

CONNECTIONS

VOLUME XI

NUMBER 1

Spring, 1988

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NETWORK NOTEBOOK

IN THIS ISSUE

There's hot news -- the latest abstracts from the Sunbelt Network Conference & the Balaton Kinship Conference. There's features from Sandy Maryanski on primates, Martin Bulmer on social work thru social networks, & Melvin Oliver on black LA networks. Lin Freeman shows his range with a poem. For those struggling to make up courses, there's 3 different course outlines to steal from. We give you new computer stuff too: Bill Richards, fatcat that he is, tells about 2 new programs, & Stan Wasserman & Michael Walker move Sam Leinhardt 1 micro step ahead. All this plus the most outrageous Notebook ever. What a swan song!

THE PARTY SPREADS

I was originally going to call this item, "The Party's Over," but I realized that it isn't -- not even for me. You're reading the last issue of Connections which I, Barry Wellman, will principally edit. A sad moment in part for me -- nostalgic tears are short-circuiting my AT as I write this -- but a happy one too. For one thing, I am now liberated from organizational & editorial matters to concentrate on my research -- at least I won't have INSNA deadlines to use as excuses. (I offer my later-nite definition of an editor: a used word processor.) For another thing, the new editor/publishers have graciously asked me to continue writing a column ("with your usual weird stuff") -- which I'm going to call "Ties & Bonds". Seems like a good deal to me -- I'll have the chocolate without the migraines. But most important, I'm delighted that INSNA & Connections will continue in good hands.

Susan Greenbaum & Alvin Wolfe will be taking over starting with the next issue. (As a dubious present to them, I'm shipping down 100s of abstracts & several features in our backlog, plus IOUs on several commissioned pieces.) They're well-situated to collaborate, both at the Dept. of Anthropology, Univ of South Florida, Tampa FL 33620. Phones-- Susan: 813-974-2209; Alvin: 813-974-2345; his BITNET is DLIABAA at CFRVM.

This switch was enthusiastically endorsed at the Sunbelt & builds on Susan & Alvin's long years of participation in INSNA & the Sunbelt. As I understand it, Susan will concentrate on editorial matters & Alvin on publishing, but there'll be lots of cross-communication. Officially, they start on July 1, 1988 (i.e., for the next issue) so you should start sending them stuff now, but don't worry too much about this. All 3 of us are good friends (I knew Al before I knew network analysis), & we're going to work jointly & happily.

Meanwhile I ain't gonna fade away. There's Ties & Bonds, I'm organizing 2 sessions for the next Intl Soc Assoc World Congress, & I intend to work actively building international networks. See you at the Sunbelt.

LAUNCH YOUR BOOK THE NETWORK WAY

The best way to let people know about your new book is thru networks. And because you can't be everywhere at once, INSNA has leaped to the rescue. We sell a set of mailing labels to book publishers who use them to flog networkish books to INSNA members. Everybody wins: INSNA makes \$75 a shot (for 450+ labels), the publisher advertises books to a carefully targeted audience, INSNA members hear about books of interest, and the authors become famous & rich on royalties. Three books of INSNA members have happily used this service in 1988. If you have a recent book out -- or are expecting 1 shortly -- tell your publisher to contact INSNA pronto. It's a win-win situation.

CONNECTIONS

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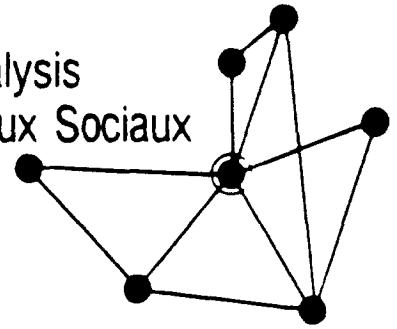
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CONTRIBUTIONS are encouraged from members and colleagues: research papers of any length, reviews of applications of networks in different fields, comments and critiques, survey articles, computer programmes, conference information, abstracts, teaching aids, etc.

The International Network for Social Network Analysis
Le Réseau International pour l'Analyse des Réseaux Sociaux

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University of Toronto
455 Spadina Avenue, 4th Floor
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May 25, 1988



Jeffrey Johnson, the organizer of the next Sunbelt conference has just announced that we will meet 9-13 February at the Bay Harbor Inn, Tampa. Seems like our preferred Puerto Rico site & President's Weekend site would have cost \$50/nite more than the Bay Harbor's \$80/room.

Paper givers and session organizers should contact Jeff right away. If you have a bright idea for a paper or a session, this is the time to spring it forth. He's at the Institute for Coastal and Marine Resources, East Carolina University, Greenville NC 27834. Telephone: 919-757-6220. Bitnet: IRJOHNS at ECUVM1

NETWORK ANALYSIS WORKSHOP

ICPSR will offer a network analysis workshop led by Stanley Wasserman (Psych, Illinois), 7/25-8/19, 1988. It's an intro to concepts & procedures as applied to soc sci research. Topics include: graph theoretical representation; detection of subgroups, components & cliques; measures of points of centrality & overall structure; analysis of local structure using triad counts & block models. Newer statistical methods for single & multi-relational data will be explained, along with applications to a wide range of network data sets. Prerequisites: familiarity with matrix algebra & linear models. Info: Henry Heitowitz, Program Director, ICPSR Summer Program, Box 1248, Ann Arbor MI 48106; tel: 313-764-8392.

ELECTRONIC NETS

The 11/88 California election may contain a vote on a constitutional amendment on the 1 hand adding electronic communication to freedom of speech & on the other hand guaranteeing that electronic info systems & data bases be secure against unreasonable & warrant-less searches. Community Memory News, the source for the above (Winter, 1987-88), is a newsletter of "The Community Memory Project," 2617 San Pablo Ave, Berkeley CA 94702. CM is a project, co-founded by Lee Felsenstein, which is developing nets of publicly accessible terminals (& a relational database system) to foster widespread communication & debate (including coin-operated terminals for those not computer privileged).

In the same issue of CMN, Felsenstein argues that "as Jane Jacobs pointed out succinctly..., the thing that makes life bearable & humane in a city is the degree to which villages, in effect, or neighborhoods can establish themselves....What makes community [is] the ability to communicate without control over your lines of communication by anyone else.... At CM, ...we are...trying to get the structure spread on a lateral basis. We are not imposing a hierarchical structure on the community as we see it. Rather, we are growing the capacity from the ground up & letting the people work out their ways of developing grapevines thru the system....

"[In contrast, Bulletin Board Systems, BBS] generally serve a pre-defined community of interest, [&] you have to have a computer yourself in order to use a BBS system. Which means that you are automatically within a certain range in terms of income & in terms of interests.

"...CM is oriented towards usage within local, geographical areas, & within more specific communities of interest. With the new software coming up, we'll have a large overlap of more specified forums, which are communities of interest.

"[CM] is defined by the community that develops thru its mediation, & since it is a non-broadcast medium, the mediation of the system is essentially passive. It is determined, in the aggregate, by the members of that particular community. Almost a self-developing community."

INFO FLOWS

Karen Anderson (former INSNA Assoc Coord) appointed to Soc, York U, Toronto....**Rebecca Adams** (Soc, North Carolina-Greensboro) has done the double: achieving tenure & motherhood in the same year....**Brian Elliott** visiting prof at Soc, British Columbia....**Peter Mariolis** now a methodologist for Ctr for Disease Control, Atlanta GA 30333 (tel:404-488-437). With Calzavara in Toronto doing AIDS & Coleman/Laumann in Chicago doing sexually-transmitted diseases, it looks like epidemiologists are finally realizing that people transmit many diseases thru networks, not toilet seats....Former INSNA Assoc Ed **Robert Hiscott** appointed Asst Prof, Soc, Waterloo, Canada....**Tonya Schuster** received her Ph.D. from Riverside (see summary in this issue) & is now at the Inst for Soc Res, U Michigan, working with Toni Antonucci, Ron Kessler & James House....**Ivan Szelenyi** to Soc, UCLA....**Ronald Breiger** (Soc, Cornell) has a new son, David Luis Waugh Breiger plus a Fulbright to Australia....**Diana Crane** (Soc, Penn) has a Fulbright to France....**Mitch Allen** is continuing as an editor for Sage, but at a distance (shortened by e-mail, no doubt). His new address is Sage Publications, Bay Area Editorial Office, 1630 N. Main St, Suite 367, Walnut Creek, CA 94596 [tel: 415-938-7243]....Mayflower's Person of the Decade, **Stan Lieberman**, off to Harvard Soc next year....**Leigh Starr** getting married....**James Beninger's** (Annenberg, USC) The Control Revolution received the Assoc of Am Publishers' Award for "Year's Most Outstanding Book in the Social & Behavioral Sciences"....**Charles Tilly** (Ctr for Studies of Soc Change, New Schl, NYC) received 1987 C. Wright Mills award from Sty for the Study of Social Problems for his The Contentious French....**KAREN COOK** (U Washington) elected to Council of the Organizations & Occupations section of the Am Soc Assoc...**Paul DiMaggio's** (Yale) the Treasurer of this group & **Judith Blau** (SUNY-Albany) is chair of the 1988 Program Committee

for the section's annual meeting....**David Knoke** (Minnesota) is editor of the ASA's Political Sociology section's newsletter (States & Societies).

POWER NETWORKING

American Sociological Assoc nominees for offices: Pres: **Immanuel Wallerstein** (SUNY-Binghamton); VP: **Edna Bonacich** (Cal-Riverside), **Alejandro Portes** (Johns Hopkins); Council: **David Gold** (Cal-Santa Barbara); Ctte on Publns: **Maureen Hallinan** (Notre Dame), **Ivan Szelenyi** (CUNY); Ctte on Nominations: **David Knoke** (Minnesota), **Robert Perrucci** (Purdue), Ctte on Cttes: **James Baron** (Stanford), **Wendy Griswold** (Chicago).

PERILS OF STRUCTURAL EQUIVALENCE

The following notice was observed taped to a door of a Toronto philosopher: "Prof. Forguson has to cancel your meeting because of the storm. He has made alternative arrangements with your wife."

GATEKEEPERS AID ELDERLY IN ILLINOIS

"Thousands of meter readers, cashiers & other utility employees are looking out for the welfare of many of the 1.8M elderly people in IL by volunteering for the state's Gatekeeping program. 'Many are isolated & there's no support system around to notice if they are having problems,' said Jeanne Blackman' [at the Dept of Aging which has run the program since last fall.] 'Gatekeepers can link them into the aging network.' 'Utility companies are the backbone of the program. 'We teach them how to recognize signs that an older person needs help & give them the telephone numbers to make anonymous calls to" agencies. [NY Times 31 March 88].

WHY SOCIAL NETWORKS ≠ SUPPORT SYSTEMS

"You have to play with your teammates, but that doesn't mean you have to like them." Baseball player Reggie Jackson (1973) as quoted by Marty York, Toronto Globe & Mail, 11 March 88.

THE BBC NETWORK DISCOVERS SUPPORT NETWORKS

"In Tuesday's Radio 4 play, Sitters, by Jake Roden: Barbara applies to join a baby-sitting circle run by Celia. Celia's husband is a radical sociologist who is using the circle as material for his Ph.D. & has made so many socially disturbing experiments on them that Celia uses her own socially disturbing experiment on him, leaving him dead. But the other members of the circle will help..." [from Financial Times (UK), 12 March 88].

SUGGESTIONS FOR IMPROVING INSNA

[from Pat Wagner, Office for Open Network, Box 9845, Denver CO 80209; 303-778-0880]

"As [a] practitioner..., I might suggest a few ways to attract more of us rich & stupid, er, uninformed & wealthy...undereducated and well-to-do?...businesspeople to your ranks:

"1. It would have been nice to get a short personal letter from your office when I paid my membership.

"2. It would be interesting to seed your journals with more info. about businesses using various networking techniques. Altho I find what you are doing very interesting, I would not be able to explain to any of my rich, stupid, business friends why they should sign up with your organization of predominantly smart, poor folks....I think you probably have some extraordinary people connected with this organization. Now, I will have to spend some time learning about them & how we might be useful to them, & vice-versa.

"Our idea of a networking organization is that the center generates an environment, via personal

contacts, that encourages mutually beneficial connections. Friendly postcards, a quick note on something of personal interest, an intro., are techniques that seem to work better than mass mailings of newsletters.

"My 1st step is to send a non-commercial, friendly note to those folks listed in the directory who I think might [be] interested in the theoretical aspects of our work -- particularly how we see networks as creating spontaneous orders inside more structured systems -- & how we are able to get measurable results for our clients with our workshops, training & system design....Also I would be happy to chat with anyone who wants to know more about how we have made a living running a network generator & passing on our knowledge & experience these past 13 years.

"I have also done a little marketing for you among some of the academics in our client base, none of who have heard of you. (Isn't it interesting how people interested in networking sometimes forget to do a better job for themselves.

"By the way, we have a special offer to the end of 1988: any INSNA member may use our services free by calling our office & submitting their request for a contact. If we can do them right away -- 95% of the time we can -- we will with no charge or sales pitch. We will only do it for phone calls."

ATTENTION PRACTICING NETWORKERS

The Chicago Sociological Practice Assoc would like to set up supportive relations with INSNA members interested in non-academic work. Contact Mitchell Pravatiner (INSNA member & past president CSPA), U Illinois, Box 4348, Chicago IL 60680.

JUST WHEN WE THOUGHT WE WERE GETTING INSTITUTIONALIZED

I recently received a letter which said in part:

"Dear Barry: The last time I heard from you was in 1976 when you sent me a copy of Craven & Wellman. What ever happened to social networks since? I would welcome a copy of any recent off print which might reveal your more recent ideas on this area."

Of course, I sent an INSNA form post haste. And if this person -- or any other tyros are reading CONNECTIONS now -- a good place to start catching up is via the 3 course outlines in this issue.

EXCITING PUBLISHING OPPORTUNITIES

Family Perspectives will have a special issue emphasizing reciprocal links between family life & work life. Ms by 30 June 88 to Bruce Chadwick, Family Studies Program, 892 SWKT, Brigham Young U, Provo UT 84602. [801-378-6026].

Lifestyles: Family & Economic Issues is a revamped journal focusing on the link between the family & its economic environments. Ed: Charles Hennon, Family & Child Studies Ctr, Miami U, Oxford OH 45056.

MLR Enterprises publishes Directors & Boards, & has dbases on the subject at 229 S 18 St, Philadelphia PA 19103.

Advances in Medical Sociology is a new JAI Pr book series for original papers on research & theory (30-50 ms. pp.). Info: Gary Albrecht, ed., Pub Health, U Illinois, PO Box 6998, Chicago IL 60680 [tel: 312-996-5795].

Journal of Applied Social Sciences is putting out a special issue (Fall/88) on "Family Caregivers: Theory, Research & Practice." It'll look at how families provide care to dependent members, the families' burdens [nothing about joys?], & how agencies can supportively assist caregiving families. Of special interest are papers that examine caregiving across population groups (frail elderly, mentally ill, chronically ill, etc.) Info: David Biegel, co-ed., Schl of Applied Soc Scis, Case Western Reserve U, 2035 Abington Rd, Cleveland OH 44106 [tel: 216-368-2308].

Journal of Aging & Health is new from Sage, looking at social & behavioural factors relating to aging & health. In addition to soc scientists, aimed at epidemiologists, health services researchers, etc. Info: Kyriakos Markides, ed., Dept of Preventive Medicine & Community Health, U Texas Medical Branch, Galveston TX 77550. [tel: 409-761-2551].

The new **Journal of Historical Sociology** wants to be international, interdisciplinary & link history with the other soc scis. Eds: Philip Corrigan (Soc, OISE, Toronto), Derek Sayer, Roy Porter & Jane Schneider. Subs: US\$35/L20, Basil Blackwell, Box 1320, Murray Hill stn, New York 10156.

In Context is a quarterly published by the North Olympic Living Lightly Assoc, whose issues have had themes such as "Being Global Neighbours" and "Friends & Lovers: Relationships in a Humane Sustainable Culture." \$16/yr from Box 2107, Sequim WA 98382.

Multinational Monitor is a monthly dedicated to exposing the ways global corporations affect prices, the environment, products, government policies, the future, etc. Box 19405, Washington DC 20036.

Journal of Quantitative Anthropology is interested in research, methods, computer applications for all anthropologists: biological, physical, social, linguistic, archeological. It's especially interested in new mathematical & statistical methods, empirical research applying new approaches, articles combining quantitative theory & methods, & articles with computer simulations & models. Ed: Jeffrey Johnson, Inst for Coastal & Marine Resources, East Carolina U, Greenville NC 27858-4343. tel: 919-757-6220. Subs & free sample copies: D. Reidel Publishing, Box 17, 3300 AA Dordrecht, Netherlands.

Chance is a new statistical news magazine for those employing statistical tools & analysis in business, industry & research. Ed: Stephen Feinberg & William Eddy, Carnegie-Mellon. Info: Springer-Verlag, 175 5h Ave, New York NY 10010.

The quarterly **Journal of Community Studies** focuses on communism as a movement, a system of party rule & party organization, especially in societies where Marxist-Leninist parties exercise governmental power. It examines the effect on the community movement of events at its periphery, the continuing emergency of revolutionary governments, & the growth of organizations & movements which have come into relationship with Marxism-Leninism. Eds: Michael Waller (Govt, Manchester), Richard Gillespie (Pol, Newcastle). Subs: L20, Frank Cass, 11 Gainsborough Road, London E11 1RS.

The **Journal of the Southwest** is aimed at multidisciplinary & regional analyses of the US southwest & northern Mexico. Ed: Joseph Wilder, U Arizona. Sub: \$15.

David Kemper (Soc, St. Johns, Queens, NY) will edit a new book series in the **Sociology of Emotions** (broadly defined) for SUNY Press.

THE STICKINESS OF WEAK TIES

Warwick U researchers [who they?] reported in 1986 that "the people most in danger of joining the long-term unemployed are the least mobile....'Movers' are typically male managers & professionals....'Stickers' are older manual workers. 1 explanation...is that many employers advertise manual jobs by word of mouth. About 1/3 of jobs are found this way, compared with only 17% thru the labour exchange. The stickers...reason that it makes more sense to be unemployed among their friends than among strangers. Their best chance of getting work may be to stay put & wait to hear of something while making up their income on the black economy -- which also depends on local contacts." [cf. Endre Sik & Ray Pahl]. Financial Times 10 April 88

SHAKESPEARE: THE FIRST CALIFORNIA SWINGER?

Historian Stephen Greenblatt on Twelfth Night: "Sexuality is itself a network of historically contingent figures that constitute the culture's categorical understanding of erotic experience." [in Shakespearean Negotiations: The Circulation of Social Energy in Renaissance England, U California Press; as cited by E.A.J. Honigman in NY Review of Books, 31 March 88.]

Only the uneducated and unstructural think that making love is a dyadic experience.

DEFINING YOURSELF EXTERNALLY

"The network of the other is used as a way of absenting yourself from yourself. You only exist in the trail of the other, but without his knowing. In fact you are following your own trail almost without knowing." Henri Baudrillard in Sophie Calle's photoessay, La Suite Venitienne [as quoted in Stroll 4/5, 1987:44].

GUILT TRIP FOR THE DAY

"Sir Peter Medawar once described the scientific paper as a fraud. His point was not that the scientific paper misrepresents nature,...but rather that it misrepresents science. Typically, a scientific paper presents a formal & highly idealized account of research, written according to a set of standard conventions. Problems are set up, methods of investigation are described, results are given, & conclusions are drawn; but nowhere does the reader learn very much about ho scientific research is done, or about where original scientific insights come from.

"The reason for this 'fraud' is plain. The scientist's 1st duty is not to explain the secret of his or her success, nor yet to provide a blow-by-blow account of how any particular investigation was actually conducted; rather, it is to gain professional recognition for what has been done. Such recognition is necessary to the scientist's ability to continue research, and in practice it entails the recasting of research results according to the public conventions of the scientific community. The inevitable result of such recasting is that the scientific text becomes, in part at least, something of a public relations exercise." [John Durant in The New York Review of Books, 28 April 88, p. 19.]

THE DECLINE OF THE PUBLISHING EMPIRE

"The standard of proof-reading in books is not nearly as good as it used to be & as it should be. Several years ago I complained about this to the chief editor [of a major British house] & was told that nothing could be done about the matter, as the supply of defrocked Anglican clergymen with a good classical education, looking for jobs where they could remain in decent obscurity, had dried up." [letter to BW from John Barnes, 4/88].

COPING WITH THE NEW EMPIRE

"Just as the old order changeth, yielding place to the new, so does the old-boy network change, making way for the new-boy network.

"Put yourself in the shoes of an ambassador to Washington, or a newspaper bureau chief, or a lobbyist whose livelihood depends on knowing who sits at the consoles of control. You have spend years lunching & brunching mid-level powercrats & now these assets are dwindling before your eyes.

"Who do you cultivate? What fresh power jockey should you buy lunch in the hope that he or she might become an aide so key as to fulfill your wildest dreams of access?...Several names certain to be at the center of the next administration's decision-making must go unmentioned here. Those will be my sources." [William Safire, New York Times, 31 March 88].

WHY COMMUNITY SAVED MAY BE THE DEATH OF US ALL

Cdn General (retired) Leonard Johnson's new book, A General for Peace (Toronto: Lorimer, \$16.96) points out that senior military people exist in total isolation. He realized that when he visited SAC HQ in Omaha that "the generals & everyone else we met -- all otherwise estimable people -- lived & played their adult games in a fantasy world in which moral sensibility was a disqualification for service." [Toronto Star, 23 Nov 87].

GET SUPPORTED!

The Dutch **Interuniversity Center for Sociological Theory & Methodology** is a 4-year Groningen /Utrecht doctoral program in advanced theory construction & research methods for 8 students a year (with full scholarships for tuition, research & living expenses. Network analysis is a principal focus. It's under the joint direction of Frans Stokman, Siegwart Lindenberg, Reinhard Wippler & Albert Verbeek

Yale has NIMH postdocs to study the organization of mental health services, psychiatric epidemiology [why are shrinks spreading like the plague?], & the mental health needs of the children & the elderly. INFO: Philip Leaf, Ctr for Mental Health Services, Inst for Soc Policy Studies, 350 Congress Ave, New Haven CT 06519.

ASA's **Medical Soc** section invites submissions from members for best dissertation in 2 years preceding 8/31/88. Winner gets trip to '88 ASA meeting in Atlanta, 1 day subsistence, & a session to present papers. Send 3 copies by 1 June to Michael Radelet, Soc, U Florida, Gainesville FL 32611.

Intra-American Travel Subsidies are for European Scholars who are temporarily in the US & are invited to lecture at a university elsewhere in the US, up to \$300/visit. Contact Council for European Studies, 701 Casa Italiana, New York NY 10027; tel: 212-280-4172.

COMMUNITY LIBERATED LINKS SZECHUAN CUISINE WITH BURRITOS

In the US, "a fundamental contrast between past & current waves of immigrants is today's pattern of dispersed settlements. 'Even within the same apartment building, you find this diversity of background, origin & language,' points out Paul Friesema (Pol Sci, Northwestern). Yet the services provided by many voluntary organizations are based on geography & assume some ethnic homogeneity. The patterns of service may have fit the geographically contiguous settlement patterns of earlier waves of immigrants, but not the patterns of today's scattered settlers. 'Institutional mechanisms are different in this era of migration than before.' There are few settlement houses to ease immigrant transition, & the party machine & churches play different roles." Together with Albert Hunter (Soc), he's studying what kinds of institutions & cooperative mechanisms newcomers now use. {Urban Affairs News, Ctr for Urb Aff, Northwestern U, Winter, 1988}.

IS THIS THE WORLD'S RECORD FOR A SPATIALLY DISPERSED COMMUNITY?

"Jackie Goodman Dies. This middle-aged psychic counsellor died 2/8 from a sudden cerebral hemorrhage. Mrs. Goodman was a purported 'walk-in'; she claimed that she was born in another star system, came to Earth in a spaceship, & took over the body of someone named J.G. (aka Lobsang Rampa). Her friends called her Anyekhas, her outer-space name. In recent years Goodman directed her Starchild Centre at her home in Scarboro for fellow walk-ins & people claiming outer-space parentage." [Toronto Dimensions, 3/88].

NETWORKS CAUSE AIDS

The Royal Society of Canada's 4/88 report, "AIDS: A Perspective of Canadians," gives prominence to network thinking. Heavily influenced by background papers by Bonnie Erickson & Lorna Marsden, the report asserts:

"Network theory is built on the empirically established knowledge that information, behavioural change, value change, & misinformation are all transferred from 1 person to another in certain non-random patterns. Network theory studies not only the paths along which info. travels but also its impact on people based on the types of links between them.

"The study of network theory is highly developed in Canada & has strong predictive promise. Knowledge from this research is likely to prove useful not only in preventing the spread of HIV infection but also in studying crises & behavioural change in general, including the effects of education in the diffuse & heterogeneous Canadian population. A large-scale multiwave study ... of sexual behaviour & its related info. networks has recently been funded in the US [Coleman, Gagnon & Laumann?]

"In our view, Canadian data should be gathered on the relevant types of social relationships & the transmission networks responsible for disseminating AIDS-related info. A collaboration between Canada & the US may effect financial savings because of economies of scale & will generate useful comparative data.

[Formal recommendation:] "We recommend a large multiwave survey of the adult & adolescent Canadian population. This survey would provide currently lacking info. about sexual practices, ideas & feelings about AIDS, patterns of social ties & behaviour relevant to the spread of sexual disease, trust in various sources of info., & other factors bearing on the future spread of HIV infection & means of prevention. These data will be useful for both network analysis & epidemiological purposes." [The report later estimates the cost at \$5-7M.]

UNDERCOVER NETWORKS

Who's Had Who is a guide to the bedroom lives of the rich & famous, written by Simon Ball, Richard CURtis & Helen Fielding (London: Faber & Faber). Drawing on all possible rumour-mongering sources, a cross-reference library of sexual congresses extending back 400 years, liberally sprinkled with spurious, patently authentic & satiric asides. Each entry includes the person's occupation, hobbies & distinguishing characteristics. Non-celebrity sleeping partners aren't counted.

The common term used throughout for the sexual act is 'rogering,' leading the authors to conclude, 'If you've rogered anyone, you've rogered everybody in the history of the world' [Milgram said this 1st, less elegantly].

"Such a paranoid mind-set allows the authors to trace connections between such unlikely figures as former Philippines president Ferdinand Marcos & the Princess of Wales.... Marcos slept with his wife Imelda, who was romantically linked with actor George Hamilton, who was romantically linked with Alana Stewart, who was romantically linked with Sabrina Guinness, who was romantically linked with Prince Charles, who married Diana."

TO WHAT LENGTHS WILL THESE NETWORK ANALYSTS GO TO PROVE CONNECTIVITY?

Harold Brooks-Baker, editor of Burke's Peerage, has asserted that Austrian Pres Kurt Waldheim is a distant cousin of Queen Elizabeth II of England & is even more closely linked to her spouse, Prince Philip. He said Waldheim is related to the Austrian Hapsburgs who were connected with the Queen's Hanoverian ancestors. "They are very distantly related. They would have some of the same chromosomes & genes, but that's all. The link to Prince Philip is closer, thru the Schleswig-Holstein family." He said both Ronald Reagan & Francois Mitterand are distantly related to the Queen. [Yes & I'm related to an Inner Mongolian yak herder thru 2 traceable steps.] Toronto Globe & Mail 22 Feb 88.

A TAD ALTRUISTIC

Harvard researcher Bruce Waldman has found that tadpoles will limit their own growth for the sake of older tadpole kin in the same crowded pond. He kept 200 tadpoles in each of 2 cages in a pond. In the cage where all related, younger tadpoles held back their own growth. Waldman believes that this increases the chances of some of the family surviving before the pond dries up. In the 2d cage where there were 20 family groups of 10 tadpoles each, the groups competed with each other in growth. When not in crowded conditions, all of the tadpoles developed uniformly. [Toronto Globe & Mail 26 Sept 87].

NETWORKS AS CONSERVATIVE PHENOMENA

According to Bai Nanfeng of the Economic Reform Res Inst (Beijing), "social discontent has entered a new phase in China. The #1 beef is officials who use their power to make private gains. Other hi-ranking complaints include the widespread phenomenon of people giving jobs only to relatives, an imperfect law-making system, the inability to choose jobs, & inequality in pay...He describe the labour service arms of most enterprises as a 'unit organized by an enterprise itself for arranging employment for sons & daughters of its staff.'" [James Rusk, Toronto Globe & Mail, 22 Feb 88].

(Network Notebook continued on page 65)

MEETING CALENDAR

SUNBELT 1989 PROBABLY TO BE IN PUERTO RICO

For the 1st time ever, the Sunbelt leaves the Continental USA next year -- but Puerto Rico seems kosher enough to keep decannal & tax types happy for North Americans. Jeff Johnson is the organizer-giving Bernard & Wolfe (the usual East Coast types) a welcome break. His address: Inst for Coastal & Marine Resources, East Carolina U, Greenville NC 27858-4354; tel: 919-757-6220.

One innovation is a set of structured tutorials, each 2-hours long. Barry Wellman will do an intro to network analysis, emphasizing philosophical, paradigmatic concepts. Susan Freeman will follow with a review of basic network techniques. Steven Borgatti will conclude by showing how to use these concepts & techniques with such canned computer packages as UCINET. In addition, we expect that Stanley Wasserman will continue his tutorials on statistical techniques for network analysis.

FORTHCOMING 1988 CONFERENCES

IASSIST 88, MAY 26-29, WASHINGTON, D.C.

The International Association for Social Science Information Services and Technology (IASSIST) is a professional association of individuals who are engaged in the acquisition, processing, maintenance and distribution of machine readable text and/or numeric social science data. Likely topics include data interchange standards, storage technologies, public policy issues, the cost of data access, microcomputer applications, data access systems, networking and electronic messaging and analysis methods. Info: IASSIST 88, c/o Pat Doyle, Mathematical Policy Research, 600 Maryland Ave. SW, Suite 550, Washington, DC 20024.

SOCIAL NETWORK SESSION AT THE CDN SOC & ANTHRO ASSOC MEETINGS, JUNE 5, WINDSOR. Chair: Peter Carrington (Soc, Waterloo).

David Hillock (Soc Work, Toronto), "Network Dimensions of Social Support."
 June Corman (Soc, Carleton), "Employment and Household Constraints on Network Size."
 John Hirdes (Soc, Waterloo), "The Association Between Social Isolation and Health Status in the Ontario Longitudinal Study of Aging."
 Patrick McGuire (Soc, Toronto), "Social Networks and Industry Development: An Analysis of the Early Electric Utility Industry in the United States."
 David B. Tindall (Soc, Victoria), "Social Networks and the Commons Dilemma."
 Jacqueline Scherer (Soc, Oakland U, Rochester, MI), "Trust and Social Networks."

FACULTY DEVELOPMENT WORKSHOP ON ISSUES IN INTERNATIONAL FOOD SECURITY, JUNE 13-19, COLGATE UNIVERSITY

Info: Ellen Percy Kraly, Department of Geography, Colgate University, Hamilton, NY 13346; (315) 824-1000.

**TELCOM AT 150: PROGRESS, PROMISES AND POLICIES, JUNE 21-22,
MERRILL LYNCH CENTRE, PRINCETON, NJ**

Commemorates the 150th anniversary of the telegraph. Focus will be on what happened historically with revolutionary advances in telecommunications technology and use this information to project what might happen in the future as new advances take place. The conference will look at technological, societal and public policy issues that are critical in advancing new telecommunications systems and services around the world. **Reg:** \$750 - includes hotel, meals & post-conference book. **Info:** Mauro DiDomenico, Committee Chairman, Telecom at 150, 435 South St, Rm 2A-154, Morristown, NJ 07960: (201) 829-5167.

**INTERNATIONAL CONFERENCE ON PERSONAL RELATIONSHIPS,
JULY 3-8, VANCOUVER**

Held on the campus of the U of British Columbia. **Themes:** "Normal" and "Abnormal" Relationships, Growth of Relationships, Relationships across the life cycle, and Communication in Relationships. Invited participants include Ellen Berscheid, Keith Davis, Jesse Delia, Hubert Feger, Warren Jones, Harold Kelley, Dave Kenny, Jud Mills, Anne Peplau, Ruth Sharabany, Abe Tesser, and Peter Suedfeld. **Reg:** \$150. **Accom:** \$26/nite. **Info:** Robin Gilmour, Psych, Lancaster U, Fylde College, Bailrigg, Lancaster, LA1 4YF, England.

**INTERNATIONAL COMMUNAL SOCIETIES CONFERENCE,
JULY 18-21, SCOTLAND**

Theme: "Utopian Thought and Communal Experience." **Info:** NHCSA, Centre for Communal Studies, U of Southern Indiana, Evansville, IN 47712; (812) 464-1719.

**INTERNATIONAL FED OF SETTLEMENTS & NEIGHBORHOOD CENTRES,
AUG 5-11, WEST BERLIN**

Theme: Settlements as bridges between cultures: social groups, ethnic groups, classes, subcultures. Special focus on multicultural community work with minority groups. **Reg:** DM150. **Info:** IFS Conference Office, Goltzstr 43/44. D-1000 Berlin 30. Tel: 49-30-210-53-47.

TRENDS & CHALLENGES OF URBAN RESTRUCTURING, RIO DE JANEIRO, SEPT 26-30

Organized by the Intl Soc Assoc Research Cttee on Soc of Urb & Regional Dev. Several INSNA members are participating. Conf. infor from Licia Valladares or Edmond Pretceiller (addresses below). Sessions, organizers, addresses:

Brazil today: trends & perspectives. Aspasia Camargo, CPDOC, Fundacao Getulio Vargas, Praia de Botafogo 190, CEP 22250, Rio.

Trends & forms of urbanization, economic activities & int'l division of labour. Michael Harloe, Soc, U Essex, Colchester CO4 3SQ, England.

Recent changes in the structure of urban production. Marino Folin, DAEST, Inst Universitario di Architettura, Santa Croce 1957, 30125 Venezia, Italia.

Changing work processes & urban/regional impacts. Martin Boddy, Schl for Advanced Urban Studies, 5 Grange Road, Bristol BS8 4EA, England.

New forms of urbanization & spatial structures. Michael Storper, Urban Planning, U California, Los Angeles 90024-1467.

Thoughts about the city. Peter Marcuse, Planning, Columbia U, New York 10027.

Looking backwards at urban reforms. Luis Cesar de Quieroz Ribeiro, IPPUR, UFRJ-Edificio da Reitoria-5, Andar 543, Cidade Universitaria, Rio.

The failure of planners' utopias. Jean-Pierre Gaudin, Labo Theorie des Mutations Urbanies, ENPC, La Courtine BP 104, 93194 Noisy Le Grand, France.

Order & violence in the city. Licia Valladares, IUPERJ, Rua da Matrix 82, Botafogo CEP 22260, Rio.

Urban social structures: new trends & challenges. Edmond Pretceille, CSU, 59-61 rue Pouchet, 75849 Paris Cedex 17.

The role of social networks in urban change. Enzo Mingione, Fondazione Bignaschi, Via Olmetto 3. 20123 Milano.

Class & gender: economic, domestic & urban changes. Linda McDowell, So Scis, Open U, Walton Hall, Milton Keynes MK7 6AA, England.

Ethnic minorities, urban inequalities & racism, Carloes Hasenbalg, IUPERJ, Rua da Matrix 82, Botafago CEP 22260, Rio.

WOMEN, DEVELOPMENT & SOCIAL CHANGE, MICHIGAN ST, OCT 22-23

This international conference will examine connections between socioeconomic change & women's health in the 3rd world. Topics include health care & the community, public policy, child survival, reproduction & sexuality, women as health care providers, rural production, migration, international division of labour, the informal sector, technology transfer. Info: Rita Gallin, Women in International Development, 202 Ctr for Int'l Development Progs, Michigan St U, E Lansing MI 48824 [tel: 517-353-5040].

ASSOC FOR THE SOC SCIS IN HEALTH -- BOSTON, NOV 13-14

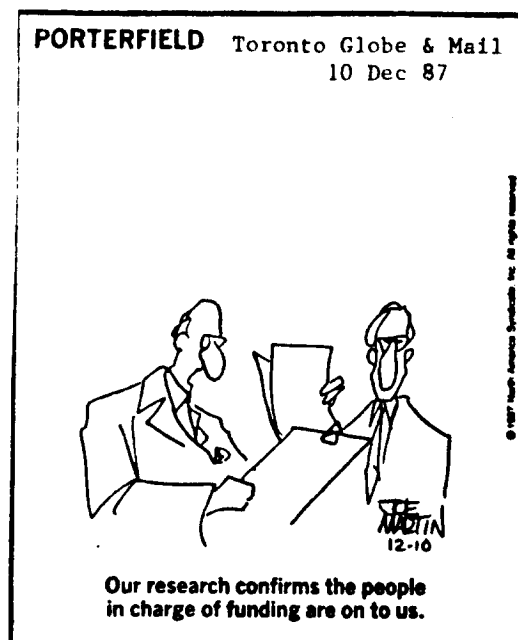
Papers should present a soc sci perspective on issues of public health as well as health policy analysis. Abstracts immediately (6 copies, APA style) to Kenneth Whittemore, Assoc Dean, Administrative Health Scis, Col of Health Related Professions, Med U of S Carolina, Charleston SC 29425.

14TH INTERNATIONAL CONGRESS OF GERONTOLOGY -- ACAPULCO, 19-32 JUNE 89

Abstracts & reg by 15 July 88 to Congress Secretariat, Jojutla 91, Tlapan, CP 14090, Mexico City.

WORLD CONGRESS OF SOCIOLOGY -- SPAIN -- SUMMER, 1990

Precise dates have not yet been set & the city will either be Barcelona or Madrid. INSNA has applied for 2 sessions, interpersonal & interorganization, with Barry Wellman as organizer pro forma. (Volunteer wanted to take over putting together the inter-organizational session.) If there's demand for more sessions, we may be able to get them on the program, if we act soon.



RESEARCH REPORTS

Comparative Aspects of Aging Asian Canadians: Social Networks and Time Budgets. Lawrence Lam (York), Harry Nishio (Soc, Toronto), Victor Ujimoto (Soc, Guelph), Paul Wong (Psych, Trent)

This study examines a stratified random sample of approximately 800 Chinese Canadians over 65 years of age in order to determine those activities or patterns of activities most predictive of well-being for this population. Unlike previous studies of aged ethnic minorities, this research will recognize the heterogeneity of the aged Chinese community and demonstrate how specific components of one's ethnicity may structure, facilitate, or hinder the adaptation to aging. Given variations in the socio-cultural and demographic characteristics of the aged Chinese Canadian subjects, the researchers expect a significant variation in their participation in various activities and in their general well-being. Because of the high institutional completeness of the Chinese Canadian Community, the researchers expect a greater social support system to be operating in the community. It remains to be ascertained however, whether or not more developed social networks result in a higher level of life satisfaction or well-being.

Both quantitative and qualitative data on well-being and life satisfaction will be obtained, with time-budget data being supplemented with an inventory of coping strategies. The latter will enable delineation of activities which contribute to well-being. It is hoped that ultimately such data can be utilized, at a practical level, for community planning and improvement of well-being among aged Chinese Canadians.

Paul Windley & Rick Scheidt (Kansas State)

In a study of 1,000 elderly persons in 18 Kansas towns, the researchers found that the stereotypes of the rural aged of being dependent and isolated are misleading. Support may come from other community members, family, friends, and community professionals. For example, the Meals on Wheels volunteer may stay and talk with a troubled older person when the meal is delivered, or another volunteer may take the responsibility for helping an elderly person take medicine in the morning. Most small towns have these informal networks of people helping people. Such networks have a positive effect on the feeling of well-being experienced by older people living in small towns.

Kathleen Carley (Carnegie-Mellon)

Developing a model of the relationship between different forms of electronic mail and organizational behavior. This research has taken two avenues: how can managers use electronic mail to control the behaviour of individuals in the organization, and understanding the difference between electronic distribution lists and bulletin boards.

Constructuralism Project: Decision making is treated as a primarily formulative task dependent on what information the individual has acquired and the knowledge acquisition pattern. Consequently, this research seeks to develop an integrative model of the social and cognitive mechanisms which produce characteristic behavioral phenomena in knowledge acquisition given a multi-person distributed information environment in which the social structure is flexible and the information incomplete and uncertain. This model, referred to as the constructural model, is used to develop and test a theory of knowledge acquisition that embodies the fundamental social and cognitive issues underlying the effective transfer of complex information among and its consequent acquisition by dispersed decision makers. This work is being carried out by developing and analysing simulation models, developing methods for representing, encoding, and analysing information that is both social and cognitive, and by utilizing these methods to analyze non experimental diffusion and decision making data.

SOAR project (with Allen Newell): One of the things that social scientists do is to apply known theories to new social problems. The goal is to both expand that theory and to use it to understand a

particular problem. In the Social Expert SOAR project, the researchers are trying to create an expert system that emulates this analysis process using SOAR. SOAR is an inference engine that can be thought of as a model of human cognition. Rather than emulate a single social scientist's theory we are emulating a set of such theories. The basic theories that we are using are a general theory of limited resources, Blau's theory of homogeneity, and Granovetter's theory of weak ties. The key to this project is the control structure for passing information among a dispersed set of analysts who have to decide whether or not their theory is applicable to the problem at hand, and then have to apply this theory.

Martine Segalen (Centre D'Ethnologie, Paris)

This study is examining the importance of kin exchanges through social networks in Nanterre, a suburb of Paris. Because of Deindustrialization, population aging, and living in low-cost housing developments, exchanges seem to be of little importance. The most recent migrants (Bretons who came in the 1950s) have their houses back home in the country, and the exchanges are more important between countryside and city than within the city itself. A book, Historical Anthropology of the Family, has been published by Cambridge University Press: a translation of Sociologie de la Famille.

Elderly Widows and Widowers: Patterns of Social Support, Lucille Dixon (Guelph)

The majority of community-living elderly widowed people reside alone in a house or apartment. Are these individuals isolated, or do family, friends, and neighbours provide needed social support. The purpose of this study was to address the following questions: What demographic and social factors influence the availability of social support among the elderly? Is there a gender difference in the perceived availability of social support? What are the qualitative aspects of relationships within the informal network? To whom do elderly widowed men and women turn for assistance?

Results suggested that those widowed elderly who are unemployed, female, and who have low incomes, low socioeconomic status, good functional health, and available family and friends/neighbours perceive higher levels of support. The majority of those children and siblings felt close to these family members. Although there were no gender differences in terms of numbers of available family, or in face-to-face contact with family or friends, widowed men had significantly fewer friends, less frequent contact with friends, and were less likely to maintain contact with friends via the telephone. Men also perceived significantly less belonging and esteem support, a finding likely due to fewer friendships.

Stress, Mental Health and Coping in the Puerto Rican Elderly Community. Rita Mahard (Fordham)

The major goal of this study is to test a general model of stress process in Puerto Ricans aged 55 and over who reside in housing units in the New York metropolitan area. Face-to-face interviews were conducted through March 1987 with a sample of approximately 1,000 Puerto Ricans.

Women's Employment Histories. Charles Jones (Soc, Toronto)

This personal interview survey of 800 women and 200 men in Southern Ontario involves detailed retrospective questions on the occupational histories of respondents. This is the first detailed survey of women's employment histories in Canada since 1959. A survey instrument, developed and tested by the British Office of Population Censuses and Surveys, has been entered into a word processor and adapted to the Canadian situation. The survey covers several topic areas, including a) patterns of movement in and out of the labour market; b) factors effecting labour force participation; c) recent and current employment activities; d) the consequences of not working; e) the process of job search; f) factors effecting decisions to work or not; g) careers and occupational mobility; h) general attitudes towards women and work.

Detailed examination of the data will be carried out using typological, status attainment and event history analysis. Trends will be measured by comparing older and younger cohorts and by comparing Canadian sample characteristics with an appropriate urban subset from the British data. Comparisons will also be made with published U.S. figures from the National Longitudinal Surveys. It will also be possible to fit status attainment models to be compared with baselines established using the Canadian Mobility Survey of 1973.

The Marigold System: A Case Study of Community Planning Networks and Community Development.
Robin Inskip (Lib Sci, Alberta).

Multidisciplinary analysis is applied to the 1978-1981 case history of the development of the Marigold Library System, the first rural public regional library system in Alberta. Particular reference is given to the diffusion of innovations in a rural society. Case analysis supports a new overarching theoretical framework for interorganizational change management, which studies how network agents facilitate communication in community planning networks. This framework presents the gradual development of an understanding of common problems and the collaborative execution of joint action programs by organizations concerned with solving shared problems in their environments. The case suggests the possibility of extending the theoretical framework by incorporation of key community development models.

The Family Support Project: Linking Formal and Informal Helping Resources in Intensive Family-Based Preventive Services.

This project will identify practical strategies for assessing and enhancing social support resources for families at risk of disruption through out-of-home placement. Evidence shows that many of these families are isolated from social support resources, and consequently, lack access to information, skills, and resources that have the potential to support their parenting efforts. The Family Support Project will identify intervention techniques designed to build, mobilize, and sustain social support resources for this population of families.

The major phases of the project include: assessment of current uses of informal helping resources within intensive family-based services; development of assessment formats and intervention tools for social support facilitation strategies; implementation and developmental testing of social support interventions with individual families; and dissemination of project findings and potential applications to the continuum of child and family service programs.

For information contact: James K. Whittaker (principal investigator), School of Social Work, University of Washington, 4101 15th Avenue NE, JH-30 Seattle, WA 98195 - phone: (206) 543-5731.

Social Setting Impact on Individual Lifestyles. Barton J. Hirsch (Ed, Northwestern).

Professor Hirsch is exploring the effects of environments -- particularly school and workplace -- on psychological well-being. He tackles the problem from two perspectives: how individuals can achieve a satisfactory quality of life in their major social environments and how organizations can be redesigned to enhance people's satisfaction and their ability to optimize their potential for effective functioning. Adults are being examined in relation to family, friends, and workplace, and adolescents in relation to family, peer group, and school settings.

From the individual perspective, Hirsch is looking at how adults manage multiple role involvement to create a viable lifestyle. From a sample of 235 married female nurses, he developed profiles of marital and job satisfaction as criteria of success in their ability to manage multiple roles. He related these profiles to measures of psychological symptomatology and life satisfaction, and is now analysing the data for effects of workshifts and participatory decision-making. From the organizational perspective, Hirsch studied a sample of supervisory nurses regarding empowerment of nursing as a profession, specifically within the hospital environment. The study suggested guidelines for modifying work and nonwork social systems to help them achieve their goals.

Hirsch has also completed data collection for a longitudinal study of how adolescents adapt to the high school transition. He is looking at family stress, strength of peer friendship, and the effect of part-time employment on success in school and psychological well-being. A proposed study would examine organizational variables that could facilitate job retention and reentry into the workforce for minority youths (ages 18-25). The fast food industry is one potential site for the study.

Urban Social Networks in Los Angeles: Evidence from the 1986 SCSS

by *Melvin L. Oliver*

Social scientists examining the social structure of urban life have come increasingly to focus on the ways in which personal social networks unite urbanites in a web of sociality and mutual exchange. This concern has been expressed in several ways: for example, as a strong indictment of the conventional wisdom that urban life is alienating and isolating. The study of social networks in both rural and urban settings do not support the notion that social life in the city is devoid of meaningful social networks and relations. Instead we have discovered that urban life creates new opportunities for social contacts that connect people to multiple social worlds: different racial groups, different social classes and different organizational orbits.

Social scientists also have been concerned with the ways in which social networks connect people to important sources of social support. Networks of kin, friends and co-workers are perceived as important providers of emotional and material resources that allow people to handle the vicissitudes of daily life. Indeed, networks can be viewed as arising out of the conscious efforts of people to build satisfying social worlds, where reciprocal obligations develop between network members that promote the general welfare of all involved.

This rediscovery of the social in everyday life has also prompted a theoretical and political interpretation of the importance of social networks. By pointing to the potential of personal networks of kin and other "natural" groupings to take care of those in need, this perspective sees networks as a way to supplement and sometimes replace government aid.

Research on urban social networks, usually based on reports of respondents about their network ties in a survey research setting, has provided ample evidence of the abundance of urban based networks and the importance that they serve for social

support. However, very little of this research has examined non-white populations. Moreover, very few studies explore a multi-racial setting such as Los Angeles, where various racial and ethnic groups are found. Here I report on some findings from the 1986 Southern California Social Survey (SCSS) which investigated aspects of the social networks of a sample of White, Black and Latino respondents from around the tri-county Los Angeles Metropolitan area.

The 1986 SCSS

The SCSS is an annual omnibus survey of the population of metropolitan Los Angeles which includes questions on various areas ranging from basic demographic data to perceptions of the quality of life. Each year a significant part of the survey is devoted to a special topic selected by the Faculty Principle Investigator. The 1986 survey investigated the social networks of Los Angelenos with a specific focus on systematically comparing the networks of Whites, Blacks and Latinos. The survey was conducted in the Winter quarter of 1986 under the direction of ISSR staff.



Dr. Melvin Oliver, Associate Professor of Sociology, was the Principal Investigator for the 1986 SCSS.

As survey researchers are aware, most samples do not contain significant numbers of minority respondents. This makes systematic comparisons at times faulty, and analyses within racial groupings impossible. The design of the 1986 SCSS study called for an oversampling of both Blacks and Latinos in order to generate a sample where comparisons could be fruitfully made. The result is a sample that includes 481 White, 267 Black and 230 Latino respondents--a gold mine of data for researchers interested in racial comparisons in Los Angeles.

Background of the Study

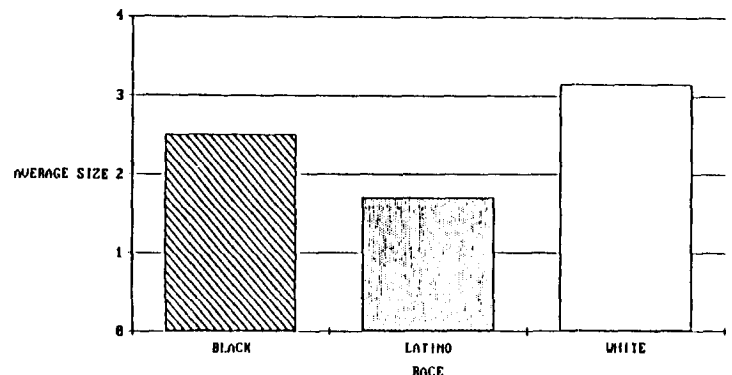
My interest in networks had grown out of previous research that I had conducted on Black social networks in Los Angeles. However, because of time limitations, the extensive methods for generating of networks that several studies, mine included, had previously conducted could not be undertaken. A simpler strategy had to be implemented. Consequently, we used one open ended question to generate the list of people in each respondent's network. This question was used: "From time to time, most people discuss important matters with other people. We are going to ask you for the first names, nicknames or initials of these people because we are interested in identifying them. Over the last last six months, who are the people with whom you discussed matters important to you? Remember just give me their first names or initials." Previous research had shown that identifiers of this sort generated the most significant part of a person's social network--those most intimate members of the network. However, this does raise a set of issues about the limitations of using these data on networks. They are not complete by any sense. Specialized types of support or relationships are not tapped. Therefore, we should be aware of these limitations as we examine the findings. In order to describe more accurately the kinds of people in a respondent's network we asked a series of questions about a sub-sample of people named in a respondent's network (up to three chosen randomly). These questions asked about age, relationship to the respondent, race, etc.

Research Findings

To what extent are people tied to networks of social support and sociality in Los Angeles? Does the image of Los Angeles as an alienating and isolating environment have a grain of truth? The SCSS showed that on the average, respondents were tied to almost three other people (2.66), as indicated by our network generating question. However this average masks significant variation. As the alienating reputation of Los Angeles would suggest, a little more than one in ten (12%) of the respondents were not tied to any other intimate relationships. But at the same time more than a quarter of the sample indicated involvement with four or more intimates. Such a finding is not out of line with previous research. An average of 2.5 contacts seems to be the norm on a network generating measure like this.

What are the racial differences in network size? Figure 1 shows that there are significant differences in the sizes of networks by the three racial groups studied. Whites have the largest networks (3.16), followed by Blacks (2.51) and Latinos (1.70), respectively. From the recent literature on Blacks and Latinos this is a somewhat surprising finding. Much is made of the strong networks of kin and friend that have sustained urban Blacks in times of trouble. Likewise, Latinos, especially those who are newly migrated, are portrayed as arriving in the U.S. through migratory chains which serve at their arrival as ready made support networks of friends and kin from cities and localities in their homeland. If anything, middle American suburbanites are

FIGURE 1
AVERAGE SIZE OF NETWORKS BY RACE



those most portrayed as living isolated and nuclear existences. How can one understand the discrepancy in this finding?

I further explored this question by trying to determine what other social factors seem to predict or relate to network size. It could be that our finding of racial differences has more to do with the demographic and social characteristics of the respondents than with their racial status. The results somewhat support this view.

Several demographic variables explain the differences noted in network size. The gender of the respondent is important. Women have larger networks than men. Women, it has been hypothesized, are the main conduits for networks in American society. They are involved in the emotional work of listening to people's problems and trying to aid people when trouble occurs in their lives. Being married depresses the size of networks--it is possible that married people depend primarily on their spouses for daily contact and therefore venture out less in search of others for support. And the final demographic variable of importance is age: older respondents have smaller networks than younger respondents. However, in fact it is a curvilinear relationship. Those younger than 35 have many more network ties than those over 65, but, those between 36 and 64 have the most network ties of any age group. They are in the prime of their work and active lives. They serve as sources of support to younger people both because of their financial resources, and because of their life experiences.

While these demographic variables were significant they pale in comparison to the important social structural variables of income and education. Put simply, the more highly educated and higher income respondents have the largest networks. Networks are active creations of those who have the resources to enter into reciprocal relationships that develop into on-going networks of mutual support and obligation. Those people who have the resources are more likely to be able to sustain relationships. Talk, money, goods and services flow through networks. It is these that high income urbanites have in abundance.

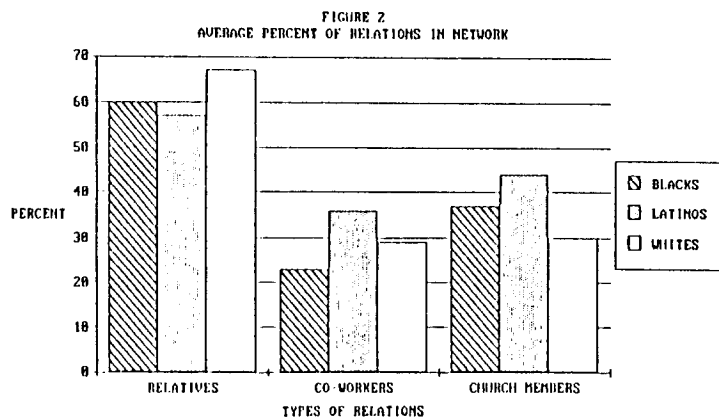
However, even controlling for these variables, Latinos have significantly smaller networks. Several attempts were

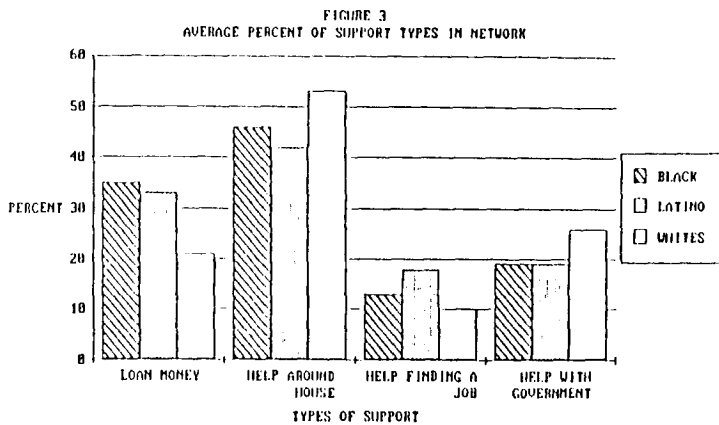
made to determine if interviewer difficulties with language may have contributed to the this finding. While this produced no evidence of any biases in interview process, I am hesitant not to assume some bias in this regard.

What types of people are Los Angelenos tied to? I was able to address this by examining a sub-sample of the people named. In terms of relation, the average percent of each respondent's networks were over 50 percent kin. As Figure 2 shows, Whites had the most kin while Latinos the fewest. Co-workers comprised an average of one-third of the networks. However, for Latinos they were the most important, while they were the least important for Blacks. Church members were also an important presence in these networks. For Blacks and Latinos they were much more likely found than for Whites. Neighbors and co-group members were equally present in all three ethnic group networks, comprising about an average of 25 percent of the networks.

From this profile one sees obvious differences in the composition of ethnic networks in Los Angeles. For Whites they are strongly kin based, with work relations and church relations being less important than for either Latinos or Blacks. Blacks also have strong kin networks but for Blacks church is an important source of relational affinity. For Latinos, work and church form the strongest base of their networks.

Finally I would like to suggest the kinds of support that flow through the networks we have just described. For each of the sub-sample we asked questions about the types of social support they provide.





Emotional support was available abundantly for each racial group; an average of 60 percent of the network was reported as providing that type of support. Of special interest are those types of support that differed by racial group (See Figure 3). A greater proportion of Black and Latino networks were used to obtain small loans and monies. In contrast, White networks had more people in them who were available for help around the home than for Blacks and Latinos. In the all important realm of job information, Latinos were more likely than Blacks and Whites to generate job information from their networks. Finally Whites were more likely to use network members in their dealings with government agencies and bureaucracies.

Summary and Conclusions

The 1986 Southern California Social Survey provides a rich description of the social networks of Blacks, Latinos and Whites. Los Angeles appears similar to other urban centers that have been studied in the size of the networks we found. Isolation does exist, but no more than in other urban areas. The investigation of racial differences in networks showed that demographic and social structural vari-

ables are both important. Women, younger and middle-aged groups, and single people tend to have the largest networks. But the most important determinant of network size is income and education. Still, Latinos have significantly smaller networks than Blacks or Whites. In terms of network composition kin was important for all networks, but more salient for Whites. Church was an important source of network ties for Blacks while for Chicanos work and church were of central significance. Finally, network ties were abundant sources of social support for all three racial groups. However, money and job support was most important for Blacks and Latinos while everyday emotional support was more common for Whites.

The implications of these preliminary findings are important as well. What we have shown is that those groups most well off economically and educationally tend to have the greatest access to resources via networks. At the same time those groups most in need of resources have a smaller range of sources from which to choose. From our analysis of the support functions of networks it is clear that Blacks and Latinos more intensively use their networks for economic resources than Whites. Given their low economic standing generally, the networks of these minority groups, while serving a very important function, are less equipped than the networks of Whites to handle the full range of exigencies that accompany their everyday lives. Social scientists may have celebrated too quickly the adaptability of urbanites, particularly racial minorities, to use indigenous resources to manage the disquietude of economic and social vulnerability.

The future analyses of this data set will surely contribute to our understanding of the form and function of urban networks, both generally and specific to Los Angeles.

**SOCIAL NETWORKS IN LAY LANGUAGE:
THE REPORT OF THE BARCLAY WORKING PARTY
ON THE ROLES AND TASKS OF SOCIAL WORK
IN ENGLAND AND WALES**

Martin Bulmer (Soc. Admin., LSE)

Network analysts are intrigued from time to time by the ways in which "social network" is used by lay people to identify phenomena which social scientists would analyse in more precise or formalistic terms. This is a consequence of the fact that social scientists use terminology which has both a common-sense, general, meaning and a more precise scientific connotation. In using the term "network", it is highly likely that lay usage of the term will be metaphorical, scientific usage more analytical. An interesting case study is provided by the U K Barclay Report on Social Work of 1982, which makes use of the concept of social network in a way apparently resembling North American interest in social networks and social support (cf Froland et al 1981; Gottlieb, 1981; Whittaker and Garbarino 1983; Specht 1986; Pilisuk and Parks 1986).

The context of the Barclay Report needs to be briefly sketched. Social services in Britain are provided by a mix of statutory, private commercial, voluntary and informal sources, varying according to the service and level of state support. Compared to North America, statutory services provided by government are more important, and voluntary not-for-profit social care agencies are less important in the delivery of services. In contrast to the United States or Canada, Britain is a unitary, non-federal, state with responsibility for social care policy and provision shared between central government in London (the Department of Health and Social Security (DHSS)) and the Social Service Departments of some 140 Local Authorities (which are counties, towns or segments of metropolitan areas) with an average population of 350,000, controlled by elected local politicians. At the centre DHSS lays down policy through legislation and administrative guidance, while local authorities employ social workers and other care staff and deliver services. More than half local authority revenue comes directly by grant from central government, the rest from local taxation.

British local authority social service departments were created in 1971 following the influential Seebohm Report of 1968 (for a full account see Hall 1976, 1980). Seebohm, interestingly, invoked the concept of network in passing in its chapter on "the community" but did not develop it. The community served as both "the provider as well as the recipient" of social services. The committee did not believe that the closely-knit rural community of the past could be reproduced in modern urban society. The term "community" referred both to the physical location and common identity of a group of people belonging to communities of common interest.

The notion of a community implies the existence of a network of reciprocal social relationships, which among other things ensure mutual aid and give those who experience it a sense of well-being (Seebohm Report 1968, p.147)

In many localities in which clients of social services departments were concentrated, social control was weak through the absence of positive community values. In their absence, the personal social services should encourage and assist the growth of community identity and mutual aid. But the Seebohm Report did not go into detail about how this should be done.

THE BARCLAY REPORT

The Barclay Committee was set up in 1980, twelve years after Seebohm had reported and nine years after the 1971 reorganisation. It was established under the auspices of the National Institute of Social Work (NISW) in London. It was established at the request of the Secretary of State for Social Services, Patrick Jenkin, the minister heading DHSS, but as an inquiry independent of the government. (It was thus not a royal commission or departmental committee). Its brief was to review the roles and tasks of social workers in local authority social service departments and related voluntary agencies in England and Wales and to make recommendations. The working party was concerned with the disjunction between the apparently limitless needs of clients and the finite resources available to try to meet them. It sought to describe, clarify and appraise what social workers do against an explicit view of what they are needed to do. The working party was chaired by a solicitor, Mr Peter Barclay, also from 1973 the chairman of NISW and more recently chairman of the government's Social Security Advisory Committee, and had seventeen other members, most of whom were senior people in the social services. Three, however, were senior academics in social work and social policy, Professors Robert Pinker of the London School of Economics, Professor

Roger Hadley of Lancaster University and Professor Phyllida Parsloe of Bristol University. Professors Pinker and Hadley were both signatories of (different) minority reports both of which, like the report itself, invoked the concept of social network.

The report addressed the roles and tasks of social workers in the last two decades of the century, and emphasised two themes. Effective social work entails counselling and individual case work (its task as defined traditionally) but also social care planning. Social care planning involves the mobilisation of resources, not all of them within social service departments, to ameliorate an existing social problem which an individual, family or group is experiencing. It also includes indirect social work, "to prevent social problems arising by the development and strengthening of various kinds of community groups and associations, and to enable informal as well as formally organised resources to be brought to bear upon them when they do" (Barclay Report 1982, p x). Social networks are discussed particularly, but not exclusively, in the context of this indirect social work.

Indeed the report opens with an explanation of the terms used. The definition of "community", reproduced in full below, makes clear the centrality of social networks.

Community is a word with many meanings. What we mean is best illustrated from the standpoint of an individual person living in a particular locality. He is likely to share some things in common with, and to feel some loyalty towards, a number of other people within a particular geographical area - his family, his immediate neighbours, relatives and friends readily accessible; employers and fellow employees if he works in the area, local shopkeepers and schoolteachers; publicans and others who cater for his leisure. More remote, but important for his peace of mind, are local representatives and officials who determine his rates, clear his rubbish, sweep the roads, and make decisions which affect his environment.

With this constellation of people (and many more), he will usually have developed relationships varying from the very intimate to the very distant; he will be in sympathy with some and at odds with others; to some extent what he does and the life-style he adopts will be influenced by their views, as his views will influence some of them. He is part of many networks of relationships whose focus is a local area. He may think of these networks as close or loose, as refuges or as traps; he may be an active participant in local affairs, or a recluse; he may bless these networks or curse them. But whatever his position in or attitude to the networks, if he falls on hard times, becomes handicapped or is confronted by acute personal crisis, he will be vitally affected by the extent to which the networks can be a resource to him by way of information, practical help, understanding or friendliness. It is these local networks of formal or informal relationships, together with their capacity to mobilise individual and collective responses to adversity that constitute the first sense in which we use the word community. Similarly, though perhaps more constricted, networks will surround someone who lives in a residential home or other institution. (Barclay Report 1982, pp.xii-xiii)

The report distinguishes a second meaning of community, community of interest, allegiances which people feel to others outside a particular geographical area by sharing a social disadvantage or handicap, or common interests based on work or leisure, or being the client or patient of the same organisation. These allegiances may be as important or more important emotionally than those within the local geographical area. "We use the term *communities of interest* to describe these networks of relationships" (p.xiii)

Community social work in turn is defined as formal social work which, starting from problems affecting an individual or group and the responsibilities and resources of social services departments and voluntary associations

seeks to tap into, support, enable and underpin the local networks of formal and informal relationships which constitute our basic definition of community, and also the strength of a client's communities of interest. (p xvii)

...(S)ocial services departments, through their social workers, have a responsibility for creating, stimulating and supporting networks in the community which may prevent the occurrence of some social problems and be available to help those who will have problems in the future (p 43).

By social care the committee meant helping and controlling resources available to people in adversity, whether due to old age, parental inadequacy, mental incapacity or physical disability. "The bulk of social care in

England and Wales is provided, not by the statutory or voluntary social services agencies, but by ordinary people who may be linked into informal caring networks in their communities...It is difficult to over-estimate the importance of the social care that members of communities give each other" (pp.199-200). People tend to turn first for help to members of their own families. Then to wider kin, friends or neighbours, "first because people we know are often easier to talk to and confide in than workers in public agencies, secondly because seeking help from our informal networks is, within limits, socially acceptable. Doing so is usually less of a blow to our self-esteem than approaching officialdom" (p. 200).

The Barclay Report placed great emphasis on the significance of these informal caring networks, and on the need for formal social services to work in close understanding with them, not in isolation. Social workers needed to find ways of developing partnerships between informal carers, including self-help groups, statutory services and voluntary agencies. Sharing social care was a better way of promoting better care and sharing the burden more equally. The Barclay committee saw itself as following in the steps of the Seebohm report at a time when circumstances were more propitious for a change in orientation.

Unlike Seebohm, Barclay spelled out what such an approach would involve for the social worker. If most social care is provided by citizens through informal social networks, so the focus of attention of the social worker must widen. Individuals and families should be considered as part of communities or networks. The target of the social worker should be widened to include those who form, or might form, a social network into which the client is meshed. These networks will vary in size and in what holds them together.

The report went so far as to specify three types of network with which the social worker should potentially be concerned. The first, and most obvious, is to move out from the client to the kin, friends and neighbours with whom the person is in touch, to identify and map into a network the most significant persons in a client's life (ie to construct a star with ego at the center - M.B.) The second way of viewing networks is to examine the actual or potential links existing between people either living in the same geographical area or within the same institution. Social workers could actively promote such links as part of social care planning. Thirdly, there was scope for developing networks among those sharing similar communities of interest or concern, without necessarily having a geographical base.

These ways of viewing networks are not mutually exclusive. Each takes, as it were, a picture from a different angle. The first looks outward from an individual or family, the second looks down on a neighbourhood or group who live or spend time together, and the third traces the links created by a shared interest or concern. Comparing the first with the other two viewpoints may suggest possibilities for enriching individual networks (p 206). Clients, relations, neighbours and volunteers become partners with the social worker in developing and providing social care networks. We have already referred to the description of the relationship by one respondent as "equal but different"; we might be prepared to go further and describe social workers as upholders of networks. This may make clear our view that the function of social workers is to enable,empower, support and encourage, but not usually take over from, social networks. (p. 209)

This expansion of the role of the social worker would necessitate changes in the content of social work and the skills needed. The ability to negotiate and bargain, to act as an advocate and to teach people how to use the system, will be needed. Social workers will need to learn how to work with caring networks, and to understand the interests, needs, concerns and skills which serve to bind people together. Such working with networks is a highly skilled task, whether dealing with problems of child neglect or bereavement, or setting up schemes to enable friendships to develop and introduce people to each other.

The Barclay working group acknowledged in their chapter on community social work that what they had to say was more speculative than the rest of their report. They did not seek to provide a blueprint. "A blueprint is undesirable because we know too little about what determines the shape and style of informal networks or what constitutes a 'healthy' community - or for that matter 'healthy' social services organisations. Local communities and informal caring networks are strikingly different from one another." (p. 216) It was recognised that there were problems in the line of development proposed, problems of the accountability of social workers and of giving adequate political expression to the interests of the local community. There was a danger that social workers would be seen not as upholders of community networks but as street level bureaucrats whose constant answer is 'no' (p.213). There were limits to the capacity of the community to care, "confused by a failure to distinguish types of care which can be provided by social networks from those which need to be provided either jointly or entirely by formal agencies". Social service departments, too, carried the ultimate responsibility for seeing that social care

networks are maintained; informal networks would not supplant statutory provision.

THE MINORITY REPORTS

The two minority reports by members of the working party also addressed the role of social networks. The first, by P Brown, Professor R Hadley and K J White, broadly endorsed the report but argued that the recommendations on community social work did not go far enough towards a neighbourhood-based service. "In our view (they wrote) the account of informal networks...fails to recognise the overriding importance of locally-based informal relationships in providing care for most dependent people and the significance of locally-oriented social services in strengthening and reinforcing such networks when they need support" (p. 220). Areas which seem to have the greatest social needs often have the weakest social networks. What was therefore needed were formal services that were (1) locally-based, in offices located within particular neighbourhoods (2) integrated with other formal services and (3) based on wider roles and greater autonomy for locally-based staff. A particularly important, but difficult task was to link statutory services to informal carers. This could be achieved partly by extending direct contacts with clients to their networks, and maintaining these even if the initial reason for contact no longer applied. It could also be developed by fostering contacts with intermediaries or "gatekeepers" - people such as corner shop-keepers, landlords of public houses, school-crossing ladies and so on, who often acquire roles as informal advisers. (This proposal clearly drew on Collins and Pancoast's U S analysis (1976) **Natural Helping Networks.**)

Professor Robert Pinker, on the other hand, in his minority note of dissent from the report as a whole, criticised both the report and the first minority report for their uncritical enthusiasm for community and community social work. In Pinker's view, "it is one of the most stubbornly persistent illusions in social policy studies that eventually the concept of community - as a basis of shared values - will resolve all our policy dilemmas. The very fact that this notion is cherished from left to right across the political spectrum makes it highly suspect. There is no unitary definition of community because, like the concept of equity, it is open to various interpretations...It seems that when our policy-makers reach an intellectual impasse, they cover their embarrassment with the fig-leaf of community" (Pinker 1982, pp.241-2).

Pinker directly addressed the role of informal social networks.

In both community-centred models the local communities are presented as the major untapped social care resource. Insufficient account is taken of the likelihood that the capacity of local communities to provide sustained patterns of informal care may be exaggerated, especially in areas where the needs are greatest.

Formal systems of social service delivery developed because the informal networks of mutual aid in local communities were manifestly incapable of meeting the kinds of personal need which arise in complex industrial societies. It is a romantic illusion to suppose that by dispersing a handful of professional social workers into local communities we can miraculously revive the sleeping giants of populist altruism. The most localised system of 'social' service in the history of British social policy was the Poor Law. Its relieving officers and guardians all served localities and constituencies that were sufficiently small to be intimately known. It was just this distinctive quality of parochial social service that added a uniquely hurtful dimension to the experience of stigma among the recipients of poor relief. (Pinker 1982, pp. 244-5)

The most vulnerable, disadvantaged and stigmatised clients will be at greatest risk in the community based models of social work since they give greatest offence to local norms of behaviour and are often rejected by their local communities. The Report itself refers to the evidence submitted by the Family Service Unit, which revealed the great difficulty with which certain families accept 'any notion of reliance on informal networks of family, friends and neighbours, their vivid fear of being the victims of gossip and the importance they attach to confidentiality' (ibid p. 249).

Scarcely any attention has been given to the ethical implications of preventive social work - or to its compatibility with the principles of respect for persons and confidentiality...In localities where a community social work model was adopted it would be much more difficult to protect the privacy not only of clients, but of other citizens who have no intention of becoming clients...The idea of preventive social work would seriously threaten the right to privacy, since it would license strangers (including volunteers) to enquire into the personal circumstances of citizens who may neither have asked for help nor committed any offence. The best way of preventing breaches of confidentiality is to collect as little confidential information as possible, and to confine the collection of it to professional workers....

(A) system simultaneously governed by the concepts of community and prevention would be potentially lethal to our civil liberties. In totalitarian societies the imposition of community - in the form of a unified network of local loyalties which are subservient to the state - is one of the basic political aims of government. Democracies tolerate the coexistence of many different loyalties. It is important that some rapport exists between formal and informal systems of social care. It is equally important that the state is not allowed to intrude too far into the private worlds of individuals, families and local communities. (pp.254-6)

A PUBLIC DOCUMENT

The significance of what the Barclay Report had to say about social networks lay in its public character and the widespread currency which it gave to the concept in the world of the social services. Such central attention to the role of social networks might seem to augur well for network analysis in British social science, but this is not in fact the case. The origins of Barclay's use of the term are to be found much more in community social work and attempts on the part of its proponents to find alternative terminology to the fraught word 'community' (cf Willmott 1984) than they are in professional social science.

In fact there is a real possibility that "network" is being used as a synonym for "community", reintroducing that problematic term in a different guise. The Barclay Report comes close to doing this, by its assumption that the social networks based in the community are *local*. This negates one of the great virtues of the network approach, that it leaves open as an empirical question whether or not a specific geographically-based social aggregate is a community or not. In Barclay, "informal social network" seems to mean little more than "local community ties" and as such leads either to circularity or vacuity.

Nor has the public debate since Barclay significantly changed the situation. The term "network" is still used loosely and metaphorically to refer to informal social ties at the local level, without any attempt to analyse what the relationships actually consist of. Barclay gave the concept public prominence and wider dissemination. But is it a case, like the sociological concept of "charisma", of translation to the public sphere draining the concept of significant meaning?

RECENT SOCIOLOGICAL WRITING ON SOCIAL CARE NETWORKS

There has been, in the 1980's, a current flowing through the writings of a number of British sociologists, subterranean to the public policy debate, concerned with informal social relationships and social care. The term 'social network' features prominently in their work, indeed also in the titles of their articles and books, and directly and indirectly they provide a commentary upon Barclay's use of the concept and its applicability to the provision of community care.

The first contribution, by Frances Price in 1981, was a careful account of classical network analysis *a la* Barnes and Mitchell. Writing from a social policy background, she ended with a useful caution about indiscriminate application of the concept in applied settings:

Esoteric network analysis can be profoundly misleading when transposed into applied research agendas without specification of the assumptions on which such work is founded. [Some] policy makers and welfare agents...apparently proceed as if there were ready formulae for the practical application of the idea of a social network to facilitate social intervention. Despite a contrary impression in some quarters, it is not constructive to regard the networks of empirical research as objectively real, in the sense that they are available 'to tap into' or for that matter to be readily replicated (Price 1981, pp.304-5).

Michael Clarke's (1982) sociological analysis of the characteristics of poor inner-city neighbourhoods did not deal primarily with networks, but focused upon the capacity of those areas to sustain informal networks when a majority of the population suffered from insufficient income, chronic ill-health, disability, unemployment and other conditions. He draws on Wellman's (1979) work on East York to underline the point that "the residential area as a basis for a 'community' is now largely irrelevant" (Clarke 1982, p. 461). For most people "community" remains a network of sustaining relationships which is not constrained, except to a limited degree, by time and place.

After the Barclay Report was published, the *British Journal of Social Work* devoted a special issue to considering the report. This included an incisive article by family sociologist Graham Allan, author of *A Sociology of Friendship and Kinship* (1979). His main purpose was to juxtapose the generalities in the

report about informal caring with sociological evidence about the potential of kin, friends and neighbours as sources of social care and support, but he comments in passing on the use of the term network. In his view, the distinction in the report between the local community and the more dispersed 'community of interest' negates many of the advantages of the term 'social network' both by insisting upon the significance of geographical boundaries and by incorporating a prescriptive element (the capacity to mobilise support) into a descriptive concept.

(T)he network perspective is never actually taken very seriously. No attempt is made to link patterns of behaviour to different constellations of relationship in networks; indeed the very idea of networks having an analysable structure - the single key theme that differentiates the network perspective from others - is conspicuously absent. Further, when the report refers to 'networks' it often in fact does not mean networks at all but the collection of first order contacts an individual has, irrespective of the links that exist between contacts. Inevitably the consequence is that nothing is said in the report about the actual patterning of sets of relationships - ie the network shapes or structures - that in practice facilitate social caring.....

The result of using the network notion in this imprecise, vague fashion is to diminish whatever potential the idea has for overcoming the difficulties of 'community'. Indeed it renders it suspect to exactly the same problems and, in particular, rather than revealing the real potential or otherwise of informal relationships in social life, encourages a misleadingly romantic notion.....

Gradually what starts as a possibility - individual carers who may be part of a local caring network - begins to dominate and becomes a main focus for social work effort...(T)he continued reference to an unspecified network of carers pervasively envelops the argument in the warm and rosy hue of communal integration (Allan 1983, pp.420-1).

Many of the ideas for community social work and community care mooted in the Barclay Report are unrealistic because they make false assumptions about the nature of the relationships that occur or could be created. The use that can be made of different relationships for providing care is limited...Facilitating and manipulating networks of neighbours, kin and friends so as to encourage greater support and caring for those in need is more problematic than the report implies. Social Services clients are not necessarily incorporated into existing networks. Relationships generated and sustained for other purposes cannot easily be transformed into caring ones as this would entail quite a radical disruption of their exchange basis (ibid, pp 432,430-1).

The extent to which informal relationships which can be mobilised for care are rooted in social exchange was also a dominant theme in the last work of sociologist Philip Abrams, who died in 1981. His work on neighbouring and neighbourhood care was prepared for publication posthumously (Bulmer 1986). It includes a useful brief analysis, first published in part during his lifetime (Abrams 1980). Indirectly it is a commentary on Barclay. Abrams is dismissive of the postulated association between the density of networks and a high propensity to provide care.

One of the main reasons why so many of the proposed relationships between density and other factors cannot be found in the real world is, as Harris(1969), Fallding(1961), Kapferer (1972) and Allan(1979) have argued, precisely because density, insofar as it is taken seriously as a property of interaction, has to be measured in terms of all the links in a network. The varying content of the different links is deliberately ignored; equal weight is given to all links regardless of the varying significance they might have to those concerned. If one recognises that different links can have widely different values for individuals within a network, one may get much closer to an explanation of the relationships in which one is interested but the explanation is no longer grounded in the notion of density as a formal property of interaction; it is an explanation in terms of the significant content of relationships, not of the structure of networks (Abrams in Bulmer 1986,p. 89)

Philip Abrams was particularly impressed by Bruce Kapferer's (1972) analysis of the networks of Zambian workers, which drew attention to the *exchange* element in relationships. His emphasis upon exchange, cost, investment and reward was a useful way of relating the content of interaction to the importance of relationships and both in turn to the extent to which individuals experience relationships as entailing obligations to act in certain ways. A central thrust of Abrams's analysis was to cast doubt upon altruism as a basis for caring, and to argue that in one form or another reciprocity was a feature of most informal caring relationships (Bulmer 1986, pp. 103-17). His sociological analysis contrasted *traditional neighbourhoodism* in the close-knit industrial working class community with *modern neighbourhoodism* characterised by mobility, choice, organisation and politics. Far from

postulating the static networks which Barclay seemed to envisage, modern neighbourhoodism in its purest form was an attempt by newcomers to *create* a local social world through political or quasi-political action.

Yet even in this insightful analysis which engaged with some of the technicalities of network analysis, the term remained a metaphor. In the analysis of his empirical data he did not gather or analyse data on people's networks. Indeed the British scene has been characterised by some scepticism about the value of a network approach. The doubts of Allan(1979) and Abrams have already been mentioned. Even where it has been used in empirical research it has been used in a metaphorical rather than an analytical sense, failing to specify the interactional or structural properties of the network. The use of the term in the Barclay Report exemplifies the metaphorical use *par excellence*. Several recent studies have invoked the term but not gone beyond the metaphorical level.

An excellent monograph on the support for the elderly in rural North Wales by Clare Wenger entitled **The Supportive Network: coping with old age** (1984) discusses the concept without providing any detailed data on the subject which would enable one to construct network maps. A so far unpublished study by researchers at the National Institute of Social Work (Sinclair et al 1984) throws much interesting light upon who elderly people living alone have to help them, and is entitled the **Networks Project**, but again does not provide data enabling one to study the actual networks of the individuals being cared for. A European symposium with British contributors entitled **Social Networks in a Caring Community** (Yoder et al 1985) holds out great promise but does not deliver any substantive analyses of networks, apart from one chapter by Benjamin Gottlieb. Even Peter Willmott's first-rate overview of the available evidence about support and care from kin, friends and neighbours, entitled **Social Networks, Informal Care and Public Policy** (1986) does not live up to its title in an analytic sense.

In an interpretive essay examining the sociological assumptions underlying British community care policy, which includes a chapter on the social networks of care (Bulmer 1987, pp 108-141), the author has argued that what is urgently needed now are attempts to use *analytic* network methods to study empirically social support and social care. There are several studies in the health field, but fewer in the personal social services. Clyde Mitchell and Elinor Kelly of Manchester University have made an unpublished network study of ties between a small number of people in a particular locality in Manchester, which demonstrates the potential possessed by network analysis. More recently Peter Willmott's latest care study, **Friendship Networks and Social Support** (1987), does gather data on the social networks between friends in a small sample drawn from two contrasting housing estates in north London, one owner-occupied, the other rented from the local authority (council housing). This does constitute an important network analysis. Willmott observes that it tends to be assumed that there is a relationship between network density and availability of help. The denser the network, the more support there is likely to be available.

It seems plausible to suggest that high density might promote more effective help, on the reasoning that the whole would be greater than the parts, that in dense networks friends (or relatives) might be more supportive than in loose-knit ones. If the potential helpers knew each other, they would perhaps reinforce each other and would thus be able to provide a better 'package' of support - a more effective combined operation- than if they were unconnected....

The analysis of the data, however, strongly suggested that the density of people's friendship networks had no bearing on the extent of help that they received....I could find no relationship between density and other things to do with friendship or kinship (Willmott 1987,p.77-8).

This is an important finding, but one not entirely comforting to network analysts since it lends force to Philip Abrams's criticism that more attention should be paid to the content of the links between persons rather than to the form of the overall network. The challenge remains.

LAY LANGUAGE AND SCIENTIFIC LANGUAGE

There is also another serious challenge posed by the disjunction between the use of terms in lay language for public discourse and their use by social scientists for analytic purposes. Sociologists in particular are regularly chided by their critics for the use of jargon, and some of these criticisms are probably justified. But they suffer from another difficulty, that, as W G Runciman has observed, "the peculiar misfortune of the sociologist is that when his jargon is successful it is likely either to be assigned to some more specialised discipline or else to be taken over, like some of the language of Freudian psychology, by the novelists, the historians and everybody else "(1965, p. 47) Terms used in the latter way become part of the orthodox and commonplace vocabulary of our culture. The use of the language of informal networks in the Barclay Report may be taken as a sign that the term has arrived at least as part of professional discourse in the British social services. There remains, however, a wide disjunction between its use

there and its use in British sociology (and earlier in social anthropology). Perhaps it is therefore incumbent upon sociologists to demonstrate its analytic potential more convincingly than they have done hitherto.

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THE SUPPORTIVE NETWORKS OF MONKEYS AND APES: AN OVERVIEW
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While primates are usually studied for their own sake, the purpose of this essay is to direct attention to the significance of primate data for network research on social support. For much like humans, non-human primates have social relationships that involve various dimensions of social support. As it is not possible in this brief overview to describe all the structural and social aspects of support among primates, the following preliminary report provides only a cursory overview of some well-studied Old World monkey and ape networks while highlighting the major consequences for primate social structure and the possible implications for human support networks.

SOME BACKGROUND ON PRIMATE SOCIAL ORGANIZATION

While the primate order is made up of almost two hundred species, most non-human primates are monkeys. Apes, who are taxonomically closest to humans (i.e., the chimpanzee, gorilla, orangutan, and the gibbon), make up only a handful of species.

Unlike most mammals, male and female primates typically remain together throughout the year. For slowly maturing, intelligent animals with relatively long lifespans, such permanent living arrangements require the integration of a number of age and sex classes--not just the adult males and females. Therefore, on the basis of distinguishing physical and social traits, individuals in primate groupings are usually classified as infants, juveniles, adolescents, and adults. Such variation within age and sex categories means that the social orders of primates are usually complex and flexible, although most species exhibit a modal group size and typical age and sex class ratio (Eisenberg, Muckenhirn and Rudran, 1972; Clutton-Brock and Harvey, 1977). While the workings of primate societies are still far from understood, the available data suggest that environmental conditions, as well as innate predispositions for particular kinds of social and sexual relations, help restrict and regulate the movements of individuals (Carpenter, 1942; Hinde, 1979; Cheney, et al., 1986). For example, while the dispersal patterns of species in a given ecology are strongly influenced by the nature of the food supply and predation pressures, a species' inherent preference for particular kinds of social attachments seemingly influences the consistency within a primate group, even when it must adjust to varying ecological conditions.

With few exceptions, primate reproductive units are classified and compared according to the number of breeding males within a unit and the endurance of the heterosexual pair bond (Wittenberger, 1981; Gouzoules, 1984). Old World monkeys and apes have three generic organizational patterns: (1) a "monogamous" pattern of one male, one female and their young; (2) a "harem" pattern of one male, one or more females, and their young; and (3) a "horde" pattern of multiple males, multiple females, and their young (Southwick and Siddiqui, 1974). A monkey or ape species having one of these mating practices will also typically evidence a pattern of dispersing a specific age and sex class in and out of the social unit in which mating occurs (Pusey and Packer, 1987). These migration patterns are not directly caused by the mating system; and it is usually difficult to determine why an individual leaves a group at a particular time. Nevertheless, among all studied Old World monkeys and apes, a mating proclivity for a given species is usually associated with a stable transfer pattern where either males, females, or both depart their natal group at puberty.

In turn, the system of mating and transfer among primates is linked to distinct patterns of attachment within and between age and sex classes. Here, investigators typically infer the presence or absence of supportive ties between individuals by observing such behaviors as social grooming and embracing (but often excluding sexual contact), food sharing, aiding and protecting, maintaining close proximity and cooperating alliances. The endurance and intensity of these various types of social support are also recorded whenever possible.

One simple but useful measure of these diverse supportive relationships is strength of ties among and within age and sex classes. Degrees of attachment can be illustrated by constructing a simple scale of tie strength from weak (i.e., negligible or occasional interactions), moderate, and strong (i.e., very high rates of interaction and a stable relationship over time). While tie strength can be recorded for each age and sex class for any given primate species, only the following relational ties will be discussed: (1) adult male-adult male ties; (2) adult female-adult female ties; (3) adult male-adult female ties; (4) adult male-a-

dult female ties; (5) adult male- daughter ties; (6) adult male-son ties; (7) adult female-daughter ties; and (8) adult female-son ties.

With the three generic mating patterns (monogamy, harem, and horde) serving as a background framework, and with these simplifying procedures for summarizing the nature of ties, it is possible to summarize what is a large and complex set of data on major supportive networks among four genera of well studied Old World monkeys and apes.

The One Male-One Female "Monogamous" Arrangement

While stable sexual relations between a single male and female are rare among non-human primates, this arrangement is consistently found in Asia among the lesser gibbon apes (*Hylobates*) who live in isolated "family units" of one heterosexual pair and their dependent young (Chivers, 1984; Leighton, 1987; Ellefson, 1974). Manifesting little or no sexual dimorphism (i.e., size differences due to selection), an adult male and female join forces and fiercely protect a small territory from other gibbon conspecifics (Leighton, 1987). This conjugated alliance appears to facilitate the formation of strong ties between the pair, since this relationship is reported to come close to the human monogamous ideal of "mating for life" (MacKinnon and MacKinnon, 1984:291). Such fidelity may also facilitate male parental care and the formation of strong tie cliques within the family unit. However, as offspring mature, their ties with parents weaken, until at puberty, they leave their natal territory (Tilson, 1981; Brockelman and Srikosamatarata, 1984). This isolated one male-one female arrangement, with its strongly tied dyadic pair and its pattern of transfer of offspring at puberty, is associated with the social relationships outlined at the top of Table 1.

The One Male-Multiple Female "Harem" Arrangement

A stable sexual relation between one male and two or more females is a common mating pattern among primates. In this mating arrangement, males evidence considerable sexual dimorphism over females; and each reproductive unit has more than one mature female with her immature offspring.

Gelada monkeys (*Theropithecus*) are terrestrial African primates who reproduce in one male-multiple female groups. While large herds of geladas congregate on the African savanna, embedded within these masses are socially detached "bachelor" groups and "heterosexual" groups containing one-male and up to twelve mature females and their offspring (Ohsawa, 1979; Mori and Kawaii, 1975; Dunbar, 1984:11-39). Normally a "harem-holder" has exclusive sexual rights to females in his harem, despite the fact that some one-male units contain a second adult male. Thus, gelada males are less likely to compete for access to single females than they are for ownership rights to harems (Mori, 1979; Dunbar, 1978).

Although the leader male is the focal point for sexual activity, he otherwise spends little time near his females (Dunbar, 1979). Leader males also spend a negligible amount of time interacting with other mature males. Even when a friendly relation does occasionally develop between two adult males in a reproductive group, conflict intensifies if the subordinate abandons his passive sexual role. Interactions between a harem leader and his immatures ever to be fathered by him are also infrequent; and these ties are reported to be very weak. Typically, a leader male has a supportive tie with only one high-ranking female.

Unlike the detached male, harem females evince strong ties with immatures and with selected females. Making up the stable core in each one-male group are strong tied cliques, normally made up of mother, daughter, and sister bonds (Mori and Kawa, 1975; Dunbar, 1983; Ohsawa, 1979). Such matri-focal units endure over generations and probably inhibit female transfer between different groups. Indeed, female geladas remain together even with the loss of a male leader (Stammback, 1987). Typically, only sons leave at puberty to become members of all male "bachelor units," while single females seldom desert their natal group. Thus, membership changes usually result from males moving in or out, with female geladas forming matrilineal and socializing primarily with blood relatives. Females without kinship ties are often socially detached, leading one researcher to argue that a female with a strong tie to a lead male is one that lacks a female support network (Dunbar, 1983). This gelada mating arrangement is summarized on row two of Table 1.

The Multiple Male-Multiple Female "Horde" Arrangement

The lack of a stable heterosexual bond is a very common breeding pattern among primates. While there is sexual dimorphism, its prominence varies widely among species. Characteristic of this arrangement is the presence of more than one breeding male in a reproductive unit and relatively open mating, with three important exceptions: (1) for many species, mother and son rarely mate; (2) for some species, brother-sister matings are less frequent than those between unrelated pairs; and (3) for many species, females when sexually receptive consort with one male or mate with a serial number of males, or both (Pusey, 1980; Tutin, 1979; Sade, 1968).

Macaque monkeys (*Macaca*) are found throughout the Old World and reproduce in multiple male-multiple female groups (or troops). Among Japanese macaques (*Macaca fuscata*), discrete troops inhabiting large open areas may number two hundred monkeys with an average ratio of one adult male to four adult females (Fedigan, 1982:218). Normally, adult males are immigrants from other groups and are organized into a relatively stable dominance hierarchy of central adult males, peripheral adult males seeking to join a group, and finally, peripheral young males slowly preparing to separate from their natal group. Generally, friendly interactions among adult males are infrequent with the result that they rarely form close social ties (Grewal, 1980; Fedigan, 1982:222). Leader males, however, have close ties with particular females, although these bonds are unstable and often change from year to year (Grewal, 1982). Leader males occasionally have close ties with particular immatures but, as of yet, Japanese macaque males are not known to bias their "paternal" care in any way that would suggest a "father-offspring" relationship (Fedigan, 1982:218; Gouzoules, 1984a).

While macaque males typically depart at puberty, females remain attached to their mothers and other blood relatives (Fedigan, 1976; Kurland, 1977). Females may also have bonds with non-relatives and with leader males, but for group continuity, the mother-daughter tie is essential, linking up to four generations of blood-related females. These mating and transfer patterns, where sexual relations are transitory, where males leave their natal unit at puberty, and where female-based support ties are prominent are connected to the pattern of social ties outlined in row three of Table 1.

Chimpanzees (*Pan troglodytes*) are African apes who inhabit open canopy woodlands and forest habitats (Jones and Sabater-Pi, 1971:28-30). They also evidence a multiple male-multiple female horde arrangement but, oddly enough, chimpanzee ties vary dramatically from those of macaque monkeys. While adult males have status differences, dominance relations are usually not pronounced (Goodall, 1975; Bygott, 1979). This relatively loose and relaxed hierarchy is associated with weak to moderate ties among unrelated males and strong ties among siblings. For adult females, status differences exist but are harder to detect, although older females seemingly have a higher status than younger females (Nishida, 1979). Overall, unrelated adult females show little evidence of mutual attraction, leading one researcher to estimate that adult male cohesion is twice that of adult females (Nishida and Hiraiwa-Hasegawa, 1987; Tuttle, 1986).

These data clearly indicate that adult female ties are weak. In part, weak ties result from the voluntary emigration of females from their natal unit--either temporarily or permanently--at puberty and the tendency for incoming females to shy away from each other (Kawanaka, 1984; Pusey, 1980). Even the mother-daughter bond weakens at puberty when adolescent females decide to emigrate from their natal unit (Nishida, Hiraiwa-Hasegawa, 1986). Male-female bonds are also weak, for unless sexually receptive, adult females are not usually found with adult males (Nishida, 1979; Wrangham and Smuts, 1980). In contrast, mother-son relations typically remain strong; sons continue to travel occasionally with their mothers and to groom with them for long periods (Goodall, 1975; Pusey, 1983). Father-offspring ties are unknown.

A pattern of female transfer in conjunction with multiple male-multiple female open mating is associated among chimpanzees with a fluid regional population or "community" form of organization (Goodall, 1975; Tutin, McGrew and Baldwin, 1983). That is, within a more inclusive regional population or "community," individuals may move about alone or freely join or leave a variety of temporary clusters within a defined region, although the regional population itself (i.e., those who co-occupy the same home range) remains relatively stable over time. This pattern of social ties is summarized at the bottom of Table 1.

While the social structures sketched above do not convey the many subtle variations in primate organization, they are useful for illustrating how primate support networks are fashioned. In summarizing the major support networks for each species the following patterns emerge:

A gibbon monogamous arrangement is associated with the spatial isolation of a mated pair, negligible adult male-male and female-female ties, and the transfer of both sexes out of the natal unit at puberty. Under these social conditions, supportive networks are restricted to "family" units with dependent offspring.

For Gelada monkeys, a harem mating arrangement is associated with weak male-male ties, strong female-female ties and male emigration out of the natal unit at puberty. As harem leaders are solicited primarily for sexual relations, gelada support networks evolve from uterine blood ties.

Among Japanese monkeys, a horde breeding arrangement is associated with the movement of weakly tied adult males into the reproductive unit and the transfer out of young males at puberty. While adult male-female pairs have weak to moderate ties which are potential support networks, these connections are generally unstable over time. Major support networks among macaques are generated from stable matrilineal lines made up of blood relatives.

Finally, among chimpanzee apes, the horde mating arrangement of multiple-males and multiple-females is associated with overall weak female-female ties and female transfer out of the natal unit at puberty. Adult male and female ties are also weak. The weak to moderate ties among unrelated adult males and the strong ties among male siblings--and among a mother and her sons account for the majority of support networks among adult chimpanzees.

IMPLICATIONS OF SUPPORTIVE NETWORKS

As individuals can either ignore or support one another, what accounts for the existence and the variety of primate supportive networks? We know almost nothing about the evolution of primate relationships, although the innate propensities for cooperative ties among particular age and sex classes are now well documented (Hinde, 1983; Cheney, et al., 1986). The forces shaping supportive relationships are also poorly understood. In evolutionary terms, primate breeding arrangements are primarily the result of selection forces acting to maximize reproductive success. Sex-biased dispersal is probably the key mechanism to insure genetic variation and prevent close inbreeding (Pusey and Packer, 1987). But just how mating, transfer and support are associated is unknown.

Whatever factors are responsible for shaping primate support networks, two intriguing patterns are apparent. First, most monkey species reveal male-biased dispersal and female-bonded networks. This format exists regardless of the monkey species and the mating arrangement (Greenwood, 1980). Seemingly, monkey species are more likely to benefit from male-dispersal and female cooperative coalitions, especially among blood relatives. There is, for example, evidence that food is usually a limiting resource for primates and foraging efficiency is increased when individuals remain in a familiar ranging area (Waser and Jones, 1983). Moreover, by partitioning into a number of supportive matrilineages, monkey species like macaques and geladas keep individuals bound to and knitted into high density clusters that define group boundaries, restrict individual mobility, and thereby insure group cohesion and continuity over generations.

Second, ape species (i.e., gibbons, chimpanzees, orangutans, and gorillas) reveal either female dispersal or male-female dispersal regardless of the mating system. This reversal of the monkey pattern of male-biased dispersal means that ape support networks are distinct from those evident for most monkey species. For the monogamous lesser apes, only the mated pair and immature offspring are involved in social support; supportive female networks such as those in macaques and geladas are unlikely among gibbons (see Gouzoules and Gouzoules, 1987). For chimpanzees, female dispersal at puberty usually means a lack of genealogical support through female lines. Occasionally, unrelated female dyads form supportive relationships, but these alliances are characterized by few supportive actions and are unstable over time. In contrast, male chimpanzees are unusually cooperative because they remain within their natal community. However, extended patri-focal support networks are non-existent because a promiscuous horde arrangement precludes the establishment of father-son relations. Thus, resident male chimpanzees fraternize and supportive "friendships" reflect individual personal likes and dislikes. But unlike monkey species, where support networks are characterized by strongly tied matrilineal lines, chimpanzee networks have few kinship obligations placed upon individuals. This results in more freedom of movement, and so, a greater number of individuals come into contact, permitting the friendly linking of community members within a fluid regional population. The most consistent and stable social support for chimpanzee males is observed between male siblings and between a mother and her sons (Goodall-Lawick, 1975). Apparently, supportive relationships benefit males more than females among chimpanzees.

FURTHER IMPLICATIONS AND SUMMARY

What, then, can we conclude from the data in Table 1 and the above discussion. One potential implication is that, to the extent we are willing to draw inferences from our chimpanzee cousin whose DNA differs from ours by 1.1% which is far smaller than that between species within a genus of mice, frogs or flies (King and Wilson, 1975) (as opposed to our distant, monkey relatives), social structure is built upon weak ties. That is, to the degree that structure and support processes are to be elaborated upon beyond close-knit groups, such elaborations will usually occur on the basis of weak ties.

Another implication is that, contrary to much of the social science literature, social support does not necessarily have to be built entirely on strong ties. Weak tie networks can provide social support, without dense primary social ties.

A further implication is that among humans and the Great apes (chimpanzees, gorillas and orangutans), there was not a "need for great intimacy," as many social philosophers and scientists have argued (see Maryanski, in press on gorilla weak ties and Rodman and Milanti (1987) on orangutan weak ties). If there is such a great need for primary relations (aside from mother and offspring) it must have been selected for when early proto-hominids moving from the forest to open ranging areas confronted greatly increased predation pressure, where intimate bonds might promote survival and reproductive success. Or, alternatively, it may have been selected for at the socio-cultural level, rather than at the genetic level. If this latter is the case, then the basic force behind weak and strong human social networks needs to be seriously questioned.

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LETTER FROM SAN DIEGO: SUNBELT SOCIAL NETWORK CONFERENCE, FEB 88

What makes the Sunbelt so special. "Hey, you folks are serious!" a newcomer said. But that's said at many conferences. The difference: we were lying poolside during our traditional 1300-1600 PTH period watching Lin Freeman give windsurfing tutorials. Another indicator: This is the academic conference that many spouse-equivalents want to go to. Sure, the weather is great. But the Sunbelt is small enough to be family, continuous enough in attendance to develop lasting relationships, & small enough to enable newcomers to be spotted quickly & enfolded.

To my biased mind, this was the best Sunbelt yet. Most & best set of papers: 158 registrants (140 authors) giving 96 papers. Stan Wasserman gave a 6-hour tutorial on network statistical techniques to 25 dedicated souls, I got out alive with the 1st institutional succession (Susan Greenbaum & Alvin Wolfe are replacing me -- see Network Notebook for details), & Charles Kadushin thrilled his fans with his witty, deeply philosophical (& psychologically informed) keynote address. And when folks got bored, they could watch Lin, or have Bev Wellman show them how to make connections thru body language.

The Bahia hotel was good -- altho no ghosts of Jim Bakker have surfaced this year -- a self-contained resort, with good food nearby & the honky-tonk pleasures of Mission Beach a block away. We're going back there in 1990: Ev Rogers & Ron Rice (Annenberg Schl, U Southern Cal) are the organizers.

Quiz: What famous networker was sporting a big red kiss from a party person who wandered in to the hospitality suite "to see who all those folks were who were having such a good time"?

Barry Wellman

And to see what we did for the record, here's the abstracts:

Abell, Peter. Soc, Surrey. "Games in cooperative structures."

Large claims have been made for the 'network paradigm' in sociology. For them to be convincing, it must be shown how the 'paradigm' can address some of the classical macro problems in social theory-- e.g. the consequences of the division of labour; the Hobbesian problem; the emergence of normative frameworks for action & the distribution of inter-actor power. Starting with a set of actors with exogenously determined resources & interdependent resource absorbing goal functions the paper will attempt to model (with self-interested & altruistic motives) these classical problems. A basic prisoner's dilemma is derived from the interdependent structure of goal functions & studied under different assumptions about self-interest & altruistic motives. The concept of narrative is used to study sequential games in the structure.

Anderson, James, Stephen Jay, Laurie Cathcart, Harlan Schweer & Marilyn Anderson. Soc, Purdue. "Network location & physician use of a hospital information system: a structural equation model."

Examines the effects of a consultation network among physicians on the adoption & use of a computer-based hospital information system. The study was conducted in a hospital. Clinical data from the HIS were used to construct consultation networks on 15 hospital services. Data on adoption & use of the system were obtained from the medical personnel system, HIS purge tapes & by means of a questionnaire. Consultation networks were subjected to hierarchical cluster analyses using STRUCTURE & measures of each physician's position in the network structure were generated. A structural model was developed, estimated, & tested using data from 270 members of the medical staff. the overall model consists of a measurement model which assumes that the observed variables are generated by a smaller number of unobserved variables or factors; & a structural equation model that relates exogenous & endogenous variables. The model indicates that consultation with other physicians on a hospital service leads to greater exposure to potential computer applications resulting in less concern about the potential impact of computers on medical practice. Physicians who are more knowledgeable about computers are far more likely to tailor the system to their individual practice by developing their own personal order sets for use on the HIS. All of these factors result in increased use of the HIS by physicians.

Anheier, Helmut & Frank Romo. Soc, Rutgers & SUNY-Stony Brook. "**Structural stalemate: elements of a theory of structural failures.**"

Based on a conceptual discussion of major types of structural failures in interpersonal & interorganizational networks, the paper explores the phenomenon of structural stalemate. The paper seeks to identify the determinants & properties of structural stalemate by using data from a detailed case study as both illustration & systematic evidence. Data, collected during a 15 months field research on institution building & coordination among sixty organizations, are analyzed by employing blockmodel techniques. Major indicators stalled by social structures are complex & continued goal displacement, seemingly irrational collective behavior, the absence of mediator & brokerage positions, & slow decline as well as dissolution. Stalled social structures seem to be associated with relational inertia, over-institutionalization, high opportunity costs attached to rapid & profound changes, & a substantial overlap between strategic areas of interests & areas of conflict. The major property of stalled social structures appears to be the presence & persistence of an "irrational," configuration (triad) which dominates other block relations and, thereby, inhibits the emergence of "unstalled" critical junctures in the social structure. Implications for a theory on structural failures are discussed.

Bennett, Lois. Sidney Coll Adv Ed.. "**Refracting relationships: an analytical study of multiplexity across the action sets of recently divorced Australian mothers.**"

Briefly treats various notions of multiplexity in the social networks literature. It analyses the concept of multiplexity in a study of the action sets of 58 recently divorced Australian mothers. The 5 "perspectives" utilised in the formation of action sets are identified: interpersonal, legal, community, economic & co-parental. Each constitutes a potential source of uniplex linkage between a divorced mother & a resource-person or organization.

Bernard, Russ, E. Johnsen, P. Killworth, T. Brazil, J. Jacobs & C. Rinehart. Anthro, Florida. "**Estimating the size of social networks & hard-to-count populations.**"

Two linked questions are currently being investigated: estimating the averages size of personal networks in a population. A simple model has been suggested, but depends upon data collection & other assumptions that are somewhat problematic. This paper investigates the assumptions o'by using the model to estimate populations whose size can be checked independently.

Bolland, John & Joseph Morrissey. Inst for Soc Sci Res, Alabama. "**Interorganizational coordination in health & human service delivery systems: some thoughts on its measurement, meaning & implications.**"

A considerable literature has addressed the question interorganizational coordination, particularly as it relates to community-based health & human service systems. The assumption underlying most of this literature holds that coordination is desirable; but little has been written on the exact meaning of coordination, let alone the benefits that coordination is likely to yield. Further, analysis procedures that have been used to infer coordination from interorganizational relationships often lack theoretical justification. We develop a framework for reconsidering the concept of interorganizational coordination. We first consider the meaning of coordination, suggesting that its measurement should vary according to assumptions about the nature & purpose of the system under study. We then examine the various analytical procedures that are typically used to assess most coordination, suggesting under what assumptions & circumstances each may be most appropriate. Finally, we suggest how coordination may affect the strategy, style, & effectiveness with which organization deliver services.

Bolland, John. Alabama. "**The relational approach to the study of community power.**"

Explores the decline of the community power study in political research, & it attributes that decline to the mismatch between conceptual & operational definitions of power employed by various community power researchers. It suggest that, in keeping with conceptual definitions of power, 1 component of its operational definition should be interpersonal influence. To this end, it suggest a measure of interpersonal influence relationships & advocates a procedure for aggregating these relationships across a collective. This aggregation procedure is based on network analysis, & it reflects an individual's centrality in a community's agenda-setting network. The paper examines the performance of the aggregation procedure, based on data collected in a medium-sized midwestern community.

Bonacich, Phil. Soc, UCLA. "Simultaneous group & individual centralities."

In many situations, one wishes to identify central individuals as well as central groups. A central firm gets its central position from the board membership patterns of its members; they belong to the variety of boards that make firm central; if its members belonged to a constricted set of other boards, that firm would not be central. Dually, a central individual should be 1 who belongs to a variety of central firms. 1 kind of centrality cannot be defined without reference to the other. The innovation of this paper is its description of a coordinated set of individual & group centrality measures.

Borgatti, Steve. Social Science, Cal-Irvine. "UCINET tutorial."

UCINET is an integrated package of network analysis programs & data management programs, coupled with a collected library of well-known network data sets. Running on the IBM-PC under DOS, it is easy to use & is suitable for both research & teaching.

"NETPAC 1.0."

A collection of computer programs for the analysis & manipulation of network data. Written in Pascal for MS-DOS computers.

"The lattice of regular equivalences."

White & Reitz have introduced the notion of regular equivalence as a formal model of role which turns out to be a family of useful models. This family of models forms a lattice. We explore some of the members of this lattice, & present a method of generating specific members. Interestingly, many of the existing definitions of role equivalence can be computed via this method (even if they are not regular). The algorithm has immediate applications for graphs where the maximal regular equivalence found by REGE groups together all actors into a single equivalence class. This occurs in graphs with no sinks or sources, & therefore in any undirected graph. In the future, our approach may lead to the analysis of graphs in a manner analogous to hierarchical clustering, latent class analysis or log-linear modeling; using those methods the analyst considers several models of varying levels of generality.

Boyd, John & Martin Everett. Anthro, Cal-Irvine & Thames Poly. "Block structures of automorphism groups of social relations."

This paper expands the concept of "block", as in "blockmodeling", by relating it to the "blocks" of permutation groups. Crucial to this development is the idea of graph automorphism, which captures the essence of "regular equivalence" in a way that allows the flexibility of the group block concept. Blocks, unlike regular or structural equivalence classes, are not disjoint, allowing overlapping & hierarchical structures to be described. 1 of the main application of these techniques is to "crack" a disappointingly small number of orbits (say 1 or two) found in highly symmetric graphs into a richer block structure.

Boyd, Brian. Communications, USC. "Competitor interlocks as a predictor of organizational performance."

Section 8 of the Clayton Act prohibits interlocking directorates between directly competing firms. The framers of the Act, among them Louis Brandeis, thought that such ties would allow an unfair competitive advantage. However, 1 aspect of communication network theory -- heterophily -- would suggest that these ties provide little useful information, & hence not affect performance. Analysis of interlocks in the computer industry over a dozen years revealed that firms with competitor interlocks did not perform significantly better than their counterparts without such ties.

Brass, Daniel. Management, Penn St. "Intra-organizational networks & individual attitudes."

Research in the field of organizational behavior has a long history of investigating the effects of organizational structure on individual attitudes. In the past, such structural dimensions as size, functional speciality, hierarchical level, formalization, etc., have been related to individual attitudes. Only recently have these traditional descriptive measures of structure been replaced or supplemented by a social network approach. This research will compare those relational & structural equivalence measures of social network position in relation to individual attitudes such as job satisfaction. The relational clique analysis follows directly from social information processing theory whereas role theory suggests structural equivalence measures.

Bristor, Julia. Bus, Western Ontario. **"Purchasing influence in organizational decisions: a network approach."**

This research employs a network-based model of influence hypothesizing that individuals can exert influence by engaging in gatekeeping & advocacy activities which are associated with specific positions in the buying network. Exploratory research was used to analyze sociometric data from 4 purchasing decisions. The results provide initial support for the model although future research is needed to further develop & operationalize the constructs.

Burt, Ronald. Soc, Columbia. **"The conditional significance of communication for interpersonal influence."**

Behavioral communication is often presumed to be the conduit for interpersonal influence. Developments in network theory & research through the last 2 decades, however, have called that presumption into question. Depending upon the structural equivalence of individuals communicating with 1 another, communication can be insufficient, superfluous, or necessary & sufficient to their influence on 1 another. My purpose in this brief paper is to illustrate that point in theory & empirically by returning to a classic sociological study of contagion in innovation diffusion.

Burt, Ron. Soc, Columbia. **"Network analysis computer workshop."**

This workshop is to enable participants to use recent developments in social network analysis in their own teaching & research. Models implementing basic principles of network analysis will be reviewed with empirical examples analyzed during the workshop. To facilitate the transition from didactic workshop at the Sunbelt to classroom & research project back home, each workshop participant will be given microcomputer software & documentation making it possible to reproduce the didactic examples at home & apply the models to their own data. The topics to be covered include common forms of network data, network subgroups under cohesion & structural equivalence, density tables & blockmodels, social contagion, prominence, range & structural autonomy. A working knowledge of quantitative data analysis is a prerequisite & a familiarity with basic themes in social structural theory would be helpful.

Carley, Kathleen. Soc Sci, Carnegie-Mellon. **"Cognitive & social stability."**

Based on constructural theory, a 1 on 1 list structured computer model of individual cognitive & social behavior was developed. Using this model the user can explore the relationship between different social network configurations & the cognitive structures of the members of the society. This model is used to explore conditions for cognitive & social stability. The stability, both cognitive & social, over time of common social structures are explored using the simulation model. The structures explored include: opposing cliques, Helderian triads, minority versus majority, & weak ties amidst strong ties. The findings suggest that social stability is maintained at the cost of cognitive stagnation & cognitive stability is achieved by segmenting the social network.

Carley, Kathleen & Kira Wendt. **"The impact of electronic mail on the diffusion of scientific information."**

Both the invisible college & proximity have been forwarded as dominant determinants of the flow of information among scientists. Both of these mechanisms rely on face-to-face communication between the scientists linked by the network. It has been suggested that electronic mail decreases barriers to communication such as status & physical distance. And, that e-mail is more convenient than face-to-face communication. As such, e-mail should reduce the impact of the traditional scientific networks such as the student-teacher ties (that the invisible college approach relies on) & who has offices near each other (that the proximity approach relies on). To test this argument the diffusion & use of a large-scale e-mail system by the dominant users was studied. Data on the network ties among the dominant users, & diffusion data on the acquisition of the basic idea, the operationalization, & the supporting ideas was gathered. We find that different communication modes rather than different network ties are used to acquire different types of scientific information. E-mail re-enforces rather than reduces traditional ties.

Chappell, Neena. Geront, Manitoba. **"Social networks of elderly persons in non-traditional living arrangements."**

A unique data set of 560 elderly individuals who live with non-spousal others was obtained in Winnipeg, CDN. 3 different patterns of living arrangements were found: those living with a married child's intact family, those who have relatives living in their home, & those who live with sibs or friends. The 3 groups are compared in terms of the characteristics of their social networks & to formal health care networks.

Chase, Ivan. Soc, SUNY-Stony Brook. "The jigsaw-puzzle theory of social structure."

Social structures in groups often take characteristic forms. For example, dominance hierarchies in groups of animals are often linear, & sociograms in humans are usually composed of hierarchically ranked cliques. Where do these characteristic structures come from? Why these structures rather than other possible ones? In order to answer these theoretical questions, I have developed the "jigsaw-puzzle" approach. This approach assumes that the form of a social structure emerges from the accumulation of interaction patterns among members of sub-groups. Using the results of observational studies in several species, I show how this model successfully explains the linear form of dominance hierarchies for animals. I suggest that the jigsaw-puzzle approach may also explain the characteristic forms of social structures in human groups, & I briefly review the evidence.

Chase, Ivan. "The emergence of hierarchy structures from behavioral interactions."

Linear & near-linear dominance hierarchies are commonly observed in small groups across a great range of species. How are these hierarchy structures produced? Why linear & near-linear hierarchies rather than other possible forms? In order to answer these questions I have proposed the "jigsaw-puzzle" model of social structure. This approach explains how the overall structure of a dominance hierarchy emerges from the accumulation of interactions in triads of individuals making up the larger group. I illustrate the application of this approach using results from observational studies of hierarchy formation in chickens, sparrow, sunfish, & rhesus macaques. I suggest that the jigsaw-puzzle model has application beyond dominance hierarchies, & I briefly review support for its use with affiliative structures in humans & other primates.

Chepko-Sade, Diane, Karl Reitz & Donald Stone Sade. Anthro, Northwestern. "Network analysis of social structure of a pre-fission group of free-ranging rhesus monkeys on Cayo Santiago."

Variations in social structure will be examined for a social group of free-ranging rhesus monkeys (*Macaca mulatta*) during a 15 month period prior to group fission. Sociometric data will be drawn from detailed field notes collected in a standardized manner over a period of 15 months on a single social group on Cayo Santiago Island in Puerto Rico. Network analyses designed to detect natural hierarchically arranged clusters of individuals within the group, based on interactional data, developed by Karl Reitz (Reitz, unpublished ms) based on an algorithm developed by Mizoguchi & Shimura (1980) will be applied to a series of 3 grooming matrices representing the mating season of 1971, birth season 1972, & mating season 1972. The group underwent fission at the beginning of the 1973 mating season. The network analyses will be compared to detailed information on behavioral & demographic changes in the group's structure over the study period, providing an opportunity for checking the validity of the network analyses against the observer's intuitive understanding of the social structure of the group..

Coleman, James. Soc, Chicago. "Modelling diffusion of AIDS."

It has long been recognized that formal models of diffusion are insufficiently attentive to the nonhomogeneous mixing of the population, that is to the social structure through which transmission (of information, or of a contagious disease) takes place. For transmission of a disease like AIDS, through sexual networks, this deficiency is especially serious. I will report on modelling designed to be used in conjunction with sexual contact data from a survey, to mirror the transmission of AIDS, & predict the course of its diffusion.

Coleman, James. "Barriers to exchange in a competitive system."

A model exchange in a competitive system has been extended to incorporate social-structural barriers to exchange between actors. Theory on which the model is based is presented, along with methods for use of the model in data analysis.

Contractor, Noshir, Dawn Iacobucci, E. Eisenberg & P. Monge. Speech Illinois. "Predictors of semantic agreement in an organization."

This paper presents several models that predict the degree to which organizational members share their interpretations of 3 key organizational symbols. These models will compare & combine the relative ability of 3 classes of variables in predicting shared interpretations among organizational members. These classes are communication linkages, formal structural attributes & individual attributes of organizational members (age, sex, education, & tenure). The data were analyzed using dyadic independence models.

Cook, Karen & Toshio Yamagishi. Soc, U Washington. "Generalized exchange networks: a problem in collective action?."

Examines the literature on generalized exchange & links it to current work on the problem of collective action. Ekeh (1974) makes several important distinctions between types of generalized exchange systems. We examine these distinctions & present the preliminary results of an experimental study that investigates the differences between group-focused & chain-generalized exchange networks. A key issue in this literature is the role that trust plays in both the initiation & maintenance of generalized exchange systems. As Ekeh notes, generalized exchange networks require a kind of "credit mentality" that operates to facilitate exchange. In order to clarify the role of trust in generalized exchange systems we begin our analysis by treating trust as an individual-level trait. A trust scale is used to distinguish more or less "trusting" individuals who are then asked to participate in an experimental study of generalized exchange networks. Results from prior studies on social dilemma situations, similar to the group-focused generalized exchange situation are compared with our preliminary results on 2 types of networks (group-focused & chain-generalized). We hypothesize that individuals with higher levels of trust will be more likely to participate in chain-generalized exchange networks than individuals with lower trust levels & furthermore, that the level of exchange will be higher in group-focussed exchange situations than in chain-generalized networks. We conclude by postulating further hypotheses about differences between these 2 types of generalized exchange networks linking them to existing research on social dilemmas.

Danowski, James. Comm, Illinois. "Computer-mediated communication network effects on the structure & content of semantic activation networks about organizational symbols."

This paper questions whether computer-mediated communication changes the content of meanings for organizational symbols, & changes the structure of connections in the semantic networks they activate. It tests the thesis that because computer-mediated communication is less space-time bound than unmediated interpersonal communication, it leads participants to communicate with more diverse individuals, & to meta-communicate more; computer-mediated communication fosters more explication of, & more negotiation of meanings. Thus, computer-mediated communication leads to more richness of meaning for organizational symbols. The main hypothesis is that the more the computer-mediated communication in an organization, the more the semantic networks for organizational symbols are diverse, abstract, & active. Data are analyzed and form a sample of 53 organizations. We measured the amount of computer-mediated communication relative to other media use, the structure of communication networks at the individual, departmental, & inter-organizational levels, & the semantic activation networks associated with each organization's primary symbols. The hypothesis is tested at 3 levels of analysis defined at the individual, inter-departmental, & inter-organizational network levels.

Daugherty, Steven, Linda Leksas & Jeffrey Salloway. Rush Med C, Chicago. "Self-report & the validity of social network data."

A longitudinal data set describing the social networks of medical students is used to assess the amount of reporting bias & the source of bias from individual difference variables. To accomplish this, reports of social networks were compared for each respondent contrasting his/her own network partners at a single time, his interaction partner's report of their reciprocated choices at that time, his reported network partners at several other times and his interaction partners' report of their reciprocated ties at other times. Respondents were grouped first by reported size of network, & amount of social support & second by the rate of agreement between the respondent & his/her cited partner on whether the tie exists, & how much social support is available. These groupings were then examined for similarity on such personality variables as extroversion, neuroticism, self-esteem, need for intimacy, need for power & depression to determine the effect of these individual differences of network reporting bias.

Daugherty, Steven. "The effects of network structures on maturation through the life cycle."

The process of maturation has long been the exclusive domain of psychology, with personal development & the growth of interpersonal relationships explained by intra-psychic dynamics. In this paper I shall present a theoretical outline to explain maturation from the position of network membership. People are members of multiple networks & these memberships shift over time. Shifts in both number & type of network memberships can be shown to correspond to different stages of the life-cycle: childhood, adolescence, adulthood, retirement & old age. The key concepts are the number of networks of which a person is a member & the patterns of dominance, both between the person & his networks aid in the development of complexity of thought & the implications of living life in a close-knit, single network community are discussed.

Dermatis, Helen. CUNY. "Social support networks & physical illness."

As part of a larger study of hardiness, social support, & stressful life events, this study examines the composition of social support networks & their consequences for physical illness. A unique measure used is the effect of a stressful life event which occurs to a "significant other." The sample includes approximately 100 nurses in New York state. Research questions include: what aspect of social support is most related to illness; to what extent are relationships multidimensional & how does this relate to physical health & illness; do satisfaction with social networks & perceived reciprocity relate to illness..

Doreian, Patrick & Norman Hummon. Soc, Pittsburgh. "Search algorithms & connectivity in social networks."

Search algorithms that have been developed in the discipline computer science can be applied to the analysis of social networks. These algorithms generally provide 2 capabilities useful for network, & a method of generating all possible paths through a network. The basic search algorithm is called the depth first search algorithm. To implement this algorithm efficiently requires the use of data structures not commonly used in social network analysis at the present time, the singly linked list, & the doubly linked list (sparse matrix). This paper describes how to use depth first search based algorithms & linked list data structures for analyzing the connectivity of social networks. We also propose new measures of connectivity, & use these measures to identify structural properties of networks that capture the connectivity of the network.

Dow, Malcolm & Frans de Waal. Anthro, Northwestern. "Assignment models for group interaction data."

In studies of social groups, it is often of theoretical interest to focus on the interactions of an identified subgroup (e.g. males, lineage members) both with respect to the patterns of behaviour within the subgroup itself, & in relation to the complement set of group members. For example, it may be of interest to assess the degree of "compactness" of a given subgroup based on specific behavioural interactions, or to assess the degree of "isolation" of a given subgroup from the rest of the group. In the case of asymmetric behavioral interaction data (e.g. aggression, grooming), the concept of "isolation" can be decomposed further into the flow of actions directed towards a given subgroup & the flow directed outwards from that subgroup. A variety of Quadratic Assignment models are presented that operationalize these compactness/isolation concepts. More general Cubic Assignment models are described that focus on the flow of behavior out of a given subgroup in comparison to the flow within it, or on the flow of behavior into the subgroup in comparison to the flow of behavior within the set of complement members. All of these models are illustrated using a variety of chimpanzee & stump-tail macaques group interaction data.

Eveland, J.D., Tora Bikson, & Leonie Huddy. RAND. "Electronic communication & retirement: how media effect task group structure & integration in an older population."

A year-long field experiment was designed to examine the utility of computer-mediated communication for establishing or maintaining links between retirees & those nearing retirement. From a large organization in the greater Los Angeles area, 80 volunteers were recruited & randomly assigned to an "electronic" or "standard" task force; they were asked to prepare a report to the corporation on transition to retirement in today's policy environment. Both groups consisted of recent retirees & an equal number of employees similar in age & status & eligible to retire. Meetings, phone calls, postage, & so on were supported for each. In addition, members of 1 task force were provided with networked PC's, electronic mail, & other accompanying software; members of the other group had no electronic links. All participants were interviewed at baseline & 3 subsequent intervals. Sociometric data include reported degree of familiarity with other participants & reported contacts of several types. Intragroup contacts via electronic mail were also mapped automatically in the electronic task force. The basic hypothesis was that the integratedness of retire persons into social networks could be maintained & even improved by the use of electronic communications.

This paper will discuss how the overall structure of acquaintance & interaction networks developed over time, giving special attention to differences in the balance of roles played by employees & retirees in the 2 groups during the year. Relationships between network participation & position & other characteristics of network members will also be described. Implications for the use of computer-mediated communication by older populations will be suggested, & some methodological issues in using both self-report & logged communication data will be addressed.

Fagan, Kathryn. Soc Sci, Cal-Irvine. "Performance in organizations measured by consensus."

The organization is viewed as a cultural system with a set of values, beliefs, & norms. Social processes within this system influence job performance. A mathematical model measures the degree of consensus of informants (co-workers and/or managers) on the issue of productivity & provides a rank ordering of the reliability of the informants. Centrality scores on communication frequency & friendship ties support analysis.

Faust, Katherine & Stanley Wasserman. Soc, American U. & Psych, Illinois. "Canonical analysis of the structure & composition of social networks."

Developing network models which provide for simultaneous analysis of actor attributes & network relational structure provides a challenge for network researchers. Such models would allow 1 to look at the characteristics of actors & partners in a network, & at the patterns of social relations at the same time. In this paper, we show how recent developments in the statistical analysis of categorical data can be used to analyze the structure & composition of network of relational data. The technique we use is canonical or correspondence analysis, a method for studying 2-way cross-classifications that several researchers have recently applied to network data. We have found that this technique allows network analysts to easily study aspects of social structure that, until recently, have been too difficult (because of the reliance on "heavy computational methods"). We first present the canonical analysis model, & then show how it can be applied to network data which contain information about both actor attributes (network composition) & relational structure. Canonical analysis allows us to test hypotheses about several interesting types of relationships, including associations among: actor & partner characteristics; actor/partner attributes (i.e. network composition) & relational patterns; multiple relations.

Feld, Scot. Fam Resrch Lab, New Hampshire. "Private attitudes & public conflict: childrearing in a small community."

In social network research, influence processes are generally assumed to result from the sharing of opinions, approval, & disapproval in dyadic relationships. This paper explores some of the more indirect forms of social control that commonly affect even supposedly "private" attitudes. Based upon intensive interviews with mothers of young children in 1 small community, this paper describes 4 important forms of social control over childrearing practices: 1) mothers withdrew from friendships when they disapproved of another mother's parenting; 2) the community made formal decisions regarding public regulation of children, particularly by adopting playground rules; 3) mothers made reports about others to outside authorities (e.g. the apartment complex management and/or the police); 4) mothers gossiped about "problem" children & the parents of those children. While these impersonal forms of social control & influence were common, mothers rarely voiced their disapproval directly to one another. Although approaches to childrearing were primarily determined by experiences prior to living in this particular community, the forms of social control & influence commonly used in this community put pressure on mothers to change.

Fernandez, Robert, Roger Gould & David Prensky. Soc, Arizona. "Information brokerage in the national health policy domain."

Describes a model of information brokerage among organizations in the nation health policy domain. We characterize every actor in the domain by the degree to which they occupy 5 analytically distinct brokerage roles. We found that information brokerage in the domain tends to follow 2 distinct patterns, 1 where the broker stands outside the groups of the sender & receiver of the information flow, the receiver, or both. We also examined the determinants of the occupancy of these roles. Our analyses have shown that "generalists," organizations with a wide range of interests, serve as intermediaries between different sets of "specialists", organizations with a more limited set of interests. There are also important effects of organization age, size, & degree of effort directed toward health policy on the various types of brokerage. Government organizations are most likely to serve as brokers, voluntary associations are next most likely, & profit-seeking organizations are least likely to be information brokers in the domain.

Frank, Ove, Barry Wellman, Craig Wilson, Vicente Espinoza & Stefan Lundquist. Statistics, Lund & Soc, Toronto. "Integrating the analysis of individuals, ties & networks."

Proposes & demonstrates a statistical procedure to link individual relational & structural analyses. It uses the 1968 East York survey data to show how the marital status of Egos is related to kinship ties between network members.

Freeman, Linton. Soc, Cal-Irvine. "Alliances: a new formalism for primary groups & its relationship to cliques & to structural equivalences."

Standard definitions of cliques & clique-like structures are reviewed in the light of classical sociological institutions about primary groups. They turn out to capture only part of the intuition. A new model, strong alliances, is introduced to explicate primary groups, & is relaxed to permit the analysis of data. Finally, measures of the "strength" of observed groups, that permit the evaluation of individual membership strength as well as overall group strength, are developed.

Friedkin, Noah & Eugene Johnsen. Educ & Math, Cal-Santa Barbara. "Social influence & opinions: a network paradigm."

Describe an approach to the relationship between a network of interpersonal influences & the content of individuals' opinions. Our work starts with the specification of social process rather than social equilibrium. Several models of social influence that have appeared in the literature are derived as special cases of the approach. Some implications for theories on social conflict & conformity also are developed in this paper.

Friedland, Matthew, George Barnett & James Danowski. Comm, SUNY-Buffalo. "The network structure of American industrial & service organizations based on shared public relations & advertising agencies."

This paper data examines the networks of interorganizational relations defined by linkage at the institutional level. The networks are comprised of the 828 largest U.S. industrial & service firms identified by *Fortune* magazine in 1985. Linkages are based upon organizational behaviors related to information dissemination to external publics. Three distinct depictions of network structure are reported, representing links via shared public relations firms, shared advertising firms & a combination of public relations & advertising. Results are presented in tabular form. Included are measures of organizational connectedness, network role, organizational centrality, & integrativeness for all nodes in each network. These measures were derived using NEGOPY. Also included is information on organizational sector, diversification, stock price volatility, & medial coverage.

Gagnon, John. Soc, Princeton. "Sexual partners across the lifecourse."

Data on the patterns of sexual partnering which would be adequate to a robust network analysis of sexual life in the US is currently limited. The acquisition of sexual partnerships, the duration of sexual partnerships, & their termination is probably only well accounted for among legally married heterosexual pairs. The official recording system for marriage & divorce & the large volume of research on the macro & micro sociological aspects of marriage formation & dissolution provide reasonable information about this 1 type of sexual relation in the society (even though information about the actual sexual practices in marriage are limited). This paper is an attempt to construct a preliminary version of the patterns of sexual pairing across the lifecourse for other types of sexual partnerships & to discuss the relative stability of these patterns over time. The other types of pairing to be discussed are: same gender sexual pairs; sexual pairing among the young & the very young; pairs in which money is exchanged for sex; pairing among those who have had sex with both genders; concurrent sexual pairing; sexual pairings between long-term coupled relationships. The relevance of network data to understanding both the patterns of sexual life & patterns of AIDS transmission should be reasonably apparent.

Galaskiewicz, Joseph & Ronald Burt. Soc, Minnesota & Columbia. "Interorganization contagion in corporate philanthropy."

Two network contagion models are used to describe evaluations by corporate contributions officers of nonprofit organizations seeking philanthropic donations. Contagion by cohesion predicts that direct communication between contributions officers results in officers sharing the same evaluation of a nonprofit organization. Contagion by structural equivalence predicts that role-playing between officers similarly positioned in the interorganization network of contributions officers results in them expressing similar evaluations. Ostensible evidence of contagion by cohesion is traced to centrality in the network of contributions officers & to membership in professional associations. With these factors held constant, there is no evidence of contagion by cohesion & strong evidence of contagion by structural equivalence. Stated in another way, the attitudes of contributions officers spread from 1 organization to another between officers similarly positioned in the hierarchy of their profession.

Garcia, Mikel & Gary Hurd. Cal State-Fresno. "Co-attendance & public events: black voluntary associations in Los Angeles, 1913-1917."

Three publicly attended events which took place in the pioneer Black community of Los Angeles were analyzed from interpersonal & interorganizational perspectives. Of the 3 events, 2 were community fund-raising activities taking place approximately nineteen months apart. The third event was a large political parade which featured interracial participation of civic leaders from both the Black & White communities. Individuals participating in these 3 events in an organizational capacity are shown to be highly linked through multiple ties. Attendees are shown to be more likely linked by either organizational or personal networks than the co-attendance network obtained from the 3 events. This indicates to the authors that organizers constitute a sociopolitical elite which draws upon discreet linkages through other organizations to draw attendees toward specific activities. A much higher co-participation occurs between the fund-raising events than either fund raiders & the political parade. This is so in spite of the fact that the fund raising events were separated by over 1 & a half years while the political parade occurs temporally close to 1 of the fund raising events. This may reflect the goal similarity of the 2 fund raising events. An alternative interpretation relates to the possibility that this reflects interracial participation in the political parade.

Gil, Magili. Soc, Cal-Irvine. "Women, jobs & weak ties."

This research focuses on the process whereby professional, managerial, & technical women access job information. This study replicates & extends Mark Granovetter's (1970) original research of PMT men. The research confirms that PMT women are more likely to use personal contacts, particularly weak contacts in a work context; strong ties in a family-social context. However, the degree to which personal contacts are used, & the pattern of personal contacts, in the process of accessing job information, seems to differ substantially between PMT women & PMT men. The research suggests that there are 4 major areas in which PMT women are more likely to differ from PMT men in the use of personal contacts: search behavior, gender of contact, occupational background, & pattern of work contacts (the major source of weak ties for both women & men). The research was based on a random sample of PMT women residing in Irvine, California. In order to establish a database for potential comparisons, Granovetter's original criteria was followed.

Hammer, Muriel, Suzanne Salzinger, Richard Feldman, & Margaret Rosario. NYS Psychiatric Inst. "Familial physical abuse & children's social networks."

The social relationships of pre-adolescent school children, both in class & in their open networks of ties outside of school, & with the impact of familial physical abuse on children's social relationships with peer. More broadly, it addresses the issue of the ways in which people's social ties in bounded sets, like students in a classroom, correspond (or do not) with their unrestricted networks of social ties. For reasons of methodological ease & elegance, bounded groups often serve as model data to have the same characteristics. In the children's closed & open data sets, we find a strong specific correspondence: Children tend to name, as open network best friends, the same classmates they choose positively in class. Equally interesting, however, is that we are so far unable to detect any way in which the children's choices to or from classmates predict any other aspect of their open networks. Considers the implications of the relationship between the closed & open data sources for an understanding of the impact of familial physical abuse on children's social competence.

Hammer, Muriel & Linda Gurwirth-Winston. "Ethnic variation in children's social networks."

Comparison of networks of American, Haitian-American, & Yoruba children suggests that American children's networks are more limited in range than those of the other children being considered. American children not only see fewer people on a regular basis, but are also exposed to a narrower range of social positions than that commonly experienced by the Haitian-American & Yoruba children.

Hummon, Norman & Patrick Doreian. Soc, Pittsburgh. "Connectivity in Citation Networks."

The study of citation networks for both articles & journals is routine. In general, these analyses proceed by considering the similarity of articles or journals & submitting the set of similarity measures to some clustering or scaling procedure. 2 common methods are found in bibliometric coupling, where 2 citing articles are similar to the extent they cite the same literature, & cocitation analysis where cited articles are similar to the extent they are cited by the same citing articles. Methods based on structural & regular equivalence also seek to partition the articles based on their positional location. Such methods have in common a focus on the articles & partitions of them. We propose a quite different approach where the connective threads through a network are preserved & the focus is on the links in the network

rather than on the nodes. Variants of the depth first search algorithm are used to detect & represent the mainstream of the literature if a clearly delineated area of scientific research. The specific citation network is 1 that consists of ties among the key events & papers that lead to the discovery of DNA & the final experimental confirmation of its representation.

Hunter, Susan, Brian Spitzberg & Thomas Hurt. N. Texas St. "The relationship between interpersonal skills & social support: a propositional summary & literature review."

Reviews recent literature from a variety of fields & generates 35 propositional statements linking interpersonal skills to support networks & well-being. In addition, based upon the 35 propositions, the paper offers a causal research model for empirically investigating relationships among interpersonal behavior, support network structures, & health.

Hurd, Gary. Cal-Irvine. "The strength of socio-demographic effects on personal network size & composition."

Individuals from a Georgian community were interviewed about their personal social network. The sample was stratified by sex, race & economic status. The network data were elicited by the Pattison Psycho-social Network Inventory. The results from ANOVA & multiple regression indicate that economic status & the interactive variable sex/marital status were the most successful predictors of network size, race having a minimal contribution to the result.

Hurt, Thomas, L. Peek, M. Hepp & M. Strohmaier. Comm, Texas St. "The impact of interpersonal skills on the development of support networks for recovering alcoholics."

This study used 150 recovering alcoholics in various AA groups in 2 metropolitan cities as subjects. Data was collected by a recovering alcoholic who had access to meetings. All subjects completed a social support network questionnaire which asked them to list by first names or initials those persons with whom they would interact regarding personal problems about which they felt uncertain how to handle. They also completed a series of questions associated with each target in the support network. Controlling for time in AA, results of discriminant analyses indicated that successfully recovered alcoholics as compared to alcoholics with less successful recovery periods, had support networks comprised of significantly more persons outside of AA, contacted their AA sponsors less often, had support networks consisting of more multiplex targets, were subsequently less lonely, had greater self-reported interpersonal skills, & had lower levels of trait-like communication apprehension. Results were discussed in terms of treatment programs for alcoholics which would enable them to develop skills necessary for effectively interacting with potential support targets outside AA, & being able to acquire information needed to effectively cope with external stressors.

Husaini, Baqar, Richard Whitten-Stovall, Robert Castor, Gary Linn, William Nesor, Denise Griffin & Steve Giles. Ctr for Health Res, Tennessee St. "Social density, stressors, & depression: gender differences among the black elderly."

Examines gender differences with regard to the effect of social density (size of social network, frequency of social contact, & social support) & stressors (stressful life events & chronic medical problems) upon depressive symptomatology among 600 black elderly community residents of Nashville, TN. The data were collected through a 75-minute interview in the respondents' homes. Regression analyses show that poor ego & chronic medical problems were the common predictors of depression among both the males & females. Gender differences, however, existed with regard to life events (females became more depressed with increasing number of events) & the level of contact with relatives & friends (only females with fewer contacts were more depressed). Further, females with lower social attachment & males with poor social integration were more depressed. These relationships tended to be stronger for those living alone than for those living with others. Social network size & its changes did not relate to depression for either males or females. These findings are discussed from the traditional sex role perspective.

Johnsen, Eugene. Math, Cal-Santa Barbara. "Structure & Process: Incipient Triadic Microprocesses for Micro & Macrostructure Formation."

We present an analytic model for finding 1 or more incipient triadic microprocesses which generate the set of permitted triads in a social structural micromodel at equilibrium. Since a triadic micromodel typically determines a macromodel of possible exact macrostructures, this gives a way of producing candidate microprocesses which completely account for known social macrostructures. Since these processes are given in terms of full dyads rather than directed relations between members of a triad, this

account seems to have more of a sociological than a psychological basis. The method is applied to finding triadic microprocesses to account for the generic macrostructures of the Hierarchical Cliques, Transitivity, & Ranked Clusters of Cliques macromodels as well as 2 "friendship induces agreement" macromodels previously studied by the author. A principal result of this method is to obtain a clear & exact processual characterization for the articulation of cliquing & ranking in the Hierarchical Cliques model, the macromodel which exactly fits the total empirical sociometric data sets of Davis-Leinhardt & Hallinan. The method thus produces a processual solution to the corresponding structural articulation question for groups which arises from the discussions of Homans in The Human Group.

Johnson, Jeffrey, Don Holbert & James Boster. Inst for Coastal & Marine Resources, E. Carolina. "Snowball sampling & inferences concerning networks: an empirical look."

It is widely understood among social network researchers the difficulty associated with the study of large networks. Problems concerning the delineation of network boundaries & the high cost of data collection often make the total sampling of a social network impractical. A variety of alternative procedures for the sampling of social networks, such as snowball sampling, have been applied & statistics for estimating network population has been done on such estimations, particularly concerning a variety of social network measures. With the use of computer simulations, this paper provides an empirical look at estimating relative in-degree centrality with the use of snowball samples that vary with respect to initial sample size, number of stages, & number of choices. A discussion of estimating relative in-degree centrality & other network measures with the use of snowball samples is given.

Kadushin, Charles. Soc, Grad Ctr, CUNY. "The next ten years: keynote address."

Ten years of progress in the network field are reviewed & recommendations made for the next 10 years. Major achievements in the last 10 years have taken place in part because of a consensus over what were important issues. Successful work has taken place in such substantive fields as "The Small World", triadic balance, status & role analysis, social exchange, complex organization, community, social support, diffusion, & the study of flows & referrals. Methods, the problems has been marked improvement in clustering & network manipulation generally, no sharp breakthroughs in sampling, & some major inventions in survey data collection which have led to entire new fields. I see less consensus about the problems to be tackled in the next years. Despite our attention to method & our renunciation of metaphor, concepts & metaphors (e.g. "weak ties") have been the keystone of our success & deserve more attention in the next 10 years. Similarly, the greatest advances in our field have come as the result of new data collection techniques (eg. sociometry). There is a serious crises in our current ability to collect good sociometric data in unbounded systems & some major inventions must occur to lift us out of reanalysis of dated data sets. Finally, the organization field offers the greatest chances for success in data collection & the best chance to make theoretical advances which will have the widest impact in social science generally.

Kilduff, Martin. Cornell. "Perceived similarity & organization choice."

This research examined the patterns of choice among a cohort of MBA students involved in a competitive bidding process for interviews with recruiting organizations. According to social comparison theory, people are influenced by others who are perceived to be similar. The data supported the hypothesis that those who perceive each other as especially similar would have similar patterns of choices. Further, compared to non-friends, friends had similar patterns of choices. These results remained significant even controlling for the strong effects of job preferences on organizational choices. Further, the correlation between perceived similarity & behavior remained significant when friendship was controlled for, & the correlation between friendship & behavior remained significant when perceived similarity was controlled for. These results are compatible with the hypothesis that people are influenced both by their friends & by those they perceive to be especially similar to themselves.

Klov Dahl, Alden. Soc, Australian Nat'l. "Observing large networks in society."

The focus is on the problem of making observations on large social networks in society. Particular attention is paid to the nature of the data that have been obtained in 3 studies of large urban networks. Some preliminary results are presented, along with a number of visual representations of different facets of large urban social networks.

Krackhardt, David. Mgmt, Cornell. "QAP as a nonparametric test of multiple regression models of dyadic interactions."

Many social network problems pose a difficulty for hypothesis testing because the observations (the dyads) cannot be assumed to be independent of 1 another. This paper explores how QAP handles this problem in the general multiple regression case. Simulations are conducted to test for statistical bias. Simulations of other procedures, including OLS, loglinear analysis, & bootstrapping, were to run assess their bias under the same assumptions of dependence among observations. The results suggest that the proposed QAP multiple regression approach is the least biased approach.

Laumann, Edward, Tina Morris & Robert Michael. Soc, Chicago. "Designing a national survey of sexual practices & disease transmission using network analysis."

We are in the early planning phase of a study that uses network & life course perspective to investigate the sexual practices of the U.S. adult population. Our current thinking is to propose a large national survey with longitudinal & cross-sectional components that will permit a detailed mapping of the frequencies & dynamics of sexual behavior, particularly as it relates to contraception, fertility & sexually transmitted diseases (including AIDS). The network accounting strategy has the potential to provide very detailed mapping of the social groups who are at risk of AIDS, whether due to their direct transactions with other high risk groups, or to indirect vulnerability through a third bridge party, or to potential vulnerability arising from high risk behavior. Using multivariate analysis techniques, high risk individuals can be clustered according to social & demographic characteristics, which would help to identify along which axes public health interventions are most needed.

Lawrence, W.A., R.H. Fowler & D.W. Dearholtd. Comp Sci, New Mexico St. "Use of pathfinder networks to distinguish behavior patterns in a captive group of baboons (*Papio cynocephalus*)."

A technique for analysing similarity data by constructing Pathfind networks (PFNETs) was applied to several data sets. The data sets represented 9 months of adult male interactions with infant & juvenile baboons (*Papio cynocephalus*). Networks derived from the analyses were compared to results obtained from cluster analyses performed on the same data sets. Closely connected sets of nodes, as reflected in measures of mean number of links & inter & intra cluster link weight comparison, corresponded to groupings produced in the cluster analysis. The arrangement of nodes in the networks allowed identification of animals with prototypical behavior. Information concerning both local & global interrelationships was extracted. While an animals behavior may be most similar to those animals to which he is most closely linked, longer links to other animals indicated a lesser yet existing similarity. PFNETs provided a means of defining classes of behavioral interaction patterns for this study group.

Lievrouw, Leah. Comm, Rutgers. "When a new medium is commonplace: communication among computer scientists via electronic mail."

The patterns of communication among 6 computer scientists geographically dispersed across the U.S. using electronic mail are examined. The subjects were so thoroughly familiar with computer use that e-mail was a virtually transparent communication medium for them as they used the system to plan a panel presentation for a professional meeting. The complete transcripts from their 4-month exchange were analyzed using both network analysis & content analysis. The analyses were followed up with in-depth interviews, to discover background information about their relationships prior to & following the planning period, & to obtain participants' accounts of the planning process. Preliminary results indicate that while certain pre-existing relationships among the participants were reinforced in the e-mail interaction, the varying abilities of the subjects to exert influence in the planning process changed over time. These changing relationships may be explained in terms of the temporality, involvement, & control of communication experienced by each of the subjects when using e-mail.

Lin, Nan. Soc, SUNY-Albany. Social support systems for AIDS victims."

It is generally known that married individuals are much healthier, both mentally & physically, because of the support provided by spouse & other family members. We may speculate that among the AIDS victims who have been able to maintain stable companionships, physical symptoms may be less severe & physical deterioration less pronounced than others. Further, they also should exhibit healthier mental attitudes & less psychological distress than others. For those undergoing marital changes, it has been found that family members provide important & effective transitional support against possible distressful consequences. It can be hypothesized, therefore, that those victims receiving family support during the crisis are likely to do better both psychologically & physically than others. However, in the case of marital disengagement, family support is effective only as surrogates. Long term health depends on ability

of individuals to re-engage & re-construct their social networks rather than continually relying on kins for support. It is unclear if this finding can be generalized to the AIDS victims, in that the likelihood of re-constructing networks may be limited for them as compared to those maritally disengaged. The more comparable group may be those who become bereaved in the older age. However, there is a problem of life course differentiation between these 2 groups. Finally, role loss is associated with support loss. Employment provides opportunities for maintaining medium-strength ties which become useful when strong ties are disrupted. Unemployed or retired persons lack such medium-strength ties. When they lose strong-tie support, the consequence tends to be more severe. It is argued, therefore, that AIDS victims who can remain employed will have better health.

Lin, Nan. "Social action, social resources & social structure: a developmental theory."

It is argued that extension of the social resources theory provides a meaningful frame work in tackling the question: how individual actions lead to social structure? This theory contains a series of assumptions about the motives for action & the nature of both personal and social resources. The pivotal hypotheses are: (1) cumulation of resources is basic & fundamental in individual actions & (2) the rate of cumulation of resources is much faster for social resources (exponential function) than for personal (additive function). Seeking social resources lead to formation of linkages with others of similar (horizontal) & dissimilar (vertical) ties & elaboration of social ties of both types constitute the elementary form of social structure. As ties expand, communality of resources consensually considered as valued is relatively reduced. Loyalty to the "group" increases its significance if such common interests are to be maintained. Obligations as well as privilege rules are specified & formalization of the structure develops. This theory incorporates elements of the rational choice model, the cognitive model & the affective model. Further elaborations should be useful.

Marriott, Barbara. Anthro, Florida. "How expatriates learn to cope."

An ethnographic study on the use of instruments & social processes for gathering culture information for coping. Expatriates identify their use of 4 types of instrumental sources: print, electronic, institution, & people for 14 categories of experiences. The preference for homophilous sources is examined in each category. While there was use of all 4 types of instruments, people as a source of information were used most often making "networking" the favorite method of seeking information. Print was the favorite source of information on car purchases. Electronics was used mostly for shopping information. Institutions, the fourth instrumental source supplied the most recent information for informants' medical needs.

Maryanski, Sandy. Anthro, Cal-Riverside. "The hominoid family tree: a network search for the missing links."

This paper examines the organizational structures of chimpanzees, gorillas, gibbons, & orangutans from a network perspective. Findings suggest that the adaptive potential of the hominoids may be limited by phylogenetic predispositions, permitting only those organizational structures that can be accommodated within the scope of a shared ancestral heritage.

Maxwell, Allen. Anthro, Alabama. "Genealogical networking & ethnicity in Borneo."

All the populations of Borneo can be considered to constitute a single genealogical network. While not conclusively demonstrable at present, several types of evidence suggest the validity of this model: genealogies collected in Brunei; a large 19th century genealogy published in Garawak; genealogical evidence from postwar research in central Borneo; local Bornean concepts of ethnicity. This view raises an important question - if everyone is linked in a single genealogical network, why are there different ethnic groups in Borneo? There appear to be at least 3 convergent sets of factors which contribute to a satisfactory answer to this question: etic & emic concepts of lifestyle, emic ethnohistory, & the existence of multiple social systems organized on the model of the plural society. It is the disjuncture between a genealogical network & a kinship network which allows an individual to manipulate ethnic identity to achieve his goals. The model resolves any apparent contradiction between the functions of genealogical networking in establishing monoethnicity & also at the same time in validating interethnic differences.

McCann, Gilman. Soc, Vermont. "Surviving in Managua: form & function of family networks."

The overall purpose of this study was to discover & explicate the mechanisms of economic survival in the economy of Managua, Nicaragua, & their relation to attitudes towards the government. Given the scarcity of basic goods & services, the extremely low salaries of workers, rampant inflation & the exis-

tence of a thriving black market, it is clear that families cannot survive economically on the salary of 1 or 2 working members, even when government subsidies are taken into account. The study showed that families evolved 4 basic strategies of survival related to their economic position & the structure of their family networks. This paper focuses on these networks & the relationship between their characteristics & economic survival techniques. We relate these findings to a consideration of the relationship between social networks & the functioning of mass organizations.

Meyer, Marshall. Soc, Pennsylvania. **"The limits of diversity in organizations."**

Addresses the question of whether limits to diversity & organizations are more cogently approached through network perspectives rather than the psychological or economic perspectives currently emphasized in the literature.

Molm, Linda. Soc, Emory. **"Punishment power in exchange network."**

I report some initial results of a program of experimental research that compares reward & punishment dimensions of power & studies how each modifies the effects of the other. The experiments provide actors in exchange networks with varying degrees of reward power & punishment power, operationalized by the amount of money that actors can give to or take from 1 another on each of a series of exchange opportunities. Comparing the effects of reward & punishment power is theoretically interesting because equivalent levels of these 2 forms of power provide the same structural potential for power, but they differ in the conditions under which each will be used & will be effective in altering the distribution of reward exchange. The cumulative findings of several experiments clearly show that reward power & punishment power interact in their effects on behavioral exchange. In voluntary exchange relations, punishment is most likely to be the power strategy of actors who are disadvantaged members of reward power imbalanced relations. A structural advantage on punishment power provides these actors with the potential means to balance the power in the relation, but the use of this advantage can be constrained by the other actor's reward or punishment power. Punishment power will only be used under conditions that reduce the risk of the other's retaliating by reciprocal punishment, or withdrawal from the exchange relation. The experiments reported here manipulated structural dimensions of power & its impact on frequency & asymmetry of behavioral exchange.

Morgan, David & Stephen March. Inst of Aging, Portland St. **"Perceived networks as cognitive maps."**

Does a person's location in the network affect that person's perception of the network as a whole? We present data from the analysis of cognitive maps, i.e. two-dimensional drawings generated by the members of a network to show the relative locations & distances between all the members of the network. Such maps provide both a rich source of data about each individual's perception of the network & a solid basis for producing a single global or consensus map, based on an individual differences scaling of the separate maps. We introduce this new technique for measuring perceived networks with data from the twelve members of a sports team. A comparison of the data derived from maps with parallel card sorts provides a cross validation of the 2 techniques. In particular, a comparison of the consensus map from INDSCAL & Multidimensional Scaling map of the pairwise co-occurrence frequencies from the card sorts gives a similar summary of the global structure in the network, with primary difference that the card sort data produce a greater tendency toward clustering, while the map data produce a more continuous spread of distances in the scaling.

The question of how location in the larger network affects individual perceptions is addressed by comparisons between the consensus map & the separate maps produced by the twelve team members. 1 set of analyses examines centrality issues, according to whether distance from the center of the consensus map affects the correlation between the distances in an individual's map & the distances in the consensus map, i.e. are those closest to the center also closest to the consensus view. A second set of analyses systematically examines the residuals from regressions of the individual maps on the consensus map, i.e. to the extent that errors in perception occur, what can we say about where those errors occur.

Morgan, David. **"Age & gender as influences on core discussion networks: family & non-family as sources of contacts."**

Using GSS data, it was found that in the total network, the effects of age are generally larger than the effects of gender. Distinguishing between family & non-family contacts reveals larger effects for gender, as men have larger non-family networks & women have larger family networks. Both resources & roles have some effects on network variables, with resources having their largest effects on total network

size & roles their largest effect on frequency of contact with family members. These results indicate that the size & frequency of contact in core networks are only weakly responsive to a person's age, gender, resources, & roles.

Morrill, Calvin. Arizona. "The embeddedness of executive conflict management."

Confrontations between executives are modeled as political decisions made in a network context. Field data collected from the executive levels of 2 large corporations illustrate the usefulness of this conceptualization. Top managers in loose-knit networks tend to engage in direct action against adversaries, even when controlling for disputant perceptions of conflict seriousness & power-differentials between themselves & their colleagues.

Nakao, Keiko. Soc, USC. "Help & support across generations."

Investigates the patterns of intergenerational relations in terms of the various types of help & support exchanged between family members. The data come from the 1985 wave of the USC Longitudinal Study of 3 Generation Families. The respondents in 3 generations were asked to provide information about who they rely on & who rely on them for the household chores & transportation, information & advice, emotional support, financial assistance, & discussion of family matters. The data are analyzed to examine inter- & intra-generational patterns of the support mechanisms for each of the above types of support within family members; the effects of the availability of such support from sources outside the family on the familial support systems; gender differences in intergenerational relations.

Palmer, Donald, Devereaux Jennings & Jerald Herting. Bus, Stanford. "Alternative Corporate Responses to Financial Dependence."

We examine how the kinds of financial dependence to which corporations are exposed, the mode of control to which they are subject, & the magnitude & structure of resources they possess all influence a firm's propensity to engage in 3 interorganizational strategies--owning a financial subsidiary, locating in a commercial bank center, & maintaining commercial bank interlocks. We also explore the association among these strategies. Our results suggest that capital dependence and, to a lesser extent, strategic information dependence influence each of the 3 strategies. Net of these effects, however, family dominance increases the likelihood that firms own a financial subsidiary & maintain sent bank interlocks. While bank dominance increases the likelihood that firms headquarter in commercial bank centers & maintain received bank interlocks. Further, large size increases the likelihood that firms own a financial subsidiary & maintain received bank interlocks. While use of the multidivisional form decreases the likelihood that firms headquarter in bank centers & maintain sent bank interlocks. Finally, maintenance of a bank center headquarter location is negatively associated with financial subsidiary ownership & positively associated with bank interlocking. While financial subsidiary ownership is positively associate with bank interlocking.

Paulson, Robert. Social Work, Cincinnati. "Creating meaning out of network data: the use of context in interpreting network measures."

Although the perils of interpreting social network research results in the absence of in-depth knowledge of the research setting has been widely acknowledged, such warning have not always been heeded. The dependency on mathematical algorithms makes the interpretations of network studies even more hazardous without the proper context particularly in the study of complex interorganizational networks. Draws on the experience in analyzing the data from the empirical study of interorganizational networks in the delivery of mental health services, to illustrate the difficulties & potential errors in interpreting the meaning of network measures. The method for using the knowledge of the research setting in arriving in the more plausible interpretations is explored.

Pearlin, Leonard. Geront, Cal-San Francisco. "Stress among AIDS caregivers."

Reports the findings from a pilot study of friends & lovers who are caregivers to people with AIDS. It identifies various dimensions of primary & secondary strains to which caregivers are exposed. Primary strains are those that stem directly from caregiving, while secondary strains are those that are created by caregiving but are manifested in other areas of life, such as occupation. There is indication that the extent & severity of both primary & secondary strains adversely affect psychological & physical functioning. However, these effects are mediated by the access to & use of different types of resources: personal -- particularly coping repertoires & self-concepts; social, especially those from which expressive & instrumental supports are drawn; & community, specifically the programs & services that are utilized.

Pollock, Gregory. Soc Sci, Cal-Irvine. "Evolutionary & collective stability of the iterated prisoner's dilemma in networks."

Examines the evolutionary stability of cooperation in the iterated Prisoner's Dilemma when individuals interact only with nearest neighbors rather than a random subset of the population. If offspring exhibit low dispersal from their parent they are likely to encounter the offspring of their parent's neighbors. Under this condition evolutionary stability largely reduces to collective stability, as strategy types become locally segregated across evolutionary time. Cooperation under a social network may thus remain robust even against multiple mutant invaders, unlike cooperation under random strategy assortment.

Reichmann, Sebastien. CNRS, Paris. "Unemployment & social support: some differences between men & women. How the network analysis can add a new dimension to an old debate?."

We attempt to show that structural changes in men's and/or women's networks may account for the differences in symptomatology, observed after the occurrence of the stressful event (an important collective lay-off). We emphasize the dynamic aspect of social networks in order to explain the continuity of differences between symptomatology levels of men vs women, instead of adopting the widespread explanations in terms of dispositions, or cultural values & attitudes, favored in cross-sectional studies.

Reingen, Peter. Bus, Arizona. "Individual influence within an organizational buying context: a structural & network perspective."

This single firm study utilized a theoretical framework based upon organizational behavior, organizational communications, & social network concepts. Specifically, an individual's influence during organizational buying behavior is described in terms of his/her relative position in both the prescribed & emergent organizational structures. The prescribed organizational structure was conceptualized in terms of the departmental membership & the hierarchical level of an individual. The emergent structure was derived from the involvement of an individual within organizational procurement-related communication & work flow networks. Explicitly, the constructs of centrality & reachability within these networks were theorized to explain the perceived influence of a participant in organizational buying activities or decisions. Measures of centrality determined from the intra-organizational networks included degree, betweenness & closeness. In addition, distance from the organizational boundary & distance from the dominant reference group were calculated. The prescribed organizational structure is a stronger predictor of influence than the emergent network. The results support a structural & network model of individual influence during intraorganizational buying behavior.

Rice, Ronald, August Grant, Joe Schmitz & Jack Torobin. Comm, USC. "Critical mass, social influence & impacts on work: a network perspective on the adoption & use of electronic mail."

Explores the influences on adoption, usage & reported outcomes of electronic messaging system. Factors investigated included communicator style, attitudes about the appropriateness of electronic messaging, current media usage patterns, task characteristics, network relations & organizational status. Theories of social information processes, critical mass, & organizational information processing are applied to data from a small government office of 60 people surveyed immediately before, & 9 months after, the implementation of an electronic messaging system. Evidence provides strong support for the concept of a critical mass in influencing adoption, strong support for the role of pre-usage expectations in forming enduring evaluations of e-mail, slight support for social information processing (but not through the attitudes & behaviors measured here), slight (and sometimes counter-intuitive) support for the role of information processing requirements, & no support for the role of communicator style.

Richards, William. Comm, Simon Fraser. "Designing user interfaces for network analysis software."

The typical social network researcher depends on sophisticated computer programs & packages to make sense of data that usually doesn't fit easily into the subjects x variables matrix format. The nature of the data is complex in more ways than one, & the goals of analysis are complex. The widespread availability of powerful microcomputers makes it both possible & desirable to add "friendly" interactive "front ends" to analytic programs. Several issues are related to this endeavor, including the ones associated with hardware, operating systems, & programming languages. The FATCAT program is used as an example to illustrate specific areas in which a better user interface can result in a program that is easier to use, that produces more valid results, & that better supports the research in his quest to understand the data. Specific areas in which the interface can be improved are discussed in terms of the kinds of problems both novice & experienced users face, & in terms of the kinds of programming efforts that are

required to produce the desired results. Concludes with a comparison of UNIX & DOS & some comments on future developments.

Richards, William. "Using PC-NEGOPY."

A brief introduction to NEGOPY in general & PC NEGOPY in particular. Topics that will be covered include what the program does & how it works, when it should & should not be used, what kinds of control the user has over the program, potential problems & pitfalls & how to avoid them, various issues related to the data the program will be expected to analyze.

"FATCAT, for categorical analysis of multivariate multiplex network data."

Introduces FATCAT, a program for categorical analysis of multivariate multiplex network data. Topics to be covered include a description of what categorical analysis is, what types of analysis FATCAT can perform, how to interpret the output of the program, how to make the program perform with non-standard data, & how to avoid potential problems. The program will be demonstrated with data describing communication/information networks of foster parents in 10 communities & communication networks of students living in 3 SFU dorms.

Robert Boyd. Anthro, UCLA. "More on the evolution of reciprocity."

Recently several authors, most notably Robert Axelrod, have investigated the conditions under which reciprocity can evolve. This body of work suggests that reciprocal cooperation is likely to arise & become common whenever social groups persist for substantial periods of time. For the most part this body of work is based on several simplifying assumptions: Social interactions occur among isolated pairs of individuals; individuals never make errors; individuals are never uncertain about the outcome of previous interactions. In this paper we describe extensions of the theory of the evolution of reciprocity which relax each of these simplifying assumptions. We show that in some cases relaxing these assumptions leads to qualitative changes in the results.

Romo, Frank & Helmut Anheier. Soc, SUNY-Stony Brook & Comm, Rutgers. "The Omega phenomenon."

By using several detailed case studies from different societies & cultural settings, this paper explores major properties of the Omega phenomenon. Comparing different blockmodels (and in 1 case, for 2 points in time), the size, composition, & tie distribution of the Omega blocks are analyzed. Several hypothesis, derived from organizational theory & cultural sociology, specify the determinants of Omega block membership are tested by using logistic regression models. Based on this, the paper discusses the substantive implications for structural sociology & argues that a treatment of the Omega block as a residual group, potentially reduces blockmodel analysis to the detection of elite configurations & the identification of cliques. By paying closer attention to the Omega block, and, therefore, to the social structure as a whole, blockmodel analyses are able to provide empirical support for several central concepts & dilemmas identified by organizational theory.

Ross, Christopher. Soc, Illinois-Chicago. "Network position & urban system prominence."

Examines a network of intermetropolitan relations based on intra-organizational ties that link cities together. The network details the relations between corporate headquarters of 720 corporations & their production facilities located in a total of 213 large SMSAs. Models are developed to examine the simultaneous relationship between network position & metropolitan dominance, & in turn to relate these characteristics to other underlying characteristics of the cities themselves.

Sade, Donald. Anthro, Northwestern. "N-path centrality in grooming networks."

An individual's "status" is his [sic] position in a social network. Katz (1953) argued that an index of status based on "who chooses whom" should also include information on the status of the choosers. This recursive concept of status was adapted by Sade who used the sum of inward directed paths as a measure of centrality, to distinguish the position of individual monkeys in a grooming network & later used this measure to describe the progression through time of a set of male monkeys. These studies were limited by the perceived computational difficulties in finding paths longer than 3-paths. This paper makes use of a simple counting algorithm to find the n-paths in a binary matrix. The characteristics of centrality statuses in the grooming network are then described using paths of up to maximum length, thus avoiding earlier limitations.

Schott, Thomas & Joseph Morrissey. Soc, Yale. "Organizational behavior & normative environments: competitors & collaborators."

How an organization behaves is presumably shaped not only by its clients, mandate, cost-benefit considerations, & available technology. Opinions & thereby practices are likely to be influenced also by the environment. Two conceivable sources of normative pressures are the organization's structurally equivalent competitors & cohesively related collaborators. This paper ascertains the effect of each environment upon opinions in agencies serving the mentally ill. 46 agencies in Schenectady & 69 agencies in Syracuse reported which other agencies in they were most involved with & their opinion on several community issues in services. For example, each agency informant in Syracuse was asked to what extent he or she perceived lack of transportation to be a problem for mentally ill in the community. To the extent the agency opinion is affected by those agencies it is most involved with, its cohesively related collaborators, it will be an average of their opinions. Likewise, to the extent it is shaped by its structurally equivalent competitors. A 3d plausible source is the agency informant's background shaping a predisposition opinion. Opinion correlates positively, roughly .4, with each of the 3. Strong predisposition & that the salient normative environment appear to be the structurally equivalent agencies rather than the cohesively related ones, i.e. competition rather than collaboration makes for influence among agencies.

Schuster, Tonya & David Morgan. Inst Soc Res, Mich & Inst of Aging, Portland St. "Network data from surveys: the effects of alternative cut-off points."

Although there are a variety of specific techniques for measuring ego-centered social networks in survey questionnaires, most share the same two-part procedure: first a name-generator question elicits a list of network members, then a set of follow-up questions collect more detailed data about each of these members of the network. In this procedure, there is a trade-off between the number of people for whom detailed information is obtained & the amount of the interview that is devoted to gathering this data. Although other approaches to this problem exist, the most common solution is to obtain detailed information on only a subset of the total names generated. The question address is the impact of setting different cut-off points in the collection of detailed data from a longer list of network members. Although the imposition of any cut-off implies a loss of data, the relatively high cut-off used here allows us to simulate the losses that would have occurred if a lower cut-off had been used. For example, by looking at the detailed data from only the first 10 people named, we can simulate Anotonucci's cut-off point with this procedure, & then compare the characteristics of these first 10 network members to those who were named after the 10th & up to the 15th person in the present sample. To demonstrate the effects of different cut-off points, we divide our sample of those named 11th through 15th. We are thus able to compare those who would have been included & excluded in the network, had a lower cut-off point been selected. Comparison criteria include closeness to respondent, frequency of contact, geographical distance, kin versus non-kin relationships, & presence of social support in the relationship.

Shelley, Gene. Anthro, Florida. "Does bad news really travel fast?."

This paper is based on further examination of data collected from research designed to operationalize the strength of social tie between persons. Strength of tie was measured by recording the time interval between the occurrence of an event & its transmission to informants. Analysis revealed interesting comparisons between informant's socio-demographic characteristics & news travel time. Also, attributes of the news itself, such as desirability, importance & type of transmission times. Also, attributes of the news itself, such as desirability, importance & type of news, have yielded interesting results provided a test of the old adage "bad news travels fast."

Shirey, Paul & Steve Borgatti. Soc Sci, Cal-Irvine. "EC sets: a generalization of LS sets."

A partitioning of actors based on edge-connectivity is defined. The resulting sets are shown to usefully generalize LS sets. An expected benefit of this approach is an improved algorithm for computing LS sets.

Shook, Douglas. Comm, USC. "Effects of symmetrization & parameter choice in the analysis of organizational centrality: a study of 2 organizations."

Reports the findings of a two-organization study of centrality & its influence on interpersonal trust & influence. Symmetrization, form of centrality measure & approaches to comparing centralities between 2 organizations affected drastically the strength & valence of associations measured.

Skvoretz, John & Bruce Mayhew. Soc, South Carolina. "Conflict & networks."

The theoretical connections between conflict & networks can be made at several different levels of analysis. Our concern is with the properties of networks that are conducive to or interfere with the processes & events of conflict & consensus. In particular, we begin with the idea that much conflict has its roots in differential organization of information by social groups. Hence, the search is for network properties that affect the homogeneity or heterogeneity of beliefs or knowledge bases of individual nodes. The modelling approach assumes a simple process governing the discovery & transmission of information by nodes. The results of this process as it plays itself out over various networks, in particular, tree structures varying in size from 5 to 10 nodes, form the data base for analysis. The dependent variables pertain to the level of sharedness of information by nodes & the relative contribution of nodes to what common knowledge emerges. The independent variables include such familiar network properties as average distance between nodes, centrality & the endpoint/cutpoint distinction.

Smith, David & Douglas White. Soc Sci, Cal-Irvine. "World-system hegemony & trade network centrality: 1965-1980."

Patterns & cycles of hegemony in the world-system are an important topic of international political economy. Only 3 or 4 nations have achieved this level of dominance in 5 hundred years of the capitalist world-economy. During these periods the hegemon enjoys unique prosperity, power, & innovation & the world tends to have more politico-military stability. Historically, hegemonic domination has been transitory, leading to a predictable pattern of economic & military decline for the hegemon & the emergence of a competitive, multicentric core. We will focus on recent patterns of hegemony using the same data on international commodity trade for 1965, 1970, & 1980 used in our previous papers. Since the world-system perspective places an emphasis on the importance of hegemon's ability to control or "broker" international economic relationships, we will use a "betweenness" measure of centrality adapted for quantitative data. Our time-series data allow a number of questions to be raised about the temporal changes on centrality measures for the United States. They also allow us to closely scrutinize the trajectory of the core contenders for the dominant position.

Stanley, Bruce. Rhodes. "A structural analysis of the Palestinian National Movement."

Many scholars attribute the failure of the Palestinian National Movement to achieve a Palestinian state to internal fragmentation & structural division. This recognition of structural factors as a significant variable, however, has not been matched by detailed investigation of the characteristics & implications of that structure. This paper employs a few key structural characteristics to investigate the significance of structural factors for the PNM: connectivity; redundancy; reciprocity; power basis & critical linkages. Support for the claims made in the analysis are drawn from the full historical range of the movement: 1920-1983. The interaction of individual structural positions, substructures & global patterns creates a movement deeply integrated at a national & substructural level on most issues, but significantly divided on 2 specific tactical questions. The movement's high degree of positional & structural isomorphism across time gives the movement significant flexibility in responding to a chaotic & dangerous environment.

Stephenson, Karen & M. Zelen. Anthro, Harvard. "The connection between network computations & the theory of block designs."

There have been many proposed measures of centrality to order nodes with respect to influence within a network. Many of these have been ad-hoc & ordinarily require the enumeration of all possible paths between pairs of nodes. We have found a one-on-one correspondence between these calculations & the mathematics of block designs used in the Statistical Design of Experiments. The use of this theory supplies a new measure of centrality which is interpretable & optimal, eliminates the need to enumerate all paths for every pair of nodes in order to calculate the measure of centrality and contains a formalism which enables the calculations to be carried out by inverting a certain matrix. Any network can be regarded as an incomplete block design with 2 treatments within a block. The analog between networks & block designs are that nodes are treatments & lines are blocks of size two. Generalizations can be made when all nodes are not reachable & lines weighted. The primary advantages of this approach are ease of use and the limitations of handling large networks depends on the size of the matrix which can be inverted. Examples will be provided comparing this measure of centrality to other measures of centrality.

Stevenson, William. Management, Cal-Irvine. "The use of formal & informal relationships in patient complaint management in a hospital."

When confronted with organizational problems, actors have to decide whether to use the formal chain of command or their informal networks of contacts. To examine the factors that lead to the use of formal or informal relationships in organizational problem-solving, a modified Small World experiment was conducted in a hospital. Folders containing a description of a patient complaint were circulated within the hospital. Respondents had to decide whether they should forward it. Responses to questions about why they were forwarding the folder, as well as an analysis of the pathways that the folder followed as it passed from respondent to respondent, provide information on the use of formal & informal pathways in solving organizational problems.

Stokman, Frans & Karel Sprenger. Soc, Groningen. "Tutorial on the IBM-PC version of GRADAP."

GRADAP (GRAPh Definition & Analysis Package) is a general computer program for the analysis of social network data. It is particularly suitable for input, documentation, manipulation, & analysis of large social networks. Contrary to the commonly used representation of a network by its adjacency matrix between the points, GRADAP represents a network as a collection of points with their associated variables (pointinfos), & a collection of lines with their associated variables (lineinfos). The first is called the point data matrix, the latter the line data matrix. This makes GRADAP very powerful for the analysis of networks with different types of relations for the analysis of network characteristics as dependent or independent variables. The GRADAP facility to define & create pointsets & linesets -either by enumeration or on the basis of point/lineinfos- enables the researcher to submit different parts of the network for sequential analysis. GRADAP contains 9 analytic procedures: ADJACENCY, CENTRALITY, DISTANCE, REDUCE, RUSH, SUBGRAPHS, VARDEGREE, SPATIAL CORR, & TRIAD COUNT.

Other analytic procedures are in development.

Stokman, Frans. "The possibilities of relational databases to represent social systems."

Relational databases have analytic possibilities that are essential for such types of questions because they enable researchers to shift easily from 1 unit of analysis to another & to connect them in a meaningful way. Two applications will be elaborated. The first is in the field of interlocking directorates. It will be shown that all research in the field can be derived from a few basic tables & that essential questions on the dynamics of the interlocking directorate network can easily be studied on the basis of data that can be derived from these tables if the analytic possibilities of relational databases are applied. The second application is in the field of scientific output of university research groups.

Sudman, Seymour. Soc, Illinois. "The use of networks to identify rare populations."

In many sampling applications it is necessary to estimate the size and/or locate rare populations. This is a difficult & costly operation. This paper describes a series of tests of the accuracy of network reporting of characteristics such as cancer & other chronic illnesses, disabilities, Viet Nam veteran status, crime victimization, & households with runaway & kidnapped children. 2 major factors are found to be related to accuracy of reporting--the closeness of the network relationship & the severity, duration, & lasting effects of the event. Thus, disabilities, cancer, & long-term chronic illnesses are well reported while minor acute illnesses are not. Viet Nam veteran status is well reported as are kidnappings, especially if the child is still missing, but short-term runaways & victims of robbery are poorly reported. As 1 might expect, data are better from close than from distant relatives & from next-door as compared to more distant neighbors. For visible disabilities, co-workers are accurate reporters.

Vaverek, Kelly & Henry Tosi. Texas Christian. "The relationship between communication centrality & density & perceived environmental uncertainty."

An experiment was conducted to determine the communication density & centrality of a small group. 3 levels of environmental uncertainty were employed. The experiment took place within the Looking Glass management simulation. In the simulation, 70 MBA students were randomly assigned to 1 of 4 companies. They were then assigned a role within 1 of 3 divisions. Each division was faced with a different level of uncertainty (stable, moderate, or unstable). At the end of the six-hour exercise, students completed a questionnaire which assessed their communication patterns & the perceived uncertainty of various facets of the environment. The total sample size was 12 groups. The correlation between environmental uncertainty & communication centrality was small & not significant. The correlation between uncertainty & density was -.423. As the environmental instability increased, the density of the communication pattern decreased. Although it was not significant at conventional levels, the strength of the correlation suggests that this relationship should be explored further.

Weller, Susan. Health, Pennsylvania. **"Identifying structural effects in a social choice matrix."**

Describes an analytical procedure for diagnosing different structural effects in a matrix. "Social choice" matrices of the type "name 3 friends" or "rank order group members from most to least" can be decomposed into main effects, interactive effects, & noise. Unfortunately, true interactive structure is often confounded with measurement error & noise. Indices based on metric scaling methods can facilitate the identification of interactive factors. In this study simulations are used to introduce different levels of error into hypothetical structure matrices. Indices obtained from an analysis of the error perturbed data are evaluated in terms of the known, error-free structures.

Whitt, Allen. Soc, Louisville. **"Elite networks & urban growth: ties between development, & arts & cultural facilities."**

For local elites with land-based interests, the politics of growth may not be just another political issue, but the essential issue. Increasingly, as developed nations move into the "service economy", centrally located arts & cultural facilities are seen by corporate & social elites as crucial catalysts for fueling renewed or continued downtown growth & development. This paper analyses the connections among downtown development-oriented organizations, major corporations, & arts organizations to demonstrate that local networks are essential features in a political-economic process: the politics of urban growth.

Wigand, Rolf & Gary Frankwick. Pub Affr, Arizona St. **"Interorganizational communication & technology transfer: industry-government-university linkages."**

The present study included 5 sample groups active in some fashion in the microelectronics industry in the Phoenix, AZ area: university officials, university researchers, industry officials, industry researchers, & government officials. A network questionnaire was developed trying to identify the within-group networks, but also the interorganizational networks pertaining to interactions about research & development in microelectronics. Fifty-nine questionnaires were sent out to earlier study participants. They were also encouraged to record additional individuals on the questionnaire with whom they interact about research & development. The data received were analyzed using Richards' 1987 personal computer version 1.0 of NEGOPY. Preliminary analysis suggests that 3 groups emerged: The first group consists primarily of government officials with many bridge links to both industry & the university. A second group is composed of 2 professors who are tightly linked to 1 major electronics firm with many bridge links to the rest of the university research community. Representatives from each of the surveyed segments of respondents form the third & largest group in the interorganizational network.

Williams, Holly. Nursing, Florida. **"Perception of support in parents of children with cancer."**

Social Support has been identified as a variable which may promote coping in families under stress. Literature suggests that differences in social networks may account for some of the differences in support. It is not known whether varying characteristics of relationships within networks can predict support for parents experiencing childhood cancer. Parents of 15 children who are being treated for cancer have been interviewed regarding their perception of social support & characteristics of their social networks. Each family was observed for 5 minute periods during their child's hospitalizations. Health professionals involved in the care of these children were also interviewed for their perception of support. For the majority of these families, health professionals were unable to correctly identify those individuals most supportive to the families. Ethnography has been combined with social network analysis in an effort to understand how parents of children with cancer perceive & use social support. As survival rates for childhood cancer improve, it is vital to understand how to best offer support to these families.

Wilson, David. Bio, Michigan St. **"Group level adaptation: the return of superorganisms."**

The last 2 decades of evolutionary biology have been dominated by an individualistic tradition which regards group level adaptations as rare to non-existent. The conclusion can be shown to be an artifact of the method of analysis. Natural selection is distributed over a hierarchy of units & can cause everything from genetic elements within individuals to multi-species communities to acquire the properties of functional organization normally associated with individual organisms. These developments in evolutionary theory are reviewed & applied to the concept of society level adaptation in humans.

Wilson, Donald. Mngmnt, Rochester Insti of Tech. "Organizational influences upon link multiplexity."

An examination of organizational & work group influences upon the formation of strong & weak ties.

Zucker, Lynne. Soc, UCLA. "Organizations & networks as alternative sources of performance evaluation: an initial test."

A theory explicating the conditions under which performance evaluation in an external network will replace internal performance evaluation within the firm is outlined. Some aspects of this theory are tested using data from a random sample survey of nearly 1000 individuals residing in the Southern California Social Survey, 1987. Generally, the findings indicate that the most important performance evaluations tend to be located within the organization when the outcome is salary review or promotion within that same organization (internal labor market focus), but not when the outcome is the most accurate job performance appraisal or finding a new job. These findings are importantly conditioned by union membership, number of years working in the organization, & perceived likelihood of promotion to the position of one's supervisor. Surprisingly, industry proved to be a more important variable than occupation, with the construction industry showing by far the strongest peer & external networks for performance evaluation.

We are writing in response to John S.P. Robson's complaint that the article on Science for Peace in the Spring issue of the *Alumni Magazine* was an example of advocacy journalism.

It seems to us that Mr. Robson's chagrin derives from a widespread conviction that science and advocacy (assertion of value preferences) do not mix. This is not so. This separation applies only to certain end-products of science, for example, analytic descriptions of some phenomena or logically constructed theories. Science regarded, not as a catalogue of end-products, but as an ongoing, frequently intense human activity, is however always based on values and therefore, at least implicitly, involves advocacy. Even the seemingly value-free classification of animals implies advocacy of sorts. The layman may regard the mouse as being more similar to a frog

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than to a whale, but the biologist thinks otherwise. In effect, the biologist advocates paying more attention to anatomical architecture and to certain physiological features than to size or to habitat.

This sort of "advocacy" amounts to *directing attention* to certain aspects of reality in order to gain a better understanding of it. Findings of medical science normally lead to advocacy of, say, hygienic practices. It is only natural that systematic investigations of large scale social processes, in particular of conflicts including war, should lead to advocacy of policies less likely to precipitate irreversible disasters than those currently guiding the actions of some states.

Today no one, except creationists, etc., objects to the advocacy implicit in classification of animals based on the theory of evolution. Only adherents of certain dogmas object to advocacy of certain medical, hygienic or surgical practices. But resentment against advocacy of views that are at variance with hand-me-down ideologies or received conventional wisdom is still widespread and strong.

A principal objective of Science for Peace is to dispel these prejudices by a penetrating analysis of the present global threats and by programs of public enlightenment.

*Anatol Rapoport
Eric Fawcett
University College*

**LETTER FROM LAKE BALATON:
"KINSHIP and AGING CONFERENCE", COMMITTEE FOR FAMILY RESEARCH,
INTERNATIONAL SOCIOLOGICAL ASSOC, ZAMARDI, HUNGARY, APRIL, 1988**

While standing on the shore of Lake Balaton, new INSNA member Detelina Radoeva told me an old Bulgarian saying: "When you have a kin, you have a job!" I wondered if Bulgarian proverbs had provided the basis for Mark Granovetter's "weak ties" thesis (1973).

An hour later, INSNA member Endre Sik gave a paper arguing that the Hungarian economic crisis had led to a greater reliance on inter-household relations for social support. "No," said his colleague Rudolf Andorka. The countryside is full of supportive villages while in Budapest each family has retreated into its own world. I realized how socially advanced Hungary is: Community Liberated, Saved and Lost are all flourishing simultaneously (Wellman 1979).

This conference gathered 70 researchers under the auspices of the Hungarian Inst. of Sociology, a hotbed of empirical research. The central core of the conference was the Hungarian-US Project on "Kinship and Aging". Lots more happened, with lively talks by scholars from such far-flung countries as Canada, USA, China, India, Israel, Japan, Belgium, England, Wales, Finland, France, Germany (E & W), Bulgaria, Czechoslovakia, Hungary, the USSR/Ukraine & Yugoslavia.

As 1 participant jealously told me, "Everyone's talking networks!" You might expect some metaphorical use at a conference on kinship -- an intrinsically relational phenomenon. But it went further than that. There was a strong overt awareness of the network approach, & I spent a good deal of time answering questions about network methods & philosophy. Our Eastern European membership went up 500% -- that's right we now have 5 members or subscribers. Indeed, many conference papers will be translated & printed in Bulgarian by the Inst of Sociology, Sofia, with Lilyana Spassovska as editor. To clinch matters, John Mogeey told me that he'd just finished reading Ron Burt's Towards a Structural Theory of Action -- for pleasure, no less.

Several linked themes emerged from the papers & discussion. First, throughout the studied countries, the parent-adult child relationship remains paramount for old-age care, with other kinship ties (even with sibs) being much more problematic. Second, in the absence of children, other close kin may take their place as supporters of the aged. Third, changing demographic situations strongly affect the availability of kin for support. The internationally prevalent demographic experience of a baby boom followed by a cutback to small families in the subsequent generation will shortly lead to a crisis in care for the aged. In 30 years, the baby boom will have matured into a huge gerontological stratum, with a tiny younger (i.e., middle-aged) generation to care for them.

I was impressed by the empirically-oriented, structurally informed nature of much of the material presented by the 20 East Europeans at the conference. Indeed, I recruited several papers for future Connections. Over wine one colleague told me that "Hungary is the most densely-knit network in the world: everyone has made love to everyone else!" Others told me of the strong reliance on immediate kin as confidants in situations where people were less certain of their friends' loyalties. At the same time, housing shortages have caused several related families to share a house or flat, increasing interpersonal stress. Unfortunately, no one wanted to discuss publicly how socialist vs. capitalist relations of production might affect kinship, etc. relations of reproduction.

Whoever I talked with had strong hopes for "restructuring" in Eastern Europe and had already had impressive experiences. Except Rumania, that is, which was regarded by the others with pity and apprehension for its economic crisis, food shortages and structural rigidity. "Why is 'restructuring' like the Danube?" I was asked. "Because it flows right by Rumania without stopping."

At conference end, I stopped off & visited Clyde Mitchell & his new wife Jean. We had a great time bird-watching along the Thames. Did you know that cuckoos live in trees as well as in clocks? Clyde's writing away. He has a new book on African cities integrating many of his observations. It's been recently published by Oxford U Pr.

Barry Wellman

SUMMARY OF SELECTED PAPERS

[Prepared by Barry Wellman]

The following papers are available (possibly gratis) in a mimeo. volume, "Kinship & Aging" [edited by Peter Somlai] from the Institute of Sociology, Uri Utca 49, H-1250 Budapest]

Bernard Farber (Soc, Arizona St), "The structure of kinship reciprocity norms in contemporary settings."

Report of comparative Hungary-US project. In both countries, developed & validity via factor analysis "amity scale" of kinship norms. Also found "enmity": many kin have strong reservations about each other. In Hungary, those living in Budapest have ambivalence towards kin. Those living in villages are more positive, rely on kin more & have few friendship ties. In both countries, those with low education are more ambivalent about kin. There's still strong desires to help kin, but at the same time people question the desire of kin to help them reciprocally.

Bernard Farber, John Mogey (Pasadena, MD & Ione De Ollos), "Types of household compositions among the elderly in the US & Hungary."

38% of Hungarians as compared with 21% of US widows live with their grown children. 38% of Hungarian widows live alone; 70% of US widows. More often than in Hungary when US elderly live with their children these children are unmarried. In Hungary, however, extended-kin households more often include married children & grandchildren. The US arrangements seem ad hoc while the Hungarians identify living children as a feasible alternative consistent with their kinship ideology.

Peter Somlai (Soc, Eotvos U, Pesti Barnabas Utca 1, Budapest 5), "Help given to & received from aged family members in the US & Hungary."

US aged receive more help from kin than Hungarian aged. In both cities (especially Hungary), kin usually say they give more help than they receive. Women in both countries receive more (c13%) more help than men, but help given about equal for men & women. Parent-child aid very important in both countries. US higher in personal help; Hungary higher in services (perhaps because of the economic condition).

Robert Lewis & Robert Volk (Child Dev, Purdue), "Aging persons willingness to help kin in Hungary & US."

Norms don't equal behaviour in both countries. Indeed norms may be better discoverable thru studying exchanges rather than asking people about their normative willingness to help. A majority of aging persons in Budapest & India report willingness to help at least 1 kin.

Andras Klinger (Inst of Soc, Budapest), "The elderly in Budapest."

35% of the Budapest aged live alone. 11% of all aged say they have no kin at all; 22% say they have only lateral kin; 27% say they have only bad kin relations.

John Mogey, Bernard Farber, Robert Lewis & Ione De Ollos, "The aged in the US: kinship & household."

Elderly persons interact with others 2x more often when they are kin, friends or neighbours than when they were interest group associates. 80%+ pay no attention to what is provided for them in the formal system. Kinship rests on unbalanced reciprocity. In joining a household, the elderly prefer to live close-by (or with) other kin, especially female caregivers. The evidence points to a hierarchy of reliance rather than to a specialization for any set of tasks among support system members.

Laszlo Cseh-Szombathy (Inst of Soc, Budapest), "Sex differences in kin interactions."

Has the dominance of women as care-givers changed with large-scale structural transformations? Women remain central but men have become more active as women no longer stay at home with free time to be mobilized in times of need.

Robert Lewis, "Parent-child dependency over the life-cycle: the case of North America."

The parent-child relationship is probably the most important (as well as the most enduring) of all bonds. There is usually 1 prime US caregiver according to the Indiana data: an adult daughter; especially (when available) an unmarried daughter.

OTHER CONFERENCE PAPERS

Karen Altergott (Child Dev, Purdue), "Social resources, kinship resources, & healthfulness of older people."

In US, contact with kin is weakly associated with lower subjective health status, while in Hungary it is associated with better health. In US, the number of sibs is associated with better health.

Raymond Coward (Soc Work, Vermont), "Care of elderly parents by adult children."

Report on New England sample of 900 elders, stratified on city size & growth: help (from spouse & others) with personal health care, transportation, home repairs, household chores. Not counting spouse, 34% got help in 1 of 4 areas from either son or daughters. Of these 34%, 17% got help from both son or daughter, 37% from daughter only, 45% from the son only. Adult children are about 1/3 of all non-spousal helpers & 45% of all the informal helpers. 86% of those naming sons, name only 1; i.e., a primary helper with possibly others in reserve -- not a network of helpers. Most parents live apart from helpers; if not, they usually live with a daughter. Daughters help in a wider variety of areas than sons, possibly because of taboos related to personal contact. It's the health & lack of availability of a helping spouse that affects whether a parent will be helped; no relationship to wealth, education, or degree of stress.

Alice Day (Urb Inst, 2100 M St NW, Washington DC 20037), "From young old to old old."

In US study, 1/3 of widows who had a son or daughter available chose someone else as primary caregiver.

Peter Laslett (Cambridge Group for the Hist of Pop & Soc Struc, 27 Trumpington St, Cambridge CB2 1QA) & James Smith (Westat, 1650 Research Blvd, Rockville MD 20850), "Population aging, individual aging, & kin numbers."

Simulation of number of kin over the life-course, from birth to death, in England & China. Because of its fertility policies China will age faster than others & with minimal formal support institutions. The US Census estimates that in 2050 40% of China will be > 65. This will be because of current limited fertility. The average aged household will have 0.8 sons to support them: not enough. Smith's simulation shows low fertility in both China & UK to be a key component in population composition, with sharply lower numbers of children, sibs, cousins, etc. available for support. An estimate is that nearly 100 million aged Chinese would not have caregiving children a generation from now.

Miroslava Maskova (Charles U, 12843 Prague 2, Albertov 6), "The aged & the family"

In Czechoslovakia, the aged help by looking after grandchildren (25%), household work (13%) & on farms (12%). 68% have contact with kin several times per week, especially their adult children.

Andjelka Milic (Cika Ljubina 18-20, U Belgrade, 11000 Beograd), "Old people: socioeconomic situation & their interpersonal relations."

Yugoslavian villages far from cities do not have young generations to care for the old. Villages near the cities are commutersheds, filled with younger generations who have migrated from more outlying areas. 50% of the elderly live with kin: these have more intensive kinship networks & are more personally active. Thus the migration associated with postwar socioeconomic industrial urban changes has affected kin care for the aged. In isolated villages, aged kin left behind by migrants, are felt by themselves & their children, to have completed their lives when their children migrate to the cities. They get little support.

Detelina Radoeva (Institute of Sociology, 13-A Moskovska St, Sofia 1000), "Old Bulgarians: Value aspects of their attitudes toward children as part of the family."

There is now a re-evaluation of informal ties, starting with immediate kin, as a result of changes associated with industrialization. Bulgaria kin ties are quite strong & functional. They have high emotional & moral unifying strength, practical significance & functionality. Family-kinship values occupy the highest & steadiest position among the events of the life-course. This is related to the contemporary privatization of personal life & the weak force of differentiation of basic social & status signs such as profession, residence & income. Yet essential changes are taking place in their content & structure. Parent-child relations are especially important & longlasting. The prosperity of children are among the events which give meaning to life in old age. Contemporary Bulgarians give meaning to their life mainly by accepting the life perspective of their children as their own perspectives. Old people render the greatest help to children &, in return, value their emotional devotion. Only the marital relation is as close.

Helga Repassy (Soc, Karl Marx Econ U, Veres Palne Utca 36, 1053 Budapest), "Social policy for the aging in Hungary."

Few institutions for old age. Great reliance on informal support.

Endre Sik (Institute of Social Sciences, 33 Benczur Utca, 1068 Budapest), "The place of kinship in the Hungarian welfare system."

Because of the economic crisis, there's been a recent decrease in the role of the state in providing social support. However, hidden under the surface, households have always provided the most support-- within themselves & to each other. But this has now been recognized & legitimated by the state. Because of the stress of the economic crisis, there are growing tensions within households & between households with respect to the supportive provision of goods, services & emotional aid. Now there is more household self-activity for the production of food & services (home renovations, rural home building, car maintenance). People both prefer to -- & are economically constrained to -- obtain things thru networks rather than purchase them or obtain them from the state.

Barry Wellman (Soc, Toronto), "Which kin give what kind of help?"

Toronto data show the continued importance of the parent-adult child bond for emotional aid, services & financial aid (but not for companionship). However, no other kin are especially supportive (when compared with support from friends). Indeed, Torontonians have the least companionship of all their ties with extended kin. These findings suggest that relations with kin are best assessed within the perspective of individuals' overall ensemble of active network members.

Clare Wenger (Ctr for Social Policy Res, U Col of N Wales, Bangor), "Relationships in old age: inside support networks."

Summary not available. An ethnographic account.

Wei Zhangling (Beijing), "Kinship & the care for the old people in current China."

Article 15 of the Chinese Constitution says children have the duty to support & assist their aged parents. In law, grandchildren who are capable of support have the duty to support their grandparents if their parents have died. However, failing this, there are no formal institutions or mechanisms of support. Moreover, the higher the age, the lower the authority of old people in obtaining support.

NEW BOOKS

BENERIA, LOURDES & MARTHA ROLDAN. 1987. THE CROSSROADS OF CLASS & GENDER: INDUSTRIAL HOMEWORK, SUBCONTRACTING & HOUSEHOLD DYNAMICS. Chicago: U Chicago Pr., \$15.95.

This study of nontraditional homework (such as the assembly of toys or electronic coils) reveals the extent to which such work occurs in Mexico City & the ways in which it fits into the national & international production system. Life histories, statistical, ethnographic evidence.

CANCIAN, FRANCESCA. Soc Sci, Cal-Irvine, 1987. LOVE IN AMERICA: GENDER & SELF-DEVELOPMENT. Cambridge: Cambridge U Pr., 209p.

Shows how in the 19th century gender roles became polarized with love, which was identified with emotional expression, not practical help, being the responsibility of women, while self-development was regarded as a masculine concern. Shows that many American couples succeed in combining self-development with commitment, & that interdependence, not independence is their ideal.

CANTER, D. 1985. FACET THEORY: APPROACHES TO SOCIAL RESEARCH. New York: Springer-Verlag, 306 pp.

Facet analysis includes smallest space analysis & multidimensional scalogram analysis. The 12 authors want to make facet theory more available to social scientists, claiming it to be superior to MDS, ANOVA, etc. They discuss concepts, methods & applications.

CHENG, NIEN. 1987. LIFE & DEATH IN SHANGHAI. New York: Grove: 547p. \$19.95.

Her "account of factional struggle in prison suggest how the lack of a legal tradition leads Chinese to seek protection in groups based on 'relationship nets' formed around certain leaders. The policies of the [Communist] Party reflect the relative strength of various factions, which must turn to their grass-roots supporters in order to resolve conflicts, thereby social upheavals. The turbulent process by which factional struggle is translated into mass movements has given the Chinese good reason to fear the recurrence of campaigns such as the Cultural Revolution." [from Judith Shapiro's review in THE NEW YORK REVIEW OF BOOKS, 16 July 87].

DAVIS, STANLEY. 1988. FUTURE PERFECT. Reading, MA: Addison-Wesley, 243p. \$20.

Although the current industrial image of organizational structure is the steel-beam architecture of buildings, the image of structure in the new economy will be a network of relationships. With electronic information networks, the organization can be centralized & decentralized simultaneously. The decentralizing mechanism is in the structure & the coordinating mechanism is in the systems.

DUBY, GEORGES (ed.). 1987. A HISTORY OF PRIVATE LIFE: II. REVELATIONS OF THE MEDIEVAL WORLD. Cambridge MA: Harvard U Pr., 672pp. \$39.50

"The communal mode of living is at the center of Duby's attention in the 1st chapters. He draws an illuminating parallel between the organization of a lordly household & the more sophisticated organization of a great Benedictine abbey. Dominique Barthélemy takes up the story with an examination of the significance of the kinship ties, founded in planned marriages, that formed the essential links between the great households & the clans that gathered in them. She argues that kinship down to the end of the 12th century was a more vital relationship than vassalage. Altho the genealogical literature has tended to concentrate on the paternal lineage, she suggests that the conjugal nuclear family, with its connections radiating out on both the paternal & maternal sides, was the true hüb of dynastic strategy. What they say tells us möre about the history of groups, of solidarities & their power struggles, than about private life.

ELKAIM, MONY (ed.). 1987. LES PRATIQUES DE RESEAU: SANTE MENTALE ET CONTEXTE SOCIALE. Paris: Les Editions ESF

From a recent Bruxelles conference. Includes articles on network intervention in Canada, Italy & Belgium. The article on practice in Belgium includes reference to work with Moroccans, Turks, Albanians, Yugoslaves & Hispanics in that country. [from NETLETTER].

GARNSEY, PETER & RICHARD SALLER. 1987. THE ROMAN EMPIRE: ECONOMY, SOCIETY & CULTURE. Berkeley: U California Pr., \$12.95.

Looks at the material implications of Roman rule for subject populations, the family household & personal social relations.

HALBERSTAM, DAVID. 1986. THE RECKONING. New York: Avon, 786pp. \$5.50.

The postwar sagas of Ford & Nissan in the car business, with lots of info about patron-client networks in higher corporate circles.

JOHNSON, ALLEN & TIMOTHY EARLE. 1987. THE EVOLUTION OF HUMAN SOCIETIES: FROM FORAGING GROUP TO AGRARIAN STATE. Stanford, CA: Stanford U Pr., \$39.50.

Combines an original thesis & a representative body of ethnographic, ethnohistoric & archaeological data. Focuses on the evolution of human societies from scattered family groups thru local polities to the onset of industrialization. Explains the causes, mechanisms & patterns of cultural evolution in terms of political economy: the mobilization & exchange of goods & services between families.

LEVI-STRAUSS, CLAUDE. 1987. INTRODUCTION TO THE WORK OF MARCEL MAUSS. London: Routledge & Kegan Paul, US\$12.95.

A vehicle for formulating the tenets of structuralist theory. Assesses Mauss's achievements & intentions using an approach which combines anthropology & structural linguistics.

RESNICK, STEPHEN & RICHARD WOLFF. 1987. KNOWLEDGE & CLASS: A MARXIAN INTERPRETATION OF POLITICAL ECONOMY. Chicago: U Chicago Pr.

Ranges from theoretical analyses of the epistemological foundation of predominant Marxian interpretations to the theory of the firm to an interpretation of the state in market economies.

SEGALEN, MARTINE. 1985. HISTORICAL ANTHROPOLOGY OF THE FAMILY. Cambridge: Cambridge U Pr., \$14.95.

Although the data relate mainly to France, from peasants to urbanites, they support a far larger frame. Unorganized familialism replaces the producing unit with 1 of consumption, the status of women shifts as does the status of kinsfolk; a shriveled familialism--but still a tough old institution. (Translated by J.C. Whitehouse & Sarah Matthews). [From Earl Count's review in THE KEY REPORTER, Su/87].

WALDER, ANDREW. Soc, Columbia, 1986. COMMUNIST NEO-TRADITIONALISM: WORK & AUTHORITY IN CHINESE INDUSTRY. Berkeley: U California Pr., 302p.

A study of the industrial working class, its place in a communist political order, & the pattern of authority in which it lives & works. It is 'neo-traditional'. Thru recognizing the constraints placed on citizen behavior by the system of surveillance & political control, it stresses the positive incentives offered for compliance. It has a highly institutionalized network of patron-client relations that is maintained by the party & is integral to its rule: a clientelist system in which public loyalty to the party & its ideology is mingled with personal loyalties between party branch officials & their clients. It stresses the social network, not the group, as its main structural concept. [based on author's introduction.

WELLMAN, BARRY & S.D. BERKOWITZ (eds.). Soc, Toronto & Vermont. 1988. SOCIAL STRUCTURES: A NETWORK APPROACH. Cambridge: Cambridge U Pr., 513p. \$22.95.

The purpose of the book is to provide answers to several questions: What's so special about structural analysis -- don't all sociologists care about social structure? Isn't 'structural analysis' just another name for 'network analysis'? Isn't structural analysis something that nonsociologists do? Structural analysis is characterized by a focus on social structure. Structural analysts reject approaches to social analysis that treat individuals as independent units & are skeptical of analyses that see social behavior as norms injected into the psyches of people & organizations. Using the techniques of network analysis, they study directly the concrete relations that exist among persons, organizations, interest groups & nation-states. Their work forms part of a worldwide scientific shift away from the tradition of analyzing things in terms of the intrinsic characteristics of their individual parts & toward structural analytic interpretation of phenomena in the light of their linkages with other members of systems.

This collection of original articles contains a variety of studies addressing such questions as: How do social networks create supportive communities that enable people to cope with the stresses of modern times? How do people's relationships affect their social mobility? How do the social structures of relationships undergird the seemingly independent behavior of businesses & nations. How are apparently spontaneous revolutionary changes based on underlying relationships between people & interest groups?

CONTENTS: "Studying social structures," Barry Wellman & S.D. Berkowitz. THINKING STRUCTURALLY. "Structural analysis: from method & metaphor to theory & substance," Barry Wellman. "Understanding simple structure: kinship units & ties," Nancy Howell. "The duality of persons & groups," Ronald Breiger. "The relational basis of attitudes," Bonnie Erickson. COMMUNITIES. "Networks as personal communities," Barry Wellman, Alan Hall & Peter Carrington. "Work & community in industrializing India," Leslie Howard. "Relations of production & class rule: the hidden basis of patron-clientage," Y. Michal Bodemann. MARKETS. "Varieties of markets," Harrison White. "Markets & market-areas," S.D. Berkowitz. "Form & substance in the analysis of the world economy," Harriet Friedmann. SOCIAL CHANGE. "Misreading, then rereading, 19th-century social change," Charles Tilly. "Structural location & ideological divergence: Jewish Marxist intellectuals in turn-of-the-century Russia," Robert Brym. "Cites & fights: material entailment analysis of the 18th-century chemical revolution," Douglas White & H. Gilman McCann. SOCIAL MOBILITY. "Collective mobility & the persistence of dynasties," Lorne Tepperman. "Social networks & efficient resource allocation: computer models of job vacancy allocation thru contacts," John Delany. "Occupational mobility: a structural model." Joel Levine & John Spadaro. "Toward a formal structural sociology," S.D. Berkowitz.

(Network Notebook continued from page 10)

POSITIONAL VS. RELATIONAL ANALYSIS

"Nations have no friends. Nations have only interests." Charles de Gaulle, as quoted by Felix Rohatyn, NY Review of Books.

CITATION ANALYSIS & NATIONAL INTERESTS

"An experimental technique for analyzing the quality of patents...assumes that the importance of a patent is reflected in how often other inventors cite it. The method analyzes networks of citations, separating seminal ideas from insignificant 1s in a patent system cluttered with millions of inventions...The techniques...shows that starting as early as 1976, patents awarded Japanese inventors were cited more frequently than those awarded Americans, and that the gap between Japanese & American patents appears to be growing...The patent technique...is considered so experimental that it is being used by the US NSF & several European governments [according to its exponent, Francis Narin of Computer Horizons. For details see the NSF report, "International Science & Technology Data Update," 12/87.] Daryl Chubin, at the US Congressional Office of Technology Assessment, said the patent-citation method was especially prone to make misinterpretations when used to make international comparisons, since cultural differences could bias the results. For instance, many AMERICAN inventors were failing to file patents because the process is 'such a bureaucratic mess.'" [NY Times, 7 March 88].

THESIS SUMMARIES

"Statistical Analysis of Multivariate Sequential Dyadic Interactions." Dawn Iacobucci (Psych, Illinois).

This dissertation studies several methods for analyzing sociometric data; specifically multiple relational data that describe several types of relationships existing between actors and partners in a network such as an actor "liking" or "helping" a partner. Furthermore, we are interested in studying sequential data or the behavior of the network observed at several points in time.

A standard two-dimensional actors by partners sociomatrix describes the interactions between the actor-partner dyads for a single relation observed at a single time period. The multirelational, sequential data may be represented in a four-dimensional actors by partners by relations by time points "super-sociomatrix".

Two Monte Carlo studies are described. The first simulation study concentrated on the actors' and partners' modes, and the second simulation study focused on the relations' and time modes. The first Monte Carlo investigated how well several methods recovered subgroup structure built into the actors' and partners' modes. Forty-eight sociomatrices were generated along a factorial design. The factors included: Number of actors in the network, true number of subgroups into which the individuals were classified, (equal or unequal) proportion of individuals falling into each of the subgroups, structure of the dyadic interactions (mostly mutual and null relations, or mostly asymmetric ties), and level of noise (or clarity of the subgroup structure).

Each of these matrices was analyzed using several methods, including the algorithm, "CONCOR", eigensolution-based methods, methods based on fitting simple log linear models to a function of the sociomatrices, and several subjective plotting techniques. These analytical methods were compared with respect to how well each recovered the known partition of individuals. Some subjective methods performed best, with the eigensolutions providing best recovery among the objective methods.

The second Monte Carlo study focused on the use of two methods for analyzing the relations' and time modes. Supersociomatrices were constructed to simulate different levels of association between relations and time points. The first method used to analyze these supersociomatrices was an application of a four-mode eigenvector model. Eigenvectors were derived for all four modes, and a core matrix was computed to describe the relationships among these four sets of vectors. The second method used to analyze these matrices was an analysis of variance, using at the dependent variables the parameter estimates that resulted from fitting simple log linear models to the sociomatrices for each relation at each time point. The ANOVA on parameters estimated from simple log linear models were intended to approximate the associations that would be discovered using complex log linear models. Both methods seemed to recover the underlying associations that had been built into the data, but the results, especially for the ANOVAs, were quite complex.

Several methods studied in this paper were then applied to two real data sets. One of these data sets described the relations among a subset of men in a monastery gathered by Sampson, and the other data set described the friendship ties among a set of college students gathered by Newcomb.

"Organizational Competence in an Interorganizational Network: A Longitudinal Analysis." Peggy Palmer (OISE, Toronto, 1987).

This study is a longitudinal analysis of a human services network in a regional municipality. Impetus for the study arose from four interrelated concerns about human service organizations specifically. First, the relevance of current theories of environmental determinism versus voluntaristic action to explain their behaviour; second, the characteristics of their relationships in a network over time; third, the nature

of organizational competence and its acquisition; and finally, identification of the essential resource determining their growth and survival.

From a grounded theoretical perspective, the study focusses in turn on three research objectives. Phase I constitutes a comparative analysis of the structural properties of the human services network in 1981 and 1985 on four types of ties: information exchange, resource exchange, overlapping boards and joint programs. Results of blockmodelling procedures revealed stability of the structure over time, marked by greater decentralization and increased structural symmetry in 1985.

A significant difference in the centrality scores of individual organizations yielded categorical data for Phase 2 of the research. Quantitative analysis of responses to an Enactment Scale produced evidence to show that direct relationships exist at the present time between internal organizational change, increase of external resources, attributions of goal achievement to network interaction and network leadership; and the dependent variable, organizational centrality. Scores of attributed organizational status and influence were significantly intercorrelated with observed centrality. A qualitative assessment of the data lent support to quantitative findings and insight into organizational motivation. It formed the basis for the development of a process model of organizational competence.

Results of the study thus far suggested the formulation of a theoretical framework incorporating both macro and micro levels of analysis. From the perspective of human ecology and strategic choice, hypotheses were developed to test the relationship of organizational centrality, status and influence with the dependent variables, network formalization, norms and values, strategic organizational change and organizational performance. Results revealed that the greater an organization's ascendancy in the network the more it will tend to institutionalize its network relationships and operate within a changed paradigm perspective to change its service delivery methods and successfully achieve its objectives.

"Social Networks of Social Support: Clarification and Consequences." Tonya Schuster (Soc, Cal-Riverside, 1987).

The concepts of egocentric social networks and of social support have not been clearly differentiated, which has contributed to inconsistent findings regarding mental health outcomes. This study was founded on the basic premise that egocentric social networks composed of social support, in theory, methodology, and consequence. Drawing from the network analytic perspective, and various research traditions concerning social support, clarification of these concepts suggested the utility of allowing the supportiveness of social relationships to be variable.

The research methodology captured this conceptual distinction in the differential assessment of egocentric social networks and the provision of affective and instrumental social support. A longitudinal subsample of middle-aged and elderly individuals were interviewed about characteristics of their social networks, background characteristics, and a variety of mental health measures. The average Perceived Close/Important (PCI) network size was 8.7 ties, with only half being supportive. The Perceived Social Support network size was 4.4.

The second major goal of this study was to provide insight into the discrimination of supportive and non-supportive network ties, utilizing a variety of network characteristics. Crosstabular analyses showed that perceived relative closeness, frequency of contact, kinship, and geographical proximity were positively associated with, but not sufficient conditions for, the provision of social support. Assessment of social support was not limited to the PCI network, and results indicate that over one-half of the respondents received some form of support from persons they did not choose to include in the close network.

The final goal of demonstrating the distinctive consequences of networks and social support addressed five alternative dimensions of mental health outcomes: anomia, anxiety, life satisfaction, future orientation, and perceived physical health. Hierarchical parallel regressions of these outcomes on network and support variables assessed incremental contributions to explained variance. Results indicated a small incremental effect of PCI network size across outcome measures; support measures did not significantly contribute to explained variance beyond PCI network and Background variable effects. Alternative network characteristics were also considered. Finally, it was noted that various dimensions of mental health are differentially affected by varying aspects of networks.

"Merchants and Proprietors in Late Nineteenth-Century Detroit: Family and Social Mobility in an Era of Industrial Change."

Melanie Archer, (Survey Research Centre, California, Berkeley).

A quantitative historical study of occupational change and social mobility among self-employed workers in Detroit during the city's urban-industrial transition, 1880 to 1900. The research examines the hypothesis that small-scale, self-employed workers -- petty merchants, proprietors, peddlers, traders, and artisan-proprietors -- constituted an entrepreneurial middle-class whose number, occupational position, and economic circumstance declined with industrialization, urbanization, and growth in the size and scale of business.

Comparisons are made between family and nonfamily businesses to assess the importance of the family as an economic resource used by workers to cope with these larger changes. The data was constructed through record-linkage of the federal population censuses of 1800 and 1900, annual city directories for Detroit, and the credit reports of R.G. Dun and Company on nineteenth-century businesses. The occupational histories of 500 of Detroit's workers who were self-employed in 1880 are traced for a twenty year period.

COMPUTE YOUR NETWORK

A.G. Keul (Salzburg) & Lin Freeman (Soc, Cal-Irvine)

Knowing your network's dimensions
Has a tangible value today.
To ignore these social statistics, can
Be a source of chagrin and dismay.

There's a new formula to be mastered
That will summarize ego-based ties.
We're proud to announce it in public
And to show where its error bound lies.

First, take the square root of your mom, plus
an elliptical sum of your dad,
Divide through by your phone bills, and raise it
To the power of girl friends you've had.

Count your number of smiles at the postman
Less occasions he doesn't smile back.
Fit the Poisson to deaths of your uncles,
And take out the number you lack.

Sketch the Gaussian plumes of your house pets,
Plus the graphs of the cliques of your friends.
Take away all equivalent others
And all those awaiting amends.

Now sent all your data to Breiger
Who will feed them to CONCOR forthwith.
Be patient - don't change your position;
The result will be back in a jiff.

"Regarding the data you sent me,
I have blocked all the structural forms;
You don't fit the monastical model, but
Comply with the middle-class norms".

from Social Networks (9/87):283-84

TEACHING AIDS

NETWORK ANALYSIS & SOCIAL STRUCTURE: A GRADUATE COURSE. Nan Lin (Soc, SUNY-Albany), 1987.

I have "customized" this one-term course so that it will do two things for the student: (1) get a good grasp of the broad technological and methodological issues involved in doing network analysis, and (2) gain appreciation of the theoretical significance of network analysis. In order to accomplish the second goal, I chose to deal in depth two contrasting and interesting (to me) theoretical paradigms rather than a potpourri approach to all possible paradigms. Such intensive readings and discussions eventually permit me to elevate the focus from the initial nitty-gritty methods materials to the broadest and possibly most core issue in sociology: how one or more network perspectives can help in analyzing the interplay of individual action and social structure.

The course is intended to introduce the concepts and techniques of network analysis and to discuss important current sociological theoretical advances where the network approach plays a central role. These advances address issues concerning the structure of social systems and the interplays between social structure and individual actions. The student is assumed to have the basic knowledge in sociological theory and methods. Some knowledge of the computer is helpful.

Required text: David Knoke and J.H. Kuklinski, 1982, Network Analysis. Beverly Hills, CA: Sage.

Recommended texts: P. Marsden and N. Lin (eds.), 1982, Social Structure and Network Analysis. Beverly Hills, CA: Sage.; R. Burt and M.J. Minor (eds), 1983, Applied Network Analysis. Beverly Hills, CA: Sage.; Mark Granovetter, 1973, Getting a Job. Cambridge, MA: Harvard.; K. Cook et al., 1987, The Structure of Social Exchange. New York: Academic Press.

Other books: S.D. Berkowitz, 1982, An Introduction to Structural Analysis. Toronto: Butterworths.; Elizabeth Bott, 1957, Family and Social Network. New York: Free Press.; J. Clyde Mitchell, 1969, Social Networks in Urban Situations. Manchester: Manchester Uni. Press.; Jeremy Boissevain and J. Clyde Mitchell, 1973, Network Analysis: Studies in Human Interaction. The Hague: Mouton.; Jeremy Boissevain, 1974, Friends of Friends. New York: St. Martin's Press.; Edward O. Laumann, 1966, Prestige and Association in an Urban Community. Indianapolis: Bobbs-Merrill.; Edward O. Laumann, 1973, Bonds of Pluralism. New York: Wiley.; Edward O. Laumann and Franz U. Pappi, 1976, Network of Collective Action. New York: Academic Press.; Karussa Adler Lomnitz, 1977, Networks and Marginality: Life in a Mexican Shantytown. New York: Academic Press.; Claude S. Fischer, et al., 1977, Network and Places. New York: Free Press.; Claude S. Fischer, 1982, To Dwell Among Friends. Chicago: University of Chicago Press.; N. Lin, A. Dean and W.M. Ensel, 1986, Social Support, Life Events and Depression. New York: Academic Press.

A. The Technical Foundations:

1. Definitions and conceptualizations of social networks: Knoke and Kuklinski, Chapters 1 and 2. Definition; Transitivity and indirect ties; Description of the net; Units of analysis; Structural positions.
2. Gathering network data: an introduction. Knoke and kuklinski, Chapter 3. Defining the whole; Sampling from the whole; Problems of inference; Measurements; Methods of data collection.
3. Analytic methods: Knoke and Kuklinski, Chapter 4. Sociometric data and sociogram; Matrix representation.
4. Matrix methods: Adjacent matrix; Density; Matrix multiplication.
5. Relational measures: Network cohesion; Network multiplexity; Actor multiplexity; Centrality; Influence.

6. Relational measures (continued): Relative centrality (betweenness measure); Prestige; Another measure of prestige.
7. Clique identification: Richard Alba's program
8. Structural equivalence: blockmodelling. Continuous distance measures; Ron Burt's STRUCTURE program.
9. Structural equivalence (continued): blockmodelling. Discrete distance measures; Harrison White's idea; Program CONCOR.
10. Other analytic problems. Review articles: Barry Wellman, 1981, "Network Analysis from Method and Metaphor to Theory and Substance", Toronto. Richard Alba, 1983?, "Taking Stock of Network Analysis: A Decade's Results", in *Perspectives in Organizational Sociology*. JAI Press. Ron Rice and Bill Richards, 1985, "An Overview of Network analysis Methods and Programs", in *Progress in Communication Sciences*, Vol. VI. Norwood, N.J.: Ablex.

B. Power and Exchange: the Emerson-Cook Theory

1. The foundations: Richard M. Emerson, 1962, "Power-dependence Relations", *American Sociological Review* 27:31-40.; Richard M. Emerson, 1974, "Social Exchange Theory", pp. 335-362, in A. Inkeles, J. Coleman, and N. Smelser (eds), *Annual Review of Sociology*, Vol. 2. Palo Alto: Annual Reviews.
2. The elaborations and extensions: Karen S. Cook and Richard M. Emerson, 1978, "Power, Equity, and Commitment in Exchange Networks", *American Sociological Review* 43:721-739.; Karen S. Cook, Richard M. Emerson, Mary R. Gillmore, and Toshio Yamagishi, 1983, "The Distribution of Power in Exchange Networks: Theory and Experimental Results", *American Journal of Sociology* 89: 275-305.; R.M. Emerson, K.S. Cook, M.R. Gillmore, and T. Yamagishi, 1983, "Valid Predictions from Invalid Comparisons: Response to Heckathorn", *Social Forces*, 61: 1232-1247.
K.S. Cook, R.M. Emerson, M.R. Gillmore and T. Yamagishi, in press, "The Distribution of Power in Positive and Mixed Exchange Networks", in *The Structure of Social Exchange*. NY: Academic Press.
3. The future: K.S. Cook, "The Study of Power in Exchange Network".

C. Social Resources and Social Actions:

1. The Formative Ideas: Mark Granovetter, 1973, "The Strength of Weak Ties", *American Journal of Sociology* 78: 1360-1380.; Mark Granovetter, 1974, *Getting a Job*. Cambridge, MA: Harvard Uni. Press.; Nan Lin, Paul Dayton, and Peter Greenwald, 1978, "Analyzing the Instrumental Use of Social Relations in the Context of Social Structure", *Sociological Methods and Research* 7:149-166.
2. The Theory and the Normative Research: N. Lin, John C. Vaughn and Walter M. Ensel, "Social Resources and occupational Status Attainment", *Social Forces* 59: 1163-1181.; N. Lin, W.M. Ensel and J.C. Vaughn, 1981, "Social Resources and Strength of Ties: Structural Factors in Occupational Status Attainment", *American Sociological Review* 46: 393-405.; M. Granovetter, 1983, "The Strength of Weak Ties: A Network Theory Revisited", pp. 201-233, in Randall Collins (ed), *Sociological Theory*. San Francisco: Jossey-Bass.; William P. Bridges and Wayne J. Villemez, 1986, "Informal Hiring and Income in the Labor Market", *American Sociological Review*, 51: 574-582.; Peter V. Marsden and Karen E. Campbell, "Measuring Tie Strength", *Social Forces* 63: 483-501.; N. Lin, 1982, "Social Resources and Instrumental Action", in Peter Marsden and Nan Lin (eds), *Social Structure and Network Analysis*. Beverly Hills, CA: Sage.; Jeanne S. Hurlbert and Peter V. Marsden, 1985, "Social Resources and Mobility Outcomes: A Replication and Extension". Presented at the Fifth Sunbelt Social Network Conference, West Palm Beach, Florida.; N. Lin and Mary Dumin, 1986, "Access to Occupations Through Social Ties", *Social Networks* 8: 365-385.; De Graaf, Nan Dirk, and Hendrik Derk Flap, 1986, "With a Little Help from My Friends: Social Capital as an Explanation of Occupational Status and Income in the Netherlands, The United States, and West Germany", present at the Annual Meeting of the Research Committee of Social Stratification and Mobility of the International Sociological Association, Rome, 3-5, April.; Karen E. Campbell, Peter V. Marsden and Jeanne S. Hurlbert, 1986, "Social Resources and Socioeconomic Status", *Social Network* 8: 97-117.
3. The Push and New Directions: N. Lin, "Social Resources and Social Actions: a Progress Report", *Connections* 6: 10-16.; N. Lin, in press, "Social Resources and Social Mobility: A Structural Theory of Status Attainment", in Ronald Brieger (ed), *Social Structure and Social Mobility*. New York: Cambridge Uni. Press.; M. Granovetter, 1986, "Labor Mobility, Internal Markets, and Job Matching: A Comparison of the Sociological and Economic Approaches". pp. 3-39, *Research in Social Stratification and Mobility*, Vol. 5. Greenwich, CT: JAI Press.; Pierre Bourdieu, 1977, *Reproduction in Education, Society, Culture*. Beverly Hills, CA: Sage.; Paul DiMaggio and John Mohr, 1985, "Culture Capital, Educational Attainment, and Marital Selection", *American Journal of Sociology* 90: 1231-1260.

D. The Larger Picture: Social Structure and Individual Actions:

1. The Structural Perspective: Peter Blau, 1977, *Inequality and Heterogeneity*. New York: Free Press.; Peter Blau and Joseph E. Schwartz, 1984, *Crosscutting Social Circles*. Orlando, FL: Academic Press.; Peter Blau, 1986, "Contrasting Theoretical Perspectives".

2. The Action Perspectives: James S. Coleman, 1986, "Social Theory, Social Research, and a Theory of Action"; James S. Coleman, 1986, Individual Interests and Collective Action. Cambridge, MA: Cambridge University Press.; Randall Collins, 1981, "On the Microfoundations of Macrosociology". American Journal of Sociology 86: 984-1014.; Ronald S. Burt, 1982, Toward a Structural Theory of Action. New York: Academic Press.; Michael Hechter, 1983, The Microfoundations of Macrosociology. Philadelphia: Temple University Press.

NETWORK ANALYSIS I: GRADUATE COURSE. Bonnie Erickson, (Soc, Toronto), 1987

This one-term course emphasizes bounded networks: organizations, subcultures, small communities, or the world system for example. In terms of sociological theory this fits with an emphasis on: ways of conceptualizing social structure; the existing varieties of network structures; sources of such structures; effects of such structures on the distribution of attitude similarity, resources, information, and power; and the integration of theories of different levels of analysis, especially of theories of interpersonal processes with theories of social structure. The stress on bounded networks would include discussion of the wider social structures and processes creating such networks, and of the effects of different degrees of boundedness. Methodologically, bounded networks are suitable sites for the most advanced and most characteristic network models and research techniques.

The second half-course, emphasizes open systems: urban areas, corporate elites, who societies. In terms of theory, this half-course had more emphasis on wide-ranging questions of macro-micro integration; complex macrostructures; and social history. Methodologically it is more eclectic but includes some distinctive techniques such as network sampling and chain tracing. Evaluation for this course will be based on seminar participation (20%) and a term paper (80%)

1. **Modern concepts of social structure: macromodels.** A review of three families of models of overall structure of a network: clique, structural equivalence, and spatial models.
 - A. Ron Burt, "Models of network structure", *Annual Review of Sociology* 6 (1980), 79-141.
 - B. Ronald Breiger, "The duality of persons and groups", *Social Forces* 53 (1971) 181-90.
 - C. Harrison C White, Scott Boorman and Ronald Breiger, "Social structure from multiple networks. I. Blockmodels of roles and positions". *American Journal of Sociology* 81 (1976), 730-780.
 - D. Phipps Arabie, Scott Boorman and Paul Levitt, "Constructing block-models: how and why". *Journal of Mathematical Psychology* 17 (1987) 21-63.
 - E. David Snyder and Edward Kick, "Structural position in the world system and economic growth, 1955-70: a multiple network analysis of transnational interactions". *American Journal of Sociology* 84 (1979) 1096-1126.
 2. **Modern concepts of structure: local structure.** Small-scale structure, primarily at the level of triad and its roots in social psychological processes, primarily balance theory.
 - A. Robert K. Leik and Barbara F. Meeker, *Mathematical Sociology*, Chapter 4; Englewood Cliffs, Prentice-Hall, 1975.
 - B. Selections from Paul Holland and Samuel Leinhardt, *Perspectives on Social Network Research*; Chapters 2, 3, 4, 5: New York, Academic, 1979.
 3. **Macro and micro: varying strategies for integration.**
 - Larger structures as products of interpersonal processes.
 - A. James A. Davis, "Clustering and hierarchy in interpersonal relations: testing two graph theoretical models in 742 sociograms". *American Sociological Review* 35 (1970) 843-52.
 - B. George C. Homans, *The Human Group*, Chapters 1-8 and 17; New York, Harcourt Brace, 1950.
 - Larger structures as products of interpersonal attributes.
 - C. Peter M. Blau, "A macrosociological theory of social structure", *American Sociological Review* 83 (1977) 26-54.
 - Larger structures as sources of local order.
 - D. Scott Feld, "The focussed organization of social ties", *American Journal of Sociology* 86: 1015-1035.
 - E. Georg Simmel, "The web of group affiliations", in *Conflict and the web of group affiliations*; Glencoe, Free Press 1955.
- Larger structures as constraints and modifiers of interpersonal processes.

F. Bonnie H. Erickson, "The relational basis of attitudes", in S.D. Berkowitz and B. Wellman (Eds.), Structural Sociology.

G. Karen S. Cook and Richard M. Emerson, "Power, equity, and commitment in exchange networks", *American Sociological Review* 43 (1978) 721-739.

H. Mark Granovetter, "The strength of weak ties", *American Journal of Sociology* 78 (1973) 1360-80.

I. Mark Granovetter, "The strength of weak ties revisited", *Sociological Theory* 1983.

4. The emergence of new social forms from existing networks

A. Simmel, "Conflict", in *Conflict and the web of group affiliations*; Glencoe, Free Press, 1955.

B. Lewis Coser, *The functions of social conflict*; London, Free Press of Glencoe, 1956.

C. Bonnie H. Erickson, "Secret societies and social structure", *Social Forces* 60 (1981) 188-210.

5. Environmental selection of forms

A. Michael I Hannan and Joan Freeman, "The population ecology of organizations", *American Journal of Sociology* 82 (1977) 929-964.

B. Mark Granovetter, "Small is bountiful: labor markets and establishment size", *American Sociological Review* 49 (1984) 323-334.

For this section also read ONE of:

C. John Freeman, Glen R. Carroll, and Michael T. Hannan, "The liability of newness: age dependence in organizational death rates". *American Sociological Review* 48 (1983) 692-710.

D. Michael T. Hannan and Freeman, "Structural inertia and organizational change", *American Sociological Review* 49 (1984) 149-164.

John Freeman and Michael T. Hannan, "Niche width and the dynamics of organizational populations", *American Journal of Sociology* 88 (1983) 1116-1145.

6. Some effects of structural location: attitude similarity, belief systems, information, resources, and power. Reference include several items above plus:

A. Bonnie H. Erickson, "The allocation of esteem and disesteem", *American Sociological Review* (in press).

B. Bonnie H. Erickson, "Networks, ideologies and belief systems", pp. 159-172 in Peter V. Marsden and Nan Lin (eds.), *Social Structure and Network Analysis*. Beverly Hills: Sage, 1982.

C. James Coleman, Elihu Katz, and Herbert Menzel, "The diffusion of an innovation among physicians", pp. 107-124 in Samuel Leinhardt (ed.) *Social Networks: A Developing Paradigm*. New York: Academic Press, 1977.

D. Everett M. Rogers, "Network analysis of the diffusion of innovations". pp. 137-164 in Paul W. Holland and Samuel Leinhardt (eds.) *Perspectives on Social Network Research*. New York: Academic Press, 1979.

E. Gabriel Weimann, "The two-step flow of communication", *American Sociological Review* 47 (1982) 764-773.

F. Ronald Breiger, "Career attributes and network structure: a blockmodel study of a biomedical research specialty". *American Sociological Review* 41 (1976) 117-135.

7. Some effects of network boundedness, especially group consciousness and action. References include several items above plus:

A. Marx, Karl. *The eighteenth Brumaire of Louis Bonaparte*; New York, International, 1963.

B. Charles Tilly. *From Mobilization to Revolution*: Chapter 3; Reading, Mass., Addison-Wesley, 1978.

8. Relationships among relationships: problems and prospects of structural abstraction.

A. S.F. Nadel, *The Theory of Social Structure*; Glencoe, Free Press, 1957.

B. Scott Boorman and Harrison White. "Social structure from multiple networks. II. Role structures". *American Journal of Sociology* 81 (1976) 1384-1446.

NETWORK ANALYSIS II: GRADUATE COURSE. Barry Wellman, 1988 (Soc, Toronto)

This one-term course discusses the application of the concepts and methods of social network analysis to sociological questions. No previous experience is necessary. Network analysis is a powerful new way to get leverage on fundamental social issues. It is more than a new bag of methodological tricks or a new set of jargon. Network analysts seek explanations in the very relations linking persons, organizations, interest groups, nation-states, etc. They seek the pattern of these relations as being the essence of social structure, and they study how such structures allocate scarce resources, constrain behaviour and channel social change. Among the questions we will address:

Why didn't things fall apart when third world migrants moved from tribal villages to newly industrializing cities?

Why communities still provide social support in a world transformed by industrialization and capitalism?

To what extent do interlocking corporate and government ties link ruling elites and organize large-scale structures?

How do relations of power and dependency structure world economic and political orders?

GRADING: Term Paper 50%; Seminar Presentations 30%; Seminar Participation 20%

I. Ethnographic origins and developments

- A. J.A. Barnes, "Classes and committees in a Norwegian island parish", in Samuel Leinhardt, ed., *SOCIAL NETWORKS: A DEVELOPING PARADIGM*.
- B. Elizabeth Bott, "Urban families: conjugal roles and social networks", in Leinhardt.
- C. J. Clyde Mitchell, "The Kalala Dance".
- D. John & Leatric Macdonald, "Chain Migration" in Charles Tilly, *AN URBAN WORLD*.
- E. Peter Gutkind, "African Urbanism, Mobility and Social Network", in Tilly.

II. The Philosophical Foundations of Network Analysis

- A. S.D. Berkowitz, *AN INTRODUCTION TO STRUCTURAL ANALYSIS*, chap. 1.
- B. Barry Wellman and S.D. Berkowitz, "Preface" to *SOCIAL STRUCTURES*, edited by Wellman and Berkowitz.
- C. Barry Wellman, "Structural Analysis: From Method & Metaphor to Theory & Substance". In *SOCIAL STRUCTURES*, edited by Wellman & Berkowitz.
- D. R.J. Richardson & Barry Wellman, "Structural analysis: the state of the Canadian art", *CANADIAN REVIEW OF SOCIOLOGY & ANTHROPOLOGY* (1985): special issue.
- E. Harrison White, "Notes on the constituents of social structure" (mimeo.)
- F. Harriet Friedman, "Are distributions really structures?" *CONNECTIONS* 2: 72-80.

III. Small-scale structures: Communities as Networks

- A. George Simmel, "The web of group affiliations", in *CONFLICT AND THE WEB OF GROUP AFFILIATIONS*. Glencoe: Free Press, 1955.
- B. S.D. Berkowitz, *AN INTRODUCTION TO STRUCTURAL ANALYSIS*, chap. 2.
- C. Barry Wellman and Barry Leighton, "Networks, neighbourhoods and communities", *URBAN AFFAIRS QUARTERLY*, 3/79.
- D. Peter Marsden, "Core discussion networks of Americans", *AMERICAN SOCIOLOGICAL REVIEW* 52 (2/87): 122-31.
- E. Scot Feld, "Social structural determinants of similarity among associates", *AMERICAN SOCIOLOGICAL REVIEW* 47 (12/82): 797-801.
- F. Edward Laumann, *BONDS OF PLURALISM*, chaps. 2-4, 6.
- G. J. Miller McPherson & Lynn Smith-Lovin, "Sex segregation in voluntary associations", *AMERICAN SOCIOLOGICAL REVIEW* 51 (2/86): 61-79.
- H. Leslie Howard, "Work & community in industrializing India", in Wellman & Berkowitz.
- I. Y. Michael Bodemann, "Relations of production and class rule", in Wellman & Berkowitz.

IV. Flows of Resources Through Networks: Social Support

- A. Barry Wellman, "Applying network analysis to the study of support" in Benjamin Gottlieb, ed., *SOCIAL NETWORKS & SOCIAL SUPPORT*.
- B. Barry Wellman, "The community question", *AMERICAN JOURNAL OF SOCIOLOGY*, 2/79.

C. Barry Wellman, Peter Carrington & Alan Hall, "Networks as personal communities", Centre for Urban and Community Studies Working Paper 144.

D. Barry Wellman, "The community question re-evaluated", *COMPARATIVE URBAN AND COMMUNITY RESEARCH* 1 (1987).

E. Peter Marsden & Karen Campbell, "Measuring tie strength", *SOCIAL FORCES* 63: 483-501.

F. Barry Wellman, Clayton Mosher, Cyndi Rottenberg & Vincente Espinoza, "Different strokes from different folks: which ties provide what kinds of social support?" Institute for Urban & Regional Development, University of California, Working Paper 457 (1987).

G. Ronald Kessler, Richard Price & Camille Wortzman, "Social factors in psychopathology", *ANNUAL REVIEW OF PSYCHOLOGY* 1985: 531-72.

H. Nan Lin, Alfred Dean & Walter Ensel, *SOCIAL SUPPORT, LIFE EVENTS AND DEPRESSION* (1986), chaps. 2-3, 7-10, 17.

I. Marc Pilisuk & Susan Hillier Parks, *THE HEALING WEB* (1986), chaps. 2, 4.

V. Search Processes

A. Mark Granovetter, "The strength of weak ties", *AMERICAN JOURNAL OF SOCIOLOGY*, 1973.

B. Mark Granovetter, "Weak ties revisited", in *SOCIOLOGICAL THEORY* 1983, edited by Randall Collins.

C. Nan Lin & Mary Dumin, "Access to occupations thru social ties", *SOCIAL NETWORKS* 8 (1986): 365-85.

D. Lorne Tepperman, "Deviance as a Search Process", *CANADIAN JOURNAL OF SOCIOLOGY* 1 (11/75);277-94.

E. Bernice Pescosolido, "Migration, medical care preferences & the lay referral system: a network theory of role assimilation". *AMERICAN SOCIOLOGICAL REVIEW* 51 (8/86): 523-40.

F. Nancy Howell Lee, *THE SEARCH FOR AN ABORTIONIST*. Chicago: Univ. of Chicago Press.

G. John Delaney, "Social networks & efficient resource allocation: computer models of job vacancy allocation thru contacts", in Wellman & Berkowitz.

H. Paul DiMaggio & John Mohr, "Cultural capital, educational attainment & marital selection", *AMERICAN JOURNAL OF SOCIOLOGY* 90 (1985): 1231-60.

VI. Demographic Constraints on Structural Processes

A. Nancy Howell, "Kinship networks in a simple society", in *SOCIAL STRUCTURES*, edited by Wellman & Berkowitz.

B. Nancy Howell, *THE DEMOGRAPHY OF THE DOBE !KUNG* (selections)

C. Lorne Tepperman, "The persistence of dynasties" in *SOCIAL STRUCTURES*, edited by Wellman & Berkowitz.

D. Stanley Milgram, "The small-world problem", *PSYCHOLOGY TODAY* 1 (3/67): 62-67.

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VII. Collective Political Behaviour

A. Anthony Oberschall, "Theories of social conflict", *ANNUAL REVIEW OF SOCIOLOGY* 1978: 291-315.

B. Charles Tilly, "Do communities act?", in Marcia Efrat, ed., *THE COMMUNITY*.

C. Charles Tilly, "How (and to some extent why) to study British contention", in C. Tilly, *AS SOCIOLOGY MEETS HISTORY*.

D. Charles Tilly, "Mis-reading, then re-reading 19th century social change", in Wellman & Berkowitz.

E. Charles Tilly, "Food supply & public order in modern Europe", in C. Tilly, *THE FORMATION OF NATIONAL STATES IN WESTERN EUROPE*.

F. Charles Tilly, *LARGE STRUCTURES, BIG PROCESSES, HUGE COMPARISONS* (first half).

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VIII. Inter-organizational Relations

A. Joel Levine, "Introduction to LEVINE'S ATLAS OF WORLD CORPORATE INTERLOCKS.

B. Beth Mintz & Michael Schwartz, *POWER & STRUCTURE IN AMERICAN BUSINESS*, 1985; selected chapters; or new *THEORY AND SOCIETY* paper, 1987.

C. Peter Carrington, "Anticompetitive effects of directorship interlocks", SAP Working paper.

- D. R.J. Richardson, new paper for ADMINISTRATIVE SCIENCE QUARTERLY.
- E. Ronald Breiger, "The duality of persons & groups", in Wellman & Berkowitz.
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IX. Global Networks and World Systems

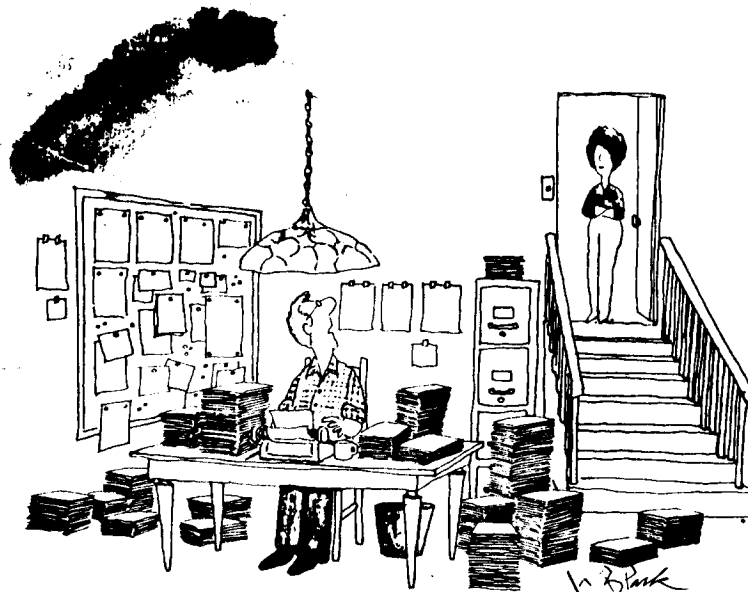
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- C. Harriet Friedmann, "State policy & world commerce: the case of wheat".
- D. Harriet Friedmann, "Form & substance in the analysis of the world economy", in Wellman & Berkowitz.
- E. Ronald Breiger, "Structures of economic interdependence among nations", in Peter Blau & Robert Merton, eds., STRUCTURALIST APPROACHES TO SOCIOLOGY.
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X. Methods of Data Gathering and Analysis

- A. David Knoke & J.H. Kuklinski, NETWORK ANALYSIS. Sage, 1982.
- B. Bonnie Erickson, "The relational basis of attitudes", in Wellman & Berkowitz.

XI. Computer Analysis of Networks

- A. Barry Wellman & Susan Baker, "Using SAS to Analyze Personal Social Networks", CONNECTIONS, 1985.
- B. John Sonquist, Analyzing Network Databases: papers from CONNECTIONS.
- C. Linton Freeman & Associates, UNICET
- D. Ronald Burt, STRUCTURE
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NEW YORKER
July 29, 1985

"Finish it? Why would I want to finish it?"

COMPUTER STUFF

FATCAT -- FOR THICK DATA William D. Richards, Jr. (Communication Studies, Simon Fraser University)

FATCAT is a program designed to make categorical analysis of multivariate multiplex network data easy to do. It does what might be called "contextual analysis" -- it examines the relation between the links connecting people and the social context in which the links exist. FATCAT divides the members of the network or the links between the members into categories and then describes the contact between and among categories. The program uses two files of data simultaneously: a file of "index" variables that describe characteristics of the individuals in the network, such as age, sex, occupation, etc.; and a file of "link" variables that describe characteristics of links, such as frequency of interaction, purpose or content of the contact, level of satisfaction with the outcome, etc. The program was designed to take advantage of the interactive capability of microcomputers, using a conversational front-end, rather than requiring the user to set up a file of parameter settings.

The program does four types of analysis:

1. INDEX by INDEX --

Here the members of the network are sorted into categories on the basis of an "index" variable. The program describes the contacts members of each category send and receive, in terms of mean link strength, mean number of links per person, etc. Finally the program describes the amount of contact between and within categories. It allows questions like these to be addressed: "How much contact do men have with men, compared to the amount women have with men?" and "Do men report more contact with women than women report with men?"

2. INDEX(1) by INDEX(2) --

This is the same as the first type, except two different index variables are used -- one for rows ("from") and the other for columns ("to"), allowing questions like these to be asked: "How much contact with other foster parents, social workers, natural parents, teachers, and friends/relatives/neighbors do foster parents who are members of associations have in comparison to non members?" (see table 1) and "Do people of different ages have different levels of contact with men and women?"

Analysis Types 1 and 2 produce tables like the one shown in Table 1. For Type 1, the row variable is the same as the column variable; for Type 2, the row variable will be different from the column variable.

3. INDEX by LINK --

Here an index variable is used to sort individuals who send links into categories for rows, and a set of link variables is used for columns, one variable per column. Going across a row, you see how much of the contact of the members of the row category falls into each of the link types. Going down a column, you see how much of this type of contact comes from each category of person.

Type 3 allows you to address questions like: "How much of the contact of younger foster parents is made to get information, to get advice, or to get emotional support, in comparison with the contact of older parents?"

4. LINK by INDEX --

Type 4 is similar to Type 3 above, except the link variables are used for the rows ("from") and the index variable sorts people who receive links into categories for the columns. Going across a row, you see how much of this type of contact is directed to members of each category of person. Going down a column, you see how much of each type of contact is directed to this category of person.

Type 4 allows questions like these to be addressed: "For what purpose do respondents make contact with friends, relatives, and casual acquaintances?" and "How do the relationships people have with physicians, ministers, psychiatrists, and physiotherapists differ in terms of the extent to which they satisfy each of six categories of interpersonal need?"

Table 2 shows an example of the kind of table produced by Analysis Type 3. The tables produced by Type 4 are similar, but the rows describe types of interaction (link variables), and the columns are categories of people who receive links.

FATCAT uses two files of data. One describes the links between people; the other describes the people themselves. The file that contains descriptions of links is simple. It contains only the data, which has the following format: **ID# ID# W1 W2 W3 ... Wn**

The first "ID#" is the identification number of the respondent or the individual the link is "from" -- the individual who describes the link. The second "ID#" is the identification number of the other person involved in the link -- the person the link is "to." The "W1 W2 W3 ... Wn" are variables describing characteristics of the link.

The index file comes in two parts. The first is a list of variable names and value labels. The second is the data itself. The variable list includes variable names and value labels, and it tells which columns each variable occupies on each line of data. Link variables go after all the index variables on the list.

The data follows immediately after the "End". There are no end-of-file codes necessary, and you do not provide any format specifications. The program makes its own format specifications from the information in this list. If you want to omit a variable from the analysis, all you have to do is omit the description of that variable from the list.

There are three "pseudo-variables" that look a bit like variable names. The first is "LINKVAR" which signifies the end of the list of index variables and the beginning of the list of link variables. The second is "END" which signifies the end of the variable list and the beginning of the data. The third is "**", which indicates the end of a record of data. (The program allows you to have more than one line of data per individual in the index file.)

Managing the Strength of Links

The program assumes ratio level scaling of link strength variables. The program behaves differently for analysis Types 1 and 2 than it does for Types 3 and 4. Strength transformation methods for Types 1 and 2 are described first, and then the methods for Types 3 and 4.

Types 1 and 2: Analysis types 1 and 2 produce what might be called "categorical who-to-whom" tables. An example is shown in Table 1. In these tables it is not possible to differentiate between different kinds of links. For example, there is no way of showing how much of the contact between men and women is work-related and how much is social. In other words, if two people are linked, there is one link, no matter how many link variables there are, or how many types of interaction the people have with one another. You must tell the program how to combine the link variables into a single indicator of the strength of the connection between the people. You do this by supplying an algebraic equation in the form:

STRENGTH =

where the "...." is replaced with an equation in which the indicators for different types of contact or for different aspects of the relationship are represented as "A", "B", "C", etc. Any number of constants may be mixed with the variables, and the arithmetical operators "-", "+", "*", "**", and "/" may be used. Parentheses may be used to control the order of precedence of the operations. The only limits are that no more than 20 variables ("A" through "T") may be used, complex arithmetic is not allowed, and the whole equation must contain not more than 80 characters.

The program will tell you which letter goes with each variable, and it will let you decide which variables you want to include in the analysis. If you are familiar with the way the EQN version of NEGOPY handles strengths, you will know how FATCAT handles strengths, since the same subroutines that are used in NEGOPY are used in FATCAT.

Types 3 and 4: Analysis types 3 and 4 are different. The tables you get here look like the one in Table 2. This table has information from four variables: the age of the people, the amount of contact made to get information, the amount made to get advice, and the amount made to get emotional support. For this type of analysis you don't combine all the link variables into a single indicator -- you keep them separate and treat them as measuring different things. Instead of an equation to combine them, you may use one of two types of transformation:

a) One of the link variables, say W1, is a general variable that describes an "overall" characteristic such as the frequency of contact. The other variables describes proportions, such as the proportion of the time that the contact is made for specific purposes. In this case it would be appropriate to multiply each of the proportions by the overall variable.

b) You can add a constant or by multiply by a constant.

For all four types of analysis the program lets you specify minimum and maximum strength values. Any links with strengths below the minimum or above the maximum are excluded from the analysis.

System Requirements: FATCAT runs on IBM PC/XT/AT compatible microcomputers and on large machines that have FORTRAN 77 compilers. On a micro, the program requires a minimum of 576K RAM and two floppy drives or a hard drive. Versions are available that take advantage of an 8087 math co-processor. The program can handle data from networks with up to 2000 members and 32766 links, 20 link variables, and 20 categorical index variables. Each index variable can have up to 20 different values. The mainframe version is identical to the micro version.

EXAMPLE OF VARIABLE LIST

```

ID #           (1-4)
Age           (7-8)
/
1 15-20
2 21-30
3 31-40
4 over 40
/
Height        (9-10)
/
1 Short
2 Medium
3 Tall
4 Giant
/
LINKVAR
/
0 ID #1       (1-4)
0 ID #1       (5-8)
1 frequency   (10-11)
2 get information (13-13)
3 get advice  (14-14)
4 get help    (15-15)
/
End
:
```

TABLE 1

Analysis Type 2
Crosstabulation of membership with position

COUNT ROW % COL %	ROWS = membership COLS = position						TOTAL
	<u>FP</u>	<u>SW-MSS</u>	<u>NP</u>	<u>TMP</u>	<u>FRN</u>	<u>OTHER</u>	
yes	6923. 19.5% 84.1%	7862. 22.2% 73.2%	1863. 5.3% 75.8%	5496. 15.5% 77.9%	12620. 35.6% 62.3%	670. 1.9% 58.0%	35434. 71.0%
no	1311. 9.1% 15.9%	2886. 20.0% 26.9%	595. 4.1% 24.2%	1558. 10.8% 22.1%	7638. 52.8% 37.7%	486. 3.4% 42.0%	14474. 29.0%
TOTAL	8234. 16.5%	10748. 21.5%	2458. 4.9%	7054. 14.1%	20258. 40.6%	1156. 2.3%	

TABLE 2

Analysis Type 3
Crosstabulation of Age with Purpose/Reason

COUNT ROW % COL %	ROWS = Age COLS = Purpose/Reason			<u>TOTAL</u>
	<u>info.</u>	<u>advice</u>	<u>em-supprt</u>	
younger	14281. 43.8% 72.8%	11826. 36.2% 70.2%	6521. 19.9% 75.1%	32628. 72.3%
older	5342. 42.6% 27.2%	5019. 40.1% 29.8%	2163. 17.3% 24.9%	12524. 27.7%
TOTAL	19623. 43.5%	16845. 37.3%	8684. 19.2%	

NEGOPY
(William Richards, Communications Studies, Simon Fraser U; USERBILL@SFU)

NEGOPY is a discrete, linkage-based clustering program that uses heuristic pattern-recognition techniques to classify members of a network into a relatively simple category system. The program was written especially to deal with communication/information networks.

It looks for clusters of individuals that have most of their linkage with one another, rather than with individuals in other clusters. These clusters are called **groups**. (On the next page is a picture of a network, with the groups as identified by the program indicated with dotted lines.) It finds groups by performing operations that make it possible for a pattern-recognition algorithm to "see" them. Membership in a group is an all-or-nothing affair: you are either a member or not a member. There are no explicitly defined overlapping categories.

Members are categorized on the basis of the patterns of links they have to other members. Throughout the analysis the data is represented in terms of links between members of the network. The final results are presented in terms of links as well.

The category system used by NEGOPY divides individuals into two basic categories: **participants** and **non-participants**. In general, participants have a lot more links to other individuals than do non-participants. Some non-participants have no links or only one link.

The participant category is divided into two sub-categories: **group members** and **linkers**.

Groups are defined as follows:

- Each member must have most of his or her linkage with other members of the same group.
- The group must be connected. That is, it is unnecessary to leave the group in order to go from any member of the group to any other member. It is not, however, necessary for every member to have a link directly with every other member.
- It is possible to remove up to ten percent of the group's most central members without causing the rest of the group to become disconnected.

There are two kinds of **linkers**:

- **Direct Liaisons**, who have most of their linkage with members of groups, but not enough with any one group to be a member of that group. They connect groups directly.
- **Indirect** (or "multi-step") **liaisons**, who have less than half of their linkage with the members of groups. Most of their linkage will be with other linkers. They connect groups indirectly, through links with other linkers.

The **non-participant** category is divided into 3 subsets:

- **Isolate type 1 or true isolate**: These individuals have no links whatsoever.
- **Isolate type 2 or connected isolate**: These individuals each have one link.
- **Tree node**: These individuals are connected in tree structures, where there is only one path from any one of them to any of the others, there are no cycles, and where the removal of any single link will separate some from others. All tree structures end with connected isolates.

NEGOPY starts with data that describe bits of the network and produces a description of the whole thing. Usually the network is a set of people connected by some kind of communication links, although it could just as easily be a set of corporations connected by trade links, or a set of scientists connected by citations to one another's work. The program can be used in almost any situation where there is a system comprised of **NODES** (people, etc..) connected to one another by **LINKS** (communication relationships, etc..).

NEGOPY uses a combination of pattern-recognition techniques and graph-theoretic methods to identify clusters of interconnected nodes. It will usually find the clusters if there are any and if there is more linkage among the members of clusters than between members of different clusters. Often the clusters are vague and hard to separate from the background of overall high levels of interaction. In these cases, the program may not be able to find any clusters at all, or it may only find a small number of very large clusters. The program's parameters can be used to tease out even quite indistinct structures, but the

researcher should make sure he or she is very clear about just what a "group" is and what it means for one node to be connected to another before adjusting parameters in search of a "better" solution.

While it is possible to make NEGOPY find clusters with almost any data (given a willingness to fiddle with the parameters and throw away portions of the data), it is not clear what the clusters produced after such extensive manipulation of the data mean. (See the section on "Parameters.." for more on this issue.)

CONCEPTS and TERMS

The following paragraphs outlines some concepts used in network analysis in general and NEGOPY in particular. When talking about NEGOPY-brand network analysis, it is important to distinguish between the **system** being analyzed and the **data** that describes the system. If you are studying the communication patterns in a hospital, the hospital is the system you are studying. Somehow you must get some data that describes the hospital. The totality of the data is "the **network**". This data will indicate which people are connected to which other people through communication relationships.

If the data is the **network**, there will be a **link** in the network between a pair of **nodes** whenever the corresponding people in the **system** (the hospital) are connected by a communication relationship. (See Richards, 1985 for a more detailed discussion of these issues.)

The **relationship** upon which the network is based must be explicitly defined and clearly understood. A few abstract properties of the relationship are particularly relevant here. Just as certain statistical methods assume that the data is normally distributed or that there is homoscedasticity, NEGOPY makes certain assumptions as well. Some of these assumptions are built into the program, while others may be defined or not by the researcher.

One important characteristic of the relationship is whether or not it is symmetric. A symmetric relationship is one in which order or direction are irrelevant. If the relation between me and you is symmetric, then the relation between me and you is the same as the one between you and me. If I exchange information with you, then you also exchange information with me. Many network analysis programs accept only symmetric data, which means that they at least implicitly assume that relationships are symmetrical. NEGOPY has provisions for data that represent either symmetrical or asymmetrical relationships. The user must choose one of the options.

A second character of relationships is their strength. Some relationships may be stronger than others. NEGOPY gives you the option of including this factor in your analysis. Actually, it is more correct to say that NEGOPY expects you to include information about the strength of links, although it is possible (and quite easy) to tell the program that all links have the same strength. The most important implication of considering the strength of links is seen in the definitions of role categories above. (Note the use of the word "linkage" rather than "links".) I can be a member of a group, even though only four of my ten links are with other members of this group, if those four links are sufficiently strong to outweigh the other six.

To add and subtract links in this way, and to be able to talk about "most" of an individual's linkage, it is necessary to have at least an approximation to ratio-level scaling of link strengths. NEGOPY has the ability to perform a wide range of transformations on the strength indicators in your data, allowing you to adjust the scaling or to combine multiple indicators of links. The user must set the parameters to match the characteristics of the data.

A third characteristic of relationships, is their content or function. If you are considering a network in which the people are connected by communication relationships, you may want to consider the content of the interactions between people. If all the communication is work-related, it probably makes sense to do a single network analysis. If, on the other hand, some of the links represent work-related communication and others represent social communication, you probably have two networks all mixed up with one another. You may want to consider separating the two kinds of communication and doing separate analyses, since NEGOPY does not yet have the ability to do more than one network at a time. You will be able to do this if you included some content variables in your data.

You may choose, however, to ignore content and to combine all types of communication into one single network. NEGOPY gives you the ability to do this as well. One thing to keep in mind is that combining different types of relationships in one network is likely to result in a blurring of the structure of the network.

The abstract characteristics of relationships translate to characteristics of links in a relatively straightforward way. It is easy to represent the **strength** of a link with a number. The bigger the number, the stronger the link. Links that represent symmetrical relationships should be **non-directed** -- that is, a link from A to B means the same thing as a link from B to A. Links that represent asymmetric relations should be directed, so a link from A to B is **not** the same as one from B to A.

The abstract concepts of symmetry and direction are closely related to, but not the same as, the concepts of **reciprocation** or **confirmation**, both of which are involved with the process of **measurement**.

If I report a link with you, but you do not report a link with me, my report of the link is **unconfirmed**. My description of what happens is not confirmed by your description. If our descriptions agree with one another, the link between me and you is said to be **confirmed**.

Confirmation is not the same as **reciprocation**. Confirmation refers only to the confirmation of or person's words by those of another. Reciprocation is more like the golden rule -- what I do to you, you do to me. For example, if I say I give information to you, and you say you give information to me, the link between you and me is **reciprocated**. If I say that I give information to you and you say that you received information from me, the link is **confirmed**. Asymmetric relationships thus require two separate measurements to test for confirmation, while symmetric ones only need one.

At the moment, NEGOPY does not allow you to keep track of the separate functional halves of asymmetrical relationships (that is, it has no capacity to carry information about both the givers' reports of giving and the receivers' reports of receiving), but it does allow you to use directed links or to examine the separate halves of non-directed links. In other words, you can check for the level of **confirmation** with non-directed data or the level of **reciprocation** with directed data.

PARAMETERS, PARAMETERS, AND MORE PARAMETERS ...

Negopy has been criticized for its profusion of parameters. There are 28 in some versions of the program and 37 in others. (There may seem to be more than this, but the rest are unnamed, unset, undefined, and unused.) These parameters allow you to describe the characteristics of your data, to control the output produced by the program, to instruct the program how to handle multiple strength indicators, and to control several critical aspects of the program's operation.

While most of the parameters have default values and few need to be altered, it is possible, with imaginative or careless use of the parameters, to instruct the program to produce results that will be invalid. NEGOPY is no different from most other computer programs in this respect. It is possible to alter the criteria NEGOPY uses to define its category system by resetting some of the parameters, thus altering the operationalization of the concepts driving the program. It is also possible to alter the meaning of the data by resetting parameters, thus altering the operationalization of the concepts the data are supposed to represent.

With NEGOPY, as with other programs, it is important to know how your data are scaled and what assumptions you are making, either implicitly or explicitly, about what the data represent. NEGOPY has been criticized because repeated runs on the same data with different parameter settings produces different results. This is true of most computer programs that put the user in control. The intelligent user will do three things about this: first, understand the data and what they mean; second, use the program in a thoughtful and considered manner, rather than as an magical black box; and third, describe clearly how the parameters were set in reports of research done with the program.

There are now six versions of NEGOPY being currently supported: I. NEGOPY 2 -- (a) FORTRAN IV for IBM OS; (b) FORTRAN IV for MTS; (c) FORTRAN 77 for IBM OS/MTS/CMS/etc., UNIX, CDC, and other large computers; (d) FORTRAN 77 for IBM PC & compatibles; II. NEGOPY 3 -- (e) FORTRAN IV for IBM OS; (f) FORTRAN IV for MTS.

All versions of NEGOPY except the ones written in FORTRAN 77 support dynamic run-time memory allocation. Only one copy of the program is needed, regardless of the size of the network. Maximum capacity is 4,095 nodes and 80,000 links (these limits may be lower, depending on the limits of the computer system you are using). NEGOPY 3 also uses more advanced methods for processing multiplex links and allows a few additional processing options.

The versions written in FORTRAN 77, while much more portable, do not support dynamic run-time memory allocation. You will probably want to make different copies of the program, each compiled to accept networks of different sizes. The PC version requires at least 576K of RAM and two floppy drives or a hard drive, and it can handle networks with up to 200 members and 4000 links.

NEGOPY was originally written for use on large mainframe computers before microcomputers were generally available. In fact, it is only recently that microcomputers with sufficient memory and computing power made it practical to run NEGOPY on a micro. A version of the program that takes advantage of the interactive potential of the microcomputer is being designed and should be available some time in 1988. In the meantime, users will have to be satisfied with a batch-style interface to the program.

Reference: Richards, William D. "Data, Models, and Assumptions in Network Analysis" in Robert McPhee & Phillip Tompkins (eds.), Organizational Communication: Traditional Themes and New Directions. Sage Annual Reviews of Communication Research 13, pp. 109-28.

TRIADS PC NETWORK ANALYSIS PACKAGE FOR ASSESSING LOCAL STRUCTURE
 Michael Walker & Stanley Wasserman (Psych, Illinois)

TRIADS is a microcomputer adaptation of Leinhardt's (1971) SOCPAC I. It is written in IBM-PC Professional FORTRAN (for use with 8087 coprocessors) & Microsoft's FORTRAN 3.1 (for use without an 8087). It implements the social network local structure analyses outlined by Holland & Leinhardt (1970, 1976).

TRIADS is designed to analyze the local structure of a binary sociomatrix. Here are some of the things the program will do:

- Accepts as input either the entire sociomatrix, or the triad census, or both.
- Counts the number of mutual, asymmetric, and null ties present in a sociomatrix.
- Computes the triad census from the sociomatrix.
- Calculates the covariances and/or correlations among the elements of the triad census.
- Tests hypotheses about the value of the of the elements of the triad census.
- Gives the expected values and the standard deviations of the elements of the triad census, based on a priori hypothesis.
- Computes a standardized measure, tau, of the adequacy of a hypothesis about the triad census.

Program Hardware Requirements: Two versions of triads are available. TRIADS87 has been written in FORTRAN 77 and compiled using IBM Professional FORTRAN. It has been designed for the IBM personal computer and other compatible systems. It is best run on a system with a hard disk. The executable file takes up about 340 kilobytes of storage space. The compiled version of the program requires a math coprocessor to operate. The program executes fairly quickly for small sociomatrices (just a few seconds for 10 times 10 matrices), although very large matrices may require extreme amounts of time. The version TRIADS was compiled using Microsoft FORTRAN. It runs on IBM-PC and compatible systems which are not equipped with math coprocessors. However, it is much slower than TRIADS87 (it takes about 30 seconds to analyze 10 times 10 matrices).

REFERENCES

- Holland, P.W., & S. Leinhardt. 1970. "A Method of Detecting Structure in Sociometric Data." American Journal of Sociology 76: 492-513.
- Holland, P.W. & S. Leinhardt. 1976. "Local Structure in Social Networks." In Heise, D.R. (ed.) Sociological Methodology. San Francisco: Jossey-Bass: 1-45.
- Leinhardt, S. 1971. "SOCPAC I: A FORTRAN IV Program for Structural analysis of Sociometric data." Behavioral Science 16: 515-516.

IBM PC-version of GRADAP

GRADAP (an acronym for GRaph Definition and Analysis Package) is a program package for the analysis of graph and network data with

- many input facilities and documentation modes, suitable for social networks of any size;
- a datastructure that facilitates the data interface with relational data base packages (dBase, INGRES, ORACLE);
- many facilities to generate new graphs from the original data, particularly through the main processes of selection, aggregation and induction;
- analytic modes and special facilities for all current types of analysis of simple graphs, digraphs and valued graphs (such as detection of cliques and components, all major types of point and network centrality measures, extended triad counts, spatial autocorrelation);
- a user oriented language structure, as far as possible and useful comparable with that of SPSS and its related programs.

GRADAP has been developed and documented by a Project Group of the Universities of Amsterdam, Groningen, and Nijmegen and will be distributed by the Dutch Interuniversity Center for Software Development IEC-GAMMA.

The IBM PC-version of GRADAP will be available in Autumn 1988. The program requires an IBM PC (or clone) with harddisk and mathematical co-processor. The price of one copy of the program is \$ 300.--; a campus licence for 2 to 8 copies costs \$ 500.--. The GRADAP User's Manual of about 400 pages is included in the price. The Manual does not only contain instructions how to use GRADAP, but also introductory texts on the analytic procedures and concepts. The GRADAP manual can therefore directly be used as a textbook for social network courses.

INFO from Frans Stokman, till 7/88 at Ctr for Pol Sci, U Michigan, Inst for Social Research, Ann Arbor MI 48106 (tel: 313-936-1779).
From 7/88 at Sociological Institute, Groningen University, Oude Boteringestraat 23, 9712 GC Groningen, The Netherlands BITNET: STOKMAN@HGRRUG5.

ORDERS to Hans Buffart, IEC-GAMMA, Kraneweg 8, 9718 JP Groningen, The Netherlands (tel: 31-50-636900). BITNET: GAMMA@HGRRUG5.

In incidental cases, if desirable for ongoing research projects, a free pre-release of the IBM-PC version of GRADAP can be obtained under the provision that the final version of GRADAP will be ordered.

OTHER COMPUTER STUFFCOLOGNE COMPUTER CONFERENCE, 7-10 Sept 1988

A joint meeting at the U Cologne of the International Conf on Databases in the Humanities & Social Sciences, the Assoc for History & Computing, & the International Federation of Data Organizations for the Social Sciences. Foci include new databases, recent software developments, methodological tools & techniques for analysis, computer aided instruction, infrastructure of computer supported research. Paper proposals to Manfred Thaller, Max-Planck-Institut für Geschichte, Postfach 2833, D-3400, Göttingen, W Germany.

"BEYOND ELECTRONIC MAIL" CONFERENCE, PHILADELPHIA, 12-15 MAY 1988

Sponsored by the Electronic Networking Assoc (437 Poplar St, Philadelphia PA 19123). Included sessions on electronic collaboration for action; communication & organizational structure; technical connectivity; networking for social change; designing a corp. net; building online communities; nets for research & professional organizations; global messaging; 3d world nets. INSNA member Stan Pokras was an active participant & VP of the assoc.

COMPUTER JOURNALS

Social Science Computer Review has been formed from the merged of the Soc Sci Microcomputer Rev & Computers in Soc Sci. Papers on research & teaching applications of micros, & the impact of computing on social sciences & society, + software reviews. Ed: G David Garson; subs, \$28.

Journal of Computing & Society will debut late 1988, edited by Gary Chapman (Exec Dir, Computer Pros for Social Responsibility, Box 717, Palo Alto, CA 94301). Planned issues will address computing & war, privacy, power relations, gender. Premiere issue focuses on "has there been a computer revolution?" Subs, Ablex Publishing, Norwood NJ.

COMPUTER HACKING NO CRIME

The House of Lords has ruled that 2 hackers who broke into British Telecom's Prestel bulletin board weren't guilty of fraud because gaining access to a data bank by a "trick" is not a criminal offence. Lord Brandon of Oakbrook said, "Their object in carrying on these activities was not so much to gain any profit for themselves as to demonstrate their skill as hackers." [The London Independent, 22 April 88].

THAT'S ALL THERE IS FOLKS

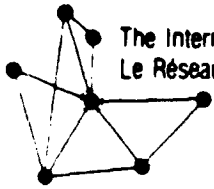
Along with the fun of being an editor, I've had the mitzvah of working with bunches of nice, competent & hard-working people thru the years. I'd like to close my last issue of Connections (cunningly filling a half-page hole) by thanking them.

In Toronto: The principal conspirators have been Barry (Crump) Leighton [who started the beast with me], Peter Carrington, Steve Berkowitz, Liviana Mostacci Calzavara, June Corman, Susan Haggis, Jack Richardson, Bev Wellman, Marja Jacobs Moens, Alan Hall, Sigfrid Schulte, Karen Anderson, Rob Hiscott, Sharon Bolt, Susan Dentelbeck, Antonia Maughn, Alicia VanDerMeer, Cyndi Rottenberg, David Hillock, Pat Parisi-Smith, Vicente Espinoza & Scot Wortley + a host of student proofers, keyboardists & stuffers.

In the Outlands: Clyde Mitchell, Wolfgang Bick, Hans Hummell, John Scott, John Sonquist, Lin Freeman, Russ Bernard, Alvin Wolfe, Gene Johnsen, Peter & Trudy Johnson-Lenz, Walter Carroll, Phipps Arabia + scores of kibitzers & contributors.

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Over to you, Sue & Al...



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