases, signaled by group choices that "overturn" the choice of a majority of the group members. In those overturned majorities, moreover, the group tended to choose the correct option, leading group choices to be more accurate than member choices. Consistent with results comparing individual judgment and choice, groups pool information less thoroughly and rely on prominent items of information more heavily when choosing as compared with estimating.

Gil-Mendieta, J., and S. Schmidt. 1996. The Political Network in Mexico. *Social Networks*. 18: 355-81.

The most important political processes in Mexican politics including presidential succession since the 1920s have been conducted within a network whose political rationale has been political stability. All presidential elections have been won by a single political party. We analyzed the role of the network and presidential successions measuring significant relationships using the system UCINET IV. We contrasted computer distributions with historical facts. Applying the structural block model algorithm we found two well differentiated sub-networks, one representing a military-based group and the second a financial-based group. Measuring the network's centrality is one of the main objectives of network analysis for understanding concentrations of power and the distribution of influence in the political system. In this article we evaluate the maximum node and clique network index value concentration for the core of the Mexican network of power. Centrality and power indexes in the network are presented and their results are discussed in connection with cohesiveness.

Hall, E. J., and E. M. Cummings. 1997. The Effects of Marital and Parent-Child Conflicts on Other Family Members: Grandmothers and Grown Children. *Family Relations*. 46(2): 135-44.

Family conflict may have pervasive effects, but little is known of effects on family members outside of the immediate family environment of parents and minor children. Analogue methods were used to explore relations between specific conflict contexts and specific relationships outside of the immediate family. Grandmothers (N = 32) and grown children (young adult women, N = 28) responded to videotaped portrayals of conflict scenarios represented as occurring in their adult children's, or parents', families, respectively. While both groups reported experiencing negative reactions, grandmothers and grown children reported significantly different patterns of appraisal, emotional response, dispositions to intervene, expectancies, and predictions. These results suggest that the meaning and implications of family conflict are quite different depending upon an individual's role within the family.

Henning, C. H. C. A. 1996. A Critical Comment on Braun's "Restricted Access in Exchange Systems." *Journal of Mathematical Sociology*. 21(4): 369-77.

In general this comment tackles the problems and difficulties potentially combined with an application of formal economic models and constructs, such as the Walras equilibrium and microeconomic demand theory, to pure sociological contexts. In particular, this is done by analyzing a further attempt, as recently suggested by Braun (1993 and 1994), to extend the well-known Coleman Model by incorporating the embeddedness of social transactions in incomplete social network structures. "Pars pro toto" it is proved that Braun's conceptualization contains some weakness which imply that fundamental conclusions drawn in his article have to be revised.

Ishii-Kuntz. 1997. Intergenerational Relationships Among Chinese, Japanese, and Korean Americans. *Family Relations*. 46(1): 23-32.

Previous studies that have focused on Asian American intergenerational relationships used the cultural concept of filial obligation to explain an adult child's commitment to his/her elderly parents. Using data gathered from 628 Chinese, Japanese, and Korean Americans and their elderly parents, this study found that such financial and structural factors as an adult child's income and his/her parent's need for assistance significantly influenced the frequency of an adult child's support for his/her parents. The effects of filial obligation on an adult child's provision of support for his/her parents change depending on several of these financial and structural factors. The magnitude of these relationships varies, however, among three groups of Asian Americans. It is therefore necessary to examine interaction effects of cultural, financial, and structural factors on Asian American intergenerational relationships as well as the diversity of these relationships within the Asian American population.

Jackson, M. O., and A. Wolinsky. 1996. A strategic model of social and economic networks. *Journal of Economic Theory*. 71: 44-74.

We study the stability and efficiency of social and economic networks, when self-interested individuals can form or sever links. First, for two stylized models, we characterize the stable and efficient networks. There does not always exist a stable network that is efficient. Next, we show that this tension persists generally: to assure that there exists a stable network that is efficient, one is forced to allocate resources

to nodes that are not responsible for any of the production. We characterize one such allocation rule: the equal split rule, and another rule that arises naturally from bargaining of the players.

Jehn, K. A., and P. P. Shah. 1997. Interpersonal Relationships and Task Performance: An Examination of Mediating Processes in Friendship and Acquaintance Groups. *Journal of Personal and Social Psychology*. 72(4): 775-90.

This study used multiple methods to examine group processes (information sharing, morale building, planning, critical evaluation, commitment, monitoring, and cooperation) that mediate the effect of relationship level on group performance. The study uses a 2 by 2 experimental design, crossing relationship (friendship vs. acquaintance) as a between-subjects variable and task type (decision making vs. motor) as a within-subject variable. Fifty-three 3-person groups participated in the study, and data from 4 types of measurement were used to analyze the mediating processes between relationship level and task performance. Friendship groups performed significantly better than acquaintance groups on both decision-making and motor tasks because of a greater degree of group commitment and cooperation. Critical evaluation and task monitoring also significantly increased decision-making performance, whereas positive communication mediated the relationship between friendship and motor task performance.

Kirke, D. M. 1996. *Social Networks*. 18: 333-46.

This paper outlines a method for collecting accurate 'peer' data by using two name generator and 13 name interpreter questions to collect 'friend' and 'pal' data from teenagers. The 'peer' data are then used to identify the complete network and to delineate the naturally existing peer networks in it. The findings suggest that the concept 'friend' should not be avoided when collecting 'friend' data.

Korenman, S., and S. C. Turner. 1996. Employment Contacts and Minority-White Wage Differences. *Industrial Relations*. 35(1): 106-22.

We study effects of job contacts on wages in inner-city Boston in 1989 and in the 1982 NLSY. Race/Hispanicity in wages are not explained by an absence of contacts among minority youths. Rather, in the Boston data, lower wages of black youths are explained by lower "returns" to their contacts. In the NLSY there is little evidence of lower return to black youths' contacts, but there is evidence of lower returns to Hispanic youths' contacts.

Larrick, R. P., and S. Blount. 1997. The Claiming Effect: Why Players are More Generous in Social Dilemmas Than in Ultimatum Games. *Journal of Personal and Social Psychology*.: 810-26.

The term procedural frames is introduced and defined as different representations of structurally equivalent allocation processes. Study 1 compared 2 well-known games, sequential social dilemmas and ultimatum bargaining, that share the same structure: Player 1 creates an allocation of a resource and Player 2 decides whether to allow it or deny it. Study 1 found that Player 1 made more favorable allocations and Player 2 accepted more unfavorable allocations in a social dilemma frame than in an equivalent ultimatum bargaining frame. Study 2 revealed the critical determinant was whether Player 2 had to respond to an allocation by accepting or rejecting it (as in the ultimatum game) or by making a claim (as in the social dilemma). Two additional studies explored how these actions are perceived. The inconsistency of behavior across procedural frames raises methodological concerns but illuminates construal processes that guide allocation.

Leenders, R. T. A. J. 1996. Evolution of Friendship and Best Friendship Choices. *Journal of Mathematical Sociology*. 21(1-2): 133-48.

It has been recognized in the literature that the mechanisms driving friendship choices differ when different settings are considered. At the same time, it is likely that different types of friendships are governed by different mechanisms. Employing longitudinal sociometric data from classrooms in elementary schools, it is examined whether gender similarity, reciprocity, and proximity (joint membership of study groups) have similar effects on 'friendship' and 'best friendship' choices. The results suggest that children use loose definitions of 'friendship', as opposed to their definition of 'best friendship'. The networks resulting from these different choices are found to evolve according to (partly)

different mechanisms. This especially holds for the effect of gender similarity, which is profoundly predominant in the 'best friend' networks, but loses much of this importance when 'friends' are also considered. Also, 'best friend' choices are much more stable. Reciprocity of choices is found to primarily be a by-product of the preference to choose friends of the same gender, rather than being an important choice criterion of itself.

Leik, R. K., and M. A. Chalkley. 1997. On the Stability of Network Relations Under Stress. *Social Networks*. 19: 63-74.

This paper addresses possible sources of instability in network relations. Four distinct sources of observed low auto-correlation (unreliability of measurement, inherent instability, systemic change (from endogenous sources), and external change (from non-system sources)) are discussed and a preliminary mathematical model is developed. Illustrations are provided from current family research and suggestions are made for sorting out possible sources of instability. Even without a complete endogenous model we demonstrate differential impacts of the distinct sources of variability.

Li, R. M., and S. F. Newcomer. 1996. The Exclusion of Never-Married Women from Chinese Fertility Surveys. *Studies in Family Planning*. 27(3): 148-54.

Never-married women have been regularly excluded in official national surveys of fertility in China, even in light of evidence of increasing premarital sexual activity. Likewise, never-married women in the United States were consistently excluded from national fertility surveys prior to 19820 because of the perceived sensitivity of questions about contraceptive use and sexual activities. Data on sexual and fertility behavior from all women of reproductive age, regardless of marital status, can provide direct measures of sexual activity and unintended pregnancies, as well as facilitate modeling of social networks underlying the sexual transmission of diseases. China's need for such information, however sensitive, will become more difficult to ignore given increasing pressures to attend to the health need of their never-married but sexually active population.

Meulman, J. J. 1996. Fitting a Distance Model to Homogeneous Subsets of Variables: Points of View Analysis of Categorical Data. *Journal of Classification*. 13: 249-66.

An approach is presented for analyzing a heterogeneous set of categorical variables assumed to form a limited number of homogeneous subsets. The variables generate a particular set of proximities between the objects in the data matrix, and the objective to the analysis is to represent the objects in low-dimensional Euclidean spaces, where the distances approximate these proximities. A least squares loss function is minimized that involves three major components: a) the partitioning of the heterogeneous subsets; b) the optimal quantification of the categories of the variables, and c) the representation of the objects through multiple multidimensional scaling tasks performed simultaneously. An important aspect from an algorithmic point of view is in the use of majorization. The use of the procedure is demonstrated by a typical example of possible application, i.e., the analysis of categorical data obtained in a free-sort task. The results of points of view analysis are contrasted with a standard homogeneity analysis, and the stability is studied through a Jackknife analysis.

Morgan, D. L., M. B. Neal, and P. Carder. 1996. The Stability of Core and Peripheral Networks over Time. *Social Networks*. 19: 9-25.

This article uses data on 'network instability' to show how differences across multiple measurements on the membership of personal networks can yield important insights into the nature of these networks. The data come from a sample of 234 recent widows, aged 59-85, who completed seven interviews about their networks over a 1-year period. We use these data to investigate the stability of both overall networks and individual ties, as well as the linkage between the stability of individual ties and the stability of the network's aggregate properties. We find that instability in these networks is best thought of in terms of an underlying 'core-periphery' structure, whereby some network members are likely to be named repeatedly (the core), while others are relatively unlikely to appear in any given elicitation of the network (the periphery). We explore the implications of this core-periphery structure for cross-sectional elicitations of personal networks.

Neto, O. A., and G. W. Cox. 1997. Electoral Institutions, Cleavage Structures, and the Number of Parties. *American Journal of Political Science*. January 41(1): 149-74.

Theory: A classic question in political science concerns what determines the number of parties that compete in a given polity. Broadly speaking, there are two approaches to answering this question, one that emphasizes the role of electoral laws in structuring coalitional incentives, and another that emphasizes the importance of preexisting social cleavages. In this paper, we view the number of parties as a product of the interaction between these two forces, following Powell (1982) and Ordeshook and Shvetsova (1994).

Hypothesis: The effective number of parties in a polity should be a multiplicative rather than an additive function of the permissiveness of the electoral system and the heterogeneity of the society.

Methods: Multiple regression on cross-sectional aggregate electoral statistics. Unlike previous studies, we (1) do not confine attention to developed democracies; (2) explicitly control for the influence of presidential elections, taking account of whether they are concurrent or nonconcurrent, and of the effective number of presidential candidates; and (3) also control for the presence and operation of upper tiers in legislative elections.

Results: The hypothesis is confirmed, both as regards the number of legislative parties and the number of presidential parties.

O'Toole, L. J. Jr. 1997. Implementing Public Innovations in Network Settings. *Administration and Society*. May 29(2): 115-38.

Practitioners and scholars have devoted considerable attention in recent years to initiating public innovations to the relative neglect of how to ensure the implementation of such efforts. Executing innovations over the longer term, particularly in complex network settings, can be expected to be problematic. And yet networks are likely to be crucial institutional settings for the implementation of public innovations. The analytic approach of game theory, used heuristically, can identify a set of actions useful to public managers in enhancing prospects that sound innovations will succeed. The implications of this inquiry run counter to some of the themes used as mantras in the recent re-invention discussion and focus attention on the centrality of institutional infrastructure, trust, and obligation for innovative success into the future.

Peterson, R. S. 1997. A Directive Leadership Style in Group Decision Making Can Be Both Virtue and Vice: Evidence From Elite and Experimental Groups. *Journal of Personal and Social Psychology*. 72(5): 1107-21.

The group dynamics Q-sort was used to investigate the effects of leader directiveness in group decision making. Past research on leadership style has consistently implicated directive leaders as a chief cause of defective process and poor outcomes in group decision making. Leader directiveness was decomposed into 2 components: (a) outcome directiveness (i.e., the degree to which a leader advocates a favored solution) and (b) process directiveness (i.e., the degree to which a leader regulates the process by which the group reaches a decision). Process directiveness emerged as a potent predictor of quality of group process and outcomes. Outcome directiveness was associated with a much smaller and less coherent array of group outcomes. These findings suggest that current prescriptive models of decision making overemphasize the potential harmful effects of outcome directiveness.

Reed, Janet and Eric Dubow. 1997. Cognitive and Behavioral Predictors of Communication in Mother-Adolescent Dyads. *Journal of Marriage and the Family*. 59(1): 91-103.

This study examines the relation between mothers' and adolescents' perceptions of one another's behavior and their actual communication behavior during a problem-solving task. Forty mother-adolescent dyads completed self-report and observational measures of conflict and negative beliefs regarding the other. Hierarchical multiple regression analyses indicated that adolescents' negative beliefs about their mothers significantly contributed unique variance in predicting adolescent negative communication, beyond the effects of maternal communication behavior. Thus, treatment of parent-adolescent conflict should address adolescents' and parents' perceptions of one another, as well as their

problem-solving behavior.

Ridgeway, C. L., and J. W. Balkwell. 1997. Group Processes and the Diffusion of Status Beliefs. *Social Psychology Quarterly*. 60(1).

How are consensual beliefs about the status-value of individual characteristics created in a society? A recent theory posits that inequalities in the distribution of resources in a population are translated into greater or lesser levels of consensus via social interaction in small groups. According to this theory a macro-structural correlation between resources and a distinguishable individual difference variable constrains who interacts with whom and governs the group dynamics of these encounters. It engenders certain belief-acquisition processes that create and spread status beliefs about the variable eventually making them consensual. We constructed a formal model of this diffusion process that includes the group interaction effects posited by the theory also the effects of group size and the unmediated impact of macro-structural conditions. Calculations based on this nest integrated formulation support most of the original theoretical analysis. In addition simulation results suggest the likelihood that two- to four-person groups are especially important as creators and spreaders of status beliefs supporting in a slightly modified fashion the earlier claim that group processes have the power to translate macro-structural constraints on actors into macro-level outcomes. These simulations also clarify several contingencies and other implications of the theory not fully apparent in the original formulation.

Roberts, J. M. J. 1996. Alternative Approaches to Correspondence Analysis of Sociomatrices. *Journal of Mathematical Sociology*. 21(4): 359-68.

If the usual correspondence analysis is viewed as a decomposition of departures from the model of independence, there are problems in applications to sociomatrices with regard to the treatment of the diagonal and cell estimates under independence. Other related techniques from the literature are more appropriate for analysis of sociomatrices. The different approaches are used to analyze a familiar sociomatrix, and the results of the techniques are compared.

Rogerson, P. A. 1997. Estimating the Size of Social Networks. *Geographical Analysis*. 29(1): 50-63.

It is notoriously difficult to define and estimate the size of individuals' social networks. Methods are suggested for estimating the size of such networks, using known rates of mobility together with survey data on the number of acquaintances of individuals who have recently moved. Special attention is given to the likely correlation between mobility rates and network size. Estimates are found to be consistent with previous estimates in the literature. The relation of this approach to multiplicity sampling and to "the small world problem" is also discussed.

Ruan, D., L. C. Freeman, X. Dai, Y. Pan, and W. Zhang. 1997. On the Changing Structure of Social Networks in Urban China. *Social Networks*. 19: 75-89.

This study is a replication of a survey on personal networks conducted 7 years earlier in Tianjin, China. Comparing the results of the two surveys reveals a large amount of change. Tianjin residents now report having more ties to friends and to associates beyond work and family, and fewer workplace ties and far fewer family ties. Women have gained on men in the number of friends, and young people have fewer workplace ties. These changes at the micro-level are examined in the light of changes in the Chinese macro-social structure.

Skvoretz, J., K. Faust, and T. J. Fararo. 1996. Social Structure, Networks, and E-State Structuralism Models. *Journal of Mathematical Sociology*. 21(1-2): 57-76.

The method of E-state structuralism provides dynamic models for the evolution and development of networks in small groups. Our interest lies in the kind of social networks that these models produce. We ask the question of whether such models produce "interesting" structure from a network point-of-view, in particular, from the perspective of Holland and Leinhardt who argue that any network that can be modeled adequately using only properties of nodes and dyads has no social structure. We show that E-state structuralism models are models of social structure in this technical sense because they assume a

bystander mechanism in the creation of ties.

Skvoretz, J., and P. Zhang. 1997. Actor's Responses to Outcomes in Exchange Networks: The Process of Power Development. *Sociological Perspectives*. 40(2): 183-97.

Leading theories of power in exchange networks make assumptions about actors' reactions to being included in or excluded from exchanges. These assumptions, that actors consistently included increase their demands on others and that actors consistently excluded decrease their demands, provide the behavioral mechanism by which structural differences in position convert into power advantages or disadvantages. We test these assumptions with data gathered by experiment from five different networks. We find that while actors generally respond as assumed, the parameters of response to inclusion and to exclusion are not symmetric, depend on the level of experience of the subjects, and interact both with type of network (strong power versus weak power) and with network position.

Snijders, T. A. B. 1996. Stochastic Actor-Oriented Models for Network Change. *Journal of Mathematical Sociology*. 21(1-2): 149-72.

A class of models is proposed for longitudinal network data. These models are along the lines of methodological individualism: actors use heuristics to try to achieve their individual goals, subject to constraints. The current network structure is among these constraints. The models are continuous time Markov chain models that can be implemented as simulation models. They incorporate random change in addition to the purposeful change that follows from the actors' pursuit of their goals, and include parameters that must be estimated from observed data. Statistical methods are proposed for estimating and testing these models. These methods can also be used for parameter estimation for other simulation models. The statistical procedures are based on the method of moments, and use computer simulation to estimate the theoretical moments. The Robbins-Monro process is used to deal with the stochastic nature of the estimated theoretical moments. An example is given for Newcomb's fraternity data, using a model that expresses reciprocity and balance.

Snijders, T. A. B., and K. Nowicki. 1997. Estimation and Prediction for Stochastic Blockmodels for Graphs with Latent Block Structure. *Journal of Classification*. 14: 75-100.

A statistical approach to *a posteriori* blockmodeling for graphs is proposed. The model assumes that the vertices of the graph are partitioned into two unknown blocks and that the probability of an edge between two vertices depends only on the blocks to which they belong. Statistical procedures are derived for estimating the probabilities of edges and for predicting the block structure from observations of the edge pattern only. ML estimators can be computed using the EM algorithm, but this strategy is practical only for small graphs. A Bayesian estimator, based on Gibbs sampling, is proposed. This estimator is practical also for large graphs. When ML estimators are used, the block structure can be predicted based on predictive likelihood. When Gibbs sampling is used, the block structure can be predicted from posterior predictive probabilities. A slide result is that when the number of vertices tends to infinity while the probabilities remain constant, the block structure can be recovered correctly with probability tending to 1.

Stokman, F. N., and E. P. H. Zeggelink. 1996. Is Politics Power or Policy Oriented? A Comparative Analysis of Dynamic Access Models in Policy Networks. *Journal of Mathematical Sociology*. 21(1-2): 77-111.

In policy networks actors use access relations to influence preferences of other actors. Establishment and shifts of access relations and their consequences for outcomes of decisions are the main focal points in this paper. Unlike most policy network studies, we therefore do not take the network as its relations as given and constant. Instead we devise computer simulation models to account for the dynamics in policy networks. We compare different models and investigate the resulting network structures and predicted outcomes of decisions. The choice among the alternative models is made by their correspondence with empirical network structures and actual outcomes of decisions.

In our models, we assume that all relevant actors aim at policy outcomes as close as possible to their own preferences. Policy outcomes are determined by the preferences of the final decision makers at the moment of the vote. In general, only a small fraction of the actors takes part in the final vote. Most actors have therefore to rely on access relations for directly or indirectly shaping the preference of the final

decision makers. For this purpose actors make access requests to other actors. An access relation is assumed to be established if such a request is accepted by the other.

Access relations require time and resources. Actors are therefore assumed to be restricted in the number of access requests that they can make and the number of requests they can accept. Moreover, due to incomplete information and simultaneous actions by other actors, actors have to make simplifying assumptions in the selection of their "best" requests and learn by experience.

We devise two base models that correspond to two basic views on the nature of political processes. In the first view politics is seen as power driven. Corresponding to this view, actors aim at access relations with the most powerful actors in the field. They estimate their likelihood of success by comparing their own resources with those of the target actors. Power also determines the order in which actors accept requests. In the second view, policy matters and actors roughly estimate the effects access relations might have on the outcome of decisions. Actors select requests to "bolster" their own preference as much as possible.

We will show that these base models and some intermediate ones result in fundamentally different network structures and predicted outcomes. Moreover, we will show that the policy driven models do fundamentally better than the power driven models.

Suitor, J., and S. Keeton. 1997. Once a Friend, Always a Friend? Effects of Homophily on Women's Support Networks Across a Decade. *Social Networks*. 19: 51-62.

This study uses data collected on 42 women and 432 members of their social networks across a 10-year period beginning with the women's return to school in midlife. The paper addresses three questions: (1) To what extent did the same individuals continue to be active members of the women's social support networks across the decade; (2) to what extent did educational similarity explain which individuals continued to be active members of the women's networks; and (3) did educational similarity explain patterns of both support and socializing? The analyses revealed that between one-quarter and one-third of the associates named as sources of school/work support, general emotional support or socializing continued to be named 10 years after the first interview. The analyses also demonstrated that associates' educational attainment was important in explaining which individuals continued to serve as sources of support for school/work; however, educational attainment was not important in explaining which associates continued to serve as sources of either general emotional support or socializing.

Thye, S. R., M. J. Lovaglia, and B. Markovsky. 1997. Responses to Social Exchange and Social Exclusion in Networks. *Social Forces*. 75(3): 1031-47.

Various theoretical accounts of power in social exchange networks have emerged in recent years. We use a new experimental setting to test assumptions that appear to be implicit in all network exchange theories of power: Actor's in exchange networks increase their demands following social exchange and concede more resources when excluded. We also tested for the relative impact of inclusion versus exclusion and differential responses to multiple exchange partners give exchange with just one of them. We observed that the tendency to concede the following exclusion was significantly greater than the tendency to raise demands following an exchange. Furthermore, when an actor had multiple potential exchange partners, the clear tendency was to demand more from those with whom exchange just occurred, but not from those excluded. These findings are discussed in view of current theories of exchange and commitment.

Tourangeau, R., T. W. Smith, and K. A. Rasinski. 1997. Motivation to Report Sensitive Behaviors on Surveys: Evidence from a Bogus Pipeline Experiment. *Journal of Applied Social Psychology*. 27(3): 209-22.

We examined the effects of a procedure designed to increase motivation to give accurate reports of socially sensitive behaviors frequently collected in surveys. Respondents were assigned at random to a bogus pipeline condition, in which they were told that inaccurate answers could be detected by a physiological recording device, or to a control condition. Respondents in both conditions were interviewed with a questionnaire that contained 19 items ranging from smoking and exercise frequency to number of sexual partners and illicit drug use. While the bogus pipeline procedure generally increased the reporting of sensitive behavior, in one instance it reduced the proportion of respondents who reported a socially desirable behavior (exercising), indicating that respondents were motivated to

respond accurately and not just to report more occurrences.

Wang, Y., H. Yan, and C. Sriskandarajah. 1996. The Weighted Sum of Split and Diameter Clustering. *Journal of Classification*. 13: 231-48.

In this paper, we propose a bicriterion objective for clustering a given set of N entities, which minimizes $[ad - (1 - a)s]$, where $0 \leq a \leq 1$, and d and s are the diameter and the split of the clustering, respectively. When $a = 1$, the problem reduces to minimum diameter clustering, and when $a = 0$, maximum split clustering. We show that this objective provides an effective way to compromise between the two often conflicting criteria. While the problem is NP-hard in general, a polynomial algorithm with the worst-case time complexity $O(N^2)$ is devised to solve bipartitions with respect to diameter and split, and it can be extended to yield an efficient divisive hierarchical scheme. An extension of the approach to the objective $[a(d_1 + d_2) - 2(1 - a)s]$ is also proposed, where d_1 and d_2 are diameters of the two clusters of a bipartition.

Weesie, J., and W. Raub. 1996. Private Ordering: A Comparative Institutional Analysis of Hostage Games. *Journal of Mathematical Sociology*.

Hostage posting (in the sense of pledging a bond) is a commitment device that allows for cooperation of rational actors in economic and social relations with incentive problems, like in the Prisoner's Dilemma. This paper provides, first, an informal discussion of hostage posting as a mechanism of cooperation. We then analyzed noncooperative 2- and n -person games with complete information where players can post a hostage prior to their interaction. We compare rather general hostage 'institutions' that specify the conditions under which hostages are declared forfeited and, if forfeited, whether the hostages are transferred to another player or are lost. The problem of designing efficient hostage institutions is addressed and solved for 2-person settings. The minimal institutional requirement for individually rational hostage posting and subsequent cooperation is, roughly, that a player's hostage is forfeited if hostages have been posted by everyone and if the player deviates unilaterally from cooperation. Furthermore, the hostages posted have to be sufficiently valuable, i.e., match the players' costs of cooperation, and the transaction costs associated with hostage posting have to be sufficiently low.

Wellman, B. 1996. Are Personal Communities Local? A Dumptarian Reconsideration. *Social Networks*. 18: 347-54.

Are local ties important in personal community networks? Since local ties only make up a minority of people's active ties, network analysts have argued for decades that the neighborhood is not very important. Re-analysis of the Toronto data shows that when contacts become the unit of analysis instead of ties, the percentage of local relationships in active networks nearly doubles. Moreover, when we also take into account active contacts with coworkers, who like neighbors are physically proximate, we find that two-thirds of all contacts are 'local'. As Humpty-Dumpty has cogently reminded us, a network can be anything we want it to be. It depends on how we define it. When we change the definition, the conclusions change too.

Wellman, B., R. Yuk-lin, D. Tindall, and N. Nazer. 1997. A Decade of Network Change: Turnover, Persistence and Stability in Personal Communities. *Social Networks*. 19: 27-50.

We analyze changes in intimate ties in personal community networks. Our data come from interviews conducted a decade apart with 33 Torontonians. There is much turnover in these networks, with only 27% of intimate ties persisting. Durable ties tend to be with intimates who have provided social support, are infrequent telephone contact, or are kin. There was almost complete turnover in the networks of those respondents who got married during the decade. By contrast, the amount of turnover in networks is not associated with whether the respondents had children, moved to a different home, or started/stopped doing paid work during the decade.

Whitmeyer, J. M. 1997. The Power of the Middleman - A Theoretical Analysis. *Journal of Mathematical Sociology*. 22(1): 59-90.

In this article, I present a technique, multiple general equilibrium analysis (multiple GEA), based on Coleman's (1990) general equilibrium analysis (GEA), for determining the distribution of power among

members of a positively connected network in which middlemen mediate the transfer of resources. In line with earlier simulation and experimental studies, multiple GEA indicates that middlemen actors gain considerable power and resources from their structural position. Results also show that, under the assumptions of multiple GEA, actors' relative power can vary considerably depending on the configuration of actor interests. Unlike previous uses of GEA to analyze such networks, the results follow without needing to use ad hoc factors, or to give middlemen actors initial control over any resource.

Yamaguchi, K. 1996. Power in Networks of Substitutable and Complementary Exchange Relations: A Rational-Choice Model and an Analysis of Power Centralization. *American Sociological Review*. 61(2): 308-32.

In this paper, I introduce a new measure of power in exchange networks under substitutable/complementary exchange relations. Although it is derived from a model based on a modification and extension of Coleman's model of collective action, the new measure reflects major characteristics of Emerson and Cook's power-dependence theory, in which power emerges as a result of exchange based on actors' benefit-maximizing actions under network constraints on exchange. In the new measure, an actor's power depends on the number of exchange partners interested in the actor's resource, the extent to which the actor's partners are not interested or are less interested in others' resources than in the actor's, the power of the actor's partners as interdependent correlates, and the consequences of shifts in demand made by the actor's partners under the substitutability/complementarity of exchange relations among their multiple partners. I also show high consistency between power distributions predicted by the new measure and corresponding experimental results by Cook et al. (1983), Yamagishi, Gilmore, and Cook (1988), and Skvoretz and Willer (1993). Finally, using simulated exchange network data, I derive an enriched set of hypotheses about the structural and relational determinants of power centralization under closely substitutable exchange relations.

Zeggelink, E. P. H., F. N. Stokman, and G. G. Van de Bunt. 1996. The Emergence of Groups in the Evolution of Friendship Networks. *Journal of Mathematical Sociology*. 21(1-2): 29-55.

Friendship networks usually show a certain degree of segmentation: subgroups of friends. The explanation of the emergence of such groups from initially dyadic pair friendships is a difficult but important problem. In this paper we attempt to provide a first contribution to the explanation of subgroup formation in friendship networks by using the LS set as a definition for a friendship group. We construct a dynamic individual oriented model of friendship formation and provide preliminary simulation results that give an idea of how to continue the process of explaining group formation.

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Books

Cohill, A., and A. Kavanaugh. 1997. *Community Networks: Lessons from Blacksburg, Virginia*. Boston: Artech House.

The Blacksburg Electronic Village (BEV) is a true "online" community. With more than half of its population connected to the Internet, the citizens of Blacksburg can order their groceries... view art at a local gallery... or voice their opinions on a local bond issue... all with just a few clicks of a mouse! Authored by the people who made it happen, this new book takes a fascinating inside look at the five-year evolution of BEV, from its original concept in 1991 to how it's managed today. *Community Networks: Lessons from Blacksburg, Virginia* addresses the social, economic, technical, and educational impact of living in a "connected town," shows you how community members use their sophisticated network, and explores what has and hasn't worked along the way – and why.

Cotterell, John. 1996. *Social Networks and Social Influences in Adolescence*. Routledge.

Doreian, P., and F. Stokman. 1997. *Evolution of Social Networks*. The Netherlands: Gordon and Breach Science Publishers.

Taken from a special issue of the *Journal of Mathematical Sociology*, *Evolution of Social Networks* answers the question of whether we can apply evolutionary theories to our understanding of the development of social structures. Social life emerges as soon as persons establish relations with each other. Regardless of the specific social processes, these relations evolve into networks with coherent structures – structures that provide some actors with opportunities for action while impeding on the progress of others.

Social networks have increasingly become the focus of many social scientists as a way of analyzing these social structures. While many powerful network analytic tools have been developed and applied to a wide range of empirical phenomena, understanding the evolution of social organization still requires theories and analyses of social network evolutionary processes. Researchers from a variety of disciplines have combined their efforts in what is an indication of some very promising future research and the work represented in this volume provides a basis for a sustained analysis of the evolution of social life.

Contents: The Weakness of Strong Ties: Collective Action Failure in a Highly Cohesive Group; The Emergence of Groups in the Evolution of Friendship Networks; Social Structure, Networks, and E-State Structuralism Models; Is Politics Power or Policy Oriented?; A Comparative Analysis of Dynamic Access Models in Policy Networks; Evolution of Friendship and Best Friendship Choices; Longitudinal Behavior of Network Structures and Actor Attributes: Modeling Interdependence of Contagion and Selection; Stochastic Actor-Oriented Models for Network Change; Models for Network Evolution.

Ess, Charles, editor. 1996. *Philosophical Perspectives on Computer-Mediated Communication*. State University of New York Press.

Hage, Per and Frank Harary. 1997. *Island Networks: Communication, Kinship, and Classification Structures in Oceania*. Cambridge: Cambridge University Press

Contrary to common perception and belief, most island societies of the Pacific were not isolated, but were connected to other island societies by relations of kinship and marriage, trade and tribute, language and history. Using network models from graph theory the authors analyse the formation of island empires, the social basis of dialect groups, the emergence of economic and political centers, the evolution and devolution of social stratification and the evolution of kinship terminologies, marriage

systems and descent groups from common historical prototypes. The book is at once a unique and important contribution to Oceania studies, anthropology and social network analysis.

Contents: Preface; Acknowledgements; 1. Island networks and graphs - Graph theoretical models - Geographical, linguistic and anthropological terms; 2. Trees: Basic definitions - A Micronesian prestige good system - 'Recursive dualism' in Austronesian classification systems - Cognatic kinship networks - Cycle rank and network connectedness; 3. The minimum spanning tree problem - Dialect groups and marriage isolates in the Tuamotus - The evolution of the Lakemban Matanitu - The Renfrew-Sterud method of close proximity analysis - On deconstructing a network; 4. Search trees I: Independent discoveries

Hudson, H. E.. 1997. *Global Connections: International Telecommunications Infrastructure and Policy*. New York: Van Nostrand Reinhold.

This book is a comprehensive guide to the changing world of international communications, including major trends in technology, industry, and policy. The book will be valuable to telecommunications professionals, market analysts, investors and corporate strategists concerned with using global networks for strategic advantage. It provides an overview of the telecommunications industry in major industrialized countries, prospects for emerging economies, and analyses of issues and strategies required for achieving "global information infrastructure." Author Heather E. Hudson has consulted widely for the telecommunications vendors and users and for international organizations, notably the World Bank and the international Telecommunication Union (ITU).

Contents: New Technologies and Applications; Major Players: The Telecommunications Industry and Users; Structural Models of the Telecommunications Industry; Structure of Telecommunications in Major Industrialized Countries; The European Community; Telecommunications Sector in Japan and Other Industrialized Countries; The Role of Telecommunications in Socioeconomic Development; Overcoming the Barriers of Distance; Telecommunications in Eastern Europe and Russia; Asia: Demand and Diversity; Telecommunications in Latin America; International Satellite Communications; Bibliography.

Knipscheer, C. P. M. 1996. *Living Arrangements and Social Networks of Older Adults*. V. U. University Press, Netherlands.

Kowaleski, David. 1996. *Global Establishment: The Political Economy of North Asian Networks*. Saint Martin's Press.

Litwin, Howard. 1996. *The Social Networks of Older People: A Cross-National Analysis*. Praeger Publishers, Inc.

Sato, Tsugitaka, editor. 1996. *Islamic Urbanism in Human History: Political Power and Social Networks*. Columbia University Press.

Singerman, Diane. 1995. *Avenues of Participation Family, Politics, and Networks in Urban Quarters of Cairo*. Princeton: Princeton University Press

Intentionally excluded from formal politics in authoritarian states by reigning elites, do the common people have concrete ways of achieving community objectives? Contrary to conventional wisdom, this book demonstrates that they do. Focusing on the political life of the sha'b (or popular classes) in Cairo, Diane Singerman shows how men and women develop creative and effective strategies to accomplish shared goals, despite the dominant forces ranged against them.

Wiles, David K. 1996. *Networking High Performance in New York's Secondary Education: The Regents Curriculum Story*. University Press of America..

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Dissertations

Adkins-Hutchison, C. D., 1996. *Social Support And Adjustment Among Black Psychology Graduate Students*. Ph.D. Dissertation, Rutgers The State University Of New Jersey, G.S.A.P.P.

A review of the literature pertaining to an underrepresentation of ethnic minority service providers in psychology revealed a need to examine minority students' experiences in graduate school for the purpose of identifying possible remedies for the shortage. Prior studies have utilized social network analysis to study these experiences with respect to the relationship between social integration and adaptation among ethnic minority graduate students. The current study employed this framework to examine the relationship between social support and adjustment among 25 black graduate students in four doctoral psychology programs at Rutgers University. Data were collected via survey format. As the study was exploratory in nature, analyses were conducted to detect relationships and differences among subsets of variables reflective of social integration and adjustment. Overall results indicate that feelings of academic success and emotional happiness increase in black psychology graduate students as their social integration into their departments and into the surrounding non-academic professional community increase. Specifically, positive outcomes for black graduate students correlated positively with the number of school and non-school activities they engaged in and the frequency of contact they had with non-black faculty and students and black professionals from the community. The students' perceptions of their academic success and their positive affect were also positively correlated with (a) more egalitarian patterns of initiating social contact with non-black and black faculty members, respectively, i.e., faculty initiated contact with students as often as the students did with faculty, and (b) higher levels of satisfaction with support for both personal and academic matters from non-black students and faculty and from black non-academic professionals. Students' perceptions of academic success also correlated positively with the density of their social networks, i.e., with the degree of interrelatedness among the members of their social networks. Dissatisfaction with academic performance, however, correlated significantly with satisfaction with support from black faculty. The implications of these findings for ethnic minority student retention are presented along with recommendations for future research.

Barsa, B. R. N., 1996. *The Physical Health Of Hispanic Elderly In An Urban Setting, Its Relationship To Activities Of Daily Living, And The Need For Social Networks*. Ph.D. Dissertation, Columbia University.

This study, conducted in a geriatric medical clinic in New York City, examined the relationship between social support networks, impairment in activities of daily living, physical health, and mental health among 96 elderly Hispanics, 36.5% Dominican, 32.3%

Puerto Rican, 30.2% Cuban. Almost three quarters of the population sample had 0-8 years of schooling.

Seventy eight percent of the subjects had lived in the United States for 20 or more years with 33% being able to read and write in English, and 52% being able to speak English from fairly well to very well. The seven major illnesses reported by subjects were hypertension (79.2%), arthritis or rheumatism (65.6%), glaucoma or cataracts (62.5%), circulation problems of the arms and legs (43.6%), heart trouble (33.3%), urinary tract disorder (32.3%), and diabetes (30.2%).

Data was collected by study author in a structured, in-person interview of approximately 20 minutes duration with each subject. A standardized instrument (OARS) with mostly closed-ended questions was completed in Spanish. Frequency distributions, crosstabulations, bivariate correlations, analysis of variance, and multiple regression techniques were employed. There were assorted differences between the three Hispanic elderly groups in responses to individual mental health, physical health, social support, and ADL questions.

It was found that in spite of having multiple medical and socioeconomic problems, the Hispanic elderly in this study, perceived their affective support needs met by their informal support systems (composed of close family members, such as spouses and adult children, whom they live with). They were able to get help if they became too sick to care for themselves, and were actually getting help from family.

Bartlett, S. N., 1996. *The Significance Of Housing For Parents And Children In Poverty*. Ph.D. Dissertation, University Of Massachusetts.

This study is an exploration of the relationship between housing and the rearing of young children among families in poverty. A year long open-ended, qualitative investigation was conducted with three families living in a small town. Frequent visits allowed for familiarity with family members, household routines, social networks, changing circumstances, and life problems. Families spent at least part of the year in secure and pleasant non-profit housing; but time was also spent in inadequate housing, doubled up with relatives, or in one case in a homeless shelter. The children involved ranged from one to nine years of age. An in-depth analysis of particular events and circumstances in the household lives of these families clarified ways in which housing contributed to patterns of parental behavior and perception which powerfully undermined or supported the best interests of these children. A case is made for considering housing assistance as a most appropriate form of support for families living in poverty.

Briggs, X. D. S., 1996. *Brown Kids In White Suburbs: Housing Mobility, Neighborhood Effects And The Social Ties Of Poor Youth*. Ph.D. Dissertation, Columbia University.

This study examines the effects of housing desegregation and neighborhood context on the social networks and delinquency of poor black and Latino youth. A sample of 132 low-income male and female adolescents, ages 13 to 18, is used. Roughly half (65) of these live in overwhelmingly white, middle-income suburban neighborhoods of East Yonkers thanks to a court-ordered housing mobility program. These 'movers' have left behind the mostly non-white, high-poverty neighborhoods of Southwest Yonkers where the other 67 youth, a control group of 'stayers,' still live.

Regression and lowess scatterplot techniques are used to examine the structure, diversity, and supportiveness of the youth's social networks. These analyses provide a view of social isolation, and of mechanisms through which neighborhoods may affect youth, that are missing in previous research.

Results indicate that movers have fewer neighborhood acquaintances but have found new hangouts and are no more cut off from close friends and relatives than are stayers. Few differences in network diversity or supports were found: movers appear to be somewhat more confident of receiving everyday favors from neighborhood adults. Few movers or stayers have significant ties to whites, and most of these are neighbors in public housing. Moreover, roughly half of the youth have no kin with a high school diploma, and most show more access to social support than 'leverage' forms of social capital -- good sources of job information, career advice, etc. Finally, Latino youth, especially those whose parents are foreign-born immigrants, have fewer and less well-placed contacts, spend less time with peers, and report less network support than do African-Americans.

Results for delinquency show no important effects of moving but strongly confirm the importance of parent monitoring as an inhibitor of problem behavior. Movers who socialize frequently with peers in the old neighborhood are more likely to be delinquent, so ties to 'problem peers' appear to have traveled with some movers.

Overall, mover experiences so far point to the support benefits of living in enclaves of socially similar families, not the leverage benefits of living in more affluent and diverse areas. Implications for research and 'moving-to-opportunity' policies are discussed.

Buame, S. K., 1996. *Entrepreneurship: A Contextual Perspective. Discourses And Praxis Of Entrepreneurial Activities Within The Institutional Context Of Ghana. Ph.D. Dissertation, Lunds Universitet (Sweden).*

This study is motivated by the understanding that entrepreneurship varies from one context to another as there are distinctive factors that influence the development and organization of entrepreneurial activities in any particular national context. Using qualitative methodology the study aims at developing a conceptual and empirical framework for the study and understanding of the phenomenon of entrepreneurship as an organizing and social process.

From institutional and social networking perspective, the study describes and analyses how the societally embedded socio-cultural values and beliefs impact on the development and organizing of entrepreneurial activities within the broader historical, economic and institutional context of Ghana. While re-reading and thereby challenging some of the mainstream arguments underlying the conventional wisdom of entrepreneurship that lay emphasis on psychological attributes of the entrepreneur, the study argues that the nature and quality of the environment in which the entrepreneurial process is initiated and organized becomes very crucial to the successful development and survival of any entrepreneurial activities.

The empirical findings lend a strong illustrative support to the proposition that the development and organizing of entrepreneurial activities in any national context is an interplay between the individual characteristics and the nature of the organizing context. For example, in a developing country, like Ghana, colonialism and political instability, mismanagement of the economic, paucity of the macro-infrastructures and misguided and inconsistent government policy directives have contributed to the non-development of effective indigenous entrepreneurial activities. And in a society with strong family orientation, social networks (connections) -- patron-client relationship and reciprocity as a

mechanism for collective survival are used essentially as a countervailing mechanism for circumventing any institutional inadequacies. Thus, the study proposes the integration of both psychoanalytical and contextual perspectives in the study and development of entrepreneurial activities.

Finally, the study not only calls for the 'retuning' of the dysfunctional aspects of the environment with regards to the mainstream socio-cultural values, basic institutions and the various administrative setups that still bear the hallmarks of the colonial structures but also argues for the 're-embeddedness' of the mainstream concepts of entrepreneurship into the specificity of the socio-economic and cultural context of an emerging economy like that of Ghana for an effective development and promotion of entrepreneurial activities.

Bump, P. H., 1996. *Searching For A Grounded Theory Of Social Capital: Hearing The Voices Of Head Start Mothers In Rural Michigan*. Ph.D. Dissertation, Michigan State University.

This study explored social capital in the lives of low-income women who cared for children attending Head Start in a rural town in Michigan. The problem, 'How does social capital facilitate the development of human capital for children growing up in rural poverty?' was addressed from an ecological perspective through qualitative family research.

All women listed as mothers on the Head Start applications for the 1994-95 school year were invited to participate in the study. Twenty women were interviewed concerning their aspirations for their children and the supports and obstacles they experienced in their efforts to achieve their goals.

While all the women interviewed had mainstream goals for their children, the constraints of poverty made the goals seem remote from the realities of their daily lives. The discrepancy between the women's aspirations and their life contexts led to a search for a grounded theory of social capital.

The themes which emerged from the interview data included: (a) the ecology of stress, which influenced the daily lives of the women and their families, (b) the interaction between stresses and supports, (c) the extent to which the women felt in control of their environments, and (d) the invisible loyalties binding them to the people in their social networks.

The concept of negative social capital, understood as the ecological life context, was introduced. The role of negative social capital in the development of human capital was discussed, and the ethic of care (Gilligan, 1982) was seen as an alternative perspective from which to view social capital. In a different voice: Psychological theory and women's development.

Carter, E. F., 1997. *The Realignment of Social Networks over the Development of Romantic Relationships*. Ph.D. Dissertation, Virginia Commonwealth University.

Research on social relations suggests there is a social space in which relationships are embedded and out of which identities are constructed. These relationships constitute relationship networks and are governed by rules that occupants of roles within the network negotiate. Additions to the relationship network force the role occupants to renegotiate the rules and realign in social space. The emergence and development of a romantic relationship is one of the most influential roles within a network. The purpose of this study was to explore

how the roles are realigned in social space as the romantic relationship develops. The relationship networks of 191 undergraduate students were studied. Four phases of romantic relationships development (nonexclusive dating, exclusive dating, engaged, married) and two special groups (dissolved and cohabiting) within these phases were examined. Activity and communication patterns between participants and their network members were used as indicants of social space. The underlying structure of social space was compared between the four phases. The locations of roles on the common dimensions of social space were also compared across the phases and the special groups. Findings revealed that romantic relationship development does not affect the underlying structure of social space. Roles on the dimensions, however are realigned across the phases. Implications were advanced for understanding the development of romantic relationships, the relation of romantic relationship development to identity and relationship satisfaction, and for research and practice.

Cooley, S. R., 1996. *In Their Own Words: An Analysis Of Personal Narratives From Father's Perspectives On The Death Of A Child*. Ph.D. Dissertation, Virginia Polytechnic Institute And State University.

This study included five fathers' narratives of the death of their child. It was guided by a social constructionist perspective of the event. Social constructionism assumes that each person is involved in the creation of their reality through their languaged interactions with others. This perspective encourages individuals to function as the authors of their own story instead of accepting others stories about them. The creation of narratives in fathers' voices was particularly important because of the marginalization of fathers in research, in general, and in bereavement research, in particular.

Four research questions guiding this study were: (1) How do men describe (construct) their experience of grief after their child's death? (2) How do fathers see themselves adjusting to their child's death? (3) How has this experience changed them as fathers and men? (4) What would the fathers like to teach others about their experience?

The long interview (McCracken, 1988) was the qualitative methodology used in this study. The interview sequence consisted of two interviews approximately three weeks apart. Participants were recruited from social networks of coworkers. The criterion for inclusion in the study was the father should have experienced the death of a child no less than six months prior to the first interview.

Previous research depicted fathers as less bereaved than mothers. In viewing the fathers as valid constructors of the reality of their personal grief, the intensity and length of their grief became more visible. The interviews afforded the fathers validation of their grief and a structured manner in which to examine that grief.

Conclusions of this study are that fathers view their grief as life long. Fathers experience a double bind when acting in the role of protecting not only in their marital relationship, but also in relation to others. In protecting others from the anxiety produced by the expression of strong emotions, their grief is often invalidated by those they protected.

Cummins, L. K., 1996. *In And Out Homelessness And 'Making It On My Own': A Qualitative Study Of Rural Women*. Ph.D. Dissertation, The Ohio State University.

This study explored events that led six rural women into homelessness, strategies for surviving, and personal, contextual, and structural barriers to stability. Participants were homeless in 1990 in one Appalachian county in Ohio and had participated in The Ohio State University 'Rural Homelessness in Ohio' study in 1990. The women were relocated in 1993 and interviewed over a 6-month period. The women described homelessness as a process that emerged as four distinct stages: (a) the road to homelessness, (b) stepping into homelessness, (c) surviving in homelessness, and (d) the journey back.

Decisions to leave abusive and controlling relationships most often contributed to the women's homelessness. Social control was defined using Gagne's (1992) epistemological categories of normative, persuasive, violent social control. Other factors contributing to homelessness included illness and loss of employment. The women's material stability was most frequently attained through the use of formal social welfare services, employment, and vocational and college education. Social welfare services that supported the women's movement toward economic self-sufficiency were most often subsidized housing and AFDC. Social supports provided a sense of safety and facilitated the women's development of psychological resources. Contextual and structural barriers to stability included harassment and abuse from estranged partners, withdrawal of family supports, community shunning, and discriminating institutional practices.

External movement toward economic self-sufficiency and inner journeys of emotional emancipation were mutually supporting processes that facilitated the women in regaining stability. The women's inner journeys were conceptualized using Belenky, Clinchy, Goldberger, and Tarule's (1986) model of women's development. Of importance to the women's development of Self was the presence of significant supportive others and new social networks. These new contexts facilitated the women's development of social and psychological resources and validated the women's emerging Self. Through the discovery of Self and acquiring and maintaining 'my own place,' home took on the meaning of 'having control over my own life.'

Working from a feminist theoretical perspective, the researcher discussed a grounded theory of rural patriarchy and homelessness among rural women and offered implications for social work.

Freidberg, S. E., 1996. *Making A Living: A Social History Of Market-Garden Work In The Regional Economy Of Bobo-Dioulasso, Burkina Faso*. Ph.D. Dissertation, University Of California, Berkeley.

This dissertation traces the twentieth century social and environmental history of market-gardening sector around Bobo-Dioulasso, Burkina Faso's second largest city. Originally introduced as a form of forced labor during the early decades of French colonial rule, intensive vegetable cultivation, or maraichage, has since become one of the most important sectors in the regional economy, contributing both to employment and the urban food supply.

The narrative focuses on the changing economic and social meanings of work -- the many tasks and processes required to get produce from farm to market to cooking pot -- in order to examine the on-the-ground effects of a set of interrelated historical forces, namely: urbanization, climate change, international development aid (especially for hydrological projects) and, most recently, state austerity and liberalization under a World Bank/IMF structural adjustment plan.

During the colonial years, the traumatic experience of compulsory labor, the expansion of the market economy, and the teachings of Catholicism and Islam all influenced local perceptions

of gardening work, as well as definitions of gender and age-based divisions of labor in both production and marketing. After Independence, a brief period of relative prosperity and dynamism in the commercial gardening sector gave way to increasingly unfavorable environmental and economic conditions. Declining rainfall and urbanization led to the deterioration of the local river water supply, while a stagnant regional economy and government austerity programs depressed demand for garden produce. The resulting hardship and uncertainty has aggravated tensions within the households and peri-urban village communities involved in market-gardening. It has also affected relations between and among producers, wholesalers and retailers. In general, wholesalers' capital reserves, social networks, and collaborative strategies have enabled them to weather economic crisis more successfully than most gardeners or retailers.

In the wake of recent trade liberalization, increasing numbers of small-scale exporters are arranging production contracts with gardeners. In turn, gardeners are adopting more 'entrepreneurial' strategies in order to secure access to external markets and aid. These livelihood strategies both reflect and inform the changing meanings of market-gardening work.

Gaines, K. R. E., 1996. *Adolescents' Perspectives Of Social Support: Child And Family Influences*. Ph.D. Dissertation, University Of Alabama At Birmingham.

To increase understanding of children's emerging sense of social support from family members and peers, especially as influenced by their own characteristics and family environment during the adolescent years, a population-based sample of 152 middle class children and families was studied longitudinally. Within their social networks, children rated their peers highest, followed by mothers, then fathers. Collectively, the data indicate that subjective impressions about the family ecology and social support show differentiated patterns of association. There appears to be a strong relationship between more adolescent problem behaviors and lower ratings of support provided by mothers, fathers, and peers. More family stressors in the home were associated with adolescents reporting higher support scores. Particular to fathers, positive parenting behaviors played an especially important role in adolescents' feelings of paternal social support. Interestingly, with regard to peer social support, the number of children in the family positively influenced adolescents' perceptions of their peer relationships but not of their parental relationships. Further, adolescent females tended to report more positive feelings of peer social support than did adolescent males.

Kint, A. M., 1996. *The Community Of Commerce: Social Relations In Sixteenth-Century Antwerp (Belgium)*. Ph.D. Dissertation, Columbia University.

This dissertation examines how Antwerp's residents created and maintained social order during the city's so-called Golden Age (1486-1577). Over the course of these years, the city experienced an almost unparalleled demographic and economic growth. The result was a highly diversified population whose members shared few economic interests and little social or cultural background. Traditional loyalties such as neighborhoods, parishes, and corporations rarely elicited loyalties strong enough to overcome these social differences. The emergence of Protestantism worsened rather than mitigated the social stresses in Antwerp society. Furthermore, Antwerp's municipal policy acerbated the tensions among the different social groups in Antwerp as it emphasized rather than tempered the social contrasts among the city's residents.

Nevertheless, Antwerp's citizens collaborated successfully and created a social community in which master artisans, merchants and rentiers worked together, negotiated conflicts among themselves, and prevented the political upheavals which might have been expected to spring from such deep social divisions. My dissertation proposes that Antwerp's success rested upon a combination of different factors. Firstly, an analysis of citizenship and religious bequests demonstrates that Antwerp's inhabitants succeeded in creating new social networks which were based upon loyalty to the city as a whole. Secondly, the city's political structure relied upon the participation of very different social groups. In this way, no single political interest could be pursued to the exclusion of all others. Thirdly, and perhaps most importantly, Antwerp's citizens were able to implement a rhetoric -- formulated in documents of civil administration as well as in cultural processes such as public rituals, theater, and fiction -- which described Antwerp as a community of people bound together by commerce. This narrative presents trade as the base of the city's welfare, a welfare in which all social groups shared. Although this rhetoric represented different values to different social groups, the shared vocabulary and ritual used to express this rhetoric was a powerful force to hold Antwerp's citizens together in the face of social tension.

Koehly, L. M., 1996. *Statistical Modelling Of Congruence And Association Between Perceptual And Complete Networks*. Ph.D. Dissertation, University Of Illinois At Urbana-Champaign.

Structural analysis of social networks using statistical techniques has been evolving into sophisticated models for the last 60 years. These statistical models and techniques have been predominantly concerned with the structure of a global network. Statistical approaches to the analysis of cognitive networks, either full cognitive social structures or ego-centered networks, are few. The statistical analysis of cognitive social structures has been limited to evaluating some common, or average, network from the set of perceptual networks. The premise of these approaches is to find a common network which reflects the 'cultural' consensus. Then, upon deriving the cultural consensus network, differences between the individual perceptions and the common network are evaluated and systematic patterns in the perceptual bias are explained. These consensus approaches to perceptual networks have not attempted to describe the structure within each perceptual network or the structure of the consensus network.

This thesis defines a set of statistical models designed for a set of interrelated perceptual networks, either complete perceptual networks or ego-centered networks. Two types of models are presented. The structural models can be used to describe the structure within each perceptual network, the structure between the set of perceptual networks, and the association between each perceptual network and the global structure, or some other reference network. The congruence models provide a stochastic framework for evaluating the overall congruence and actor specific congruence between the perceptual networks and some reference structure.

This set of congruence and global association models for cognitive networks provides us with a wealth of modelling tools. We can use them to examine the interdependencies within a single cognitive structure or to explain the structure within and/or between a set of cognitive networks. We can explore the effects of assuming that the perceivers' perceptions of network structure are dependent or independent. The congruence models allow us to investigate relationships between perceptual bias and the perceiver's role in the global structure. The ego-centered congruence models allow us to ask whether individuals can accurately reconstruct relationships within their world; with the cognitive social structure models, we can ask whether these actors can accurately reconstruct the outside world, too. The statistical

theory, model specification and substantive applications of the models are presented here.

Korfmacher, K. S., 1996. *Evaluating The National Estuary Program: A Case Study Of The Albemarle-Pamlico Estuarine Study*. Ph.D. Dissertation, Duke University.

There is a growing recognition that traditional, single-sector management is not sufficient for addressing modern challenges of environmental protection. The ecosystem approach has been advocated as a solution to these challenges. Ecosystem management involves using applied science, enhancing management coordination, and involving the public. Regional, stakeholder-based institutions have been proposed to implement ecosystem management. However, little is known about how well these ecosystem management institutions function to achieve the goals of ecosystem management.

The National Estuary Program, created by the Clean Water Act of 1987, was intended to address the problems of critically threatened estuaries by promoting ecosystem management in these areas. The National Estuary Program establishes Management Conferences in each of the critical estuary regions. Management Conferences involve managers, scientists, and stakeholders in a five-year, federally-funded planning effort. The result of this planning effort is a Comprehensive Conservation and Management Plan.

Through a case study of the Albemarle-Pamlico Estuarine Study (APES), this dissertation addresses the question of how well ecosystem management institutions achieve the goals of appropriately using science, promoting management cooperation, and involving the public. Several methods were used to explore how well these goals were achieved. First, program documents were analyzed, including annual reports, budgets, meeting minutes, correspondence, and technical reports. Second, over 75 in-depth interviews were conducted with program participants. Third, a mail survey was sent to all 169 participants.

The dissertation concludes that, while many traditional measures of evaluation would indicate that APES failed, the program made many 'invisible' contributions that moved the region in the direction of ecosystem management. Particular attention is paid to three aspects of ecosystem management: characteristics of the participants, implications of institutional structures, and susceptibility to external forces. These challenges may pose limits to how well these institutions can accomplish the objectives of ecosystem management in the short-term. In order to better reveal and understand the progress of these institutions, the evaluatory criteria for ecosystem management should be broadened. Future research should focus on how ecosystem management institutions develop as social networks to support changes in awareness, relationships, and behavior.

Kuekes, J. J., 1996. *Parents' Perception Of Their Adult Developmentally Disabled Children's Understanding Of Death*. Ph.D. Dissertation, California School of Professional Psychology - Los Angeles.

This study was designed to examine the ability of parents to accurately reflect their adult developmentally disabled child's understanding of death. Developmentally disabled people are exceptionally vulnerable to serious emotional disturbances following a significant loss as they are often unable to verbalize their feelings and are usually without extensive supportive social networks. Developmentally disabled persons often must rely exclusively on close family members to help them cope with a significant loss. Clinical implications of this study will be discussed.

It was hypothesized that parents would underestimate their adult developmentally disabled child's understanding of death. It was further expected that there would be an inverse correlation between parental death anxiety and parent-adult child congruence on the Understanding of Death Questionnaire. It was expected that parent-adult child congruence on the Understanding of Death Questionnaire would be greater for dyads in which the adult child was in residential placement rather than living in the home. Finally, it was hypothesized that parents would be more congruent with their adult children on the earlier, more concrete, concept of cessation than on the later, more abstract, concept of universality.

A self-selected sample of 39 parent-adult child dyads were interviewed using an Understanding of Death Questionnaire developed by the researcher, addressing five basic subconcepts of death including cessation, irreversibility, causality, necessity and universality. Parents were asked to predict how their adult developmentally disabled child would respond to the interview questions. Parents also completed Templer's (1970) 15-item Death Anxiety Scale to measure parental death anxiety.

Statistical analysis revealed that, overall, parents overestimated their adult developmentally disabled children's understanding of death. There was a trend that suggested that as parents' death anxiety level increased their congruence with their adult children decreased, however this inverse correlation was not great enough to reach significance. There appeared to be no relationship between parent-adult child congruence on the Understanding of Death Questionnaire and the living site of the adult child. Finally, it was determined that parents were more congruent with their adult children on the earlier concept of cessation than on the later concept of universality.

Lee, C.-S., 1996. *Variation In Use Of Korean Honorific Verbal Endings: An Interactional Sociolinguistic Study*. Ph.D. Dissertation, Boston University.

Traditional studies on Korean honorific verbal endings, whose basic function is to encode the social relationship between speaker and addressee(s), have centered on typological categorization and description of macrosociolinguistic factors that determine usage (e.g., power and solidarity variables such as social status, occupation, age, kinship, gender, and intimacy, inter alia). The traditional approach has recently come under criticism from ethnographers and variationists for disregarding the social contexts in which patterns of usage vary across and within speech communities and social networks. However, these studies based on community norms also have limitations. They do not account for speaker choice of verbal endings stemming from the context of interaction. There is a paucity of research addressing the processes by which situational features constrain choice of the honorific variants and by which speakers manipulate expectations arising from such constraints for strategic purposes.

The present study addresses this gap in the literature and aims more generally to contribute to the study of the relationship between situational context and language use. To achieve these purposes, the study draws principally on Goffman's theory of social interaction, Gumperz's theory of conversational inference and Myers-Scotton's theory of the role of markedness in communicative expectations. The study uses a corpus of naturally occurring conversations and investigates the situational variability and communicative functions of choice of Korean verbal endings.

On the basis of this research I propose an interactional model in which the primary linguistic meaning of the honorific verbal endings is simply relative social distance. This abstract meaning is situationally interpreted to generate a variety of specific and complex social meanings. Under this model, analyses are presented of features of interaction regulating

choice of verbal endings and of the process of interpretation of strategic choices. The analyses show that choice of verbal endings is constrained by such features as speaker identity, role and the degree of imposition posed by particular speech acts. These constraints operate at multiple levels of activity. The inferences which provide meanings of strategic choices also occur at multiple levels of framing, and are characterized by a proposed process of 'double contextualization.'

McEvoy-Jamil, P. A., 1996. *Acculturation, Second Language Acquisition, And Academic Environment: A Neo-Ethnographic Case Study Of An International Student's Coping Strategies And Academic Achievement*. Ph.D. Dissertation, University Of San Francisco University Of San Francisco.

During the past forty years numerous studies have been done to research the issues concerning international undergraduate and graduate students at colleges and universities in the United States. The majority of these previous studies were conducted using survey methods. Therefore, they did not include an in-depth investigation of the students' own perceptions of their problems and strategies for coping with them. The present study responded to the need for this research.

This neo-ethnographic case study investigated a female international undergraduate student's own perspectives on the strategies she developed as ways of coping with her own needs and problems while studying at a small, private, liberal arts college in Northern California. The data were collected from three main sources suggested for case study evidence: interviews with the informant; archival records, such as diary excerpts, academic records, and papers; and observations made during her academic classes. From analyzing this data, the researcher was able to investigate the informant's strategies for coping with her sociocultural and psychological acculturation to the academic environment and the effects they had on her academic achievement.

The present study found that this international undergraduate student's strategies were of three types: acculturation and social coping strategies, language learning strategies, and academic adjustment strategies. Some of the strategies directly helped the informant achieve academic success while other strategies only indirectly helped her academic achievement. What most seemed to help this student cope was maintaining her Spanish ethnic and cultural identity during her four years at the college. She became an educational bilingual and an educational bicultural. As a result of her academic success, she graduated cum laude from the college with a bachelor's degree in business.

The findings of this study suggest that international undergraduate students, especially women, may need to rely on their own strategies, such as social networks they build for themselves, than on the assistance of others, including the college faculty and professional staff.

McKeever, M. R., 1996. *Secondary Economies Of Capitalist And State Socialist Societies: A Study Of The Informal Economy Of South Africa And The Second Economy Of Hungary*. Ph.D. Dissertation, University Of California, Los Angeles.

In this dissertation I examine secondary economies to show how differentiation of work into a primary and secondary economy alters stratification. To do so I use national level survey data to model labor market outcomes in the South African informal economy and Hungarian second economy. The informal economy consists of otherwise legal forms of income

generation not regulated by the legal/political institutions of society, and the second economy consists of all economic transactions which take place outside of the state regulated primary economy.

I first examine who is working, and who is successful, in the South African informal economy in 1991. Informal economy theory has argued either that these jobs represent a distinct sphere of economic activity, or only further exploit workers. The data from South Africa reveal instead a diverse set of jobs subject to stratification processes almost identical to those in the formal economy. I also examine labor market shifts involving the formal and informal economy, and again find a close resemblance. Whites and men are more likely than non-whites or women to succeed, whether success is measured as income, occupational status, or retaining jobs during periods of high unemployment.

For Hungary, I first examine who succeeds in the 1982 second economy, and find a sharp distinction between successful agricultural entrepreneurs, who are descended from pre-war independent farmers, and non-agricultural workers, who possess the same individual resources necessary for primary economy success. I then examine who works in different ownership sectors in 1993, and find younger, more educated men more likely to be working, and succeeding, in the emerging private economy. However the strongest determinant of sectoral employment is the type of business worked for in 1988, showing labor market position as dependent upon past work as well as individual resources.

In the conclusion, I argue that theories of secondary labor markets as imbedded in local social networks are inadequate, as they are unable to explain similarities between primary and secondary economy stratification. The concept of 'embeddedness' must be expanded to include primary economy social relations, themselves partly a result of state regulation.

McLean, P. D., 1996. *Patronage And Political Culture: Frames, Networks And Strategies Of Self-Presentation In Renaissance Florence (Italy)*. Ph.D. Dissertation, The University Of Chicago.

The dissertation aims, through an extensive study of documents -- diaries, treatises, tax records, and letters seeking office, tax breaks, recommendations, and other favors -- and through network analysis, at a new theory of political culture which brings together rational actor and interpretivist accounts. The focus is on practices and framing (Goffman 1974); strategic actors assemble frames improvisationally to express their distinct identity. Meanwhile, receivers of cultural signals must interpret the identity of the petitioner according to the competence of his rhetoric, his status attributes, and his position in social networks. Identity and interest thus pass through the prism of practice and daily communicative activity to get constructed, generating an aesthetics of 'networking.'

The sources of Florentine practical culture are traced from art, literature and letter-writing manuals, and their inculcation through education is outlined. Changes in the meaning of honor are traced over two centuries to discern different frames for how individuals could depict the sources of their own motivations.

Letters are analyzed in the aggregate to look for patterns in framing, and through multidimensional scaling, to identify which practices are routine and which exceptional, and whether different sorts of practices adhere to different sort of requests. Letter rhetoric is correlated with the relative social capital of writers and recipients. Individual letters or sets of letters are analyzed minutely for the way different practices and frames of meaning are assembled into an image of the worthiness of the supplicant. This discourse analysis identifies frame alignment processes, contextualization cues, communications of expectation,

speaking for others, the inclusive and exclusive use of boundary-drawing pronouns, and other tactics to see how writers construct images of themselves, and thereby build careers and interpersonal trust.

Finally, the consequences of these specific techniques of self-presentation in letters are traced out for the development of the Florentine fiscal state, the organization of markets, and the rise of the modern Western notion of the self.

Mobasher-Liaey, H., 1996. *Social Networks Among Nonmetropolitan Utahns*. Ph.D. Dissertation, Utah State University.

Researchers have long applied social network analysis to study social relations. However, the emphasis has been on methodology or on networks as support systems. Theoretically grounded efforts to define and operationalize network concepts have been limited. Similarly scarce have been examinations of network aspects besides support, for instance patterned conflict and reciprocity. The present research attempts to address these shortcomings by exploring relationships between particular socio-demographic variables and features of social networks including conflict and reciprocity. The data comes from a 1985 research project on non-metropolitan family stress. Multiple regression analyses suggest consistent effects of respondents' socioeconomic status (SES), age, and religion across network types. Gender differences emerge only with respect to conflict. The variability of effects that the same socio-demographic factors have on different network types indicates network types are independent constructs and should be examined independently, not assumed to parallel support network features. Conflict and reciprocity as well as support must be investigated as regular features of social networks.

Olutoye, O. A., 1996. *Factors And Forces Influencing The Adoption Of New Technology: A Case Study Of The Downy Mildew Disease Resistant Maize Varieties In Ondo State Of Nigeria*. Ph.D. Dissertation, The University Of Wisconsin - Madison.

Past studies that have analyzed the adoption of recommended agricultural innovations have tended to emphasize the characteristics of individuals. Most of these studies focus on the personal attributes that make farmers more or less likely to innovate. While some deal implicitly with groups by incorporating shared values into the decision-making framework, a few other researchers have looked at the impact of social networks on innovativeness. But in actuality very little attention has been given to the influence of collective group processes on adoption decision-making. This study was designed to deduce factors and forces influencing the adoption of downy mildew resistant varieties in Ondo state of Nigeria and an assessment of the impact and influence of social organizations on the decision making process of farmers was one of the major objectives.

The tested hypothesis of the study is that varietal-specific traits of the recommended maize varieties are more important in determining farmers' adoption behaviors than farm, or farmer-specific characteristics as often indicated in the adoption diffusion literature. The sample consisted of 84 maize farmers, 10 maize researchers, and 18 extension staff. The research site was Ondo State of Nigeria, it is the most downy mildew infected state in the country with a recorded 40 percent production output loss in 1990-91 attributed to the disease. Data collection was carried out using three separate research instruments, directed at each group and the results were coded and analyzed using descriptive statistics and Spearman's correlation.

Results showed that both farm or farmer specific variables (age, education, contact with extension and access to credit) and varietal specific variables (yield, grain size, maturity period and disease resistance) were the important determinants that explained 40.5 percent adoption of the improved maize varieties. This study not only confirms the conclusions of several past studies that indicates farm or farmer specific variables as important determinants in the decision making process but also partially supports the hypothesis that varietal characteristics are more important in determining farmers adoption behaviors. The study also indicated weak linkages between farmers, extension staff and maize researchers with adequate room for improvement, although farmers appeared to have a better relationship with extension staff, the relationship between extension staff and research scientists was very weak and those with farmers barely existed with the exception of those who had participated in on-farm trials.

The study highlighted several practical implications. First, it reinforces the view that farmers possess indigenous knowledge which could make its way into research agendas to aid researchers at setting their research priorities if only researchers desist from believing that knowledge rests solely with them and all that needs to happen is for such knowledge to be passed down through extension to farmers. Secondly, it shows that networking opportunities are available to be tapped through social organizations which currently exists. The study implied that there is a need for appropriate government policies that would strengthen linkages between and among researchers, extension staff and farmers to ensure improved maize production in general and the adoption of downy mildew resistant maize varieties in particular.

Opipari, L. C., 1996. *Parental Differential Treatment In Two Family Contexts: Associations With Children's Sibling Relationships, Adjustment, And Social Networks*. Ph.D. Dissertation, Indiana University.

Parental differential treatment of siblings in families with and without a chronically ill child was examined. Associations between differential treatment and children's adjustment and sibling relationships were assessed, as well as the moderating influence of social support on these relationships. Subjects were 48 children (target child), half with a younger sibling with cystic fibrosis (CF) and half with a younger healthy sibling, and their mothers. Children and mothers completed measures of their perceptions of parental differential treatment, and the target child's sibling relationship quality and social and emotional adjustment. Children were interviewed about their social network composition and support. Subsequently, children and mothers participated in five phone diaries that provided a record of their daily activities and interactions. Maternal diaries measured mothers' differential behavior with siblings in terms of time, activities, and quality of interactions. Child diaries assessed children's daily social network involvement. Home interview and diary data indicated that a greater magnitude of differential treatment occurred in the CF versus Comparison group. Differential treatment was associated with children's sibling relationship quality and social and emotional adjustment; however, a different pattern was found between the two groups. Little evidence was found for a moderating influence of social support on these relationships. Results are discussed in terms of the use of diary and perceptual measures in the study of differential treatment. The utility of studying differential treatment across different family contexts is discussed.

Ott, D., 1996. *Democratization In Small States: An Analysis Of The Gambia And Trinidad And Tobago*. Ph.D. Dissertation, Brown University.

This dissertation examines the relationship between state size and the formation and maintenance of democratic political systems. Using a cross-national, multiple case study of The Gambia in West Africa, and Trinidad and Tobago in the Caribbean, in combination with a quantitative data set on all the nations in the world, the study examines the effects of smallness, when measured by population size, on a number of variables including the probability of becoming and remaining democratic, access to information, political instability and political violence. The dissertation argues that the small scale social structure which is prevalent in small states directly affects the social interaction of individuals in these states through the multiple-role relationships created as a consequence; and indirectly affects the political and economic systems of these states through the impact of such social networks on political interaction, etc. The case studies examine the effects of smallness on two states which, aside from being small and democratic, share few background characteristics. The use of the 'most different systems' model allows for the exploration of the effects of smallness on democratization in two diverse cases. It is argued that small state size acts as an enabling environment for democratization, increasing the likelihood that such states will become and remain democratic, as occurred in Trinidad and Tobago. The case of The Gambia illustrates the limitations of smallness to overcome other obstacles to democratization including economic, social and systemic limitations. The quantitative analysis establishes a significant statistical relationship between small state size, when measured by population, and the formation and maintenance of political democracy, and an increased likelihood of political violence, when measured by political riots and deaths by political violence. The analysis concludes with a discussion of the implications of such findings, including transferability through the application of targeted decentralization programs.

Owusu, T. Y., 1996. *The Adaptation Of Black African Immigrants In Canada: A Case Study Of Residential Behaviour And Ethnic Community Formation Among Ghanaians In Toronto (Ontario)*. Ph.D. Dissertation, University Of Toronto.

This study examines the spatial and social dimensions of the adaptation of Ghanaian immigrants in Toronto. In terms of their residential behaviour, the study finds that most of them live in the older suburbs of Toronto. Within these suburbs, they are highly concentrated in particular neighbourhoods, and in particular buildings, often in Limited Dividend (privately owned, but publicly assisted) housing. Analysis showed that their residential concentration is attributable to their need for low-rent accommodation, the effects of chain migration, the desire for proximity to fellow Ghanaians, and the reliance on Ghanaians for information about housing. Only a small proportion of Ghanaians have experienced racial discrimination in housing. This is due, partly, to chain migration, and the reliance on fellow Ghanaians for information in seeking alternative housing. This tends to restrict the housing search to neighbourhoods with a significant Ghanaian population.

Ghanaian immigrants also have a relatively low rate of homeownership. Analysis showed that this is due to the recency of their migration, their relatively low incomes, and their desire for home-ownership in their homeland rather than in Canada. This, in turn, is related to their intentions to return permanently to their homeland in the future. Ghanaian immigrants have also established associations which provide economic assistance, social fellowship, and enable them to express their culture. They also enable them to respond to political issues, and to mobilize financial and material resources for their homeland. In terms of social interactions, they maintain tight social networks involving fellow Ghanaians. Only a small proportion belong to non-Ghanaian associations, or maintain close friendships with non-Ghanaians. Lack of common social and cultural interests were cited as the principal reasons for the weakness of social relationships with non-Ghanaians. Racial discrimination was not explicitly cited as a factor, but the nature of their social networks must be viewed against the

backdrop of the social distance between blacks and other ethnic groups in Canada. Overall, the findings suggest that the strength of kinship ties, strong back-home commitments, and return migration intentions, are crucial factors shaping the adaptation of Ghanaian immigrants in Toronto.

Parker, J. A., 1996. *Labor, Culture, And Capital In Corporate Fast Food Restaurant Franchises: Global And Local Interactions Among An Immigrant Workforce In New York City*. Ph.D. Dissertation, City University Of New York.

This dissertation is a qualitative study of labor and cultural processes in corporate fast food restaurant franchises in New York City. Immigrants from virtually every continent in the world, but mainly from the Third World, provide a growing labor supply to corporate fast food restaurants in New York City. I show how a multitude of factors including both structural and cultural demands of the industry and various features to do with this immigrant labor supply shape a workforce that is globally and culturally diverse. I examine seven restaurants in three different New York City areas: Chinatown Manhattan, Washington Heights, and Downtown Brooklyn, and show how the social stratification of a fast food workforce turns out to be geographically shaped and culturally defined according to local characteristics of these neighborhoods and districts. I find that recruitment and hiring practices linked to immigrant social networks work to reinforce and reproduce patterns of social stratification among a fast food workforce in New York City. But fast food restaurants tend to employ ethnically diverse workforces, rather than homogenous groups of 'co-ethnics.' This diversity is reinforced by social class diversity, where people from a range of family backgrounds, work experiences, and life chances come together in the fast food restaurant. Culture, ethnicity, and social class in the fast food restaurant, then, is seen in the context of a larger global and ethnic hierarchy among immigrants in New York's labor market. I also show how the shifting technical and social organization of the fast food restaurant affects the way immigrants are organized in this industry. Most importantly, a growing emphasis on 'service interaction' (which parallels the implementation of new technologies such as computerized registers) has affected cultural and gender divisions of labor, and cultured and gendered based opportunity in the restaurant. Further, I explore social relations within the workforce, showing how racial, ethnic, and cultural diversity shapes relations, perceptions, attitudes and biases among different groups new to New York's labor market. I show how these relations shape culturally and ethnically based experiences as well as employment opportunities and chances for mobility among employees. I then broaden my focus to explore the role the fast food job plays in people's lives and households, showing how low-wage fast food employment fits into employees' life-long occupational trajectories, and, the extent to which employees and their families do or do not depend on fast food wages today, not only as a 'first' job, but also as a 'moonlighting' job, a second or third job, or, as a job of 'last resort.'

Peek, M. K., 1996. *Social Networks In The Life Stress Process*. Ph.D. Dissertation, Duke University.

The main goal of this research is to better understand the way in which people's social networks affect their mental health. One strategy for accomplishing this is through the expansion of one theoretical model: the convoy of social support model developed by Kahn and Antonucci in 1980. Using primarily a social network approach to revise the convoy model, this dissertation examines specifically how social role (kin composition) and social support (convoy circle composition) aspects of social support network composition influence

one measure of mental health, psychological distress. Three main hypotheses are tested: (1) kin and convoy circle composition decrease psychological distress; (2) kin and convoy circle composition mediate the effects of stress; and (3) kin and convoy circle composition buffer the effects of stress on distress. Gender and age differences are also addressed.

Data used for this analysis come from a three wave panel health study (1979-1982) conducted in upstate New York (n = 639). The first section of the analysis focuses on age differences in the effects of network composition on psychological distress. The second section investigates the gender differences in the influence of network structure on distress. Both Ordinary Least Squares regression and structural equation models (LISREL) are estimated.

The results indicate that kin composition significantly reduces distress, particularly for younger individuals and for men. There is also evidence that suggests that kin composition mediates and buffers the effects of stress on distress. However, there is little evidence that demonstrates that convoy circle composition decreases distress or has any significant mediating or buffering effects. Finally, implications for the convoy model are discussed.

Pettit, S. K., 1996. *The Arts As A Social Movement: A Case Study In Atlanta, Georgia*. Ph.D. Dissertation, Georgia State University - College of Arts and Sciences.

The dynamics behind public support of the arts in the United States and grassroots mobilization to protect this support are framed in a broad social context of symbolic meaning, politics and the economy. This research explores the social organization of the arts, mobilization of grassroots support and indicators which suggest the emergence of a social movement for the arts. The theory of social movements from Manuel Castells and others form the theoretical perimeters for this research. Castells cites four primary indicators that mark successful grassroots social movements including a relationship with the government, a relationship with professionals, a collective identity and collective consumption. Economic indicators and an analyses of social networks have been added to supplement the theories of social movements since the social organization of the arts in the United States centers around well defined social and economic linkages.

Rosenthal, E. A., 1996. *Social Networks And Team Performance*. Ph.D. Dissertation, The University Of Chicago.

Each of us has a unique network of contacts which will be referred to in this dissertation as 'personal networks'. Although the people and the precise relations between the people in each of our personal networks differ, there are patterns to the ways in which our contacts are connected which makes some networks similar to others. These patterns are the defining characteristics of our personal networks.

Understanding the relationship between the underlying social structure and performance inequities is one of the key concerns of the social structure discipline. Social structure theories postulate that social structure matters with regard to performance inequities. Empirical studies with firms and individuals as their unit of analysis have supported this idea that the underlying structure has something to do with who succeeds and who does not.

Teams are responsible for much of the work that is done in professional organizations today. Understanding how social structure is related to performance inequities where teams are

concerned makes a contribution to our knowledge about how existing social structure theory aggregates to the group level and adds to our understanding of how small groups work.

Earlier empirical work has found a negative association between constraint in an individual's network and their performance. Constraint is a quantitative measure which describes the pattern of connections between contacts in personal network. I am investigating whether this relationship holds true when individuals are aggregated into a team. I hypothesize that there is a negative association between team constraint and team performance.

Constraint is measured with sociometric choice booklets given to team members. Performance is measured with Quality Manager ratings and are standardized by plant. There are 15 process improvement teams from the same company (114 team members) in the sample.

The major finding is that there is negative association between team constraint and team performance for large teams but not for small teams. There is a direct effect between social structure and group performance for large groups and there may be indirect effects for all groups. Exploring the effects of social structure on intra-group dynamics would be a fruitful direction for future research.

Savage, L. A., 1996. *Negotiating Common Ground: Labor Unions And The Geography Of Organizing Women Workers In The Service Sector*. Ph.D. Dissertation, Clark University.

This dissertation examines the ways in which U.S. labor unions use geographically informed organizing strategies in light of contemporary economic changes, especially those related to the rise of service employment. Organizing service workers means organizing women, people of color, and immigrants -- groups of workers unions have not targeted traditionally. In addition, organizing strategies that were created for the manufacturing sector must change to take account of the different spatial arrangements (i.e., factory floor vs. individual offices) and economic geographies of service workplaces.

This study extends our understanding of effective service sector organizing strategies by focusing on how local context affects organizing efforts in the service sector and workers' decisions about unionization. This study focuses on two organizing campaigns. The first ended in victory for the Harvard Union of Clerical and Technical Workers (HUCTW) in 1988. The second campaign is still in progress at the University of Massachusetts Medical Center where HUCTW has formed State Healthcare and Research Employees. Through interviews with organizers and employees I collected qualitative data, focusing on the ways in which local context mediates union organizing. Secondary data was also analyzed to construct a contextual narrative within which to examine the importance of local context in organizing.

Organizing efforts have traditionally been workplace-focused, but findings indicate that workers have different identities, social networks, and access to resources in each contextual setting; it is at the nexus of home, work, and community that workers make decisions about unionization. Results show that workplace geographies shape personal networks which, in turn, shape the strategies used by organizers to build a union community. Differences in organizers' access to workers in the workplace combined with workers' family responsibilities result in the need to alter strategies to contact workers. Furthermore, changes in the local economy affect workers' family economies and responsibilities and prove to be more important than workplace changes in workers' decisions about unionization. Finally, despite predominantly female workforces in each campaign, workers organize around gender

and class identities that are socially constructed in locally and geographically specific ways.

Silver, M. E., 1996. *Late Adolescents In Transition: Social Networks, Parent Relations, And Well-Being*. Ph.D. Dissertation, Florida International University.

A two-year longitudinal study was conducted to investigate late adolescents in transition. An initial investigation with senior high school students assessed students prior to leaving home for college and after college entrance. Of the original 131 participants recontacted two years after their graduation, 78 returned surveys. The study (a) explored changes in social network structure and function, (b) determined whether late adolescent-parent-peer relations change over time, and (c) identified prospectively the impact of social support, adolescent-parent-peer relations, and attachment security on well-being and feelings about the transition after high school. Students attending college locally reported an increase in total network support at Time 2. Regardless of location, more support from friends was received after the transition from high school, whereas family support did not vary across time. Parent relations were closer after the transition and were predictive of various well-being measures and feelings about the transition from high school.

Simpson, L. M. A., 1996. *Selling The City: Women And The California City Growth Games*. Ph.D. Dissertation, University Of California, Riverside.

This research addresses the manner in which bourgeois women created the language and the social networks necessary to enter the male sphere of urban planning in early twentieth century California. Between 1880 and 1940, California cities such as Redlands, Oakland, and Santa Barbara took the lead in creating comprehensive city plans and zoning ordinances that characterized modern American city growth. Specifically, this work targets three California regional economies and explores the means by which women helped shape the vision and plans of cities competing for regional dominance. A new reading of the evidence suggests that women in the Western United States embraced the ideology of self interest and participated to the fullest extent possible in a capitalist society. Although often maintaining a division of labor along traditional gender lines, the California urban elite created a class alliance to shape a regional identity based on a commitment to urban growth.

First, between 1880 and 1900, in the citrus region of Southern California, bourgeois women entered what can be termed 'apprenticeships' in property ownership and management in which they were introduced to the language of capitalism and the mechanisms of city growth. Once in command of a new vocabulary, these women joined the local women's club and the Chamber of Commerce as the organizations through which they could promote their city. Second, between 1900 and 1920, in the commercial cities of Northern California, women extended their apprenticeships in property to 'apprenticeships' in city planning. They were introduced to the language of comprehensive city planning and thus to the tools that distinguished the twentieth century capitalist city growth game from its nineteenth century predecessor. They took their next logical step in developing a capitalist consciousness and vocabulary. Finally, between 1920 and 1940, in the tourist cities of the Central California coast, women mastered the tools of city and county planning. By this time, bourgeois women had demonstrated their abilities as property owners, business and professional women, and voters and had participated fully in the entire process of envisioning, building, and selling their cities. Blending the language of capitalism with the language of female moral authority, California women asserted themselves as capitalists, visionaries, and planners.

Smith-Papke, L. E., 1996. *Assessing The Severity Of Childhood Sexual Abuse*. Ph.D. Dissertation, Northwestern University.

The concept of severity of childhood sexual abuse has not been clearly or consistently defined in the empirical literature. Factors which have been found to influence long-term adjustment to childhood sexual abuse include characteristics of the abuse itself (abuse-specific variables), the surrounding environment, and subjective processing of the abuse. The present study was designed in order to understand more about these hypothesized underlying dimensions of severity and begin to develop a measure which can be used to answer questions concerning the differential long-term impact of childhood sexual abuse.

The Severity of Sexual Abuse Questionnaire (SSAQ) was developed by this author based on an extensive review of the literature. It is a 43-item instrument with questions about the characteristics of unwanted sexual contact(s) during childhood, reactions in the surrounding environment, and the nature of the child's family and social networks. Data were collected from a mixed community and clinical sample of 108 female adult survivors of childhood sexual abuse both on the SSAQ and the Trauma Symptom Checklist-40 (TSC-40). The TSC-40 assesses the presence and degree of current psychological and physical sequelae of abuse.

Results of a factor analysis of the SSAQ suggest the presence of two main factors, an Abuse-Specific and an Environmental factor. Internally consistent scales were developed from each of these factors and were correlated with TSC-40 scores. The Abuse-Specific scale was found to have a stronger and more distinct relationship with this measure of the long-term traumatic impact of abuse than the Environmental scale. Empirical, theoretical, and clinical implications of these findings are discussed.

Umlas, E. D., 1996. *Environmental Non-Governmental Networks: The Mexican Case In Theory And Practice*. Ph.D. Dissertation, Yale University.

The dissertation analyzes the formation and dynamics of non-governmental environmental networks in Mexico. These networks represent a new effort by social actors to join disparate groups in Mexican society, particularly in the face of tremendous environmental problems and the breakdown of the country's traditional model of social integration. Non-governmental organizations (NGOs) are becoming increasingly important in Mexico as institutionalized political channels undergo substantial restructuring and even crises. Networks of NGOs are also on the increase but are extremely understudied.

The main assertion is that, despite important internal and external constraints, in key instances and under certain conditions networks of environmental NGOs in Mexico have affected environmental policy, created vital political space for activists, and served as bridges to other social networks and movements, thus helping to strengthen environmental activism. The dissertation outlines the optimal conditions for networks to affect the variables of policy, space creation, and movement-bridging.

The evidence from four case studies indicates that although Mexican environmental networks, with few exceptions, have failed to fulfill these conditions completely (or have done so only briefly) -- thus leading to a reduced impact on the variables -- the networks have nonetheless made important contributions to the environmental movement. The dissertation analyzes further why such networks continue to form, and what the implications are for environmental mobilization as well as democratization and the modification of social relations in Mexico. Finally, the dissertation examines several of the theoretical concepts

behind the network form of organization, situating this relatively new form within Mexico's changing political system.

ABSTRACTS

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Sunbelt '97 Conference Feb 13-17. San Diego, CA

Aguilera, R. V. (Harvard University). "How do Historical Institutional Settings Shape Interorganizational Relations?"

Andreescu, Viviana, Thomas J. Keil, and J. Allen Whitt (University of Louisville). "Changes in Patterns of Trade Among Postcommunist Countries."

Angell, Beth and Mary Ann Test (University of Wisconsin-Madison). "Gender Differences in Social Networks, Satisfaction with Social Relationships, and Loneliness Among Young Adults with Schizophrenia."

Arrow, Holly. (University of Oregon). "New, Old, and Slightly Used: Effects of Gender and Tenure on Small Group Influence Patterns."

Aunger, Robert (King's College, University of Cambridge). "The Structure of Cultural Transmission: Food Taboos in Zaire."

Baldwin, Julie, Carol Maxwell, Albert Pach, Richard Rothenberg, Claire Sterk, Robert Trotter (Emory University School of Medicine). "Rural and Urban Groups at Risk for HIV: Methods for Social Network Ascertainment and Preliminary Results."

Baldwin, Julie, Carol Maxwell, Albert Pach, Richard Rothenberg, Claire Sterk, Robert Trotter (Emory University School of Medicine). "The Use of Ethnographic and Social Network Information to Cope with Logistical Problems in Ascertaining Networks of Drug Using Populations."

Banas, J. T., S. A. Jorgensen, and R. K. Leik. (University of Minnesota.) "The Network Structure of Programs in a Research Organization."

Bandyopadhyay, Suraj and Chandralekha Dutttagupta (Indian Statistical Institute). "Social Network Analysis for Health System Planning in West Bengal, India."

Batagelj, V. F. Anuska (University of Ljubljana), and P. Doreian (University of Pittsburgh). "Fitting Pre-Specified Blockmodels."

Batagelj, Vladimir and Andrej Mrvar (University of Ljubljana). "A Package for Analyzing Large Networks."

Beata, David (ELTE Szociologiai es Szocialpolitickai Intezet, Budapest, Hungary). "The Rate of Kin and Non-kin Relations in A Hungarian Social Network Research."

Benassi, M. (University of Trento), and A. Greve (The Norwegian School of Economics and Business Administration.) "GESTO - A Network Company?"

Berkowitz, S. D. (University of Vermont) Douglas R. White, and William Fitzgerald. "Measuring Integration and Concentration in the Canadian Economy, 1972 and 1987: Formal Methods and Empirical Demonstration."

Bernard, Robert N., Radoslaw A. Zapert, George M. Janes, Wei Lin, and K. Winslow Farrell, Jr. (Emergent Solutions Group, Coopers and Lybrand Consulting). "Speed of Information Contagion in a Dynamic Network."

Bien, W., J. Marbach and D. Bender. "Stability and Change of Family Network Configuration over the Family Life Cycle."

Bienenstock, Elisa Jane, and Jeffrey C. Johnson (East Carolina University). "Exchange in the Field."

Bienenstock, Elisa Jayne and Pamela Paxton (Stanford University). "Empirically Defining Social Capital."

Bonacich, Phillip (University of California at Los Angeles). "Time as a Variable in Centrality Analysis."

Borgatti, S. P. (Boston College), and M. G. Everett. (University of Greenwich.) "Core/Periphery Partitioning."

Borgatti, Stephen P. (Boston College), Martin G. Everett (University of Greenwich) and Linton C. Freeman (University of California at Irvine). "UCINET for Windows Demonstration."

Boyd, J. P. (University of California at Irvine), and K. J. Jonas. (Georg-August-Universitaet Goettingen.) "A Permutation Test for Regular Equivalence: 0-blocks Pass, regular-blocks Fail."

Brazill, T. J. (University of California, Irvine.) "The Comparison of Models Underlying Social Proximity Data, II."

Brazill, Timothy J. (University of California, Irvine). "The Comparison Models Underlying Social Proximity Data, II."

Brewer, D. D. (University of Washington, USA), and C. M. Webster. (University of Queensland, Australia.) "Recall and Recognition of Friends by Residents of a University Dormitory."

Brewer, Devon D. (University of Washington, USA), Giovanni Rinaldi (Istituto di Analisi de Sistemi ed Informatica del Consiglio Nazionale delle Ricerche, Italy), Andrei Mogoutov (Ecole de Hautes Etudes en Sciences Sociales, France) and Thomas W. Valente (Johns Hopkins University, USA). "Improved Measurement of and New Data on Associative Patterns in the Recall of Persons."

Burris, Val, Emery Smith and Ann Strahm (University of Oregon). "Neo-Nazi Networks on the Internet."

Butler, Brian S. (Carnegie Mellon University). "The Dynamics of Cyberspace: An Interdependent Public Goods Model of Electronic Group Development."

Caidi, Nadia and Leah A. Lievrouw (University of California). "Momentum, Resistance and the Information Superhighway: A Cross-National Study Using Socio-Technical Analysis."

Calloway, Michael O., Joseph P. Morrissey, Michael Ullman (University of North Carolina at Chapel Hill) and John M. Borland (University of Alabama). "Missing Responses in Organizational Network Data: Lessons from the Field."

Carley, C., C. Topper, and D. Gant. (Carnegie-Mellon University.) "Emergent Networked Organizations."

Casasola, Silvia P. (University of California at Irvine). "Marriages and Alliances among Conquistadores and Encomenderos of the Kingdom of Guatemala, 1524-1720."

Casciaro, Tiziana (Department of Social and Decision Sciences, Carnegie-Mellon University). "Seeing Things Clearly: Social Structure, Personality, and Cognitive Accuracy in Social Network Perception."

Chase-Borgatti, Roberta (University of South Carolina) "Research on Language and Social Networks: An Overview."

Collins, Randall (University of California, Riverside). "Exploring the Scientific Revolution by Comparing Intellectual Networks."

Contractor, Noshir S. (University of Illinois at Urbana Champaign), Peter R. Monge, Suzanne Rumsey and Janet Fulk (University of Southern California). "Network Evolution of a Virtual Organization."

Cook, C. (Harvard University.) "Controlling Uncertainty through Close Ties with Subcontractors."

Danowski, James A. (University of Illinois at Chicago). "Language of Spirituality in Ego-Centric Communication Networks."

De Nooy, Wouter. (Erasmus University, Rotterdam). "Cycles and Paths, Not Triads: Balance Theoretic Models and Incomplete Signed Graphs."

Doerfel, Marya L (University of North Carolina at Charlotte) and George A. Barnett (University of New York at Buffalo). "A Comparison of the Semantic and Affiliation Networks of the International Communication Association."

Doksum, Theresa (The Johns Hopkins Medical Institutions). "Communication Within High Risk Families About Genetic Risk and Cancer Communication within High Risk Families About Genetic Risk and Cancer Testing for Cystic Fibrosis."

Dow, Malcom M. (Northwestern University) and Roger Th. A. J. Leenders (University of Groningen). "The Effects of Measurement Error on Estimation Procedures for Network Autocorrelation Models."

Durrington, Vance A. (Texas Tech University), Thomas W. Valente (Johns Hopkins University), and Judith L. Repman (Texas Tech University). "Diffusion networks Methodology Assessment and an

Empirical Test of Theory."

Eckert, Penelope (Stanford University and Institute for Research on Learning). "Urban Cruising and Linguistic Influence among Detroit Area Adolescents."

El-Bassel, Nabia and Duan-Rung Diane Chen (School of Social Work, Columbia University). "Social Support Mobilization Among Female Drug Addicts."

Erikson, Bonnie H. (University of Toronto). "Network Diversity and Trade."

Everett, M. G. (University of Greenwich), and S. P. Borgatti (Boston College). "Graph Theoretic Models of Core/Periphery Structures."

Falkowski, Gerald R. (IBM Consulting Group). "Understanding the Heart and Pulse of an Organization."

Faust, Katherine (University of South Carolina), Barbara Entwisle, Ronald R. Rindfuss, and Stephen J. Walsh (University of North Carolina, Chapel Hill). "Spatial Arrangement of Social and Economic Networks of Villages in Nang Rong, Thailand."

Faust, Katherine and John Skvoretz (University of South Carolina). "Logit Models for Affiliation Networks."

Feld, Scott L. William C. Carter (Louisiana State University). "Tie Strength and Individual Differences."

Fonti, F. (University of Illinois at Urbana-Champaign.) "Social Structure and Economic Action: The Effects of Network Evolution On Organizational Performance."

Fran, Kenneth A. (Michigan State University) and Jeff Yasumoto (University of Chicago). "Embedded in What?: Variations in Social Capital according to Social Structure."

Frank, Kenneth A., and Kyle Fahrback (Michigan State University). "Exploring Interrelated Structures: A System of Longitudinal Models of Selection and Interpersonal Influence in a Social Network."

Freeman, Lin. "Using Tools from Computational Graph Theory and Molecular Modeling to Visualize Social Networks: A Practicum."

Fruzsina, Albert (ELTE Institute of Sociology and Social Policy, Budapest, Hungary). "Supportive Networks in Central-Eastern Europe."

Gant, D. B. (Carnegie Mellon University.) "Understanding Emergent Patterns of Interorganizational Relationships on the WWW: A Case Study in Disaster Response."

Gibson, David (Columbia University and Lazarsfeld Center for the Social Sciences). "Enacting Structure in Serial-Event Systems."

Gil-Mendieta, Jorge and Samuel Schmidt. "The Mexican Network of Power, An Analysis through Time."

Gittell, Jody Hoffer (Harvard Business School) and Leigh M. Weiss (Harvard University). "A Dynamic Approach to Coordination: Linking Intra and Interorganizational Networks."

Glanville, Jennifer L. and Jennifer A. Stoloff (University of North Carolina, Chapel Hill). "Social Network Structure and AFDC Receipt."

Grannis, Rick (University of California, Irvine). "The Importance of Trivial Streets: Pedestrian-Based Communities, Tertiary Street Networks, and Residential Segregation."

Granovetter, Mark (Stanford University). "Constructing Networks from Archival Data: The Case of the American Electricity Industry, 1880-1920."

Gronmo, Sigmund and Baard Liabo (University of Bergen, Norway). "Corporate-Governmental Networks in Norway 1985-1990."

Guilarte, Miguel (The Fielding Institute). "Perceptual Competitive Fields and Strategic Action."

Gulati, Ranjay (Northwestern University) and Martin Gargiulo (INSEAD). "Where Do Networks Come From?"

Harary, Frank (New Mexico State University). "Group Problem Solving and the Email Gossip Number."

Hedstrom, Peter, Rickard Sandell, and Lotta Stern (Skockholms University). "Spatial Diffusion and Agitation: AN Analysis of the Spread and Growth of the Swedish Social Democratic Party."

Heiser, Willem J. (Leiden University). "A Weighted Least Squares Method for Fitting Feature Graphs to Proximity Data."

Higgins, Monica and David Thomas (Harvard University). "How the Composition of an Individual's Set of Helping Relationships Affects Career Outcomes."

Hiramatsu, Hiroshi (Korean University, Kobe, Japan), Frans N. Stokman and Evelien P. H. Zeggelink (University of Groningen). "The Effect of Partial Information and Influence on Friendship Network Structures."

Holschuh, Jane (University of Wisconsin-Madison), Bernice A. Pescosolido (Indiana University, Bloomington), Eric R. Wright (Indiana University, Indianapolis). "Social Ties and Network Range Among Persons With Severe Mental Illness."

Hsia, Ti-Lien (University of California at Irvine). "A Social Network Comparison of Juvenile Delinquent and General High School Student Subgroup Formation."

Hummon, Norman P. and Patrick Doreian (University of Pittsburgh). "Proposal for WWW Social Network Archive Site."

Johnson, Jeffrey (ECU), James Boster (UCI), Lawrence Palinkas (UCSD). "Social Networks and Stress at the South Pole."

Jolly, Ann. "Sexual Networks: A Method for Defining Sexually Transmitted Disease (STD) Core Group Membership?"

Jones, Brian J. (Villanova University). "Social Networks and Drug Treatment Effectiveness: The Knucklehead Effect."

Jones, C., and K. Walsh. (Boston College.) "Principles for Interfirm Partnering: How Homophily and Multiplexity Influence Project Team Formation."

Kadushin, Charles (City University of New York), Peter D. Killworth, James Rennell (Southampton Oceanography Centre), H. Russell Bernard (University of Florida), and Andrew Beveridge (Queens College and the Graduate Center City University of New York). "Drugs, Booze, Murder, Assault, Fatal Crashes and the Small World, Part 2."

Khurana, R. (Harvard University.) "Director Interlocks and Outsider CEO Selection."

Kleit, Rachel Garshick (University of North Carolina at Chapel Hill). "Egocentric Neighborhood Networks and Mixed-Income Housing."

Klovdahl, Alden S. (The Australian National University). "The Core Group Concept in Epidemiology and Public Health: A Reconsideration."

Klovdahl, Alden S., Edward A. Graviss, Michael M. Ross, Afshin Yaganehdooost, Gerald Adams, and James M. Musser (Australian National University). "Tuberculosis Spread in Houston Texas: Combining Social Network Methods and DNA Fingerprinting."

Knowlton, Amy (The Johns Hopkins University). "Personal Network Correlates of Depressive Symptoms."

Koehly, Laura (University of Texas). "Statistical Modeling of Structure for Cognitive Social Networks."

Krebs, Valdis E. (Principal Krebs & Associates). "Network Analysis in Industry."

Krempel, Lothar (Max Plank Institute for the Study of Societies, Cologne, Germany). "Globalization and the International Division of Labor: Visualization and Evidence from World Trade Passenger Cars."

Krikorian, Dean H. (Michigan State University), Mayra L. Doerfel (University of North Carolina, Charlotte), and Kathy A. Kellermann (University of California, Santa Barbara). "Spam Identification in Electronic Newsgroups: A Semantic Network Analysis."

Kuwait, Jennafer. "A Case Study of a Network Analysis Dissertation: Bridging Theory and Research."

Lane, Lisa Ann (University of Chicago) "The Sociolinguistics of Change: Examining a Local Linguistic Community's Internal Homo and Heterogeneity."

Latkin, Carl A. (The John Hopkins University). "Personal Network Differences among Current and Former Injection Drug Users."

Laumann, Ed. "Social, Attitudinal and Behavioral Determinants of Sexually Transmitted Infections: In Search of the Core."

Lazega, E. (University of Paris at Versailles and LASMAS-CNRS.) "Multiplex Ties, Generalized Exchange, and Cooperation among Peers."

Leazer, Gregory H. "Examining Textual Associations Using Network Analysis."

Levy-Storm, Lené and Steven P. Wallace (University of California, Los Angeles). "The Structure and Functions of Cultural Ties: Health Communication Networks Among Older Migrant Samoan Women in Los Angeles County."

Lomi, Alessandro (University of Bologna). "Hierarchies in Markets and the Network Structure of Organizational Communities."

Lomnitz, Larissa and Jorge Gil-Mendieta (Universidad Nacional Autonoma de Mexico). "Vertical and Horizontal Relations in an Experimental Research Institute in Mexico."

Macy, Michael (Cornell University) and Andreas Flache (University of Bayreuth). "Self-Organizing Social Networks and Social Dilemmas."

Maryanski, A. (UC Riverside). "The Elementary Forms of the Religious Life: A Network Approach."

McCarty, Christopher (University of Florida), Peter Killworth (University of Cambridge), and H. Russell Bernard (University of Florida). "A Comparison of Two Methods of Estimating Personal Network Size and Their Application in the Estimation of Uncountable Populations."

McRae, Christine (The Johns Hopkins University). "Social Isolation Among Intravenous Drug Users in Baltimore."

Mische, Ann (New School for Social Research, New York). "Political Communication Across Brazilian Youth Networks."

Morris, Alan (University of California at Irvine). "Cognitive Social Structure Accuracy and Managerial Effectiveness."

Morris, Martina (Pennsylvania State University). "Core Groups, Networks and Heterogeneity: Lessons from Empirical Studies of the Sexual Transmission of HIV."

Moseley, Kera, Daniel Rosenberg, and Carl Kendall (Tulane University). "Risk Factors and Network Attributes for Syphilis in Baton Rouge, Louisiana."

Neaigus, A., S. R. Friedman, B. Jose, R. Curtis, M. Goldstein, G. Ildefonso (National Development and Research Institutes, Inc., New York, NY) and D. C. DesJarlais (N. D. R. I. and Beth Israel Medical Center, New York, NY). "The Relationship of Drug Injectors' Networks and Drug Economy Roles to the Advocacy of the Use of Bleach to Clean Used Syringes."

Nichols, Patricia. (San Jose State University) "Language Contact in Early South Carolina: A Case Study of Historical Social Networks."

Oliver, A. L. (Hebrew University), and M. Ebers. (University of Augsburg.) "Structuring Conceptual Fields by Mapping Sentences and Network Analysis: An Example of Interorganizational Networks."

Orr, Shepley W. (Balliol College, Oxford and Lazarsfeld Center for the Social Sciences). "Networks as Moral Communities."

Padgett, John. "Banking, Family, and Politics in Renaissance Florence."

Pattison, Philippa (University of Melbourne). "Statistical Models for Multiple Social Networks."

Paulson, Robert I., Ronald F. Kinney, and Debra J. Elliot (Portland State University). "Does a Coordinating Agency Make a Difference in a Network of Care?: Comparing Responses from Multiple Informants in the Same Network Organizations."

Popielarz, Pamela A. (University of Illinois at Chicago). "The Effects of Heterogeneity within Opportunity Structures on Cross-Category Social Network Ties."

Reagans, Ray Eugene (University of Chicago). "Generating and Sustaining Support Networks for Students to Excel."

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Benveneste, Deena and John Scanzoni (University of Florida). "Cohousing as a Route to Community Connectedness"

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- Andrews, Howard F.** 1978. "Analogue Modeling of the Small-World Problem: A Comment on the Reverse Small-World Method." 1(3): 14-16.
- Baker, Wayne E. and L. Philip Schumm.** 1992. "Introduction to Network Analysis for Management." 15(1-2): 29-48.
- Baker, Wayne E. and L. Philip Schumm.** 1992. "A Case of Network Analysis: Western Electric's Hawthorne Works." 15(1-2): 49-57.
- Barnes, J. A.** 1983. "Modeling: For Real or for Fun?" 6(1):15-21.
- Barrera, Manuel.** 1985. "Informant Corroboration of Social Support Network Data." 8(1):9-13.
- Bernard, H. Russell and Peter D. Killworth.** 1978. "A Review of the Small World Literature." 2(1):15-24.
- Bernard, H. Russell, Peter D. Killworth, and Lee Sailer.** 1981. "Summary of Research on Informant Accuracy in Network Data, and on the Reverse Small World Problem." 4(2):11-25.
- Bernard, H. Russell and Peter D. Killworth.** 1997. "The Search for Social Physics." 20(1):16-34.
- Bezon, Joan.** 1993. "The Use of Network Models in Understanding the Support Systems of Isolated Rural Elderly People." 16(3):20-29.
- Bien, Walter.** 1990. "What Are We Talking about When We Talk About Networking?" 13(1-2):17-18.
- Blumer, Martin.** 1988. "Social Networks in Lay Language: The Report of the Barclay Working Party on the Roles and Tasks of Social Work in England and Wales." 11(1):21-28.
- Bonacich, Phillip.** 1989. "Communication Dilemmas: Simulations Involving Unequal Knowledge." 12(2):30-37.
- Borgatti, Stephen P.** 1988 "NETPAC Version 1." 11:44-50.
- 1994. "A Quorum of Graph Theoretic Concepts." 17(1):47-49.
- 1994. "How to Explain Hierarchical Clustering." 17(2):78-80.
- 1994. "Using MDS to Infer Relative Status From Dominance Matrices." 17(2):75-77.
- 1995. "Treating 2-Mode Data as a Network." 18(2):53-55.

- . 1995. "Centrality and AIDS." 18(1):112-114.
- . 1997. "Structural Holes: Unpacking Burt's Redundancy Measures." 20(1):35-38.
- Borgatti, S.P., M.G. Everett, L. Freeman.** 1992 "UCINET IV Network Analysis Software." 15:12-15.
- Borgatti, S.P. and S.L. Feld.** 1994. "How to Test Granovetter's Theory of Weak Ties." 17(1):45-46
- Borgatti, S.P. and C. Jones.** 1996. "A Measure of Past Collaboration." 19(1):58-60.
- Brewer, Devon D.** 1992. "A Note on the Relationship Between Centrality and Cultural Knowledge in a Professional Network." 15(1-2):21-28.
- Burt, Ron.** 1985. "General Social Survey Network Items." 8(2-3):119-123.
- Caulkins, Douglas.** 1981. "The Norwegian Connection: Eilert Sundt and the Idea of Social Networks in 19th Century Ethnology." 4(2):28-31.
- Chatterjee, A. K., Suraj Bandyopadhyay, and A. R. Rao.** 1993. "Relative Importance of Different Factors for Boundary Reciprocity: An Illustration." 16(1-2):15-22.
- Chino, Naohito.** 1987. "A Critical Review on the Approaches to the Analysis of Group Structure." 10(1):15-21
- Craven, Paul.** 1978. "Canadian Intercompany Linkages." 1(3):23-24.
- Czakó, Ágnes, and Endre Sik.** 1988. "Manager's Reciprocal Transactions." 11(3):23-32.
- Elwood, William N.** 1995. "Lipstick, Needle, and Company: A Case Study of the Structure of a Bridge Group in Houston, Texas." 18(1): 46-57.
- Erickson, Bonnie H.** 1996. "The Structure of Ignorance." 19(1): 28-28.
- Esteva, Gustavo.** 1988. "Enclosing the Encloser: The Political Project Emerging From the Margins." 11(3):11-17.
- Everett, M. G. and S. P. Borgatti.** 1990. "Any Colour You Like It." 13(1-2):19-22.
- Feld, Scott.** 1995. "Measuring Densities Based on Foci of Activity." 18(2): 50-52.
- Fennema, Meindert.** 1989. "Dutch Policy Networks in the Decolonization of Indonesia." 12(3):25-31.
- Frank, Kenneth A. and Jeff Yasumoto.** 1996. "Embedding Subgroups in a Sociogram: Linking Theory and Image." 19(1): 43-57.
- Freeman, Linton C.** 1978. "On Measuring Systematic Integration." 2(1):13-14.
- . 1979. "Expectations in a Social Network: The Small World of Bochner, Buker, and McLeod Revisited." 2(2): 89-91.
- . 1981. "Social Networks: A Beginner's Bookshelf." 4(2):6-10.
- . 1981. "Russell's Paradox (Part II)." 4(2):26.
- . 1994. "MAP: A Computer Program for Collecting Network Data." 17(1): 26-30.
- . 1994. "Displaying Hierarchical Clusters." 17(2): 46-52.
- . 1996. "Some Antecedents of Social Network Analysis." 19(1): 39-42.
- Freeman, Linton C. and Barry Wellman.** 1995. "A Note on the Ancestral Toronto Home of Social Network Analysis." 18(2): 15-19.

- Friedmann, Harriet.** 1979. "Are Distributions Really Structures? A Critique of the Methodology of Max Weber." 2(2):72-80.
- Ghosh, Bhola Nath.** 1994. "Social Networks of Decision-Making in a Framing System: An Exploratory Study in a Rural Area." 17(2): 61-74.
- Granovetter, Mark S.** 1982. "Alienation Reconsidered: The Strength of Weak Ties." 5(2):4-16.
- 1990. "The Myth of Social Network Analysis as a Special Method in the Social Sciences." 13(1-2):13-16.
- Hage, Per and Frank Harary.** 1994. "Sex in the Bipartities." 17(1): 23-25.
- Hildum, Donald C.** 1982. "The Semantic Connection." 5(2):17-20
- Hiscott, Robert D. and Peter J. Connop.** 1989. "Close Co-worker Ties of Mental Health Professionals." 12(2):24-29.
- Hsu, Tsung-chi Kenny, August E. Grant, and Wei-wei Huang.** 1993. "The Influence of Social Networks on the Acculturation Behavior of Foreign Students." 16(1-2):23-36.
- Johnson, Jeffrey C., Edie Schade, and Susan C. Weller.** 1995. "Truth or Dare?: Sexual Networks, Friendship Networks and Risk Behavior in an Informal Gay Group." 18(1): 73-88.
- Johnson-Lenz, Peter and Trudy Johnson-Lenz.** 1977. "On Facilitating Networks for Social Change." 1(2):5-11.
- Jones, Charles.** 1987. "Using Connections as a Database." 10(3):193-194.
- Kadushin, Charles.** 1989. "The Next Ten Years." 12(2):12-23.
- Kalleberg, Arne L. David Knoke and Peter Marsden.** 1995. "Interorganizational Networks and the Changing Employment Contract." 18(2): 32-49.
- Killworth, Peter D. and H. Russell Bernard.** 1981. "Goedel's Spoof: A Reply to Freeman." 4(2):27.
- Klovdahl, A. S.** 1986. "Interactive Computer Graphics and Network Analysis: VIEW_NET." 9(1): 47-51.
- Klovdahl, A. S. and T. D. Ly.** 1985. "PROBNET: A Program to Calculate the Probability of Network Connectedness." 8(1): 70.
- Koehly, Laura and Stanley Wasserman.** 1994. "STOCENT and STOCENTD: Stochastic Centrality and Prestige for Actors in a Social Network." 17(1): 35-44.
- Krackhardt, David, Jim Blythe and Cathleen McGrath.** 1994. "KRACKPLOT 3.0: An Improved Network Drawing Program." 17(2): 53-55.
- Lattin, James M. and Wong, M. Anthony.** 1982. "A High-Density Clustering Approach to Exploring the Structure of Social Networks." 5(1):21-26.
- Levine, Joel.** 1989. "Friends and Relations." 12(3):39-47.
- Levine, Joel H. and Nicholas C. Mullins.** 1978. "Structuralist Analysis of Data in Sociology." 1(3): 16-23.
- Lin, Nan.** 1983. "Social Resources and Social Actions: A Progress Report." 6(2):10-16.
- McCarty, Chris.** 1995. "The Meaning of Knowing as a Network Tie." 18(2): 20-31.
- Markovsky, Barry.** 1993. "Revelations from Argument Analysis: The Case of 'Social Resource Theory'." 16(3):11-19.
- Maryanski, A. R.** 1988. "The Supportive Networks of Monkeys and Apes." 11(1):29-35.

- Mitchell, J. Clyde.** 1978. "On Freeman's Segregation Index: An Alternative." 2(1): 9-12.
- . 1981. "Ethnography and Analysis: A Test of Some Algorithmic Procedures." 4(3):8-9.
- . 1985. "Social Network Analysis in Britain." 8(2-3):111-113.
- . 1985. "Monte Carlo Runs on Two Blocking Measures." 8(2-3):114-118.
- . 1986. "Ethnography and Networks." 9(1):17-23.
- . 1994. "Keynote Address: Situational Analysis and Network Analysis." 17(1): 16-22.
- Morris, Martina and Mirjam Kretzschmar.** 1994. "Measuring Concurrency." 17(1): 31-34.
- Michaelson, Alaina.** 1991. "A Reading List in Role Analysis." 14(3):10-13.
- Mitchell, J. Clyde.** 1981. "Ethnography and Analysis: A Test of Some Procedures." 4(3):8-9.
- Nakao, Keiko.** 1990. "Distribution of Measures of Centrality: Enumerated Distributions of Freeman's Graph Centrality Measures." 13(3):10-22.
- Neyer, F., W. Bien, J. Marbach and R. Templeton.** 1991. "Obtaining Reliable Network Data about Family Life: A Methodological Examination Concerning Reliability of Egocentered Networks in Survey Research." 14(3):14-26.
- Peil, Margaret.** 1978. "Research Roundup on African Networks, 1974-1978." 2(1): 6-8.
- Pickvance, Christopher.** 1979. "Urban Sociology in Britain and the Study of Social Networks." 2(2):81-83.
- Reichmann, Sébastien.** 1989. "Studying Social Networks of Psychiatric Patients: Some Methodological Difficulties." 12(3):48-50.
- Rothenberg, Richard B.** "Commentary: Sampling in Social Network." 18(1): 105-111.
- Rutges, A.** 1989. "The Usefulness of Network Analysis for the Theoretical Interpretation of the Interlocking Directorates: A Simulation Study." 12(3):10-17.
- . 1989. "Interlocking Directorates: Network Analysis and Nomination Theories." 12(3):18-24.
- Scherer, Jacqueline.** 1983. "The Functions of Social Networks: An Exercise in Terse Conclusions." 22-31.
- Scott, John.** 1977. "Structure and Configuration in Interlocking Directorships." (Working paper). 1(1):27-29.
- . 1984. "International Comparisons of Interlocks: A Report." 7(2-3):16-17.
- Shanin, Theodor.** 1988. "Exploary Economies: A Political Economy of Margins." 11(3):18-22.
- Sonquist, John A.** 1980. "Concepts and Tactics in Analyzing Social Network Data." 3(1):33-41.
- . 1984. "Select, Project, and Joint Operations Using SAS." 7(2-3):113-121.
- . 1985. "On Designing the Database for a Network Study." 8(1):71-73.
- Soref, Michael.** 1979. "Research on Interlocking Directorates: An Introduction and a Bibliography of North American Sources." 2(2):84-86, 91.
- Tilly, Charles.** 1987. "GBS + GCL = ?" 10(2):94-105.
- Todd, David M.** 1979. "Social Networks and Psychology." 2(2): 87-88.

- Torenvlied, René.** 1994. "A Procedure for Assessing Large Scale 'Total' Networks Using Information from Key Informants." 17(2): 56-60.
- Trotter, Robert T. II, Julie A. Baldwin, and Anne M. Bowen.** 1995. "Network Structure and Proxy Network Measures of HIV, Drug and Incarceration Risks for Active Drug Users." 18(1): 89-104.
- Trotter, Robert T. II, Richard B. Rothenberg, Susan Coyle.** 1995. "Drug Abuse and HIV Prevention Research: Expanding Paradigms and Network Contributions to Risk Reduction." 18(1): 29-45.
- Turk, Herman and Mitsuyo Hanada.** 1979. "Rudimentary Networks Among Urban Organizations: New Modelings of Some Classic Ideas." 2(2): 69-71, 83.
- Van Meter, Karl M.** 1987. "Ideology and Methodology: Network Analysis in the United States and France." 10(2):106-110.
- Van Meter, Karl M., Philippe Cibois, Lise Mounier, and Jacques Jenny.** 1989. "East Meets West: Official Biographies of Members of the Central Committee of the Communist Party of the Soviet Union Between 1981 and 1987, Analyzed With Western Social Network Analysis Methods." 12(3):32-38.
- Weaver, Sheila O'Leary and Stanley Wasserman.** 1986. "RELTWO: Interactive Loglinear Model Fitting for Pairs of Sociometric Relations." 9(1):38-46
- Wellman, Barry.** 1979. "Comment on Pickvance." 2(2):83.
- . 1986. "North American Affairs." 9(1):14-16.
- . 1987. "What Is To Be Done: The Next 10 Years of INSNA." 10(3):189-190.
- . 1994. "I was a Teenage Network Analyst: The Route from the Bronx to the Information Highway." 17(2): 28-45.
- Wellman, Barry and William Eckhardt.** 1986. "Anatol Rapoport." 9(1):32.
- Wellman, Barry and Susan Gonzalez Baker.** 1985. "Using SAS Software to Link Personal Network, Tie and Individual Data: A Novice's Guide." 8(2-3):176-187.
- Wellman, Barry, Cyndi Rottenberg and N. Scot Wortley.** 1990. "Using Word Perfect to Build a Reference List." 13(1-2):23-26.
- White, Harrison C.** 1982. "Interfaces." 5(1):11-20.
- Williams, Mark L., Robert T. Trotter II, Zhangqing Zhuo, Harvey A. Siegal, Rafaela R. Robbles, and Adelbert Jones.** 1995. "An Investigation of the HIV Risk Behaviors of Drug Use Networks." 18(1): 58-72.
- Wolfe, Alvin.** 1987. "Applications of Network Models (1986)." 10(1):77-79.