

# CONNECTIONS

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# CONNECTIONS

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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.

# NETWORK NOTEBOOK

## IN THIS ISSUE

We've been getting increasing Japanese interest in network analysis. **NAOHITO CHINO**, 1 of the 1st Japanese INSNA members, contributes a most unique perspective on network affairs. This year's Sunbelt conference was by all accounts the best ever. It clearly was the most verbose: its abstracts comprise a large chunk of this issue. We also have a special section on gerontological abstracts as well as a vast quantity of abstracts gathered from around the world by our intrepid explorers. And to train the next generation, we have a course syllabus of network analysis à la Alvin Wolfe.

Looking ahead, we have a **EUROPEAN SPECIAL ISSUE** pretty well shaped up. It will include an article by **CHARLES TILLY** on how to do his sort of historical analysis (besides working megahours), abstracts & reviews from the 1st ever **CROISSANTBELT** conference in Paris, & the 1st news ever of network-ish analysis in Hungary & the USSR. We'll also get in all the book reviews we couldn't fit into this issue. Our new laser printer is nifty, but we can't cram in as many words as we used to--probably to the relief of the nouveau bifocal set.

## DAVID HILLOCK BECOMES A PRINCIPAL NODE

**DAVID HILLOCK** has become Associate Editor & Coordinator of INSNA. He will have principal responsibility for computer implementations & for our abstracts. David is a person of many talents. He is a research analyst for the Ontario Ministry of Housing, runs a computer consulting business, & is completing his doctoral thesis on the support networks of single-parents (for the U of Toronto Schl of Social Work).

## INSNA RECEIVES SUPPORT

What do INSNA & Marshall McLuhan have in common? Veneration of Woody Allen, of course, but also an attraction to interpreting events in terms of how they fit into larger associative structures. Recognizing this, the Marshall McLuhan Program of the U of Toronto awarded INSNA about \$2K, 1986-1987, to develop our computerized abstract database. We're grateful for the support & think we've done well with it. [Historical note: The McLuhan Program is located in MM's old HQ, the coach house of an old Toronto mansion. It was a stable in former days. Many drains remain blocked, and the aroma of horse manure fills the air on many summer days--mingled with great thoughts, of course.]

We've also just received a SEED grant from the Canadian Ministry of Employment & Immigration that will enable us to hire a student this summer to work on our databases: abstract & membership. What do INSNA & the Canadian government have in common? They both appreciate patron-client relationships.

## DISK DRIVE

While we're on the subject, a reminder that CONNECTIONS is available on floppy disk: 5" IBM-PC done in WORD PERFECT (& also available unformatted in ASCII) starting with vol 9, 2-3 (last year's double abstract issue). Cost: \$5/issue [\$8 for double issues] which reimburses us for the disk, postage, envelope, copying time and handling. While not as convenient for TV dinner reading, the big advantage of disks is that they're searchable--probably even by those of you who don't have WORD PERFECT (the world's most widely-used wp package). I got a lot of nice stuff for my latest grant proposal this way.

**TEES GALORE!**

Our 1st batch of tee shirts sold out instantly at the Sunbelt. [Actually we have 2 white Smalls left.] So we've ordered a second batch. This time a better piece of cloth, baby blue, with the INSNA logo & the word 'CONNECTIONS' in dark blue & red. Cost \$8.99--make check out to INSNA. Available in Small, Medium, Large, Extra-Large. [They're long & a bit narrow.] Send your check to INSNA, Ctr for Urban & Community Studies, 455 Spadina Ave, Room 426, Toronto, Canada M5S 2G8. Hurry now--only 22 left! [If we think of it, we'll even put a proper order form somewhere in this issue.]

**PARTY TIME IN CHICAGO**

Chris Ross has volunteered to hold an INSNA party at his home during the forthcoming Am Soc Assoc meetings, mid-August in Chicago. Keep your eyes open at the Palmer House HQ for signs giving precise details.

**SUNBELT '88 IN SAN DIEGO**

The Sunbelt's going to be on a California beach this year. For details see "Letter from Clearwater" in this issue's Meeting Calendar section.

**WHERE DYADS TURNED TO TRIADS**

According to CBC News the hotel where PTL TV evangelist Jim Bakker sinned with Jessica Hahn was the Sheraton Sand Key Resort, Clearwater Beach, FL. (Room 538, to be exact.) The site, of course, of the most recent Sunbelt conference. Bet they even liked the food.

**EXAM QUESTIONS:** (1) If the Devil possessed Jim Baker, and Jim possessed Jessica Hahn, what are the implications of this relationship for (a) transitivity, (b) feedback loops.

(2) Just what did Davis-Holland-Leinhardt mean by the "forbidden triangle"?

(3) According to the late, great Sophie Tucker, "Three into two won't go." What do game theorists have to say about this?

(4) "I thought she was my best friend, but my best friend & my best husband let me down." [Karen Paxton about the tie between Gary Paxton & Tammy Bakker, TORONTO STAR, 2 April 1987]. What does this tell us about the weakness of strong ties? {Extra credit: Which of these ties were structurally equivalent.}

(5) [Lateral thinking question for even more extra credit]:

"To write about homosexual practices without dealing with anal intercourse would be equivalent to writing a history of music and omitting Mozart." So wrote Judge Bruce Hawkins in a Canadian district court decision denying Canada Customs the right to prohibit the importation of allegedly immoral magazines.

What are the implications of this judicial use of blockmodelling? Are the only true analogies structurally equivalent ones derivable thru blockmodelling?

**PERSONAL NETWORK QUESTIONNAIRES**

We've received the 1st contribution to our databank of personal network questionnaires from **SEBASTIEN REICHMANN** (Hospital St. Anne, Paris). Elle est une questionnaire de support sociable en française.

**NETWORK REFERENCES 'FREE!'**

All of us compile useful network analysis references when we write papers. Using our network, we can cooperatively compile a really useful network reference list. Send INSNA your floppy disk--by July 15--containing your citations. Our basic specs are: AJS/ASR format preferred [other formats tolerated as long as last name comes first]; no indents or tabs; each citation separated by 2 <CR>'s; WORD PERFECT preferred; other IBM text tolerated in plain ASCII. Output will be in WORD PERFECT & plain

ASCII. All contributors of 20 or more citations will get a free disk plus 'coauthorship' credit. We probably will also print the beast in a future CONNECTIONS.

### **BOONDOCKS NEWS**

The **RURAL AREAS DATABASE UNIT** has recently been founded to assemble social, economic & environmental info relating to British rural areas. Data will be available in print & in computer-readable form, with both national & local area coverage. Many databases are already available. **CONTACT:** Rural Areas Database Unit, ESRC Data Archive, U of Essex, Wivenhoe Park, Colchester, Essex CO4 3SQ.

### **INFO FLOWS**

BARTON HIRSCH has moved to Schl of Education & Public Policy, Northwestern U...JEANNE HURLBURT now teaching at Francis Marion C...LEE SAILER now at Business School, Penn St--Behrend...OTHER MOVES: PAUL CRELLIN to Cincinnati; WALTER BIEN to München; DOUGLAS HOOPER to Salt Lake City; PATRICK MCGUIRE to Soc, Toledo this coming academic year...They play hardball in French academia: With the coming of the conservative Chirac government, MAURICE GODELIER has lost his powerful post as Director of Social Science Research for the CNRS, the source of almost all social science research in the country...PATRICK DOREIAN now Full Prof of Soc, Pittsburgh...JAMES BENIGER's book, THE CONTROL REVOLUTION, was named outstanding soc sci book by the Assoc of Am Publishers...JOSHUA MEYROWITZ's book, NO SENSE OF PLACE, voted "Book of the Year" by the (US) Natl Assoc of Broadcasters & by the Broadcast Educ Association. It has also won awards from the Eastern Communic Assoc & the Speech Communic Assoc, & it's been a main selection of the Beh Books Inst Book Club...CLAUDE FISCHER won the Pacific Soc Assoc's Distinguished Scholarship Award for his book, TO DWELL AMONG FRIENDS...MARTIN BULMER Visiting Prof at U Chicago Soc, Spring, 1987...RICHARD ALBA & GWEN MOORE are on Fulbright-supported sabbaticals at Soc, Mannheim...PHIPPS ARABIE on sabbatical at Computer Sci, University Col, Dublin. He's also a new member of INSNA's Advisory Bd...ALEXANDRIA MARYANSKI (Soc, Cal-Irvine) & JONATHAN TURNER (Soc, Cal-Riverside) in Germany 16 April-20 July±: FB 8 Soziologie, Universitat Bremen, 2800 Bremen 33... HAROLD KELLEY elected Hon. President of the Intl Sty for the Study of Personal Relationships...ELLEN CORIN (Douglas Hspitl, Quebec) on Editorial Board of ANTHROPOLOGIE ET SOCIETES...RON KESSLER chair, Publications Ctte, ASA Med Soc section...JAMES HOUSE chair-elect, ASA Soc Psych section. He's also been awarded a Guggenheim Fellowship for a study of "social structure, social support & health"...SYLVIA FAVA (Soc, Brooklyn) & DAN FERRAND-BECHMANN (Soc, Grenoble) are Exec Council members of the Intl Soc Assoc's Ad Hoc Ctte on Housing & the Built Environment...PAUL HOLLAND (ETS) writes that he is slipping out of network analysis--someone please try to change his mind!...NELS ANDERSON, author of THE HOBO in 1923 died 10/86 at the age of 97 in New Brunswick where he was Prof of Soc...The new address of the INTERNATIONAL SOCIOLOGICAL ASSOC SECRETARIAT is Pinar 25, 28006 Madrid, Spain [Tel: (34)(1)261-74-83].

### **FROM OUR EUROPEAN CORRESPONDENT [JOHN SCOTT, SOC, LEICESTER, with addenda from BW]**

PETER WILLMOTT (PSI/LSE) gave this year's 9th H J Dyos Memorial Lecture at Leicester U: "Kinship & Urban Communities, Past & Present." [PW's book, FRIENDSHIP NETWORKS & SOCIAL SUPPORT, just out from PSI--details in next CONN]...CLYDE MITCHELL's new book, reflecting on his African research, just published by Oxford U Pr--there's a brief notice in this issue...BONNIE ERICKSON (Soc, Toronto) is spending sabbatical April & May conferring in Holland & England, tramping in Wales & working with Ove Frank in Stockholm.....The Br Soc Assoc hopes to hold a 90th birthday lecture by NORBERT ELIAS, 10/87. Elias, author of THE CIVILIZING PROCESS, pioneered the elaboration of the ideas of Simmel & classical German sociology into the analysis of 'figurations'...The group, led by JOHN SCOTT & FRANS STOKMAN (Soc, Groningen), that produced NETWORKS OF CORPORATE POWER (Polity Pr, 1986) are now entering the 2nd stage of the international project. Having examined networks of interlocking directorships in 10 countries, the group is planning interviews with key network members to explore the issues of perceptions of power & involvement in decision-making. Its membership has expanded beyond Europe to Australia, New Zealand & Japan.

**FELLOWSHIPS**

COLUMBIA SCHL OF PUBLIC HEALTH, SOCIOMED. SCIS DIV is giving pre & postdocs in SOCIAL STRESS & MENTAL HEALTH (the relationships of psychosocial stress & social support systems to mental health & illness). Info: 600 W 168 St, New York City 10032 (212-305-5656).

INDIANA SOCIOLOGY has postdocs in the **MEASUREMENT OF MENTAL HEALTH CONCEPTS**, with emphasis on such procedures as exploratory & confirmatory factor analysis, true score & congeneric test theories, latent trait & latent class analysis, & nonmetric MDS. \$16K+. Info: George Bohrnstedt, Soc, 744 Ballantine Hall, Indiana U, Bloomington IN 47405.

**BIG BUCKS**

Among the 38 research grants awarded 1986 to sociologists by the US Natl Inst of Mental Health are:

**LIBBY RUCH** (Hawaii) "Victims of rape: stress, coping & social support" \$227K

**ALEJANDRO PORTES** (Johns Hopkins) "Help seeking & services use among recent Latin American immigrants" \$260K

**RITA MAHARD** (Fordham) "Stress, mental health, coping in Puerto Rican elderly" \$265K

**RONALD KESSLER** (Michigan) "Dyadic responses to stress: a study of married couples" \$74K; "Stress models for high risk population" \$58K

**WILLIAM VEGA** (San Diego St) "Hispanic social network prevention intervention study" \$291K

**ROBERT WEISS** (Massachusetts-Boston) "Work setting & the process of relational support" \$118K

**ALFRED DEAN** (San Diego St) "Social supports, aging & psychiatric disturbances" \$237K

Among the 47 grants by the Soc program of the US National Science Foundation are:

**KAREN COOK** (Washington) "The study of power in exchange networks" \$42K

**WILLIAM GAMSON** (Boston C) "Public thinking on political issues" \$19K

**MICHAEL HOUT** (Cal-Berkeley) "Microdynamics of industrialization in Ireland" \$35K

**P. MIN** (Georgia St) "Some positive functions of ethnic business for an immigrant community: Korean immigrants in Los Angeles" \$78K

**JAMES RULE** (Bank St C of Educ) "The new uses of info: impact in orgs." \$53K

**MICHAEL SCHWARTZ** (SUNY-Stony Brook) "The causes of industrial decline" \$125K

**IVAN SELENYI** (CUNY Grad Ctr) "Private economic activities in Hungary" \$40K

**CHARLES TILLY** (New Schl) "Social change & collective action in France & Britain" \$51K

**CAMILLE WORTMAN** (ISR, Michigan) "Stress & the coping process: role strain & role conflict in women professionals" \$60K.

**ERIK OLIN WRIGHT** (Wisconsin) "A comparative study of class structures & social attitudes in contemporary industrial societies" \$106K

**TOSHIRO YAMAGISHI** (Washington) "Trust & cooperation in social dilemmas: the structural goal/expectation approach" \$20K.

**LYNN ZUCKER** (UCLA) "Institution-building, trust, & strikes in US firms in the 1880s" \$41K

**Canadian National Health Research & Development program, 1984-86:**

**RANDALL COATES** (Prevent Med, Toronto), "A prospective study of male sexual contacts of individuals with ARC & AIDS" \$69,267.

**ELLEN CORIN** (Recherche Psychosociale, H. Douglas) & Gilles BIBEAU (Anthro, Montreal), "L'adéquation des services de santé mentale aux besoins de services dans une population de région géographiquement marginale," \$21,655.

**I. BARRY PLESS** (Cmty Ped'tric Res, Montreal Children's H), "Social support & counselling in the prevention of psychosocial maladjustment in children with chronic illness," \$109,474.

**R. JAY TURNER** (Psychiatry, Br Columbia), et al., "Social support & outcome in teenage pregnancy," \$186,406.

**R. JAY TURNER** "A longitudinal assessment of community adaptation & adaptational contingencies among the physically disabled: specifying intervention needs & intervention targets," \$197,925.

## **BIG BUCKS AVAILABLE**

The US NIMH has a **RURAL MENTAL HEALTH DEMO PROGRAM** to provide grants to states to meet the immediate & critical mental health needs of rural residents affected by the farm crisis & to improve the long-term capacity of state & local governments to deliver mental health services in rural areas. INFO: James Thompson, Biometric & Clinical Applications Branch, Div of Biometry, NIMH, 5600 Fishers Lane, Room 1BC-04, Rockville MD 20857 [tel: 301-443-3364].

The US Natl Inst on Drug Abuse has an **AIDS OUTREACH DEMO PROGRAM** to demonstrate the effectiveness of comprehensive community-based outreach & intervention strategies in reducing the spread of AIDS among intravenous drug abusers & their sexual partners. Among the issues applications should address are: the development of a community resource network that would integrate activities of hospitals, agencies & community orgs; outreach programs that would identify social networks of IV drug users & the sites where they congregate (copping areas, shooting galleries, hangouts, etc.). Indigenous outreach workers should be trained to contact neighborhood groups, "network" (identify & contact associates, sex partners, & families of IV drug users). Lots more. INFO: Chief, Community Res Branch, NIDA, 5600 Fishers Lane, Room 10A-37, Rockville MD 20857 [tel: 301-443, 6720].

## **AIDS: A NEW OPPORTUNITY FOR NETWORK ANALYSIS?**

A major debate is now raging in the US about whether to do 'contact tracing' for AIDS patients. "Our feeling is that in certain situations contact notification clearly would be beneficial," said the chief AIDS epidemiologist at the Centers for Disease Control, Harold Jaffe. "People who become infected may become sick themselves or transmit to other people. People who have been exposed to the virus can be tested. If free from infection, they can stop the dangerous contacts. If infected, they can curtail their activities to prevent further spread.

Others disagree. "In theory, tracing may make sense, but in practice it does not work" says Timothy Sweeney of the Gay Men's Health Crisis. "The fear & loathing & discrimination surrounding AIDS would drive people underground."

Privacy is not total, even when confidentiality is kept: Once notified by a health worker about exposure to AIDS, a person with limited sexual or drug partners might surmise the identity of the infected person who suggested they be contacted. "I don't mind disrupting some intimate relationships if it means warning someone they may have been infected with a potentially fatal disease," says Mervyn Silverman, president of the Am Fdn for AIDS Res. A partial answer is testing without taking names & urging those testing positive to notify their sexual contacts. [Source: NY TIMES 27 Jan 87].

## **A POSSIBLE ALTERNATIVE TO GRANT PROPOSAL WRITING**

"An investment banker [John Grambling, Jr.] in Greenwich Ct has pleaded guilty to stealing \$13.5 million from 2 banks & attempting to steal \$23M from 3 other banks in a complex scheme that involved faked documents & imposters who posed as bank officers & brokers...A keystone of the scheme...was the fact that banks do not check closely when the wealth of the borrower is apparent & vouched for by others. 'There's a huge element of trust in all these relationships' (said Asst Da Brian Rosner). 'Somebody comes in & says he's worth \$50M. You make a couple of phone calls to check, & that's it.' [NY Times 4 Nov 86].

## **SUMMER READING**

**WISE GUY** by Nicholas Pileggi (NY: Pocket, \$4.50). Organized crime as loosely-organized networks, with useful weak ties to judges, juries, prison guards, et al.

## **THE ASIAN THREAT IS NETWORK ANALYSIS?**

"The US electronics industry...has realized that the opposition plays by different rules: a scientific 'ol-boy' network that extends to every boardroom & lab. in the country. 'Why do Japanese companies sell such similar products?' [asks Hajime Karatsu, Tokai U.] 'It looks like they are cooperating. It's because all the engineers at the companies know each other.' He said that also applies to the presidents, who probably had gone to university together or go to the same parties.

Foreigners imagine, he said, that officials from the Min for Intl Trade & Industry stand over the technology stage like grand puppeteers, manipulating industry at will. This is not the case because the average MITI man changes jobs after just 2 years. MITI's secret is its committees, he said. A mixture of industry leaders, academics & consumers are selected for dozens of committees on technological & industrial matters, from problems of restructuring to manned space flight. Thru committee debate, MITI helps industry to form a consensus about which areas it should concentrate on. It also determines its policy on allocating funds for R&D in this way." [Edited from Carla Rapoport, FINANCIAL TIMES, reprinted in TORONTO GLOBE & MAIL, 14 March 1987].

## **NETWORKING**

**ACTION LINKAGE** "is flexibly structured, an org. without boundaries, a social potential group that aims at helping people find new ways of seeing & learning about change. Among its activities are MANY-TO-MANYS: communication groups that meet thru the mail. Pages written by members are collected by an editor & sent out again for response. Members share resources, hone ideas, give support & spark new projects in areas ranging from alternative economics to using computers for social benefits. TASK GROUPS emerge when a group of people chooses a focused task & work together to accomplish it. Many are based on Robert Theobald's ideas on interconnections between areas contained in his book, THE KNOWLEDGE SYSTEM. CONSULTANTS FOR A POSITIVE FUTURE are a databank of consultants & speakers helping to find ways to deal with change. Info: 5825 Telegraph Ave, #45, Oakland CA 94609.

**THE NETWORKING INSTITUTE** is to networking what INSNA is to network analysis. Their 454 members (in 18 countries) are very much practitioners, with interests as varied as conflict resolution, the homeless, organizational development and computer conferencing. They've just published a membership directory available to members only (\$75/year) with members' descriptions, addresses (indexed by US state & country), and a keyworded list of names. Write 296 Newton St., Suite 350, Waltham MA, USA 02154 (tel:617-891-4727). My favorite listing is that of Ricki Soaring Dove Brownsword:

Teacher of Peace (advanced Apprentice to Sun Bear, Bear Tribe Medicine Society) with a M.A. in Holistic Education, Earth Awareness <---->Inner Awareness. Workshops/lectures on: Native American Rituals for Healing, Wilderness Quests, Medicine Wheel, Women's Aging, Love/Laughter in the Healing Process, Stress Management, Spiritual Counseling, Fitness Classes (Yoga/Stretching), & Therapeutic Massage. I dress as an Elf & pick up trash along our roadsides to help clean up our environment & to teach folks to be Elves to our Selves & to our Earth Mother.

"Mutual support feels most right when it's like passing around helpings of food at the table. It's all very spontaneous. One gesture follows another. There's little self-consciousness about asking & offering. And everyone gets fed. This passage comes from HOW CAN I HELP?, edited by Ram Dass & Paul Gorman [NY: Knopf, 1985, \$5.95]. Its a series of stories, reflections, & do-it-yourself advice that lead the reader thru the process & pitfalls of serving others. The central theme: "We work on ourselves in order to help others. And we help others as a vehicle for working on ourselves." [from Eric & Sally Taylor's review in NETWORKING JOURNAL, Su/86].

## **THE COLD WAR ORIGINS OF NETWORK ANALYSIS: A SPECULATION**

The growth of network analysis in the 1970s--and indeed, of all structuralist thought in the social sciences--was spurred by the Vietnam war & the accompanying revulsion among the intelligentsia of psychologistic theories of modernization and development. In the U.S., this interest in sociologicistic explanations intersected with a new generation of social scientists more comfortable with quantitative analysis. Ironically, their enhanced math backgrounds were largely a result of the new emphasis on math in American high schools in the '60s, induced by the panic over Sputnik in particular and Soviet achievements in general.

## **SPECIAL JOURNAL NEWS**

"**DEMOCRACY IN AN INFORMATION SOCIETY**" was the topic of a special issue of INFORMATION SOCIETY [4, 1-2, 1986], edited by Rob Kling (Comp Sci, Cal-Irvine). The issue examines whether & to what extent info technologies can help or undermine democratic processes. Do microcomputers provide individuals & small groups with new info processing abilities? Have they extended democratic arrange-



ments? What is the power of multinational firms (& managers within these firms) in shaping the actions of states & businesses? Includes papers by Craig Calhoun (Soc, North Carolina), Andrew Clement (Soc, York-Toronto), Kling, & others.

**PRACTICING ANTHROPOLOGY** is a newsletter sponsored by the Sty for Applied Anthro. Vol 6, #2 (1984) focused on **COMPUTER-ASSISTED ANTHROPOLOGY**, edited by Lee Sailer. Contributors include Russell Bernard, Lee Sailer & Douglas White.

**AGRISCOPE #7** (Spring, 1986) is by GERDAL [Groupe d'Expérimentation et de Recherche pour un Développement Agricole Local, 51 rue Dareau, 75014 Paris {tel: 43.35.04.82}] sur les réseaux sociaux de communication et de transmission de savoirs en milieu rural:

J.P. DARRE "La production de connaissance dans les groupes locaux d'agriculteurs."

J.P. DARRE, "Comment les façons de faire et de penser se transforment: l'étude des réseaux de dialogue."

B. Larchet, "Un réseau peut en cacher un autre."

J.H. Frasin, "Analyse d'un réseau d'éleveurs: comment changent les pratiques fourragères dans un village de Haute-Saône."

[Source: Bulletin de Methodologie Sociologique 12, 10/86]

The annual **REVIEW OF PERSONALITY & SOCIAL PSYCHOLOGY** will publish a volume, 1/89 on "**CLOSE RELATIONSHIPS**". Each chapter should be integrative, conceptual & broad in scope. Contact immediately: Dean Clyde Hendrick, Grad School, Texas Tech U, Lubbock TX 79409.

### EXCITING PUBLISHING OPPORTUNITIES

**SOCIOLOGICAL QUARTERLY** wants papers for a special issue on gender & aging by 1 Oct 87. Must have a strong theoretical orientation, altho data is OK too. Send 4 copies + \$10 (payable to Midwest Soc Sty) to Judith Levy, Schl of Pub Health, U of Illinois, PO Box 6998, Chicago IL 60680.

**ACUTEL-MARX** is a new international biannual. each issue presents research papers, history of Marxism discussions, & many book reviews. INFO: Ctr d'Histoire des Sciences et des Doctrines, 156, Ave Parmentier, 75010 Paris, France.

**INTELLIGENCE PARAPOLITICS** is a monthly tracing secret agents & conspiracies around the world. French & English language versions available. Published by the Association pour le Droit à L'Information. Subs: \$25, PO Box 50441, Washington DC 20004; 180 FF, 16 rue des Ecoles, 75005 Paris [their HQ].

**INTERNATIONAL JOURNAL OF INTELLIGENCE & COUNTERINTELLIGENCE** is a new quarterly on intelligence activities between governments & corporations. F. Reese-Brown, ED. SUBS \$35, IJIC, PO Box 188, Stroudsburg PA 18360.

**INTERNATIONAL JOURNAL OF POLITICS, CULTURE & SOCIETY** is an interdisciplinary quarterly covering points of tension between state & civil society, nations & global institutions. Its specific focus on the changing order of public & private spheres of life & the dialectic between rational organization & human emotional needs. ED: Arthur Vidich, Grad Faculty, New Schl for Soc Res, 65 5th Ave, New York NY 10003. SUBS \$32, Human Sciences Pr, 72 5th Ave, New York NY 10011.

**JOURNAL OF DEVELOPING STUDIES** is a semi-annual forum for scholarly analyses of Asian & Latin American societies & cultures, past & contemporary. The concept of development covers all times & places, not just the 3d world, with coverage ranging from the agricultural rev in prehistory to the sociocultural implications of space age technology. ED, K. Ishwaran, Soc, York U, Toronto, Canada. SUBS, \$35 (NFI 77), E J Brill, Leiden, The Netherlands.

**INTERNATIONAL JOURNAL OF TECHNOLOGY & AGING** is a quarterly covering the "convergence of dramatic advances in technology with the unparalleled demographic changes which have resulted in the aging world." It will focus on the need, growth & utilization of technology as it relates to the elderly, including the mobility, independence & long-term care of the elderly. ED, Gari Lesnoff, Caravaglia, Univ Ctr on Aging, U Massachusetts Med Ctr, 55 Lake Ave N, Worcester MA 01605. SUBS \$22, Human Sciences Pr, 72 5th Ave, New York NY 10011.

**PRE- AND PERINATAL PSYCHOLOGY JOURNAL** focused on the psychological dimension of human reproduction & pregnancy, and the mental & emotional development of the unborn & newborn child. ED & SUBS (\$30), Thomas Verny, 36 Madison Ave, Toronto, Canada M5R 2S1.

**JOURNAL OF SOCIAL BEHAVIOR & PERSONALITY** is an interdisciplinary quarterly which will publish research-based papers on topics of general interest within basic or applied social science disciplines. Of particular interest is their refereeing & publishing policy. The journal promises speedy (5 week) turnaround, sympathetic acceptance policy & courteous comments. All accepted papers will be

subject to a \$25/typeset page charge (just like the rich hard sciences). Russ Bernard is on the Advisory Board. MS & SUBS (\$25) to JSBP, PO Box 9838, San Rafael CA 94912.

**COMMUNICATIONS ABSTRACTS** is expanding its coverage to new communications technologies & intl communic res. ED, Thomas Gordon, Temple. SUBS, Sage, \$60, quarterly.

**COMMUNICATION RESEARCH** will now appear as a larger format bimonthly focusing on the process of communications. ED, Peter Monge, Annenberg Schl, U Southern Cal. SUBS, Sage, \$35.

Former INSNA member Steve Sikora now edits **THE LETTER EXCHANGE**, dedicated to promoting letter writing among persons with similar interests. For \$9/yr, the 3K subscribers receive 3 issues, the right to place ads for an additional fee, & an ID number that is placed on each ad the subscribe places. The LE forwards replies, after which the 2 persons may correspond directly or indirectly thru the LE. Ads range from cerebral, Rilke-lovers to a woman sending her woodchuck chili recipe. INFO: PO Box 6218, Albany CA 94706.



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# MEETING CALENDAR

## ENVIRONMENTAL DESIGN & RES ASSOC, 29 May-2 June 87, Ottawa

EDRA's theme: PUBLIC ENVIRONMENTS. Info: Conf Secretariat, 275 Bay St, Ottawa, Canada K1R 5Z5 [613-232-8228]. [Ed's note: Unfortunately Canadian learned societies are meeting at the same time in Hamilton, Ont--300 miles away! See below.]

## CANADIAN SOCIOLOGY & ANTHROPOLOGY ASSOC, McMaster U, Hamilton, Ont, 2-5 June

### **Selected Papers:**

- MARK NOVAK** (Winnipeg) "Caregivers of the confused elderly: a comparison of children & spouses"  
**NEENA CHAPPELL** (Manitoba) "Intergenerational helping patterns"  
**ANDREW WISTER** (Waterloo), **DAVID DeWIT & THOMAS BURCH** (W Ontario) "Physical distance & social contact between elderly & their adult children"  
**WILLIAM CARROLL & T.R. WARBURTON** (Victoria) "Feminism, class consciousness & registered nurses in Victoria"  
**JUNE CORMAN** (Carleton) "The interaction among work status, family phase & social ties for working class couples"  
**MUSTAFA KOC** (Toronto) "A critique of the concept of migrant labour as an industrial reserve army"  
**JAMES STAFFORD & BRIAN McMILLAN** (Lakehead) "Immigration & the 2 schools of Canadian political economy"  
**L. GENE BARRETT** (St. Mary's) "The formal & informal dynamics of fishery port markets in Nova Scotia"  
**BARBARA NEIS** (Memorial) "The social impact of technological change in deep sea fish plants in Newfoundland"

### **SOCIAL NETWORKS session organized by Peter Carrington (Waterloo):**

- BONNIE ERICKSON** (Toronto) "*The consequences of being in the centre or the periphery of a subculture*"  
**BARRY WELLMAN, PAULA GOLDMAN & CLAYTON MOSHER** (Toronto) "*The tie basis of support*"  
**CHARLOTTE NOESGAARD** (Waterloo) "*Refinement of the concept of tie in the writings of Barry Wellman*"

## IOWA CONFERENCE ON PERSONAL RELATIONSHIPS, 31 May-1 June 87, Iowa City

### **Selected Papers:**

- MARA ADELMAN**, "Love's urban agent: social support & the matchmaker."  
**ARTHUR ARON & ELAINE ARON**, "Progress on measures of interconnectedness in relationships."  
**ELIZABETH BANKOFF**, "The interpersonal context of the psychotherapeutic process: an influential set of factors too long overlooked."  
**JOHN H. BERG, KELLY E. PINER, and LINDA ROSADO**, "The relationship of loneliness to aspects of the social network."  
**MARIA R. BURGIO**, "The role of social cognition in support friendships for the aging."  
**DON DAVIES**, "Friendships: stages, roles and interpersonal communication."  
**VAL J. DERLEGA & BARBARA A. WINSTEAD**, "Interactions with a friend and coping with a stressful event."  
**BARRY GOFF**, "Issues in social support and self esteem."  
**STEVEN E. HOBFOLL**, "Enough of the stress buffering effect!: other important aspects of social support."

**RENEE F. LYONS**, "Issues of exchange and equity in the relationships of disabled adults."

**BRENT MALLINCKRODT**, "Social support in a self-help group for unemployed professionals."

**DAVID MORGAN**, "Who your friends really are: reorganizing relationships in widowhood."

**GREGORY R. PIERCE**, "Close relationships: a key to understanding the effects of social support."

**DAN RUSSELL**, "Loneliness and social support: same or different?"

**BARBARA R. SARASON & GREGORY PIERCE**, "Perceived social support level: its relation to personality characteristics, perception and behavior."

**CHARLES H. TARDY**, "An experimental study of the provision of emotional and instrumental social support."

**DIANE L. WILKIN**, "The relationship of social support to measures of patient adherence in the rehabilitation of chronic low back pain."

**TOM WRIGHT & LORING INGRAHAM**, "An integrative study of individuals and relationships in depression."

Info: Steve Duck, Communic St, 151 CSB, U of Iowa, Iowa City IA 52242 [Tel: 319-353-3289; BITNET: BLASTDWY@UIAMVS].

### **INTERNATIONAL CONFERENCE ON MENTORING, 20-25 July 87, Vancouver**

Theme: MENTORING, COACHING, SUPERVISING, CAREER COUNSELLING & NETWORKING: 5 WAYS TO AID PERSONAL, PROFESSIONAL & CAREER DEVELOPMENT. Info: Grey & Assocs, 4042 W 27 St Vancouver, BC, Canada V6S 1R7 [604-228-0621].

### **SOCIETY FOR THE STUDY OF SOCIAL PROBLEMS, 8/87, Chicago**

Meets just before ASAs. Theme: THE SOCIAL DIMENSIONS OF AIDS. Abstracts to Philip Kayal, Soc, Seton Hall U, S Orange NJ 07079.

The Cmty Res & Dev Div of SPSS will have its own sessions; topics include soc support & informal community networks. Info: Nancy Kleniewski, Soc, SUNY, Geneseo NY 14454 [716-245-5207].

### **CONFERENCE ON CORPORATE INTERLOCKS, 24-27 Sept 87, Nags Head Conf Ctr, Kill Devil Hills NC**

Papers on substantive or methodological issues re the sociological study of corp. interlocks. 2 page abstracts by 1 May 87 to Mark Mizruchi, Scientific Computing, Albert Einstein Col of Medicine, Yeshiva U, 1300 Morris Park Ave, Bronx NY 10461. [Ed.'s note: *This is a remote & beautiful beach dunes area, where the Wright Bros. 1st flew.*]

### **ASSOC FOR SOCIAL STUDIES OF HEALTH, 18-22 Oct, New Orleans**

Papers should present a soc sci perspective on public health or health policy analysis. See 1/87 issue of AM J OF PUBLIC HEALTH for details. Info: Linda Siegnthaler, Natl Ctr for Health Services Res, Room 18A-19, #9, 5600 Fishers Lane, Rockville MD 20857.

### **MARXIST SCHOLARS CONF, 12-15 Nov 87, U Cal-Berkeley**

Info: Harry Targ, Pol Sci, Purdue, W Lafayette IN 47907

### **GERONTOLOGICAL SOCIETY OF AMERICA, Washington DC, 18-22 Nov, 1987**

Theme: "The Strength & Value of Basic Science." Info: GSA, 1411 K St NW, Suite 300, Washington DC 20005. [202-393-1411].

### **COMMITTEE ON FAMILY RES, INT'L SOC ASSOC, 16-19 April 88, Balaton Zamardi, Hungary**

Theme: KINSHIP & AGING. Papers on theories or structures for long-term caregiving, family ties & elderly. 500 word abstract by 30 Nov 87 to Organizing Cttee, Institute of Sociology, Hungarian Academy of Sciences, Uri utca 449, H1014, Budapest.

### **CACTUSBELT ANYONE?**

It looks as if the Pacific Sociological Assoc will have a few network sessions at their 1988 meetings, mid-April, at Tempe (suburban Phoenix). This year's PSA pres, Stan Lieberman, had the

original idea & its been picked up enthusiastically by incoming PSA pres, Jonathan Turner (spouse of INSNA member Alexandra Maryanski & neighbor of Lin & Sue Freeman). More info as things develop, or contact Turner now (Soc, Cal-Riverside).

### **ASA CONFERENCES**

Several network folks have received ASA grants to organize small conferences. These are usually invited affairs, so ties will have to be tugged:

**MARY BRINTON (CHICAGO) & TOSHIO YAMAGASHI (U WASHINGTON)**, "Rational Choice Analysis of Micro-Macro Systems of Action.

**TOBY PARCEL (OHIO ST), JAMES BARON (STANFORD), WILLIAM BIELBY (CAL-SANTA BARBARA), PAULA ENGLAND (TEXAS-DALLAS), JERRY JACOBS (PENN), BARBARA RESKIN (ILLINOIS) & PATRICIA ROOS (SUNY-STONY BROOK)**, "Occupational Sex Segregation & Comparable Worth."

**WALTER POWELL (CTR FOR ADV. STUDIES, PALO ALTO) & PAUL DIMAGGIO (YALE)**, "Institutional Change."

**CAROL MUELLER (HARVARD) & ALDON MORRIS (MICHIGAN)**, "Frontiers in Social Movement Theory."

## **PAST CONFERENCES**

### **LETTER FROM CLEARWATER BEACH**

This year the sun actually shone at the Sunbelt conference, usually when the most interesting papers were being given. However, using to the utmost our mandatory Noon-3 poolside networking break, we managed to get tans to go with the ideas burned into our minds.

About 120 attended, roughly the attendance of the past few East Coast years (the West gets a score more). Tightly organized by Russ Bernard & Al Wolfe (3 sessions at a time), the conference also featured Ev Rogers' memorable keynote address (he cited me), Stan Wasserman's sold-out 6-hour intro tutorial to network analysis, & Bev Wellman's poolside demo of how to use body language to enhance networking. (Will Jerry Rubin be our next keynoter?). Lots of folks brought programs for PCs (clones of course) & lots more brought blank discs for copying purposes.

My impression of the conference was lots of good, normal science (only in this crowd can you call studies of windsurfers 'normal'). Theories, techniques, and research findings have cumulated & consolidated. (See this issue's Abstract section for confirmatory details.) A number of informal scholarly clusters now have ongoing dialogues from Sunbelt to Sunbelt. Aided by accumulating lore & more widely-available computer programs, lots of things are now less-mystifying & more routinely done. At the same time, I missed great new breakthroughs (or maybe I was busy networking at the time.) Perhaps they only become apparent with hindsight. Didn't Nick Mullins once write a book about this?

Next year we go west again. To the Bahia Hotel on Mission Bay, San Diego. We've met there before happily. Mid-Feb (President's weekend, of course) with a possible half-day extension to the end of Sunday. Lin & Sue Freeman (Soc Sci, Cal-Irvine) will handle local arrangements. Eugene Johnson (Math) & John Sonquist (Soc) of Cal-Santa Barbara will be program chairs.

Some possible sessions discussed at the business meeting are: Fuzzy Nets, Women's Organizations, Nets & Ethnicity, Aging (Victor Marshall, Beh Sci, Toronto, to organize), Social Support (Jeff Salloway, Psych, Rush Med Col, Chicago), Cognition & Nets (Sue Freeman), Network Theory, Epidemiology, Children's Nets, Organizational Nets (Bill Stevenson, Management, Cal-Irvine), Interorganizational Nets, Exchange Networks, Community Networks, Position & Role, Communication Nets, New Media, Modelling (Lee Sailer), Computer Workshops.

If you want to give a paper or organize these (or any other sessions), contact Gene or John as soon as possible. We always try to include all respectable papers, but it's only polite not to show up at the last moment. Indeed, I would make the plea stronger--a few persons have been carrying much of the organizing load for many years. They need help & we all need diversification.

### INTERORGANIZATIONAL RELATIONS & THE STUDY OF POWER, 10-11 Oct 86, Purdue

Papers examined contribution of interorganizational analysis to the study of power in national policy domains, community influence structures, & national corporate structure. Organizer: Robert Perucci, Soc, Purdue.

#### **PAPERS:**

Joseph Galaskiewicz (Soc, Minnesota), "Networks mobilizing action at the metro level: organizations, their agents & community problem solving."

J Allen Whitt (Soc, Louisville), "Organizational ties & urban growth"

Edward Laumann (Soc, Chicago), "The organizational state: social choice in national policy domains."

Beth Mintz (Soc, Vermont), "Organizational vs. class components of interlocking directorate networks."

### MERGERS, CORPORATE CONCENTRATION & CORPORATE POWER IN CANADA, 23-24 March 87, Montreal

At the aggregate level, the Canadian economy is 1 of the most concentrated in the world. Do more mergers & takeovers provide social & economic benefits necessary in a competitive world? Are large firms necessary for efficient production? [Ed.: *What basic issues are these questions begging?*] The conference to consider this was sponsored by the Schl of Comty & Pub Affairs of Concordia U & the Inst for Res on Public Policy. Proceedings available Fall/87 from IRPP, PO Box 3670 South, Halifax NS B3J 3K6.

### AMER ORTHOPSYCHIATRIC ASSOC, 25-29 March 87, Washington

Theme: TOWARD EMPOWERMENT OF FAMILIES: STRATEGIES FOR CHANGE. Info on papers: Amer Orthopsychiatric Assoc, 19 W 44 St, Suite 1616, New York NY 10036. [212-354-5770.]

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## A Critical Review on the Approaches to the Analysis of Group Structure

Naohito Chino

Department of Psychology, Aichigakuin University

In this preliminary report, we shall discuss the methodological problem of analyzing the group structure, especially sociometric structure. The first two sections consist of the brief review of the traditional and recent approaches to the analysis of the sociometric structure. The selection of topics chosen, is entirely ours, and we are well aware that many important areas have had to be omitted. Thus, we restrict attention to the methodological aspects of the analysis of sociometric structure and concentrate on showing why we are trying to elaborate a new model for the analysis of change in sociometric structure as a whole over time, which is introduced briefly in section 3. While our presentation deals with sociometric structures, it should be remembered that many of these models are not limited to sociometric structures.

*Key words and phrases:* group structure, MDS, dynamical system, vector field.

### 1. Traditional and Recent Approaches to the Analysis of Group Structure

When psychologists speak of sociometric structure, they often have in mind a relatively specific concept: *sociogram*. However, as repeatedly pointed out by many investigators (for example, Forsyth and Katz, 1946; Tanaka, 1965), the sociogram has obvious disadvantages as well as

Part of this paper was presented at a working conference on social psychology held at Nagoya University, Nagoya, Japan, May, 1983. I would like to thank Dr. Theodore M. Newcomb of The University of Michigan for his encouragement of this line of work. Special thanks are due to two topologists, Dr. Masahisa Adachi of Kyoto University and Dr. Kenichi Siraiwa of Nagoya University for their helpful comments.

Requests for reprints should be sent to Naohito Chino, Department of Psychology, Aichigakuin University, 12 Araike, Iwasaki, Nishin-cho, Aichi-gun, Aichi, 470-01, Japan.

advantages. For example, it is likely to be confusing to the investigator if the number of subjects is large. Moreover, the sociogram depicted by one investigator is sometimes different from the sociogram depicted by the other investigator.

In order to overcome these difficulties, several approaches have been taken to the analysis of sociometric structure. One of them may be the *matrix approach*, in which some investigators start with the binary interpersonal relationship among members of a group with the property that two given members are either in the relationship or are not in it (for example, Harary and Ross, 1957), while others start with a different type of relationship composed of positive choice, negative choice, and indifference or no mention (for example, Forsyth and Katz, 1946).

A second approach may be the *graph*

*theoretic approach*, which is closely related to the matrix approach stated above since there exists generally a correspondence between a graph and a matrix. Utilizing the notions of *graph*, *digraph*, and *signed graph*, etc., a number of models have been proposed, ranging from *communication networks* and *social networks* to *structural balance*. For example, in a series of papers (Davis, 1967; Davis & Leinhardt, 1972; Holland and Leinhardt, 1970), Davis, Holland and Leinhardt studied sociometric structure, in which they combined the features of *cliques* and *hierarchy* of the group structure. A similar model was proposed by Boyle (1969). Investigators of another branch of the graph theoretic approaches studied the ways of identifying various aspects of sociometric structure such as the *connectedness* and *redundancies*, etc., in graph theoretic terms. For example, Ross and Harary (1959) argued the way of describing the strengthening and weakening members of a group in digraph terms. As an interesting example of the network-models we shall take up the blockmodel proposed by sociologists, but postpone the reference to section 2.

A third approach may be a *stochastic process approach*. In this approach *Markov chain models* have been used frequently. For example, Katz and Proctor (1969) applied a Markov chain model in which three possible states were mutual choice, one-way choice, and indifference. Recently, Sørensen and Hallinan (1976) developed a *continuous time discrete state Markov chain* as a model for change in sociometric structure. In this model, movement

of triad among different states was focused upon. On the other hand, Holland and Leinhardt (1977) used a *continuous time binary-matrix-valued Markov chain* to model the diadic relationship.

### 2. Limitations of the Traditional and Recent Approaches

As already seen in the preceding section, a variety of approaches have been taken which aim at analyzing the group structure, especially sociometric structure. And certainly some of the difficulties inherent in sociogram such as subjectivity in depicting a sociogram could be said to have almost been overcome. However, there still remain difficulties in applying the model discussed in section 1 to the analysis of group structure.

First, as already pointed out by Boyle (1969), the principal use of traditional and recent sociometry has been to identify the *parts of a group structure* or to describe change in particular relations among members. In other words, the *sociometric structure as a whole* has often been neglected. For example, in the matrix approach, the main interest has usually been to detect cliques. As another example, we can take up the *transitivity model* of Holland and Leinhardt (1970) to which we have referred in the preceding section. This model is said to "contain as special cases a number of previously suggested models, including the structural balance model of Cartwright and Harary, Davis's clustering model, and ranked-cluster model of Davis and Leinhardt" (Holland and Leinhardt, 1970). In the transitivity model the principal concern

is to identify special types of relationship among members of a group, some of which are shown in figure 1.

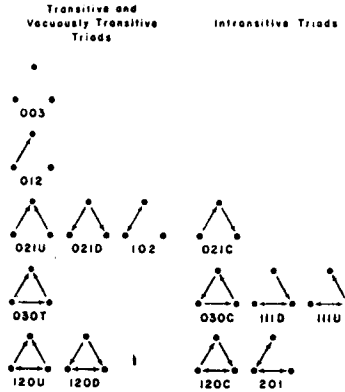


Fig. 1. Some triad types divided horizontally into those with no intransitivities and those with at least one.

The other example is the Markov chain model. In this kind of model, the primary concern has been almost always to describe change in particular relations such as diads and triads of sociometric structure, by viewing the sociometric relationship as a time-dependent stochastic process.

However, it would be a serious mistake to say that all of the traditional and recent approaches have neglected the sociometric structure as a whole. As is apparent, for example, from a matrix shown in table 1, which is the matrix representation of a set of Moreno's data which is depicted in figure 2, we can identify the various aspects of sociometric structure as a whole as well as the parts of the sociometric structure. As a second example, we take up Boyle's hierarchical

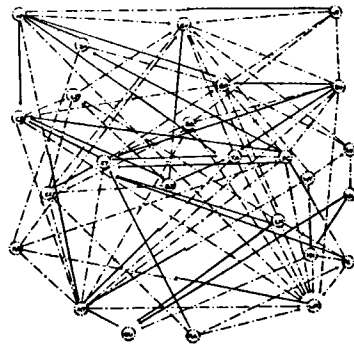


Fig. 2. Sociometric structure of a Cottage Family-C4 (from Forsyth and Katz [1946]).

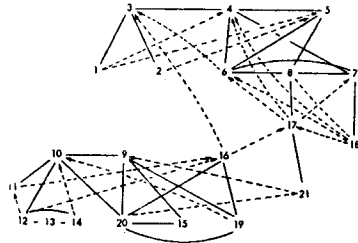


Fig. 3. Hierarchical sociogram of senior boys at Elmtown High School (from Boyle [1969]).

sociogram. Figure 3 shows a hierarchical sociogram depicted by Boyle (1969). In this figure unilateral choices are shown as dotted lines and mutual choices are shown as solid lines. It is easy to see that we can identify not only the clique structures as parts of the sociometric structure but also the hierarchical structure which combines the parts.

In this way, it is possible to some extent to discuss the sociometric structure as a whole by applying some of the traditional and recent methods for the analysis of

Table 1. The matrix representation of the Moreno's sociometric data obtained by rearranging the original matrix (from Forsyth & Katz [1946]).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
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group structure. However, it will be readily agreed that the interdependence structure represented by these models is almost always complicated. In this respect, a few models recently proposed might be said to be superior. For example, White et al. (White et al., 1976; Boorman et al., 1976) proposed the *blockmodel*. Starting with the binary relationship matrix, an example of which is shown in figure 4, the *blockmodel* rearranges the row and column of each member, so that the members of a block are grouped together. It should be noted that the term "block" is also used for a rectangular submatrix in which choices of the given type from members of one block to members of another block are made. Figure 5 shows the resulting blocks corresponding to the binary relationship matrix stated above. We can depict the digraph whose vertices are the sets in the partition of the group. It is shown in figure 6. A similar model

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X	XXX	XXXXXX	X	XX	X	X	X
	X	X					X
		X	XXX				
X	XXX	XXXX	XXX	XX	X	X	XX
X	XX	X	X	XX	X		
		X		XX			
			X		XX		
		X	X	X	XX	X	
	XXXX	X	X	XXX	X	XX	X
	XX		XX	X	XX		X
			XX			X	
X			X			X	
X			X	X	X	X	
XX			X	XX	X	X	
X			X		X		
XX			X	X	X	X	
X	X		X			X	
X	XXX	XX	XXX	XXX	X	XX	X
				X			
				X			
X	X	XX	XX	X	X	X	
				XXX		X	
				X			
X	X	XX	XX	X	X	X	
				XXX		X	

Fig. 4. An example of the binary relationship matrix (from White et al. [1976]).

was proposed by Kano (1979) which is called the *sociometric condensation*. Kano proposed to depict the vertices in such a manner that the "size" of each vertex is proportional to the number of corresponding set in the partition of the group. Figure 7 shows an illustration of the sociometric condensation, figure 7-a being an original sociogram. This type of model is said to be a version of *condensed graph of a graph* (Christofides, 1975; Harary et al., 1965).

As is apparent from the above examples, these models have obvious advantages in describing the group structure as a whole. However, it is also apparent that these models sacrifice information about the parts of a group structure for information



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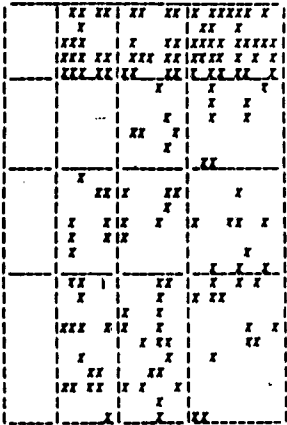


Fig. 5. Blockmodel for biomedical network (from White et al. [1976]).

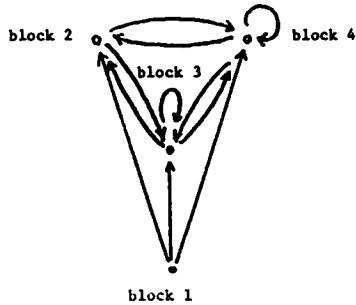
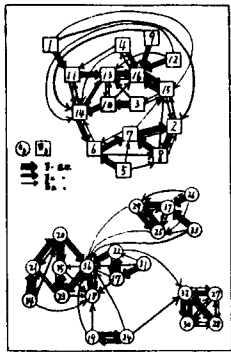


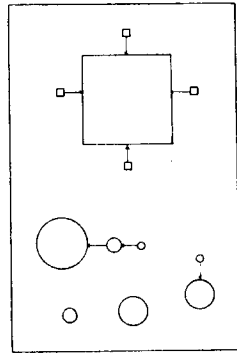
Fig. 6. A digraph of figure 5.

about the total or macroscopic group structure by condensing the original structure into a compact structure.

Second, most investigators have neglected the degree of the interpersonal relationship. In other words, they often start with the binary relationship in analyzing the sociometric structure. However, it seems appropriate and natural to suppose that there exist some cases in which the underlying process of interper-



(a)



(b)

Fig. 7. Sociometric condensation of order 3 (from Kano [1979]).

sonal relations is *continuous*. Then we can say that the problem is not the matter of black and white but the degree of gray. In such cases, the graph theoretic approaches may not be omnipotent.

In order to describe such continuous relationships between members, a variety of MDS (multidimensional scalings) and MDS-like techniques may be available. In this case, members are embedded in a certain space. The space employed is *metric space* even if the original relationship matrix is asymmetric. MDS techniques which assume metric spaces are therefore called *symmetric MDS*. Although the *asymmetric structure* is neglected in this case, some interesting results have been reported by applying the symmetric MDS or symmetric MDS-like techniques to sociometric data (for example, Hirabayashi et al., 1978; Ohashi et al., 1982; Kano et al., 1982). Figure 8 shows one of our recent applications (Chino et al., Note 6) of the row solution of SSA-II (Guttman, 1968; Lingoes, 1973) to a set of empirical data, in which various types of *symmetric*

*structures* are indicated, together with the clear structure of *sex-cleavage* often observed in children's group.

Somewhat different researches have been carried out by several researchers. For example, Jones and Young (1972) employed *individual differences MDS's* to study the social perceptions. In order to identify the *perceived social structure*, they employed *INDSCAL* proposed by Carroll and Chang (1970) for relationship matrices, each of which was composed of similarity judgements of all possible pairs of stimulus persons by a judge. Figures 9 and 10 show a group stimulus space for 18 stimulus persons and an individual differences space for 30 judges, respectively. In addition, they performed a "three-way" INDSCAL analysis, based on data gathered longitudinally to analyze changes in perceived social structure over time. In a later experiment, Davison and Jones (1976) also employed INDSCAL for a similar relationship matrix to test the similarity and complementarity-attraction hypotheses.

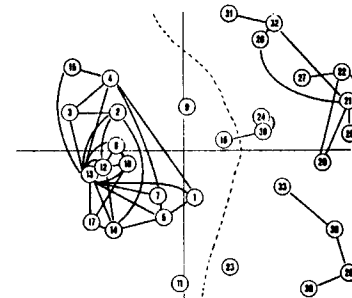


Fig. 8. The two-dimensional configuration obtained via the row solution of SSA-II of sociometric data for 31 infants.

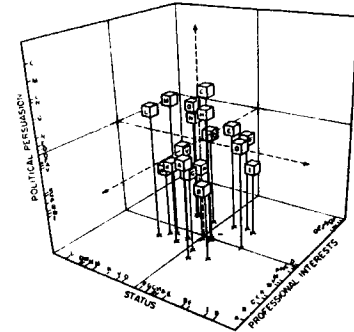


Fig. 9. 1970 group stimulus space obtained via the analysis of INDSCAL (from Jones and Young (1972)).

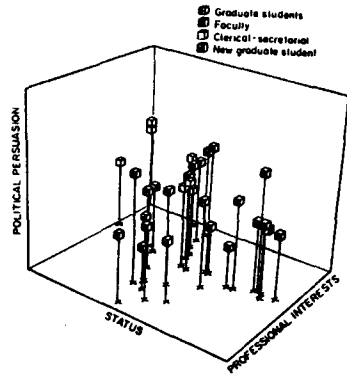


Fig.10. Individual differences space based on 30 judges in 1970 obtained via the analysis of INDSCAL (from Jones and Young (1970)).

On the other hand, some researchers have recently been developing the *asymmetric MDS*, which does not necessarily assume the metric space (for example, Chino, 1977, 1978a; Harshman, Note 8). And there has been an increasing attention to the use of the asymmetric MDS (Chino, Note 2, 1982). Figure 11 shows an example of the application of an ASYMSCAL (*asymmetric multidimensional scaling*) proposed by Chino to Newcomb's data (Newcomb, 1961). From this figure, we can intuitively identify three subgroups. Moreover, it is not difficult to see that there exists an obvious asymmetric structure. That is, since the positive direction calculated from the ASYMSCAL is counterclockwise and indicates "dislike" in this case, we can conclude that for example members located at the right-hand side of the abscissa dislike members located at the top of the ordinate. On the other hand, member 14 is seen to be an

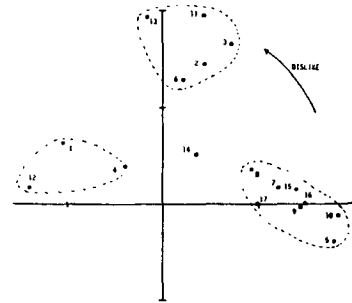


Fig.11. Two-dimensional configuration obtained via an ASYMSCAL proposed by Chino for Newcomb's sociometric data at Week 15 (Year 1).

"intermediator".

In any case, we believe that some appropriate epistemological background is needed to handle the sociometric structure as a whole as well as the continuous relationships between members. We think that it might probably be the *Gestalt-like epistemology* or *systems epistemology* in recent terminology. According to the epistemology, "the whole is more than a sum of its parts" and there may exist interdependence between the whole and each of its parts. These general points of view may raise the following questions, for example, as regards the configuration shown in figure 11: how and why is the member 14 located in the total structure as an "intermediator"? what condition is necessary to make him remain an intermediary in a given structure as a whole in the near future? how does the total sociometric structure act as a constraint on the behavior of member 14? how does the total structure as an *eigen-*

*structure* (eigenstruktur in the original paper, Köhler, 1920) change when a member, for example, member 14 suddenly drops out?

In order to answer these questions too, the spatial embedding of all members in a certain space via MDS and MDS-like techniques might be convenient. A few studies in line with this point of view have been reported by some investigators (Chino, Note 1; Chino et al., Note 6). Figure 12 shows one of the configurations obtained via the analyses of SSA-II (the *Smallest Space Analysis-II*) by Guttman and Lingoes (Guttman, 1968, Lingoes, 1973) for a set of infant sociometric data gathered longitudinally by Adachi (1978), together with a contour map of scale values of a diagnostic test for parent-child relations, which was depicted to detect some of the determinants of the total sociometric structure as an eigen-structure. Figure 13 shows the three-dimensional representation of the contour map. It is evident, from these figures, that the centers of subgroups are likely to fall on the areas that the levels of goodness of parent-child relation are relatively high. This result might indicate that the level of goodness of parent-child relation is a factor of an eigen-structure of the infant group.

Finally most traditional and recent approaches to the analysis of sociometric structure have concentrated on single sociograms and as a result have neglected the *dynamical aspects of the sociometric structure as a whole*. Of course, as already discussed in section 1, there has been a stochastic process approach, in which, dynamical aspects of the *sociomet-*

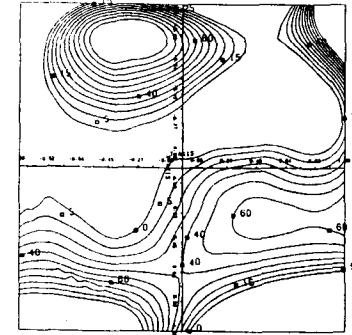


Fig.12. Two-dimensional configuration obtained via the row solution of SSA-II at time  $t_6$  for 21 infants, together with a contour map of a scale value of a diagnostic test for parent-child relations.

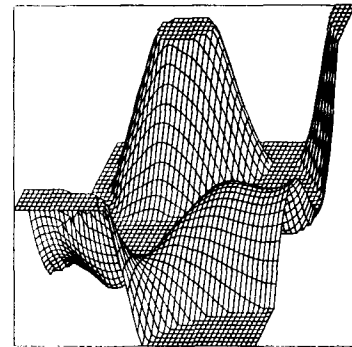


Fig.13. Three-dimensional representation of the contour map drawn in figure 12.

*ric structure as parts* might be able to handle.

By contrast, there have been few studies aimed at analyzing the dynamical aspects of the sociometric structure as a whole (Chino, 1978b; Hirabayashi, et al., 1978;

Ohashi et al, 1982).

We think there may be good reasons why there have been few studies under discussion. One of the reason might probably come from the fact that Köhler, who was a great Gestalt psychologist as well known and therefore have had influence upon later researches, in one of his earlier works (Köhler, 1920) mentioned a lot about physical phenomena in an *equilibrium state* and a *stationary state* but mentioned few about phenomena in *non-equilibrium states, nonstationary states, or dynamic states* although he emphasized the importance of studying the phenomena observed in *open systems* (Köhler, 1927). Thus, it seems quite natural that, for example, Yokose (1957) has proposed an elegant model which can predict the potential of the visual field around a given figure. Figure 14 shows a three-dimensional representation of the equi-potential lines around the T-shaped figure calculated from his model. It should be noted that such a field might be thought of as a kind of field in an equilibrium state or in a stationary state. On the other hand, there exist a variety of phenomena in which such states can not be assumed in general. We believe that one of them may be the dynamic process of change in group structure over time. Of course, we know some of the works of Lewin, which can be thought of as pioneering works relating to the problem under consideration (for example, Lewin, 1933, 1938). However, many of the notions introduced by him have remained yet to be conceptual. Furthermore, as condemned frequently, he emphasized the *ahistorical nature* of the

psychological field too much (Lewin, 1943).

In any case, for these reasons and others, we need new models capable of dealing with the dynamical aspects of the sociometric structure as a whole.

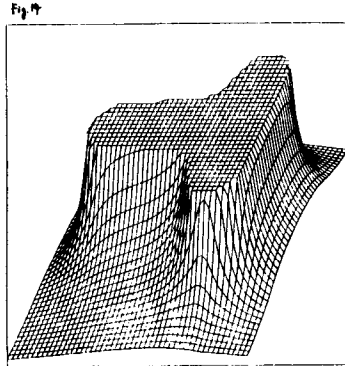


Fig. 14. A three-dimensional representation of the equi-potential lines around the T-shaped figure.

### 3. Some Preliminary Approaches to the Dynamical Aspects of the Group Structure

Recently, Chino (Note 3) has proposed a topological model capable of dealing with some dynamical aspects of the group structure especially sociometric structure. As shown in figure 15, the space in which the sociometric structure is embedded is, in general, defined as a *tangent vector space* on a certain *differentiable manifold*. If we have a set of longitudinal sociometric data, each of the configurations obtained via some MDS model is embedded in the space on the manifold as illustrated in this figure. It is assumed that in each of these spaces a *vector field* is defined. For simplicity, we can assume that the manifold is a Euclidean space. Chino has

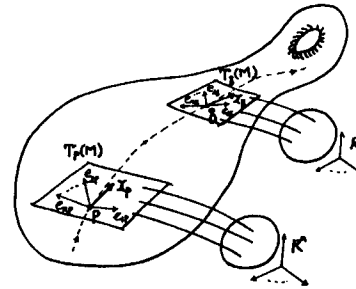


Fig. 15. Tangent vector spaces on a differentiable manifold.

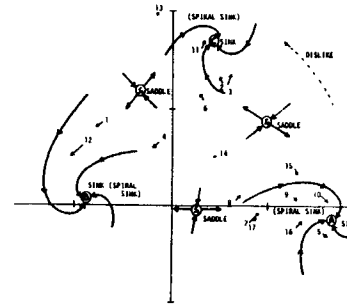


Fig. 16. Two-dimensional configuration at Week 14 in Year 1 with the estimated vectors and local trajectories of the vector field.

proposed a way of identifying these vector fields, given a set of longitudinal relational data matrices. Figure 16 shows one of the results obtained via the analyses of an ASYMSCAL proposed by Chino. In this case, it is also assumed that a certain *nonmetric tensor*, specifically a *covariant tensor of order 2* is defined in this space, since the asymmetric structure is assumed in the ASYMSCAL. The important point of this model is that

by supposing *a priori* the existence of a differential model underlying the process of change in group structure as a whole and, without knowing explicitly what this model is, <sup>we can check</sup> from the knowledge of the *singularities of the vector field*, conclusions relating to the nature of the dynamic structure of the group. Some of the patterns of the singularities are shown in figure 17.

However, we faced a number of difficulties in identifying the vector fields from a set of longitudinal sociometric data. Recently, however, Chino and Nakagawa (Note 7) have overcome almost all of these difficulties by utilizing the knowledges of vector fields, especially some *index theorems* and *spline functions*, the former being the idea suggested by Chino (Note 5) while the latter being the idea suggested by Nakagawa (Note 9). Index theorems of a vector field allow to check whether the identification of the *local* patterns of singularities of the vector field is also valid *globally* in the spatial sense.

Now, we shall close our discussion with the remarks on the two different approaches taken by Jones et al. (Jones and Young (1972), Davison and Jones (1976)) and by ourselves (Chino, Note 3). For, these two approaches show a high contrast concerning the way of model-building for group structure and interpersonal attraction although both of them utilize MDS techniques in analyzing group structure.

First, the input data consisted of the perceived interpersonal similarities of subjects in their approach, while they consisted of the attraction ratings of subjects

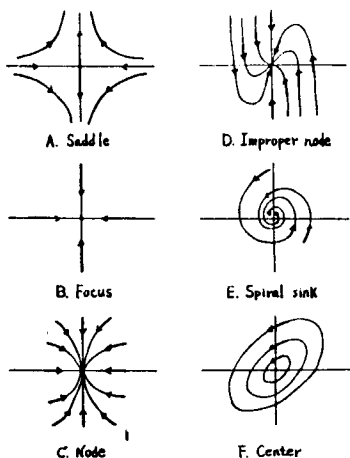


Fig. 17. Some patterns of singularities of the vector field.

toward the other subjects in our approach. Accordingly, the resulting group structure is different from subject to subject in general in their approach, while it is uniquely determined by our approach. Second, in the approach taken by Jones and Young, it is assumed that all subjects utilize the same dimensions on all occasions, but the manner in which these dimensions are used changes in different ways for different occasions. Such manners are specified by the changes in subject weights among occasions in their approach. They found that the subject weights had changed meaningfully between occasions, with change related to the number of years that the subject had been in the organization and to his role in the organization. It may be likely that the determinant of change in the group structure unique to each subject

might be reduced to his own attributes.

However, it is our opinion that the group structure in general might be determined not only by the *attributes* of its members but also by the *group dynamics* of its members. Thus, our approach assumes (1) the psychological space which might be generated by the existence of its members, (2) the vector field on the space which might be generated by the interaction of its members. Once a vector field is generated, it seems probable that such a field exhibits several kinds of phenomena inherent in the field. The aim of our study is to detect such phenomena and uncover the underlying mechanisms regulating these processes, if possible.

Third, interpersonal attraction is a *linear* function of the squared difference between the positions of subject *i* and person *j*  $(x_{it} - x_{jt})^2$  along each of the *r* dimensions in the approach taken by Davison and Jones,

$$A_{ij} = \sum_{t=1}^r w_{it}(x_{it} - x_{jt})^2 + c_i,$$

where  $A_{ij}$  is the attraction of subject *i* toward person *j*,  $w_{it}$  a weight along dimension *t* for subject *i*,  $c_i$  a constant unique to person *i*, while  $x_{it}$ ,  $x_{jt}$  are the positions of subject *i* and person *j* along dimension *t*, respectively. By contrast, interpersonal attraction includes a *bilinear* form of the position vectors  $(y_{1i}(t), y_{2i}(t))$  in the two-dimensional case in our ASYMSCAL model.

$$A_{ij}(t) = a(y_{1i}(t)y_{1j}(t)) + b(y_{1i}(t)y_{2j}(t) - y_{2i}(t)y_{1j}(t)) + c.$$

Furthermore, each position is, in general, assumed to be determined mainly by the *nonautonomous differential equations* regulating the field. If we assume a sim-

plified case, the behavior of the subjects near the two sinks might be approximated by the following two-dimensional *autonomous differential equations* with constant coefficients (Chino, Note 4):

$$\begin{aligned} dy_{1i}/dt &= p_1(y_{1i} - y_1^{(2)}) - q_1(y_{2i} - y_2^{(2)}), \\ dy_{2i}/dt &= q_1(y_{1i} - y_1^{(2)}) + p_1(y_{2i} - y_2^{(2)}), \\ dy_{1j}/dt &= p_2(y_{1j} - y_1^{(2)}) - q_2(y_{2j} - y_2^{(2)}), \\ dy_{2j}/dt &= q_2(y_{1j} - y_1^{(2)}) + p_2(y_{2j} - y_2^{(2)}). \end{aligned}$$

where  $p_1$  and  $p_2$  are negative constants, while  $q_1$  and  $q_2$  are arbitrary constants. It is easy to check that the points  $(y_1^{(2)}, y_2^{(2)})$  and  $(y_1^{(2)}, y_2^{(2)})$  are singularities. Figure 18 shows an interesting pattern of changes in attraction scores over time near two spiral sinks.

Here, it should be noted that there may probably be a limit to the accuracy of describing the dynamical aspects of the group structure within the scope of our model. For example, our model is *deterministic*, while the dynamical structure of a group may be determined by various types of factors, some of which may include the *stochastic* components. A possible way to handle such terms may be to add a stochastic term to our model. Another way may be to use the *stochastic differential equations* (for example, Jazwinski, 1970). The other approach may

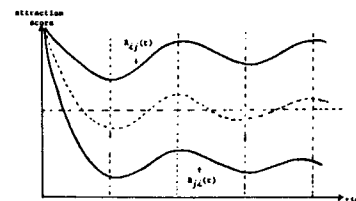


Fig. 18. A pattern of changes in attraction scores over time near two spiral sinks (from Chino (Note 4)).

be to utilize a number of models such as *ARIMA MODEL* and *transfer function models* (for example, Box and Jenkins, 1976). However, care may be needed in selecting these models since it has been remarked that some of the deterministic equations, even though simple, can exhibit a surprising dynamical behavior such as apparently random (May, 1976).

In any case, it will be appropriate to conclude that at this point both approaches have advantages and disadvantages in analyzing group structure. For example, the former put too much emphasis on the individual differences of the perceived group structure, while the latter put too much emphasis on the group dynamics of its members. In this sense, it might be necessary to amalgamate these two approaches in the development of the methodology for the analysis of group structure.

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(Manuscript Submitted 2 November, 1983)



# ABSTRACTS

## SUNBELT

{Abstracts from the Sunbelt Social Network Conference. Clearwater, Florida. February, 1987.}

**ANDERSON, JAMES, STEPHEN JAY, MARILYN ANDERSON, & HARLAN SCHWEER. Soc, Purdue. "The Diffusion of Computer Applications in Medical Practice."**

This study explores the structure of the informal organization of medical practice & its effect on the practice behaviour of physicians. The study was conducted in an 1160 bed, private teaching hospital. Clinical data were used to construct & analyze consultation networks among physicians on a general surgery service. Blockmodeling was used to identify structurally equivalent groups of physicians who share similar consultation patterns with their colleagues, the nature of relationships among & between groups of physicians, & the effects of network structure on practice behaviour, specifically, the adoption & utilization of a hospital information system. The findings suggest that the physician's position in the consultation network significantly influences rates of adoption & utilization of new computer technology.

**ANHEIER, HELMUT. Soc, Rutgers. "Interorganizational Fields, Networks, & Development: An Analysis of Stalled Social Structures in West Africa."**

This study is part of a comparative analysis of the problems of organizational development & institution building in third world countries. One of the central arguments made is that the outcome of planned development efforts, is ultimately decided at the level of the organizational field, measured as multiple inter-organizational networks. Major properties of inter-organizational networks such as conflict & interest configurations are examined in a comparative analysis of development projects in Nigeria, Senegal & Togo. Data were collected in the course of 15 months field research in West Africa & analyzed by using blockmodel techniques.

The aim of the analysis is to identify the structural properties of organizational fields which are responsible for the development of stalled social structures. The case studies show that the properties of organizational fields: (1) acquire a reality of their own which can not be explained by factors inherent in the larger political economy; (2) are better at explaining program success or failure than a number of "conventional" variables such as commitment of members to the program, funding situation, planning errors or program auspices; (3) are responsible for the transformation of rational organizational behaviour to irrational results at the collective level; (4) are able to explain surface images of inter-organizational anomie; (5) are a major mechanism of goal displacement in collective organizational action.

**ANHEIER, HELMUT K. Soc, Rutgers. "Inter-organizational Networks, Institution Building & Development: A study of Blocked Social Structures in Nigeria."**

This case study is part of a comparative analysis of the problems of organizational development & institution building in third world countries. One of the central arguments made is that whether or not development efforts will be sustainable, is ultimately decided at the level of the organizational field, measured as multiplied inter-organizational networks. Major properties of inter-organizational networks such as conflict & interest configurations are examined in a comparative analysis of consortia for private voluntary associations in Nigeria, Senegal & Togo. Data were collected in the course of a 15 month field research in West Africa & analyzed by using blockmodel techniques. The aim of the analysis is to identify the structural properties of organizational fields which are responsible for: a) successful institution building in the case of Togo; b) retarded institution building in the case of Senegal; & c) the development of blocked social structures in Nigeria.

**BEARMAN, PETER & JOEL M. PODOLNY. North Carolina. "Generalized Cascade Models for Diffusion of Ideology Through Social Networks."**

The Boorman-Levitt cascade model of diffusion of social genes across irregularly coupled networks is generalized & applied to explicit social contexts. Relaxation of central assumptions in the Boorman model -- equal interchange of diffusion rates among dyadic pairs & restriction of migration to adjacent nodes -- allows for a more robust model of diffusion processes. The pattern of diffusion of two heterodox religious beliefs, Protestantism (1518-1534) in South-Western Germany & Catharism (1308-1324) in Southern France are discussed. Qualitative insight into the conditions necessary for successful ideological diffusion as well as insight into the meaning of centrality in social networks are possible from manipulation of the cascade formalism developed.

**BERNARD, RUSSELL, EUGENE JOHNSEN, PETER KILLWORTH & SCOTT ROBINSON. Anthro, Florida. "Estimating the Size of an Average Personal Network & of an Event Subpopulation."**

A vexing problem in social network analysis has been to determine the number of people whom an average person knows, i.e. his personal network size. This datum has heretofore defied investigation. A method is presented which should ultimately permit this quantity to be estimated realistically. It involves asking members of a sufficiently large random sample of a population of size  $t$  if they know anyone in a fixed event subpopulation of size  $e$ . This produces an estimate of the probability  $p$  that anyone in the population knows someone in the event subpopulation. Using an equal likelihood probability model, this leads to a lower bound estimate for  $c$ , the average number of people that a person in the population knows. When personal network size has a binomial distribution over the population this value is, in fact, an estimate for  $c$  itself. Except for pathological distributions, such as an extreme form of the two-point distribution, this appears to be approximately true for other distributions as well.

Example data from Mexico City, where a sample of residents was asked if they knew personally anyone who died in the 1985 earthquake, are presented & analyzed. We should also be able to obtain a reasonable estimate for  $c$ , & describe what factors the variations in personal network size depend upon, from the analysis of several such samplings in the U.S.. We discuss the implications of the method for estimating an unknown value of  $e$ . If we have a set of accurate data pairs  $e, p$  over a sufficiently wide range of values, we can obtain a bounded estimate for an unknown  $e$  from a corresponding known value of  $p$ , & when  $c$  is accurately known we can obtain a lower bound estimate of  $e$  from a known value of  $p$ .

**BOLLAND, JOHN & JAMES WOODS. Alabama. "Coherence vs. Structural Equivalence: An evaluation of a New Clique-Detection Algorithm."**

We develop a new clique-detection algorithm for adjacency data. The algorithm is actually a way of calculating a continuous similarity matrix from a binary adjacency matrix in a way that optimizes coherence, as discussed by Peter Mariolis; this similarity matrix can then be used as input into a clustering algorithm to identify coherent clusters. The algorithm is based on information theory, & it calculates the information conveyed by any "1" in the adjacency matrix  $A = a[i,j]$ .

We describe the algorithm, discuss its theoretical justification, & explore its performance. Specifically, we will begin with an  $18 \times 18$  matrix consisting of two one-blocks & two zero-blocks & subject them to a series of random perturbations reflecting 15%, 20%, 25%, 30%, 35%, & 40% error. We use the algorithm, along with the UCLUST procedure, to identify clusters in each error-perturbed matrix, evaluating each solution in terms of its correspondence to the original two-block matrix. We also analyze the same error-perturbed matrices using CONCOR. This allows us to compare the meaning of coherence & structural equivalence for increasingly "fuzzy" data. Finally, we consider the utility of a variety of "goodness of fit" statistics for describing the cliquishness of a network.

**BORGATTI, STEVE. Soc Sci, Cal-Irvine. "Reciprocity & Consensus in Liking."**

Newcomb's data are used to show incompatibilities among the basic notions that people can rank others on how much they like them, liking tends to be reciprocal, & some people are more likeable than others. Log linear models are used to investigate the meaning of ranking someone 1st versus 2nd, or 14th versus 15th.

**BORGATTI, STEVE. Soc Sci, Cal-Irvine. "Proximity is to Equivalence as Equivalence is to What?"**

Equivalence is viewed as a summary measure of two actors' sharing across all roles they participate in. Taking the equivalence matrix as the basic unit of analysis, the goal is to model what generated this



equivalence. A network is described in terms of intuitive axioms. What kinds of structures behave in accordance with these axioms?

**BOSTER, JAMES, JEFFREY JOHNSON & SUSAN WELLER. "Members' Perceptions of Status, Role & Social Network."**

This paper examines various techniques for gathering social network data & explores the implications of the variation between subjects in their understandings of networks. It compares subjects' perception of the formal organizational structure; subjects' assessment of the social network, subjects' evaluation of the statuses & role positions of network members & subjects' judgments of the overall similarity of the network members, determined by pile sorts & by triad tests. It thereby tests the convergence between these various ways of representing group structure. It also addresses the question of whether individuals who share subgroup membership also share understanding of its structure & the roles & responsibilities of other network members.

**BOYD, JOHN. Math Soc Sci, Cal-Irvine. "Structural Equivalence With Semigroup Constraints."**

An algorithm is described for fitting a set of relations to a given semigroup, which is of the form  $L \times G \times R$ , where  $L$  &  $R$  are left & right zero semigroups, respectively, & where  $G$  is a finite group. The semigroups  $L$  &  $R$  correspond to the so called "first" & "last letter laws," respectively. The resulting relations are "close" to the original data & yet satisfy the equations of the semigroup. The theory of Zaretskii lattices is used to construct the row & column spaces, which determine  $L$  &  $R$ . Furthermore, the solution to the "marriage problem" of graph theory is used to construct the group  $G$ .

**BOYD, J. Soc Sci, Cal-Irvine. "Monastic Menages."**

This paper tries to find structured clusters in the Sampson data. Unlike clustering, which makes no underlying hypothesis regarding the interrelationships among the clusters, this approach tries to fit the data to a given semigroup. A mathematical result on Green relations on semigroups of relations greatly simplifies the computations, of which the first stages are presented here. One of the idempotents with the proper symmetry, the "diamond", is taken a target image for a "fuzzy homomorphism." A sum of squares measure is taken as a measure of stress, or badness of fit. An initial set of four "menages" are exhaustively fit to diamond model, resulting in two good initial partial homomorphisms. These partial homomorphisms are then extended, one point at a time, to the entire domain. The one at a time method is faster than the transposition of pairs needed in quadratic assignment, where the number of elements in each class is fixed. In this case the final two stresses are reversed from that of their initial configuration. The results are compared with those of Sampson & White et. al. The unfolding analysis to the full Sampson kernel is outlined.

**BRASS, DANIEL J. Penn State. "Intraorganizational Networks & Power."**

This paper reviews the theory & research concerning power within organizations & its relationship to social networks. Data is presented, & comparisons made among different measures of centrality (degree, distance, & betweenness), different networks (workflow, communication, & friendship), different levels of analysis (individual & group), & different units of reference (subgroups, departments, & organization). Data concerning power centers & dominant coalitions in relation to social networks is also presented.

**CAREY, MARTHA ANN. Soc, CUNY Grad Ctr. "Women in Communication Networks: Opening Up the Small World."**

Within professions it is generally acknowledged that access to informal communication networks is important for professional advancement. Research has shown that women do not use communication networks as men do. In the last few years there have been extensive changes in women's roles & pressure for occupational equality. As women continue to enter professions, changes can be predicted in social structure in the networks as they reflect the professions' response to the larger social environment. This study examines the progress women have made in the American Psychosocial Association by comparing Small World data from 1977 & 1986.

**CARLEY, KATHLEEN. Soc, Carnegie Mellon. "Structural Constraints on Communication: The Diffusion of the Homomorphic Signal Analysis Technique."**

The communication of mathematical methods takes place within a paradoxical environment. On the one hand, the objectivistic scientific mode of analysis assigns validity only to those methods that are context free, whose utility does not reside in the empirical data or the social context. On the other hand, the pragmatic research tradition promotes rapid scientific development by encouraging the utilization of data driven methods. Within this paradoxical environment new methods are developed & diffuse to the scientific community. The diffusion pattern of a particular method, Homomorphic Signal Analysis, is explored relative to the underlying socio-cultural environment. The formal structure of this scientific community is found to direct the pattern of diffusion. Generalist journals are found to play a critical role in the diffusion process; one, that nurtures both traditions thus maintaining the paradoxical environment.

**CHEVERUD, JAMES & MALCOLM DOW. Anthropology, Northwestern. "Subjective Gene Frequencies in Kin Interaction Networks."**

Group selection models often include the assumption that a population is divided into discrete groups of interacting individuals, often related by descent. Interaction within these groups is assumed to be homogeneous. The genetic variance between groups is the important parameter for determining the potential for evolution by kin or group selection. While these assumptions facilitate theoretical analyses, they rarely apply in actual field situations. D.S. Wilson (1980) presents the concept of "average subjective gene frequencies," the frequency of allele A experienced (during the course of social interaction) by the average A allele. He also relates the subjective gene frequency to the level of intergroup genetic variation. We propose to estimate subjective gene frequencies using known genetic relationships & networks of social interaction. This method is demonstrated using data from the rhesus macaques on Cayo Santiago.

**CONTRACTOR, NOSHIR, MICHAEL COZZENS, & ERIC EISENBERG. Communic, Southern Cal. "Network Predictors of Semantic Agreement in an Organization."**

A common criticism of communication network analysis is that while it tells us much about who talks to whom, it reveals little about the content & interpretation of this communication. In their recent review, Monge & Eisenberg (in press) distinguished between the familiar relational or "access" networks & a new kind of linkage based on shared meaning, which they call "semantic" networks. Using the dyad as unit of analysis, this study operationalizes this notion of semantic networks & examines those traditional structural factors that predict level of shared meaning. Specifically, we hypothesized that shared interpretations develop in two ways: directly through interaction, & indirectly through exposure to a similar set of organizational circumstances. Agreement was measured on the organization's key slogan. Our predictions were partially supported. Individuals occupying similar roles in the company did in fact report more similar interpretations than did those occupying disparate roles. In general, people at higher levels of the organization interpreted the slogan as having more than one meaning, while those at lower levels cited only one interpretation. Contrary to our predictions, amount or frequency of interaction in a dyad was not a predictor of semantic agreement.

**DANOWSKI, JAMES A. Illinois-Chicago. "Who-to-Whom Network Structure & Message Content & Structure."**

This research drew on prior research on "Strength of Weak Ties" & on the correlates of person-centered communication network radiality. It tested hypotheses that as individuals' who-to-whom communication network structures were more radial (less interlocking), the word networks in their messages were more differentiated, contained more abstract words, more references to autonomy & control, & more instrumental & less socio-emotional words.

Data were from electronic mail usage in an organization. Both the who-to-whom traffic & the raw message texts were subjected to the same network analysis procedures, except that in the former analysis the individual was the node while in the latter the word was the node. First, based on the results of the who-to-whom network analysis, segments of individual nodes were created based on degree of node-centric integration. Second, all messages of individuals in each segments were subjected to word-network analysis. Then, structural properties of the word networks & semantic content were indexed to enable the hypothesis tests.

**DAUGHERTY, STEVEN, JEFFERY SALLOWAY & LINDA NUZZARELLO. Psych & Soc Sci, Rush Medical Col. "Sex & Social Support in a Medical Student Network."**

As students enter medical school they must adjust their interpersonal networks to provide themselves with a personal life in the face of day to day stresses. Within this framework, some definitive effects for sex can be observed. Using data collected using the Social Network Inventory, the networks of male & female students were examined across three years for difference in composition, interaction patterns & availability of support. Findings show that women, but not men evidence a homophily bias & become detached from family members over time, that both men & women expect more support from women, & that over time cross-sex contacts dominate in frequency for both men & women. These results are discussed focusing on the place of personal characteristics in determining network composition & structure. The authors suggests that in real world settings roles determine network structure rather than the reverse.

**DEARING, JAMES W. & GERARD J. POWER. Communic, Southern California. "Who Gives What to Whom: The Priming Factor in University-Foundation Networks."**

The present research addresses an issue that is of central concern to most scholars: the process whereby corporate & private foundations award grants to university researchers. We suggest that priming, a process in which individuals are exposed to a set of cues specific to a group, plays a significant role in the allocation of grant awards. We propose that foundation decision-makers will be more cognizant of the applications from & be more likely to approve of awards to, those applications who have been subject to the same priming process. Although this topic has been considered in previous research, these studies have not used network analysis in the treatment of the proposed relationships. The data consists of information on the top 50 award-granting corporate & private foundations, & the universities to which they award grants, from 1983 to 1985. Analysis of the interconnectedness between universities & foundations is discussed in terms of the overall distribution of awards to the research community, the extent of each university-foundation network; the strength of each networks; relative alumni efficacy.

**DING, ZHONG. Communic, Southern Cal. "Personal Communication Networks & Cultural Obedience in Post-Mao China."**

This paper presents the results of a field survey conducted in northern China in 1986. 4 characteristics of personal communication networks, i.e., communication interactiveness, integration, heterophily & activeness of the focal individual, are examined in relation to "cultural obedience," a traditional Chinese mentality dealing with human relationships. Given an exploratory nature of this study, five attitudes are proposed to construct cultural obedience; a four-dimension pattern emerges through factor analysis on the data. The four dimensions are: attitude toward self-cultivation, attitude toward authority, attitude toward tradition, & attitude toward interpersonal harmony. Canonical correlation procedure is applied to examine the relationship between the four characteristics of personal communication networks & the four dimensions of cultural obedience.

**DING, ZHONG. Communications, Southern California. "Cultural Obedience & Individual Communication Network in Post-Mao China."**

This empirical study is from a field survey conducted in post-Mao China. The social changes in post-Mao China furnishes the opportunity for communication researchers to look into the relationship between traditional Chinese culture & interpersonal communication patterns along the modernization process of the society. Rooted deeply in the thoughts of Confucianism that ruled the Chinese conceptualization for over 2,000 years, traditional Chinese culture presents itself as a powerful social norms regulating, unconsciously, or consciously, the thinking patterns & behavioral patterns of the Chinese people. One central part of that traditional culture deals with interpersonal relationships, & it might be called "Chinese cultural obedience." This study is concerned about how such cultural obedience is reflected in the Chinese thinking patterns on or attitudes toward interpersonal relationships in contemporary China, & how their cultural attitudes are related to their behavior patterns or, in particular, their interpersonal communication activities. It is assumed in this study that people's attitudes which reflected their cultural obedience are the independent variables; & our concern is how people's behaviors in interpersonal communications, as the dependent variables, are affected by their cultural obedience attitudes. Canonical correlation procedures are applied to explore the relationship between the set of independent variables, the 5 dimensions of cultural obedience, & the set of dependent variables, the 4 characteristics of individual communication network. Factor analysis is applied to identify the core

items for each of the five dimensions of cultural obedience, & to see how closely these five dimensions stays together to yield the theoretically unified construct "cultural obedience".

**DOREIAN, PATRICK. Soc, Pittsburgh. "Equivalence in Social Networks."**

Equivalence has become a foundational concept in social network representations of social structure. Each use of an equivalence concept has two components: (1) the definition of equivalence, & (2) a computational algorithm for detecting equivalences, or the extent to which they exist. In all substantive contexts it is necessary to determine if a particular definition of equivalence is appropriate & the extent to which the computational algorithm faithfully mirrors the equivalence definition. An extensive comparison of structural equivalence, with two structural equivalence detectors, & regular equivalence, with one regular equivalence detector, is provided for a set of social structures. As blockmodels are, among other things, hypotheses about network structure, hypotheses about structure are used to obtain the networks used for these comparisons. For any network, there is, potentially, a multiplicity of equivalences that can be mobilized so as to complement each other in analyzing social structure.

**DOREIAN, PATRICK & KATHERINE WOODARD. Soc, Pittsburgh. "Location & Equivalence in Interorganizational Networks."**

In a network of ties among a set of organizations there are many ways of conceptualizing location & equivalence. It is also straightforward to assemble hypotheses linking location & equivalence to a variety of outcomes in the interorganizational network. The formal testing apparatus is a set of computational procedures that may or may not reflect faithfully the underlying conceptual concerns which, in turn, may not be appropriate for the structural analysis. These issues are illustrated for a network of ties among a set of agencies providing services to children & youths.

**DOW, MALCOLM & JAMES CHEVERUD. Anthropology, Northwestern. "Significance Testing on Phylogenies: A Network Autocorrelation Approach."**

While there are many ways to identify best-fitting phylogenies given attribute data on the species involved, to date little work has been directed towards testing for significant differences in fit among similar phylogenetic networks. We propose a simple multiple trait extension of the pure autoregressive effects model which yields confidence intervals associated with each phylogeny. We propose using intervals to assess the relative fit of phylogenies. This method is applied to tests for significant differences among equine phylogenies. When significance testing is applied to phylogenies, some of the controversy over which single phylogeny is best may be redirected to gathering more data & allowing better resolution of phylogenies.

**DUNCAN, W. JACK. Management, Alabama-Birmingham. "Relationships Between Patterns of Joking Behavior & Social Networks in a Sample of Diverse Small Groups."**

This paper proposes to relate joking patterns to the social network patterns in a sample of diverse small groups in an attempt to determine if social network & humor patterns possess any meaningful similarities. The method employed is simple by contemporary standards. Comparative patterns of humor & social dynamics will be presented & compared to see if rudimentary similarities exist. If so, more sophisticated techniques will be employed on the sample data. The paper will provide the additional dimension of comparing different types of group settings. The twenty groups comprising the sample have been drawn from both formal, task-oriented & socially oriented settings; from health care & from retailing; & from a variety of industrial settings.

**ECKERT, MARY BETH, NORMAN CELOTTO & GEORGE A. BARNETT. Communication, SUNY-Buffalo. "Bridge Links as Weak Ties: The Relationship Between Link Strength & Network Position."**

Granovetter posits that while intergroup relations may be characterized as weak ties, intragroup links will be relatively stronger. Further, he suggests that marginal group members, those on the periphery of groups, will tend to have stronger intergroup links than more central members. This paper examines the relationship between a node's network position & the strength of its intergroup communication. A network analysis was conducted in a department of a large financial organization to test four hypotheses concerning boundary spanning links. The results indicate that intergroup links (bridge links) are weaker (less frequent) than intragroup links, & intergroup communication. No relation was found between connectedness & centrality & the frequency of intergroup communication. The results are discussed from the perspective of contingency theory.

**ENNIS, JAMES G. Sociology, Tufts. "Consequences of Types of Tie: A probabilistic Framework."**

The differential consequences of varied types of network connections deserves greater attention. This study examines research, social & community affairs contacts among an elite group of research biologists at the Marine Biological Laboratory at Woods Hole, Ma. The relative impact of these ties on subsequent volume & pattern of research activity are considered. The possible distinctiveness of scientific communities is assessed by comparison with several community-elite datasets. The approach developed provides an adjunct to algebraic blockmodelling methods.

**ERICKSON, BONNIE. Soc, Toronto. "Central or Peripheral Location & the Flow of Help."**

This paper concerns 542 members of a large urban voluntary association, the Ottawa branch of the American Contract Bridge League. This competitive setting generates a structure with a dense center, sparse periphery, & more ties reported from the periphery to the center than vice versa (especially for stronger ties). Several kinds of help were recorded: help with job searches, business or professional services, everyday or emergency problems, & bridge matters. Since most of the help flows through ties strong enough to produce at least one sociometric nomination, the first stage of the research focussed on whether such ties deliver help at different rates in different regions of the structure. Although there are theoretical reasons to expect this to be true, it is not. If a tie is strong enough to produce one sociometric nomination, then structural location has no effect on the degree of strength, the flow of help, or the effect of strength on help. Instead, the more multiplex the tie the higher the rate of help, whatever the structural location or type of help.

But structure has an effect indirectly, since it has a strong impact on the distribution of these ties. The largest number are within the center; next, from periphery to center; next, within the periphery; & last, from the center to the periphery. The number of instances of getting help follows the same pattern. Thus central people report almost all help from other central people, periphery people report it more from the center than from each other, & central people are the dominant source of help. In this small world system, unlike the world system, the center practices more "noblesse oblige" than exploitation.

**FAUST, KATHERINE & STANLEY WASSERMAN. Psych, Illinois. "Correspondence Analysis of Sociometric & Social Interaction Data."**

Correspondence or canonical analysis, a data analytic method used to study two-way cross-classifications, is applied to sociometric data. The method allows one to model forms of sociometric data & types of empirical relationship not easily dealt with using either standard social network methods or common scaling or clustering techniques. In particular, correspondence analysis allows one to model: (a) 2-mode networks (rows & columns of a sociomatrix refer to different objects); (b) valued relations (eg. counts or frequencies).

In general the technique provides scale values for row & column units, visual presentation of relationships among rows & columns, & criteria for assessing dimensionality & goodness of fit. Recent results of Goodman, Gilula, & Haberman on canonical modeling link the technique to more standard categorical data analysis techniques, & could be used for sociometric data. Examples are presented & parallels to structural equivalence, blockmodeling, & log linear models for dyadic choice probabilities are discussed.

**FELD, SCOTT L. Sociology, SUNY-Stony Brook. "Are the Crucial Social Connectors Ties or Individuals?"**

Granovetter's argument in the "Strength of Weak Ties" emphasizes the importance of ties as bridges between otherwise disconnected sections of social networks. On the other hand, the organization of social ties described by Simmel consists of individuals, each of whom has a unique set of social circles; consequently, individuals are often bridges between individuals from different social circles. The purpose of this paper is to show that individual bridges as well as tie bridges provide the crucial connections in networks.

Data from various sources show that the crucial connectors between cliques are both ties & individuals. As theoretically expected, further analysis indicates that ties are crucial connectors among strong ties, while individuals are crucial connectors among weak ties. Implications for the spread of information & influence are drawn. Although weak ties themselves are unlikely to be bridging, they may nevertheless carry certain types of information more often than other ties. It appears that sociometric stars are most likely to be crucial connectors for the spread of information & influence over weak ties.

**FREEMAN, SUE. Soc Sci, Cal-Irvine. "Group Structure & the Evaluation of Performance."**

A study of biases in evaluation that stem from position in a differentiated group.

**FREEMAN, LINTON, SUE FREEMAN & ALAINA MICHAELSON. Social Sci, Cal-Irvine. "Group Structure & the Perception of Groups."**

A look at the differentiation of a group into sub-groups & the consequences of individual position on perception of group structure.

**FREEMAN, LINTON, SUE FREEMAN & ALAINA MICHAELSON. Soc Sci, Cal-Irvine. "Group Structure & the Recall of Events."**

*An examination of the ways in which position in a differentiated group impact recall of specific events & general patterns of social interaction.*

**GARTRELL, DAVID. Sociology, Victoria, British Columbia. "Networks & Social Evaluation."**

*Social evaluation - the idea that people learn about themselves by comparison with others - is a prosaic, age-old process. Despite periodic efforts to integrate theories & empirical studies of reference groups, social comparison, equity & justice, & relative deprivation (e.g., Pettigrew, 1967), research in these areas has remained fragmented & continues to be dominated by psychologists. Network imagery, models & findings run through this literature as far back as the last century & play a central role in contemporary applications of social evaluation to research on social support, class consciousness, & the diffusion of innovations. I argue that the network approach helps to resolve fundamental, unanswered questions about social evaluation first raised in 1950 by Merton & Rossi - specifically, the origins of comparative frameworks & the relation between individual & categorical or group reference points - & provides an integrative focus for sociological research in this area.*

**GIL, MIKKI. Soc Sci, Cal-Irvine. "Women Accessing Job Information: Granovetter Revisited."**

How does a person access the information which ultimately leads to finding a job? I am replicating Granovetter's study among female professional, managerial, & technical workers residing in Irvine, California. The presentation is a preliminary summary of the findings, with particular emphasis on a comparison with Granovetter's sample of male workers. The focus of the session is on the nature & content of personal ties, & their function in women's access to job information.

**HURD, GARY & MIKEL GARCIA. "Gender & Class in Interorganizational Strategies: Black Voluntary Associations in Los Angeles, 1913-1917."**

Interorganizational strategy for male & female Black organizations is to maximize interconnectedness across class boundaries. This serves to provide access & distribution of scarce resources which is perhaps exaggerated in the case of Black organizations due to social marginality. Evaluation of the mechanism by which these organizations achieve interconnectedness reveals a difference between male & female members' approach to class boundaries. Males cross class boundaries through individually held memberships. Thus, cross class position of a given male organization is independent of any given member's affiliation. Females tend toward a more delineated class orientation so that a given woman is more likely to affiliate with either exclusively elite or non-elite organizations. In one class of organization, community service organizations, Black women join across class boundaries illustrating a clear patron-client relationship. A further implication is that the membership of a given woman in a community service organization is of greater significance to its interorganizational position than found in the case of male organizations.

**HURT, H. THOMAS. Communic, N Texas St. "Test of a Two Stage Model of Social Support & Interpersonal Relationships Among Adolescents In-Patients in a Psychiatric Hospital."**

Many structural theorists & sociologists treat a structure as both an antecedent & consequent variable. The purpose of this research, however, was to test a model of relations among adolescents in a psychiatric hospital, the structure of which were predicted by certain individual communication behaviors of the patients prior to admission coupled with their ability to develop social support systems prior to admission.

The model was tested using 18 patients in a closed ward. The results of the analyses indicated that communication anxiety & social skills were more predictive of patients' abilities to develop a range

of contacts on the ward. Subsequent post-admission relations were also interpreted in terms of diagnostic variables. The study revealed that individual communication behaviors were reasonably predictive of relational development in the hospital & recommendations for interventions were made to facilitate post-admission therapies.

**HURT, H. THOMAS. Communic, N Texas St. "Measurement of Opinion Leadership in Communication Networks: Development & Validation."**

When investigating diffusion networks, communication schools have tended to restrict their definitions of opinion leaders to either self-report measures or choice-estimates based upon the number of direct & indirect choices any actor received from others in the system. Ironically, both definitions either ignore the power of structural models of human interaction for defining relationship influence, or they ignore other communication paradigms such as the principle of homophily & its role in the power of structural modelling for purposes of incorporating communication processes into a new definition of opinion leadership, & concludes with a validity check of the definition in a system making an adoption decision regarding new communication technology.

More specifically, structural theorists have tended to define opinion leadership as a function of positional variables indicating centrality & the control of desired resources. Although this approach is most useful when examining certain economic issues, it completely abandons communication theory as it applies to the type of influences which are exercised by opinion leadership expressed as an inverse function of the ration of homophilious & optimally heterophilious links. Following completion of the model, the paper reports the results of a real-world application of the model. Network & questionnaire data were collected in a large organization just prior to the emplacement of a new communication technology. Employees were given the option of either adopting or not adopting a free in-depth technology training program more extensive than the normal training provided by the manufacturer. Both the questionnaires & network analysis provided data for the measurement of opinion leadership & the predictive validity (adoption decision conformity of followers) of the self-report & network definition of opinion leadership. In all subsequent analyses, the network model of opinion leadership developed in this paper was far superior to either self-report definitions or more traditional frequency of choice definitions.

**IVERSON, GEOFFREY J. & DONALD SADE. Northwestern. "Statistical Issues in the Analysis of Animal Dominance Hierarchies."**

It has recently been suggested that dominance hierarchies in at least some animal societies may be artifacts of chance. The reason for this alarming assertion is shown to reside in a drastic censorship of data, so as to conform to the narrow scope of a statistical test due to Kendall. Our own analysis introduces a pair of statistical tests, one of which pits chance against the hypothesis of a hierarchy; the other is a companion goodness of fit procedure. We examine in detail data from three distinct animal societies, including a case that fails to be declared hierarchical by the Kendall test. In no case do we find any evidence for a hierarchy arising by chance; moreover, the goodness of fit statistic is, in each case, well below criterion.

**JOHNSON, JEFFREY C., KEN WILSON, G. MICHAEL POTEAT, & MARSHA IRONSMITH. Psychology, East Carolina. "Information Lost: Using Average Ratings to Determine Sociometric Status."**

There has been a tradition of using sociometric data in the classification of rejected & neglected preschool children. Identifying children that may potentially lack appropriate social skills can provide opportunities for early intervention. Classification has generally been based on raw & standardized positive nominations, negative nominations, & peer ratings. Indices of "social preferences", "social impact", & "alternative status", have been determined on the basis of average ratings. These measures (i.e., based on column marginal) can often be misleading in that their use can obscure important structural information. This paper demonstrates conditions under which average ratings can be misleading & discusses alternative approaches based on notions concerning network structure.

**KADUSHIN, CHARLES, NAVA LERER, SUZANNE TUMELTY, & JESSE REICHLER. Soc, CUNY Grad Ctr. "With a Little Help from My Friends."**

Questionnaires to computer users. The present report covers the feasibility of snowball samples utilized disk questionnaires, the feasibility of interpersonal environment types of questions on disks, as well as a report on the use of friends as sources of help in computing. Early returns from our pretests suggest that informal help is almost universal, much more utilized than official sources, a major source of illegal software, & asymmetrical - that is, the type of person one helps is different from the type of

person who helps you. Additional materials presented [at the conference] on characteristics of micro-computer users & the use to which their computers are put.

**KIM, YONG-HAK & EDWARD LAUMANN. Sociology, Chicago. "Structure of Interest, Communication & Policy Participation in the National Health Policy Domain."**

We propose to analyze the pattern of "who gets whom" for information & the effects of communication on policy participation in the national health policy domain. The 1st part of the paper treats the pattern of dyadic communication as the dependent variable. Using the method of structural equivalence analysis, we study why a given pair of organizations tend to communicate with the same set of target organizations. We expect that the members of the pair have a similar pattern of communication to the extent that they (1) share issue interest, (2) share similarity in event activity defined as the degree of coactivation across the entire set of policy events under study, (3) share the position (pro or con) with respect to the events, (4) are of the same organizational type (e.g., public interest groups, business corporations or government organization), & (5) share some profile of individual characteristics such as influence rank & environmental monitoring capacity. From the purposive action perspective, we expect that the degree of the interest overlap is the most important determinant of the communication overlap; "interest induces communication."

In the 2d part, we treat the networks of communication as the intervening variables. We have collected information on two types of communication (i.e. regular & routine (RR) & candid & confidential (CC) communication & the network of interlocking directorates (BD) ). We expect that the patterns of communication in each network have different effects on different organizational activities. Still working at the dyadic level of analysis, we raise the question whether interest similarities have different effects on communication similarities in the two communication networks. Because establishing a link in the structure of RR is less costly than in the CC network, interest alone should explain more of the variance in RR than it does in CC. Establishing a channel of confidential information requires institutional facilities, for instance, links between boards of directors.

**KOCHEN, MANFRED. Bus Admin, Michigan. "Decentralization in Social Networks."**

Ideas from a study of optimal degrees of decentralization in human service organizations by Kochen & Deutsch are used to determine the distribution of acquaintance length chains implied by varying degrees of decentralization. These ideas are modified so as to incorporate promising new conceptualizations of how the brain is organized-- due to Edelman, Gazzaniga & others-- as the federation of largely independent modules. The relevance of these conceptualizations is based on the belief that there are fruitful analogies between the most functional & the most viable network structures, whether in brain, organizations or social networks.

**KONIGSBERG, LYLE W. Chicago Field Museum, Northwestern. "Migration Models of Prehistoric Postmarital Resident."**

It has previously been suggested that residential practices can be inferred from within or between group analysis of male & female skeletal morphology. Arguments have proceeded from intuitively derived hypotheses about the genetic consequences of drift & migration. In this paper, a formal basis is presented for these hypotheses using a modified version of Wright's island model & the migration matrix method. It is shown that the usual measures of standardized genetic variance or genetic kinship generated by these models can be decomposed into male, female, & male/female components. The male & female components can in turn be used to separately assess the effect of different residential practices on the population genetic structure of the two sexes. Data on nonmetric cranial traits for 516 individuals from Middle Woodland, Late Woodland, & Mississippian networks of sites in west-central Illinois is used to delineate the probable residential practices for this region.

**KRACKHARDT, DAVID. Management, Cornell. "Role of Cognitive Social Structures in Reputational Power & Charisma in Organizations."**

Building on the work of Brass & others, the idea of power accruing to central actors within an organization is extended. It is argued that, if power is a function of being in the right place, than an important base of power is also knowing what the place looks like. The contribution to one's power that cognitive social structures provide over & above one's position in the network is explored in a high tech firm.



**KRACKHARDT, DAVID. Management, Cornell. "Cognitive Social Structures & Concrete/Abstract Positions."**

Freeman, Romney & Freeman (1986) suggest that a center-periphery structure can account for people's perceptions of network interactions. Burt (1986) argues that structural equivalence better accounts for perceptual similarity. In this paper, this comparative search is extended to include the recently expanded set of positional analyses which Breiger & Pattison (1986) suggest lie along a continuum from concrete to abstract. Similarity in cognitive social structures in a small entrepreneurial firm are related to similarity in positions as defined in highly concrete terms, path distance, & in increasingly abstract terms through ego algebras & regular equivalence.

**LIEVROUW, LEAH. Communic, Rutgers. "Bringing Context into Network Analysis."**

Researchers have found that it is often methodologically difficult to conduct the kind of environmental or contextual research that highlights the social relationships at the heart of the networks being studied. Many network analysts would readily agree that behaviour out of social context is meaningless. But clearly, context is not as easy to "capture" & study as is "behaviour" or network structure. The purpose of this paper is twofold: first, to review the prevailing approaches to network analysis & their treatments of network context, & second, to make a number of suggestions for bringing context into network studies, both in the design of the research project & in data analysis.

**MacEVOY, BRUCE. Soc Sci, Cal-Irvine. "The Pattern of Actor Perceptions of Small Group Social Structures."**

Self-reported advice & friendship relations among a group of managers (N=21) are used to explore the effect of psychological & social structural variables on individual perceptions of group structure. Disagreements between actors in reports of advice relations can be attributed to differences in the position of actors in the network, to contrasting membership in network subgroups, & to social attributes of the actors such as tenure with the firm & self-esteem. No effects appear in friendship ties or as a result of actor position in the formal organizational structure. Variations in actors' access to information about group structure seem to create most of the dissensus in reported ties, but significant disagreement may also occur because actors report ties that reflect intentions to interact or esteem-related judgments of personal importance in the group.

**MARSDEN, PETER V. & JEANNE HURLBERT. North Carolina. "Small Networks & Selectivity Bias in the Analysis of Survey Network Data."**

Selectivity bias is a danger whenever observations are systematically excluded from a data set on the basis of a dependent variable, whether this exclusion is explicitly or implicit. If present, the problem has severe consequences for the validity of statistical estimates of effects. The problem is of importance to the analysis of survey network data, since many network measures (such as density) are defined only for persons having networks of size two or larger, while others (such as percent kin) are defined only for those having networks of size one or more. Analysts can correct for selectivity bias by modelling the risk of exclusion (in this case, of having a network of size 0 or 1), & including the modelled risk as a control in substantive equations. This paper presents such estimates for the 1985 GSS network data; in doing so it replicates results of Fischer & Phillips on loneliness. Other ways of guarding against selection bias are also discussed: at a minimum, network size should be included among the set of regressors in analyses of survey network data, as a methodological control if not as a substantive variable.

**MARYANSKI, ALEXANDRA. Soc Sci, Cal-Irvine. "Gorilla & Chimpanzee Social Networks: Is There Strength in Weak Ties?"**

Among African apes, a study of "who likes to be with whom" reveals a pattern of cliques dramatically different than the cliques found among most monkey species. This paper first summarizes the structure of gorilla & chimpanzee social networks. Second, it attempts to show how these networks operate at the micro & macro levels to create a particular form of societal integration. & finally, it places the above findings in a broad evolutionary framework in an effort to better understand their significance for African ape lifeways, & possibly, for human lifeways as well.

**McGRATH, JANET W. Anthropology, Case Western. "Networks of Disease Spread in the Lower Illinois Valley: A Simulation Approach."**

This study illustrates the use of disease modeling & simulation techniques for the investigation of disease spread within & between social networks. A "Reed-Frost type" model of disease spread is used to simulate the spread of tuberculosis within three prehistoric populations of the Lower Illinois Valley. The majority of the simulations resulted in severe & rapid population extinction. One model simulation resulted in extinction of the pathogen. The results of the study suggest that a social network of between 180-440 persons is required under the conditions of the model for host-pathogen coexistence to occur. Future adaptations of modeling & simulation techniques can provide additional insights into how disease spreads among social contacts.

**MEYER, MARSHALL W. Soc, Cal-Riverside. "Organizational Structures & Networks: Convergence or Divergence."**

This paper raises the question of whether units comprising organizations can be understood principally in terms of their relational or control/continuity characteristics. Three defining attributes of organizations are introduced: "namedness," control, & continuity. One issue, which is straightforward, concerns possible divergences between nominal & control/continuity definitions of organization. The second, probably more significant, concerns how one determines organization when control/continuity characteristics are dispersed across levels of complex organizational systems. A hypothesis is proposed, namely that identifying units that are unambiguously organization-like will become more difficult over time as smaller units are absorbed into complex organizational systems.

**MIZRUCHI, MARK S. Scientific Computing Center, Albert Einstein Col of Med. "Brokerage, Exploitation & Power: An Application of the Concepts of Derived & Reflected Centrality to Models of Network Power."**

At a recent article in *Sociological Methodology*, Mizruchi, et al. showed that the Bonacich centrality measure, based on the largest eigenvector of a square relation matrix, could be partitioned into two components, "derived" & "reflected" centrality. One of the interesting features of the eigenvector centrality index is its close mathematical similarity to the model of power developed by Coleman & extended by Marsden. In this paper, I explore the relations between the Coleman-Marsden model of power & the Bonacich centrality index. I then use the concepts of derived & reflected centrality to partition power scores.

Units have derived power to the extent that units dependent upon them are also powerful, independent of their relations with the former. Units have reflected power to the extent that their power increases the power of those on whom they are dependent (and who are dependent on them). Derived & reflected power sum to total power. Mathematically, at two-steps, the portions of units reflected power are the diagonal elements in the squared relation matrix. The portions that are derived from particular units are in the off-diagonal elements of the squared matrix. Employing simulated data, I illustrate the ways in which the calculation of the derived & reflected components of power facilitates the understanding of brokerage & exploitative behavior. I show that the derived component of power is related to a unit's potential for brokerage while the reflected component of power is related to a unit's potential for exploitation.

**MORRISSEY, JOSEPH P. NY State Office of Mental Health. "To Sample or Not? Implication from Studying Interorganizational Networks in the Mental Health Arena."**

This paper examines the reproducibility of network structure based on complete (square-matrix) versus partial (rectangular-matrix) data. Analyses are based on ongoing study of relationships among children's mental health service agencies in two New York Communities. Burt's structural-equivalence criterion is employed to assess partial/complete data reproducibility across multiple networks involving resource transactions between agencies (e.g., funds, staff, clients).

**NEUSTADTL, ALAN & DAN CLAWSON. Soc, Massachusetts. "Corporate PACS & Conservative Cliques."**

Do identifiable groups exist among the corporations that contributed \$25,000 or more to Congressional candidates in the 1980 election? What groupings exist, how strong are they, & what is their political character? Our data consists of records of the campaign contributions of all (243) corporate Political Action Committees that contributed \$25,000 or more to major party candidates in the 1980 Congressional general election. We created a corporation by corporation matrix, with each cell entry being the correlation between the donation patterns of the two corporations. In each case this produced

a single large dense clique with few connections to the rest of the graph. Removing these cliques from the graph, the largest remaining clique in each case is one-third or less the size of the largest clique. Clique members all share a conservative ideology, but do not share region, industry, or economic characteristics.

**PAULSON, STEVEN K. & JANE E. DECKER. Business Admin, North Florida. "Managerial Applications of Network Analysis in Assessing Organizational Interdependencies."**

Based on the theoretical work of Mintzberg, bureaucratic organization is conceived to be a compromise between the "objective" interdependencies of work process, flow & scale, & the "subjective" interdependencies of personality & social need. Assuming that greater efficiency results from isomorphy among these factors, it is concluded that the more successful manager is the one who is able to maintain a high degree of isomorphy or, at least, is aware of non-isomorphy & is able to take steps to reduce its negative effects on resource use & allocation. Network analysis of employee & managerial perceptions & attitudes is proposed as the first step in a two-step process of assessing the fit among these interdependencies. The second step is a comparison of the perceptual/attitudinal network boundaries obtained from the network analysis with the objective boundaries of units in the organization. Data collected from a managerial & employee attitude survey in a large municipal utility are used for illustrative purposes. Isomorphy is discovered to be much greater among non-managerial employees than among managers. Advantages & limitations of this approach for the practicing manager are discussed.

**PAULSON, ROBERT I. Social Work, Cincinnati. "The Relationship Between Informal Networks & Formal Interorganizational Arrangements in Human Service Delivery Systems."**

This paper presents the final results of a study which explored the hypothesis that formal interorganizational arrangements are necessary but not sufficient to explain the interorganizational interaction in human service delivery systems. The study found that most of the activity was informal in nature & took place through constantly changing informal interorganizational networks. The dynamics of the interaction between the informal networks & formal interorganizational structures are explained. The 2d part of the paper discusses the particular methodological problems in conducting social network analyses with this kind of complex phenomenon & suggests areas where further methodological developments are needed.

**POLLOCK, GREG. The W.K. Kellogg Biological Station, Michigan State, Hickory Corners. "Tit for Tat in Relative Intergroup Fitness."**

Axelrod's minimum probability of future interaction for evolutionary stable tit for tat is exact only for populations with an infinity of dyads. In finite populations Axelrod's minimum underestimates the true lower bound on future interaction; when the population consists of a single dyad tit for tat is suboptimal. This permits a simple generalization of tit for tat to an n-person prisoner's dilemma (PD): so long as at least two n-person PDs are played within a single population, cooperation may be evolutionarily superior to parasitic defection. Collective good problems may then be solved by structuring a population into competing groups. When actors live in small populations, recruiting new dyads into the competitive populations of groups reduces the minimum probability of future action necessary for evolutionarily stable tit for tat. This releases interaction time for those already involved in iterated PDs, time which might then be invested elsewhere. Individuals can thus profit by identifying & manipulating the social networks of others while nonetheless remaining aloof from direct participation in them.

**REINGEN, PETER & JACQUELINE BROWN. Marketing, Arizona St. "Social Ties & Word-Of-Mouth Behaviour."**

This paper presents a network analysis of word-of-mouth behaviour in a natural environment. The relational properties of tie strength & homophily were employed to examine word-of-mouth behaviour at micro & macro levels of inquiry. The study demonstrates the different roles played by weak & strong social ties in word-of-mouth processes. At the macro level, weak ties were important in their bridging function, allowing information to travel from one distinct group to another in the broader social system. At the micro level, strong & homophilious ties were more likely to be activated for the flow of information. Strong ties were also more influential than weak ties, & they were more likely to be utilized as sources of information for related goods.

**REITZ, KARL P. Chapman Col. "Network Autocorrelation in Contingency Tables."**

Lack of independence between sample units has been treated extensively as it effects regression analysis. Less is known with respect to the lack of independence between the units which make up the counts in a contingency table. Fingleton & Brier have pioneered the extension of network autocorrelation to contingency tables. Their works represent solutions to the problem in the case of certain limited types of networks. This paper investigates a possible way of extending their solutions to more general networks of connections between the sample units.

**RICE, RONALD. Communic, Southern Cal. "Communication Technology Networks."**

This chapter provides an exemplar of the interaction of two new directions in communication research: the study of networks, & the study of communication technologies. It provides a rationale for studying communication technology networks, by emphasizing the unique perspectives of network analysis & communication attributes of new technologies; a framework for identifying unique aspects of data collection & methodology provided or required by computer-mediated communication systems; a brief discussion of a few fundamental conceptual & methodological issues in this research perspective. Examples from a selected set of communication technology network analyses are presented.

**RICHARDS, BILL. Communications, Simon Fraser. "Social Interaction Patterns of BC Foster Parents."**

The paper describes the analysis of social interaction patterns of foster parents in 6 distinct geographical areas of British Columbia. The conceptual model & measurement approach were developed as a response to the "Accuracy" series of Killworth, Bernard, & Sailor. The development of the model followed these steps: (1) Meetings with social workers & Human Resources staff to develop some general familiarity with fostering. (2) A series of focus-group sessions with foster parents in four different areas of the province. The purpose was to discuss the range of activities & interactions foster parents are involved in. About 16 hours of these sessions were recorded. (3) Transcripts of the tapes were prepared & content analyzed, resulting in typologies of individuals & of social contacts. (4) These typologies were used to prepare drafts of measuring instruments which were tested & revised. The final instrument asked about two dozen demographic & static social questions, & provided the index data. For each relationship described by a respondent there were 21 pieces of information. Including general characteristics of the relationship as well as 12 content/purpose variables.

The analysis is contextual, in that patterns of interaction are examined in the context of demographic & network characteristics of the people involved in the interaction. Discussion with Human Resources staff indicated that this method of analysis was sensitive enough to identify consequences of various social conditions that exist in different areas of the province.

**RICHARDS, BILL. Communic, Simon Fraser. "NEWCAT: A Graphic Program for Multivariate Multiplex Network Analysis."**

The paper describes a computer program designed to deal with multivariate & complex multiplex network data. The basic format of analysis is categorical -- which types of people have which types of interactions with which types of people. Two types of categorical variables are considered: "index variables" -- the ones that describe characteristics of individuals (i.e. demographics); & "link variables" -- the ones that describe characteristics of links (such as content, purpose, reason, etc.). Also considered is the strength of links, which may be operationalized as frequency of interaction, duration of interaction, importance of content, etc.

The program is interactive in the sense that parameters need not be set prior to the actual running of the program. Options are chosen by answering questions that appear on the screen. Almost all answers can be provided in free format. The program has SPSS-like capability for dealing with variable & value labels which are specified in a manner very similar to the method used in SPSS. The program is currently available in FORTRAN G for IBM mainframes, & a FORTRAN 77 version for IBM PC or compatibles is being prepared. A brief example of the use of the program is provided using multivariate multiplex data on social interaction patterns of foster parents in six geographically separate areas of British Columbia.

**RICHARDS, BILL. Communic, Simon Fraser, Vancouver. "An Empirical Test of Granovetter's 'Forbidden Triangle'."**

Granovetter argues that a pair of individuals who have strong ties to a third individual are likely to have strong ties to one another. The basic concept behind his argument is that strong ties are transitive. Using the binomial expansion, this paper develops a measure of structural differentiation

based on the number of completed triads in the network. This measure is presented in a parametric form, along with a variant that controls for the distribution of links among the members of the network. The measure is demonstrated with data from several different types of social network. Three types of tests are performed on the measure with these data sets: (1) Sensitivity to erroneous data. Random errors are introduced to the data sets & the impact on network structuring is observed. As the level of error increases, the amount of structural differentiation decreases. (2) Relation of structural differentiation to link strength. Structural differentiation is calculated repeatedly when the same networks are subjected to different cutoff points for link strength. As fewer weak links are kept in the analysis, structural differentiation increases. (3) Relation of relational multiplexity to structural differentiation. In Granovetter's terms, a "strong" tie is more likely to be multiplex than a weak tie. An index of link strength based on multiplexity is used to allow the same network to be examined at different levels of strength. Networks composed of multiplex links are shown to exhibit more structural differentiation than networks in which there are simple links.

**ROGERS, ALAN R. Anthropology, Pittsburgh. "Genetic Differences Between Partially Isolated Populations: Some Peculiarities of Humans & Other Primates."**

Natural populations are often spatially subdivided, & population geneticists have long been interested in the forces affecting genetic differences between the subdivisions. It is often convenient to view such populations as networks of local groups, which are related by recurrent migration between them. A variety of models have been built that predict the equilibrium pattern of migration. Here, I discuss several refinements of earlier models & show how some of their assumptions can be evaluated using anthropological data. This work suggests that, for humans & non-human primates, genetic differences between groups should be large compared to those in species in which migration occurs earlier in the life cycle, or in which social interactions are less nepotistic. Consequently, forms of natural selection that act on group differences may be relatively more important in these species.

**SADE, DONALD STONE. Northwestern. "Decoupling Centrality & Dominance in Rhesus Monkey Social Networks."**

Prominent among the ideas about social organization of monkey groups have been the concept of the linear dominance hierarchy & a much less precise notion of a central/peripheral ordering of individuals. Although the latter has seldom been quantified, the ranks of individuals in the two orders are assumed to be correlated in most of the literature. This paper reports on a longitudinal study of a free-ranging group of rhesus monkeys. The individual histories of progression of dominance rank & an independently determined measure of centrality in the social grooming network are compared among a set of males. Centrality is not a static correlate of dominance rank as implied by short-term studies. Rather, centrality is a more sensitive indicator of status than is dominance rank, to which it is related in a dynamic fashion. Sudden changes in dominance rank are both preceded & followed by orderly changes in centrality. These findings suggest a complex psychology of status, rather than a simple causative relation between the two variables.

**SAILER, LEE. Behrend Col, Penn St-Erie. "Comparing A Priori Groups & Co-occurrence Data."**

This paper describes a method for comparing co-occurrence data with a priori groups, including a measure of fit with confidence intervals & hypothesis tests. For example, observed interaction rates could be compared with a member's intuitive view of what cliques exist. An important distinction is made between 'concept driven' & 'data driven' clique analysis approaches, with this method being an example of the former. Many different substantive definitions of 'group' are accommodated by the method. The method is inspired by the 'leave-out-one' techniques from statistics such as PRESS & the Jackknife. The results can be converted into a measure of between data & groups, & confidence intervals for the fit are provided, allowing hypothesis tests. A general purpose computer program for computing the measures is available.

**SALLOWAY, JEFFREY, STEVEN DAUGHERTY, & LINDA NUZZARELLO. Psych & Soc Sci, Rush Medical Col. "Social Network Structure & Social Support Over Time."**

Some attention has been shown to the relationship between social networks & social supports. However, no reports to date have identified systematic relationships between these two constructs. Previous research by the authors found that in aggregate groups, the constructs are orthogonal. However, there is a convincing logic that there should be a relationship. In search of this elusive relationship the dimensions of time & sub-group were added to the analysis as modifier variables. This study

examines the structure of reported social networks & social supports in a population of medical students over a three-year span measured at four time points. Social network variables & social support variables on day #1 (orientation), end of Year 1, end of Year 2 & end of Year 3 are compared. These variables summarize patterns of stability & change in each domain. As in former studies, there is no relationship demonstrable between reported social networks & reported social support, even when examined over time. However, when social networks are disaggregated by family relationship, medical student colleague relationship, & other relationships some patterns emerge. Convergences between networks & support are evident at specific time points. We conclude that it is necessary to consider the relationship between networks & supports as a time-dependent process which affects some sub-groups within a network, but not others.

**SATTENSPIEL, LISA. Michigan. "The Spread & Maintenance of a Disease in a Structured Population."**

The patterns of interactions among different groups of individuals in a structure population is an important factor affecting the ease of establishment of a disease & the rate of spread of the disease in a population. A model for the spread of a disease in such a population is described. The model considers two levels of interaction: interactions between individuals within a subpopulation because of geographic proximity, & interactions between individuals of the same or different subpopulations because of attendance at common social functions. Analysis of the model shows that there are two possible steady states: extinction of the disease; maintenance of the disease in an endemic state. The condition determining the appropriate steady state for a given set of initial conditions is a simple inequality relating the removal rate of infectives to the infection rate of susceptibles. This condition is analyzed with regard to several idealized movement patterns. Results are also discussed in relation to a particular type of social interaction; attendance of preschool children at day care centers. The analytical results are compared with data on the spread of hepatitis A among preschool children in Albuquerque, New Mexico.

**SHELLEY, GENE A. Anthro, Florida. "An Operational Measure of Strength of Tie."**

The concept of strength of tie between individuals has been discussed by many researchers. Our research is based on attempting to operationalize the strength of tie by recording the time it takes for a person to hear about a life event of another person. Basically, the less time it takes, the closer those two individuals are tied.

**SHOOK, DOUGLAS E. & DAYNA FINET. Annenberg School of Communication, Southern California. "A Dimensional Analysis of Network Centrality & Interpersonal Trust & Influence in Organizations."**

Historically, much of the theory & research dealing with intraorganizational influence & trust have examined these phenomena from an individual attributes perspective. Only rarely have organizational researchers utilized a communication network approach to study influence & trust. This study tested hypotheses proposing specific associations between interpersonal trust & influence in organizations & multidimensional network measures of betweenness & degree centrality. The hypotheses were tested in both task & social communication networks across two different organizations. Although significant associations were found between communication network centrality & trust & influence, centrality was found to be largely unidimensional in both social & task oriented organizational communication networks.

**SKVORETZ, JOHN. Soc, South Carolina. "Connectivity & the Small World Problem."**

We apply the theoretical method of random & biased nets to the small world problem. We first derive the distribution of minimum acquaintance chain lengths using the tracing procedure of this methodology & then investigate how properties of chain lengths depend on various parametric quantities related to social structural influences on the formation of networks. These influences include population differentiation by subgroup, homophily -- the tendency for persons to have as associates members of the same subgroup in disproportion to their numbers -- & the strength of weak ties.

**SUDMAN, SEYMOUR. Survey Res Ctr, Illinois. "Experiments in Measuring Neighbor & Relative Social Networks."**

This paper reports the results of a series of experiments on the measurement of the size of neighbor & relative social networks. This is a continuation of work that was done earlier to test alternative methods of measuring social network size in work, church & social groups. In the earlier research we tested 3 procedures for measuring network size, recognition, recall & numerical estimates. A

surprising & encouraging result was that numerical estimates were similar to those obtained from recognition methods. Recall procedures which have been most widely used in research on networks, resulted in substantial underestimates. Here we replicate these experiments on neighbor & relative social networks.

In the earlier research we found that accuracy of reporting declined as the size of the social group increased. In that research it was not possible to control for group sizes, but in this research we experimentally vary the definition of neighbor. We cannot, of course, vary relative networks experimentally, but we examine them in the same way we examined social groups.

There are two major hypotheses tested: (H1) For neighbors, numerical estimates of network size will be approximately the same as recognition estimates & substantially greater than recall estimates; (H2A) For neighbors, level of recall will be positively related to geographic proximity & frequency of contact & negatively related to the size of the total geographic area; (H2B) For relatives, level of recall will be positively related to nearness of relationship & frequency of contact & negatively related to the size of the relative network.

**UNKNOWN AUTHOR. "Social Ties & Word-of-Mouth Referral Behavior."**

This paper presents a network analysis of word-of-mouth referral behavior in a natural environment. The relational properties of tie strength & homophily were employed to examine referral behavior at micro & macro levels of inquiry. The study demonstrates different roles play by weak & strong social ties. At the macro level, weak ties were important in their bridging function, allowing information to travel from one distinct subgroup composed of referral actors to another in the broader social system. At the micro level, strong & homophilous ties were more likely to be activated for the flow of referral information. Strong ties were also perceived as more influential than weak ties, & they were more likely to be utilized as sources of information for related goods.

**VAVEREK, KELLY A., HENRY L. TOSI & JANICE H. ZAHRLY. Management, Florida. "Performance & Structural Characteristics."**

This study is about the relationship between selected structural characteristics of semi-autonomous work groups & their performance. The study was conducted at a plant which was designed, constructed, & staffed with socio-technical systems principles in mind. Four work teams were established in January 1983. Measures of communication frequency were administered in April 1983, August 1983, & March 1984. Two informational categories were assessed: Production Issues Communication (PIC) & Social & Friendship Matters Communication (SFMC). Daily measure of team output was provided by the company. Individual performance rankings were done by the team superintendent & team leader in July/August 1983. There was a strong negative relationship between group production & the amount of overlap in the PIC & SFMC matrices. There was no relationship between group production & the amount of dyadic stability within the group. There was a negative relationship between an individual's performance & the individual's membership in a stable dyad.

**WEISS, CAROL & SHULA MINSKY. Div Mental Hlth & Hsptls, NJ Dept Human Services, CN 700, Trenton, NJ, 08625. "Networking in Crisis & Emergency Care: A Key Informant Survey in Two New Jersey Counties."**

Mental health clients may have many helpers. Services fragmentation & poor continuity of care may ensure when helpers fail to work in concert. This paper describes an interorganizational network analysis of local crisis & emergency caregivers; the analysis was part of an NIMH project funded to identify & improve coordination efforts. Project staff polled representatives of 26 organizations & groups drawn from the public mental health sector & other human services. Exchanges of referrals & information (i.e., consultation & education or technical assistance), respondents' awareness of other helpers, & the extent of formal interagency agreements were assessed. Ties among respondents only were displayed in a sociogram format which project staff adapted to local networking activities & statewide training initiatives. Analyses of ties among the full spectrum of caregivers allowed for intercounty comparisons & for correlations among types of exchanges. For example, awareness of other helpers showed a positive association with referral exchanges, formalization, & providing information to other helper groups. Using network measurement for mental health decision-making challenges & rewards the interorganizational researcher.

**WELLER, SUSAN C. Pennsylvania. "Diagnosing Structural Effects in a Social Choice Matrix."**

This paper describes an analytical procedure for diagnosing different kinds of structural effects in a "social choice" 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". An analysis of variance model (two-way analysis of variance with one observation per cell), partitions the data into main effects & residual effects. It is within these residual effects that interaction is captured & confounded with measurement error & noise. When main effects are controlled for, the residual can be decomposed into interactive factors [and noise]. The proportion of variance in the data that is explained by main & residual/interactive effects can be used as a guide for continuing an analysis of the residuals to discover patterns of "interaction". Correspondence analysis & optimal scaling facilitate the identification of interactive factors. This diagnostic/analytic procedure is illustrated with simple data sets.

**WELLMAN, BARRY. (with the assistance of Paula Goldman & Clayton Mosher). Sociology, Toronto. "The Network Basis of Support."**

What is it about the composition, relationships & structures of East Yorkers' personal networks that affects the quality & quantity of supportive resources they provide? The size of networks not only leads to higher volumes of support but also to higher rates (a higher proportion of members of large networks give support). Weak ties are important purveyors of support: the quantity of ties in these networks counts for more than the quality of the relationships. More heterogeneous networks, having members in a wide variety of roles, [provide more small services. Less integrated, lower density, networks (composed principally of friends) have higher rates of sociable companionship. While networks with high proportions of women provide high volumes & rates of emotional aid, no other personal characteristic of network members is associated with the provision of support. Thus the structural & relationship characteristics of these networks are more closely associated with the provision of support by network members -- itself a relational phenomena -- than are the personal characteristics of network members. Thus our work bears on a basic sociological question: does the structure of a social system affect process over & above the sum of what happens in its relationships.

**WIEDEMANN, P.M. & U. BECKER. Psychology, Technical University Berlin. "The Exploration of Help Seeking: Decision Making In Networking Process."**

Networking for getting support can be conceptualized as decision making. This perspective is not unfamiliar but the techniques developed in the field of decision analysis have not yet been used for exploring the cognitive processes involved in the construction & use of supportive networks. This paper introduces how decision analytic tools might be used for doing research into networks & demonstrates how the cognitive structures governing construction of supportive networks & help seeking in these networks can be captured.

The application of two techniques is described: Value trees & the multiattribute utility technology. The use of value trees gives the possibility to concretize the values relevant for the construction & activation of supportive networks. The multiattribute utility approach provides a technology for assessing the cognitive structures & conditions relevant for help seeking decisions.

**WILSON, DONALD O. Management, California. "The Impact of Task Characteristics on Intraorganizational Communication Patterns."**

Perrow's dimensions of work unit technology are used to test a contingency approach to subunit communication structure. The technical advice network for units in a large engineering organization are analyzed in terms of the number of communication links within & outside the unit & the direction of these links (i.e., vertical, horizontal, or diagonal). Results indicate that the communication patterns of high performing units are influenced by differences in task variability & analyzability while the communication patterns of low performing units are not.

**WOLFE, ALVIN W. Anthropology, South Florida. "Effects of Multinational Enterprise on Supranational Networks."**

Prompted by Smith & White, this paper questions whether we can understand the modern world economy by categorizing nation states along a single dimension of core-periphery. Countries or nation states are not the only actors in the world economy, they are not the only nodes in the network of actors that must be taken into account. Effective actions & transactions made by multinational firms are not all subsumed within the trade statistics of one or another nation-state. In that regard, there



are errors of inaccuracy & errors of omission. Multinational corporations make a variety of arrangements to assure that transactions do not appear as transactions in order to avoid duties, taxes, imposts, publicity, etc. The difference between international & supranational are explained, using as illustration the interlocking connections among major mining firms in Southern Africa, as of approximately 1962. The network binds groups that are different both structurally & functionally, some business corporations, some states, some families, in a modern supranational structure that is more than just international. The similarities between states & business firms are highlighted, a state being a kind of corporation whose right to use force on a given territory is recognized by some others. Give a corporation that controls some resources the right to use force on a territory & suddenly it is a state. Illustrating the network or system at a supranational level, it is argued that no one unit can break out in a new direction, introduce any drastic change without other units adjusting their own strategies. Among the connections are interlocking directorates, joint ventures, & other contractual arrangements among companies but also between multinational companies & state governments. Problems of informant accuracy, both personal & institutional, are addressed, noting especially that when we reach the level of that cultural construction that goes by the name of nation state, institutional memory distortions get fixed almost indelibly. We seem to have built national states so firmly into our culture that even a school of social history that purports to be interested in World Systems ends up merely cataloging & ranking nation-states. All of our institutions are biased in that way so that it is difficult to find data that are independent of the nationalist assumption.

**ZACHARY, WAYNE, & ELLIOT COLE. CHI Systems Inc., Blue Bell PA, 19422. "Using Social Network Theory & Data to Develop an Intelligent Computer-based Aid for Organizational Communication."**

In an organization of 1000, 5000, or 10000 people, most of whom are infrequently or never seen, people simply lack enough knowledge of the social environment to form good search strategies. Instead, the individual typically falls back onto default strategies such as "ask the nearest person". What is needed is a tool for intelligent support within an organization to assist the social cognition of an individual with an information need. Such a tool would not try to solve a person's information need directly - as might an expert system - but instead merely directs the person to another human being that is most likely to have the answer or to provide help in finding it. We have named this network aid FACILITATOR. The FACILITATOR is intended for situations where everyone has ready access to a network-accessible timesharing computer/microcomputer. It uses a hybrid of current artificial intelligence & database management technologies to accomplish its functions, as follows. An individual with an information need is unable to find someone who can help, & so accesses FACILITATOR. FACILITATOR allows the user to enter the query in natural language, reducing it internally to a set of elemental units called semantic predicates by artificial intelligence techniques. FACILITATOR then combines the semantic predicates along with information from a knowledge base about the task domain & organizational structure to form a query to a database of potential information sources. This database contains data on the people in the organization & their areas or expertise and/or experience. Before the database is actually interrogated, FACILITATOR "fine tunes" the query with regard to various organizational factors (e.g. to avoid directing low-echelon personnel to contact top-echelon personnel); focusing factors (e.g. to draw attention to potential sources with similar training, interests, or responsibilities); and/or substantive factors (e.g. to ensure that questions regarding accounting software will be directed to accountants as well as software specialists). The database is then interrogated using the search query constructed by FACILITATOR, & the list of potential sources is presented to the initial requester. One final component of the system is outside the query-response loop. This component, which includes a combination of manual & automated means, captures information on the current activities of people within the FACILITATOR network for use in updating & maintaining the FACILITATOR information-source database.

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## **GERONTOLOGY**

{Abstracts from the Annual Meeting of the American Gerontological Association. Chicago, Illinois. November, 1986.}

### **AKIYAMA, H., & TONI ANTONUCCI. Soc, Michigan. "Sex Differences in Social Support Among Older Adults."**

This study examines differences in sources, quantity & quality of social support as well as differential effects of support on individual well-being. The data are taken from a national survey of older people collected in 1980 by the Survey Research Center of the University of Michigan. Included in the present study are 214 men & 166 women ranging in age from 50 to 95 who are married & have at least one child. The analysis reveals structural & functional differences in networks: women have larger networks & receive supports from multiple sources, while men tend to rely on their spouses exclusively. Men reported greater satisfaction with marriage than women. While for both men & women, the quality of support rather than the quantity of support have significantly greater effects on well-being, both the quantity & quality of social support have a greater impact on the well-being of women compared to men. Possible antecedent factors & consequent effects of these differences will be discussed.

### **BUTLER, E.W., & T.L. SCHUSTER. Cal-Riverside. "Differential Saliency of Life Events Among the Elderly."**

Focus of this research is on the differential evaluation of positive & negative life events as perceived by the ego rather than on life events as determined by a life events inventory. The research determined the saliency of life events in the process of interviewing an elderly sample of persons who have been followed between 1963 & 1984. In the 1984 interview, both positive & negative significant life events, as defined by respondents, were obtained. The data were gathered in such a manner that it could be determined if there are linkages between positive & negative life events, e.g., a divorce & remarriage. Additional information explores related change, stress, & impact of these life events on the ego. In addition to possible linkages between positive & negative life events, life cycle timing is explored, with an analysis of examining saliency, recall, & repression. Demographic factors related to life events & their saliency are a prelude to the final section of the paper which presents several models interrelating demographic characteristics, salient life events, & mental health outcome measures.

### **CICIRELLI, V.G. Purdue. "A Comparison of Support to Hospitalized Elderly From Various Family Members."**

Separation & isolation from family members is a source of stress for elderly patients in acute-care hospitals which can adversely affect recovery. While the spouse is usually the main supporter, if none is available substitution theory predicts that other kin would give support. The present study asked whether substitute supporters differed in the kind & amount of help provided. 105 acute-care patients aged 60-93 were interviewed regarding support from family members, using a 24-item instrument measuring extent of help with emotional support, provision of information, help with care in the hospital, & provision of amenities. As supporter, 37 named a spouse, 22 named a daughter, 19 a son, 11 a sibling, & 13 other kin. In ANOVAs, there was a significant difference in support from different kin, with spouses giving the most support, followed by daughters, then other kin. While other kin substitute readily as nominal helpers, they clearly do not provide the same level of support as closer family members.

### **GOLD, D.T. Educ., Northwestern. "Sibling Relationships in Old Age: A Typology."**

This paper focuses on the kinds of sibling relationships which exist between older people & the ways in which each type meets their social & psychological needs. Five types of relationships emerged from data collected in open-ended interviews with 30 men & 30 women over 65 who had at least one living sibling. They were the "intimate" (17%), the "congenial" (28%), the "loyal" (35%), the "apathetic" (10%), & the "hostile" (10%). Each type reflects a discrete pattern of instrumental & emotional support & contact, as well as differing degrees of closeness, envy, resentment, approval, & psychological involvement. Distribution of same-sex & cross-sex dyads among the types suggests gender differences in sibling interactions. These respondents indicated that a woman's presence in a sibling dyad enhanced its importance & influence in old age.

**HUYCK, M.H., & T.J. MAKATURA.** Illinois Institute of Technology, Chicago. "The Meanings of Parenting in the Later Years."

The focus of this paper is to provide information regarding the range & quality of the relationships that middle-aged & older parents experience with their children. Respondents for these analyses include 134 mothers & 108 fathers, aged 43 to 82; the parents participated in a larger study of intergenerational relations with a young adult child. The data used in these analyses included responses to semi-structured questions regarding the ways the father/mother views himself/herself in the parenting role & enjoyable & annoying aspects of parenting. The data suggest that many parents experience a "post-parental" relationship with young adult children that is marked by substantial reciprocity & mutual regard. Parents also describe ways in which they continue "parenting". Implicit models which predict depression, relief, or uncertainty in relation to changes in parent-child relationships are partially supported. The data also suggest specifications of the Generational Stake hypothesis.

**KIMBOKO, P., E. COX & R. PARSONS.** Gerontology, Northern Colorado. "Caregiver Burden & Relationship Quality in Multi-Generational Households."

It is still not clear whether burden as reported by caregivers reflects primarily the objective demands or the subjective aspects of the caregiving situation. This study examines alternative explanations of burden among adult children whose parents live with them. A sample of 54 multi-generational households was selected, & caregivers interviewed in their own homes, in regard to the caregiving situation. Measures of dependency of the elder (in economic, mental health, & physical health status, & performance of activities of daily living) was used to represent objective burden. The subjective burden was measured by assessing the quality of relationship between the parent & child as reflected in the caregiver's report of affection, value consensus, & shared interests. The relationship of each of these factors to perceived burden was examined. The best explanation for perceived burden was the subjective quality of relationship: child's affection for parent, parent's affection for the child, & value consensus. The measures of dependency of the elder showed no relationship to burden.

**KING, S., K. CORNWELL, B. GIVEN, & C.W. GIVEN.** Nursing, Michigan State. "Survey Based Case Studies of Family Caregivers."

It is theorized that gender, relationship to the care recipient & work status of the caregiver influence involvement in & response to caregiving. The results of a survey of 96 family caregivers were analyzed to develop profiles of caregivers in four basic categories: 1) female spouses; 2) male spouses, 3) working daughters; & 4) non-working daughters. Caregivers were surveyed relative to the physical & mental functional characteristics of the individual for whom they provide care, their involvement in caregiving relative to the number & frequency of activities performed, the burden perceived in the areas of : finances, disruption of normal schedule, alterations in family relationships & emotional responses to caregiving & coping mechanisms. Analysis of the data resulted in four caregiver profiles which differed in involvement, perceived burden & coping mechanisms.

**KINNEY, J.M., M.A.P. STEPHENS & V.K. NORRIS.** Psych, Kent State. "Evaluation of Scales to Assess the Stresses of Caregiving: A Theoretical Analysis."

While many studies have documented caregiving as a potential stressor for those providing care, recent attempts to quantify the stresses of caring for a family member & its consequences fail to incorporate theory & findings from the larger literature on human stress. This presentation critically evaluates five of the most frequently used caregiving stress scales in terms of a transactional model of stress. Scales are compared along three dimensions: source of the stressor, caregivers' response to that stressor; time period. Instruments were found to be limited in that they: often confound stress with its outcomes, either fail to specify a time interval or the time interval was long; did not include positive aspects of caregiving. This analysis indicates the need for instruments that focus on caregivers' positive & negative appraisals of recently occurring daily events.

**LEVITT, M.J. & R.A. WEBER.** Florida International U., N. Miami. "Family Relationships, Personal Control, & Well-Being: A Three-Generation Analysis."

The role of personal control as a mediator was explored in a sample of women in three-generation families. A series of regressions was conducted in which the interrelations of health & stress, support, intrafamilial relationship quality, control, affect & life satisfaction indices were examined. Hypothesized linkages between the affective quality of intrafamilial relationships, control, & well-being were confirmed, especially for the middle generation. Perceived control was greater for women in the middle &

younger generations who had more positive intergenerational relationships. Control was related to affective well-being for older & middle generation women. Cross-generational differences in the inter-relations of these variables suggest the possibility of life span changes in the mediators of well-being.

**LITWAK, E., & M. SILVERSTEIN. Social Sciences, Columbia. "The Relationship Between Social Support & Longevity Among the Elderly: A New Framework For Analyzing Mortality Rates."**

Informal support is more effective in situations which are unpredictable. Hypotheses about social support were tested using data from a sample of 1,400 people 65 years & older living in New York & Florida, who were followed up in 1985. Social support is significantly related to the probability of dying in the 8-year period, but not strongly so. When age, functional disability & illness are controlled, social support is reduced to insignificance, indicating the relationship may be an artifact of young age & good health. However, younger, healthier females appear to benefit most from social support. Several empirical issues are raised. First is a "ceiling" effect: even those with very strong social support will eventually die. Second is the assumption that social support is stable from the baseline to the follow-up period. Additional analyses focus on the types of death which informal groups minimize.

**MANCINI, J.A. & R. BLIESZNER. Family & Child development, Virginia Tech U. "Successful Aging & Close Relationships with Children."**

The interplay between parent-child relationships & successful aging (SA) is examined. Core variables are: affection, companionate & task interaction, exchange, contact satisfaction. Context variables are: health, age, sex, SES, marital status, N children, proximity to child. Parents 65+ were selected by modified probability methods & interviewed. They talked about a child considered closest. Health is most consistently tied to SA, while sex, age, & SES are variously related. With regard to family factors, task interaction, instrumental & psychological exchange, contact satisfaction & marital status are most related to SA. Regression analyses suggest that health & contact satisfaction are relatively more significant for SA. These results are explained in regard to health as the linchpin in SA; overestimation of family's role in SA; measurement deficits in health, SA, & quality of relationships; insensitivity of SA indicators to family influences; and, conceptual liabilities.

**MATTHEWS, S.H., C.J. ROSENTHAL, & V.W. MARSHALL. Soc, Case Western. "The Incidence & Prevalence of "Women in the Middle"."**

In the gerontological literature, women are described as "in the middle" or "caught" because of the added responsibility of frail parents. Both demographic changes & the findings of research on non-random groups of primary caregivers are cited as supporting evidence. Neither provides adequate information from which to generalize about the prevalence of competing commitments of middle-aged women. Drawing on a representative sample of women aged 40-69 living in Ontario in 1980, the "risk" of their confronting competing commitments is reported. Almost half of the respondents did not have living parents. For those who did, the incidence of various combinations of competing commitments is ascertained & the likelihood of their leading to daughters' being "caught" is assessed. To complete the picture, the past involvement in parent care for those whose parent(s) had died is examined. The data indicate that the "risk" associated with being "in the middle" of competing demands is not as great as the literature suggests.

**MATTHIESEN, VALERIE. Rush U. "Adult Daughters' Relationships With Their Institutionalized Mothers."**

The institutionalization process of mothers & its effect on adult daughters' personal & emotional lives was the focus of this study. A qualitative research design using grounded theory methodology was used to study daughters' relationships during the transitional period following their mothers' institutionalization in a nursing home. A voluntary sample of 32 adult, white women, age 40-71, was interviewed. Using methods of qualitative analysis, two basic social processes were named. "Becoming the chosen daughter" was a basic social psychological process that occurred for daughters who took on the responsibility of their mothers. A matrix of role delegation & acceptance clarified this process. Changes occurred in the social, structural, & psychological dimensions of their lives & included phenomena of family social support, guilt, & grief. The basic social structural process of "Redefining their roles" delineated the daughters' role transitional process with three role reorganization outcomes: resolution, flux, & disorganization. Social-psychological & structural factors important to role reorganization are discussed. Adult daughters reorganized their role relationships with their institutionalized mothers with the creation of new social worlds for themselves.

**MORGAN, DAVID. Soc, Cal-Riverside. "The Impact of Aging on Social Networks."**

The 1985 General Social Survey provides some of the first data on social networks from a nationally representative sample, & this paper uses these data to compare the features of social networks among respondents across the age range 18-89. Comparisons based on the zero-order relationship between age & network size show substantial declines in network size with aging, but half of this effect is removed by controls for social factors associated with aging: income, education, & health. The number of roles enacted in the network also shows a significant decline with age, but further analysis shows that this decline is itself due to decreases in the size of the network. Declines in the frequency of contacts within the network also occur, & their source is harder to locate: they appear to be direct effects of age & are only partially accounted for by the decrease in the size of the network. Overall, these data indicate that there are notable change in the size & content of social networks across the life cycle, & these changes are discussed in terms of their implications for informal sources of social support.

**NORRIS, V.K., M.A.P. STEPHENS, J.M. KINNEY, S.W. RITCHIE, & R. GROTZ. Psych, Kent State. "Family Interactions & Recovery From Stroke."**

This research investigated the degree to which familial interactions aided or hindered psychosocial & physical recovery following a major disruptive illness, stroke. The relationship of supportive & problematic interactions to five indices of well-being, morale, psychiatric symptoms, activities of daily living, meaningful time use, & cognitive functioning, were examined. Using functional health status at hospital discharge as a covariate, five multiple regression analyses were conducted. Supportive relationships were not related to any of the five indices of well-being. Problematic relationships were related only to morale & psychiatric symptoms. Further analyses examined the dimensions of expressive & instrumental support. The only significant relationship that emerged was between problematic expressive interactions & psychiatric symptoms. It appears when supportive & problematic interactions are measured simultaneously, the harmful effects of problematic interactions are specific to psychological well-being. The effects of supportive interactions appear to lie in another area.

**O'BRYANT, S.L. Ohio State. "Sibling Support & Widows' Well-Being."**

Siblings' gender & proximity, availability of other kin (especially children) & special circumstances (such as widowhood) are among the variables which appear to influence sibling interaction & sibling support. In the present study, relationships between widows' subjective well-being & sibling interaction/support are examined. The respondents were 226 widows, ages 60 to 89, who were interviewed individually approximately one year after their husbands' deaths. Measures included social, expressive, & instrumental support, & Bradburn's affect balance scale. Results indicated that, when widows had children nearby, the receipt of sibling support had a negative impact; however, contact with sisters & several types of sister support were positively related to childless widows' higher levels of well-being. Conversely, although contact with brothers was neither positive nor negative, brothers' support was related to lower levels of well-being.

**PETT, M.A., M.S. CASERTA, A.P. HUTTON & D.A. LUND. Intermountain West Long-Term Care Gerontology Center, U. of Utah College of Nursing. "Combining the Roles: Younger Women Caring for Older Demented Relatives."**

The middle-aged generation in general & women in particular are often caught in the middle of competing intergenerational demands. The purpose of this study was to examine the experiences of a particularly vulnerable group of middle-aged women who, while raising a family, were also the primary care provider for an older relative with dementia. A subsample of 181 such women were identified from a national sample of 888 dementia caregivers who complete self-report questionnaires concerned with various aspects of caregiving. The results indicated that women who cared for the relative in their homes were caring for older, significantly more functionally demented relatives for greater periods of time than women whose relatives resided in other parts of the community or in institutions. These women also reported significantly higher levels of burden, & less availability of informal social support than the other two groups.

**REDFORD, LINDA. Kansas. "Effectiveness of Support Networks in Times of Declining Health."**

Factors such as expandability, density, heterogeneity, frequency of interaction, & previous transactional patterns affect the ability of a given network to respond appropriately in times of increasing functional dependence of the older person. These findings are based on a cross-sectional survey of 113

randomly selected elderly individuals living in their own homes & longitudinal follow-up on 10 of these persons as they experience debilitating health problems.

**ROLANDO, J., M.A. PETT, M.A. LAUBACHER, M. JURETICH & D.A. LUND. U. of Utah College of Nursing, Salt Lake City. "Double Jeopardy: The Impact of Caring for a Demented Relative on the Health of Older Caregivers."**

The purpose of this study was to examine issues related to the changing health status of a particularly vulnerable group: the older caregiver of a demented relative. A national sample of 141 family members, 70 years or older, who were caring for a non-institutionalized demented relative in their homes completed self-report questionnaires concerning various aspects of the caregiving role. The results suggested that caregivers who attributed the negative change in their health status to the strain of their careproviding role reported significantly higher burden scores, lower life satisfaction, & were caring for more functionally demented relatives a greater percentage of the time. Their perceived desire & anticipation of imminent institutionalization was also significantly higher.

**RUSSELL, DANIEL. Center for Health Services Research, Iowa. "Social Support & Adaptation to Stress by the Elderly."**

Interest in the role of stress & social support in the etiology of physical & mental illness among the elderly has increased greatly in recent years. Findings will be presented that address different facets of the stress-support-illness relationship. A longitudinal causal model will be presented based on data from a survey of community elderly that employs the LISREL procedure to evaluate the causal effects of stress & social support on physical & mental health. Possible confounding by psychological distress in assessing the occurrence of minor "daily hassles" will be investigated. The impact of social support in the etiology of depression among the community elderly will be examined, employing longitudinal data. Finally, the forms of supportive behaviours received by elderly individuals in the context of coping with stressful events will be described.

**SUGGS, P.K., & V.R. KIVETT. U. of North Carolina at Greensboro. "Intragenerational Helping: A Proposed Model."**

The purpose of the present study was to develop an alternative help model for older siblings. This study was a secondary analysis of data from a rural/transitional area in North Carolina & used 247 older adults. The analysis involved multiple regression & two-stage least squares utilizing helping behaviours as the dependent variable, & residential propinquity, sex linkage, dependency needs, familial responsibility, association, number of children & marital status of the older adult as independent variables. The data showed that the helping relationship between older siblings could be predicted by association, number of children & marital status of the older adult. Greater helping occurred among siblings when the respondents were single, had few children, & engaged in mutual activities. The data suggest that intragenerational models of helping should consider the availability of near kin (such as spouse & children) & the amount of interaction between siblings.

**TREAT, N.J. Penn State. "Congruence of Caregiver-Carereceiver Perceptions in Multigenerational Households."**

There is little in the literature concerning elder stress, assessed by elders directly, in families where elders & their children live together. In this study, attitudes of lucid elders & their family-member caregivers were obtained regarding issues of elder privacy, autonomy, & interpersonal relationships. Information was collected in individual, structured interviews carried out in the subjects' homes. It was hypothesized that the greater the congruence of perceptions of elders & their caregivers, & the greater the accuracy of the perceptions of the other's point of view, the more adaptive family functioning (as measured by three subscales of Moos' Family Environment Scale) & less personal stress there would be. Results indicate that elders perceive larger differences & caregivers perceive smaller differences than actually exist between them. Actual differences are related more strongly to caregiver stress than elder stress, & to elders' perceptions of family cohesion than caregivers' perceptions of family cohesion.

**WEBER, R.A., & M.J. LEVITT. Florida International U., N. Miami. "Close Relationships & Social Support in Three Generations of Women."**

This study tested the premise that the persons to whom an individual feels closest are likely to be primary support providers, regardless of their specific relationship to the individual. Thirty female triads consisting of a young adult, her mother, & her maternal grandmother were asked to indicate their sources of support & the relationship of the person to them (spouse, friend, parent, etc.). The results suggest that "closeness" in a relationship cannot be defined solely in terms of familial relationship categories. Individuals from various categories of relationship were considered to be close or not close: however, it was the 4 or 5 individuals to whom the person felt the closest who provided most of the support. Although children are generally viewed as primary support providers for the elderly, other individuals may be equally supportive, provided the older person has established a close relationship with those individuals.

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## **GENERAL**

{General abstracts from journals, book chapters, working papers & miscellaneous conferences.}

**ACHUTHAN, NIRMALA, S.B. RAO & RAMACHANDRA RAO. Indian Statistical Institute. "The Number of Symmetric Edges in a Digraph With Prescribed Out-Degrees." Seminar on Combinatorics & Applications in honour of Prof. S. S. Shrikhande. Dec, 1982.**

In this paper we determine the range of the number of symmetric edges in a digraph with prescribed out-degrees. This problem arises in the study of the reciprocity of a sociological relation or indeed any binary relation. We also describe the structure of the digraphs attaining the minimum number of symmetric edges. We incidentally deduce a theorem of Landau which characterizes the score sequence of a tournament.

**AMIEL-LEBIGRE, FRANCOISE, & SEBASTIEN REICHMANN. Lab Psychologie Mediale, Hosp. Sainte-Anne, Paris. 1986. "Support Social et Consequence du chomage sur la Sante Physique et Mentale." Annual Report, January.**

Pour les hommes, tous les types de support semblent jouer un role de protection, et ceux-ci sont apportés essentiellement par les parents et l'épouse. Quant au support émotionnel apporté par les amis, il est moins important dans leur réseau social, le réseau social étant par ailleurs la seule variable corrélée négativement avec la dépression. Pour les femmes, le support informationnel de l'époux semble important pour l'accès au réseau, mais le support informationnel des parents joue dans le sens inverse. Le support émotionnel apporté par les amis est très important comme facteur de protection, tandis que le support émotionnel apporté par les parents contribue à réduire le réseau. Enfin, le support tangible, qui est corrélé négativement avec la dépression (facteur de protection) est obtenu aussi bien auprès des parents qu'auprès d'autres membres du réseau.

**AMIEL-LEBIGRE, FRANCOISE, & SEBASTIEN REICHMANN. Lab de Psychologie Medicale, Sainte-Anne 100, rue de la Sante, 75014 Paris. 1986. "Support Social et Consequences du Chomage Sur la Sante Physique et Mentale." Working paper, Ministere des Affaires Sociales et de la Solidarite Nationale.**

La recherche vise à évaluer la place et le rôle des "supports sociaux" dans l'apparition et le cours des éventuelles conséquences du chômage sur la santé physique et mentale d'un groupe de travailleurs récemment licenciés. L'équipe a retenu comme critère de choix le fait que l'entreprise soit située dans la région parisienne, et qu'il ne soit pas prévu de licencier la totalité du personnel. Ce deuxième critère découlait de l'intention inscrite dans le projet de l'étude, de prendre aussi bien le groupe de futurs chômeurs que celui des sujets continuant à travailler dans la même entreprise. Le choix s'est porté finalement sur une dizaine d'entreprises.

L'entreprise dans laquelle a été effectuée la majorité des interviews est située dans les Yvelines. Un échantillon de 100 futurs chômeurs a été constitué, avec passation de quatre questionnaires fermés d'évaluation quantitative du réseau du support social et de l'état de santé.

L'équipe se propose de développer, de manière plus approfondie, l'approche en termes de réseaux sociaux des relations entre la situation de chômage, le support social et la santé physique et mentale. Dans cette perspective, elle se situera au niveau d'analyse que Gottlieb appelle le niveau moyen d'analyse



dans le domaine du support social (the mezzo level of analysis). L'analyse devra également déterminer quelles sont les caractéristiques les plus importantes des réseaux sociaux des sujets, qui font que des différences significatives, concernant l'impact de certains types de support, ou de la taille du réseau, sur plusieurs dimensions de santé mentale, ont pu être mises en évidence entre les femmes et les hommes de l'échantillon.

**ANDERSON, GRACE, & LIVIANA CALZAVARA. Soc, Wilfrid Laurier. 1986. "Networks, Education, & Occupational Success." Pp.314-27. In K. Lundy & B. Warne (eds.), WORK IN THE CANADIAN CONTEXT. Toronto: Butterworths.**

The viewpoint that education is of overriding significance in obtaining & holding a remunerative occupational position ignores the favourable influence which is exerted through network connections. It ignores who may know of job opportunities, or who may "put in a favourable word" to the boss. Networks have been popularly described by Boissevain as consisting of "friends of friends". In certain sectors of the job market, individuals with a large circle of friends, relatives, & acquaintances are in a favoured position. This paper explores how social networks can mediate the effects of education.

**BANDYOPADHYAY, SURAJ. Soc, Indian Statistical Research Unit, Calcutta. "Exploring Boundaries of Social Interaction in Rural Areas: Village, Kinship, Caste & Class." 17th All-India Sociological Conference of Indian Sociological Society. Surat, India. 1984.**

In Indian sociology we have not so far paid much serious attention regarding systematic collection & analysis of non-formal social interactional data at grass-roots levels. By such data we refer to the data on voluntary interaction among the individuals or families or households in course of their daily lives. Such data are of importance to provide insight into what may be labelled as cultural process within the society articulating through "kin-caste relationships", like, in the form of patron-client ties. Do these ties act as a buffer in Indian society against the fissions produced by the socio-structural process of "class" stratifications thus retarding the structural consolidation by "class" of the labouring people? Or do social interactions flow along socio-structural identities like "class" cutting across cultural identities? Or is "village" as embodying demographic-cultural identity the relevant unit of such interactions?

**BANDYOPADHYAY, SURAJ, Soc, Indian Statistical Institute, Calcutta. 1985. "Towards a Multi-Dimensional Approach of Field-Work." Pp. in Chowdhury Anwarullah (ed.), PAINS & PLEASURES OF FIELDWORK. Dhaka, Bangladesh: National Institute of Local Govt.**

While planning a sociological study a researcher has to decide strategies at different levels- initially at the level of formulation, then at the middle level of field-work, finally at the level of analysis & inference. This paper will deal with the problems of strategy at the middle level related to field-work. It refers to that part of a sociological research which deals with collection & collation of relevant social facts in the context of a study.

**BANDYOPADHYAY, SURAJ, KUMARANANDA CHATTOPADHYAY & PRAFULLA CHAKRABARTI. Soc. Research Unit, Indian Statistical Institute, Calcutta. "Do the Brahmins Always Stay at the Top? An Empirical Relationship Between Caste, Class & Power." Tenth Indian Social Science Congress. Allahabad, India. 1985.**

Social stratification is an important aspect of social structure. In India 'caste' & 'class' are the two major modes of articulation of social stratification. 'Caste' being a position ascribed by one's birth & 'class' being assumed to be an achieved position, & not due to birth alone, the relationship between them is complex. In this context we shall present some empirical data concerning the relationship between 'caste' & 'class'. These data show variations in the pattern of relationship between these two modes of articulation. However, using these data we shall explore a system behind these variations in order to suggest whether they can be put together into a framework of understanding the over-all pattern of relationship.

**BARRERA, MANUEL. Psych, Arizona State. 1986. "Distinctions Between Social Support Concepts, Measures, & Models." AM. J. OF COMMUNITY PSYCH 14, 4:413-45.**

The thesis of this review is that the global concept of social support should be abandoned in favour of more precise concepts that fit narrower models of stress-distress relationships. Distinctions between measures of social embeddedness, perceived support, & enacted support are consistent with

studies that find they are related only mildly. Literature is reviewed to determine which social support concepts show positive or negative relationships to life stress & distress. Six models are presented to illustrate important findings & to demonstrate how specific support concepts may fit unique models.

**BARTHELEMY, JEAN-PIERRE, BRUNO LECLERC & BERNARD MONJARDET.** Ecole National Supérieure des Telecommunications, 46 rue Barrault, F-75634, CEDEX, France. 1986. "On the Use of Ordered Sets in Problems of Comparison & Consensus of Classifications." *JOURNAL OF CLASSIFICATION* 3:187-224.

Ordered set theory provides efficient tools for the problems of comparison & consensus of classifications. Here, an overview of results obtained by the ordinal approach is presented. Lattice or semilattice structures of the main sets of classification models are described. Many results on partitions are adaptable to dendrograms; many results on n-trees hold in any median semilattice & thus have counterparts on ordered trees & Buneman (phylogenetic) trees. For the comparison of classifications, the semimodularity of the ordinal structures involved yields computable least-move metrics based on weighted or unweighted elementary transformations. In the unweighted case, these metrics have simple characteristic properties. For the consensus of classifications, the constructive, axiomatic, & optimization approaches are considered. Natural consensus rules (majority, oligarchic ...) have adequate ordinal formalizations. A unified presentation of Arrow-like characterization results is given. In the cases of n-trees, ordered trees & Buneman trees, the majority rule is a significant example where the three approaches converge.

**BENOIT, D., P. LEVI, & P. VIMARD.** Office de la Recherche Scientifique Outre-Mer, 24 Rue Bayard, 75008 Paris. 1986. "Household Structures in Rural Populations of South Togoland." *J. OF COMPARATIVE FAMILY STUDIES* 17, Summer.

This text studies, in the rural populations of South Togoland, variations in family sizes & structures by comparing them to the socio-demographic characteristics of the heads of household & the characteristics of the native populations. This comparative analysis utilizes factor analysis to distinguish two main components in the households - the nucleus & the peripheral component - & three groups of household type. The distribution of the family structures reveals an important difference between populations which is based, on the one hand, on the disparity between the total household sizes & the nuclear components, and, on the other hand, on the existence or non-existence of a number of peripheral individuals.

**BERKMAN, LISA F.** Public Health, Yale. 1986 "Social Networks, Support, & Health: Taking the Next Step Forward." *AMERICAN JOURNAL OF EPIDEMIOLOGY* 123, 4:559-562.

This issue includes an important study by Schoenbach et al. on the association between social ties & mortality risk in adults from Evans County, Georgia. It marks the fourth prospective community cohort study on this topic. Along with several other recent mortality studies of men in Gothenburg, Sweden, Hawaii, & those with myocardial infarction enrolled in the Beta-Blocker Attack Trial. Schoenbach et al.'s study provides us with a valuable opportunity to evaluate evidence gathered from studies of quite diverse populations.

Of the 7 mortality studies published to date, 6 have data on whites. In these 6, social isolation or lack of support is consistently associated with increased mortality risk among white men. There are only three studies in which risks among men & women can be compared (Alameda, Evans County, & Tecumseh), & of these, only in Alameda is social isolation associated with increased mortality risks for women. The Evans & Tecumseh studies report substantially stronger network effects for men than for women. 3 studies have explored the associations between social ties & mortality in nonwhite groups, e.g., blacks in the Alameda & Evans studies & Japanese Americans in Hawaii. These 3 studies show markedly weaker effects among nonwhites. This is an exciting time for epidemiologists with an interest in these issues. The initial sets of findings are generally supportive of the concept that social relationships have an impact on physical health & longevity.

**BERKMAN, LISA.** Schl of Medicine, Yale. 1984. "Assessing the Physical Health Effects of Social Networks & Social Support." *Ann. Rev. Public Health* 5:413-32.

My purpose is to review the data relating social ties to physical health. I do not examine the large body of research linking social ties to self-reported symptoms of illness or to mental health except where a particular model is especially useful in explaining a concept. Issues regarding definition & measurement of social networks & social support are addressed & problems with particular study designs are discussed. On a more speculative level, I consider what are the functions of social networks & social

support, & what do they provide for people, & what are the potential biologic pathways that link social networks to morbidity & mortality.

**BIEBER, STEPHEN.** *Stats, U. of Wyoming, Laramie, Wy 82071.* 1986. "A Hierarchical Approach to Multigroup Factorial Invariance." *J. OF CLASSIFICATION* 3:113-134.

A procedure is presented which permits the analysis of factor analytic problems in which several groups exist. The analysis incorporates a hierarchical scheme of searching for factorial invariance. By overlaying a contextual frame of reference on a traditional factor analysis solution, it is possible to use this technique to examine structural similarity & dissimilarity between groups.

**BONACICH, PHILLIP.** *Sociology, California.* 1987. "Power & Centrality: A Family of Measures." *AMERICAN JOURNAL OF SOCIOLOGY* 92, 5:1170-82.

Although network centrality is generally assumed to produce power, recent research shows that this is not the case in exchange networks. This paper proposes a generalization of the concept of centrality that accounts for both the usual positive relationship between power & centrality & Cook et al.'s recent exceptional results.

**BOSWELL, TERRY.** *Soc, Emory U., Atlanta.* 1986. "A Split Labour Market Analysis of Discrimination Against Chinese Immigrants, 1850-1882." *AMERICAN SOCIOLOGICAL R* 51, 3:352-371.

Between 1852 & 1882, Chinese immigrants to the U.S. faced periodic outbursts of extensive discrimination. This was a period of transition from petty-commodity to capitalist relations, when producers became proletarians. In the course of this transition, emerging working-class solidarity was recurrently disrupted by ethnic antagonism by white workers against Chinese competitors in the labour market. By the 1870s, white small-business owners who employed white labour & competed against employers of Chinese labour had formed a political alliance with white workers in the Democratic Party which secured passage of the 1882 Exclusion Act banning further immigration of Chinese workers. The pattern of discrimination against the Chinese is analyzed from a split labour market perspective in order to explain the sources & outcomes of ethnic competition under conditions of unequal labour costs. Split labour market theory is expanded to include analysis of the reproduction of split labour market conditions & alternative sources of labour market segregation with emphasis placed on the effects of market crowding, a self-perpetuating racist discourse, & state action.

**BREIGER, RONALD & PHILIPPA PATTISON.** *Soc, Cornell.* 1986. "Cumulated Social Roles: The Duality of Persons & Their Algebras." *SOCIAL NETWORKS* 8:215-256.

The study of social roles from the perspectives of individual actors, & the relation of graph homomorphisms to semigroup homomorphisms, have been the two most prominent topics to emerge from the recent resurgence of progress made on the algebraic analysis of social networks. Through our central construction, the cumulated person hierarchy, we present a framework for elaborating & extending these two lines of research. We focus on each actor in turn as ego, & we articulate what we believe to be the fundamental duality of persons & their algebras. We derive graph & semigroup homomorphisms for three algebras containing 81, 43 & 93 elements, respectively. Throughout, our discussion of theoretical issues is oriented toward an empirical application to the Padgett data set on conspiracy & faction in Renaissance Florence.

**BRISTOR, JULIA & MICHAEL RYAN.** *Bus, Western Ontario.* "The Buying Center is Dead, Long Live the Buying Center." *Association for Consumer Research.* Toronto. 1986.

It is customary to announce the passing of a monarch & naming of his successor in a manner similar to the above title. In a similar vein, we believe that the 'group,' which currently provides the theoretical framework for the buying center, has run its life cycle & should be replaced by the 'network' concept. Thus, the institution would live on with a new role occupant.

**BRISTOR, JULIA.** *Bus, Michigan.* 1986. "Buying Networks: A Model of Positional Influence in Organizational Buying." *Working Paper.*

A gap exists in marketing theory as to who key players are in organizational buying & how they come to influence decision processes. Toward bridging this gap, this dissertation introduces a theoretical model of decision influence that overcomes the limitations of traditional "small group" approaches. The model is based upon the notion that the social network of interpersonal relationships can be used to

explain purchasing processes. The research presents strong initial evidence that influence can be explained in terms of interpersonal relationships & communication networks, & more specifically, that network centrality does lead to influence. The results of this research have implications for both the industrial marketing management & selling, & the organizational buying behaviour & buying arenas, as well as for marketing theoreticians.

**BRYM, ROBERT. Soc, Toronto. 1986. "Incorporation Versus Power Models of Working Class Radicalism: With Special Reference to North America." CANADIAN J. OF SOCIOLOGY 11, 3:227-51.**

It is commonly held that workers are less radical where they are well "incorporated" in society, i.e. where rights to vote & unionize were won relatively early & easily. This argument is criticized on empirical & theoretical grounds. Incorporationists use measures that underestimate radicalism. & they ignore how the balance of power resources between major classes structures radicalism. This paper argues that the balance of power resources between major classes appears to account well for variations in the left vote & the volume of strike activity. Historical data & regression models based on aggregate statistics for the Canadian provinces & ten major capitalist democracies substantiate the point.

**BURT, RONALD. Soc, Columbia. 1986. "A Note on Sociometric Order in the General Social Survey Network Data." SOCIAL NETWORKS 8:149-174.**

The people identified as important discussion partners in the GSS network data were cited in order of strength of relationship with respondent. On average, the third citation is a turning point. There is a steep, linear decline in relationship strength across the first people cited as discussion partners & a slower, but continuing decline, across the fourth & fifth people cited. Order effects on closeness & contact frequency are described in the context of network size & relation content. There is a kinship bias only in deciding who to name first; spouses tended to be the first discussion partner cited & other kin tended not to be. There is a sex homophily bias across all respondents - people of one's own sex were cited as discussion partners before members of the opposite sex - but it emerged differently for men & women. Women, especially married women, expressed sex bias in the people with whom they spent time while men expressed sex bias in the people with whom they felt close. Men claimed closer relations with women than men but in fact listed their important discussion partners in descending order of closeness & began the list with the names of other men. Finally, there is evidence of a co-worker bias in discussion relations beyond the family; respondents tended to mention co-workers as daily contacts but late in their list of important discussion partners. With the exception of the spouse bias, all evidence of content bias is markedly weaker than the consistent tendency for respondents to list discussion relations in descending order of closeness & contact frequency.

**BURT, RONALD. Soc, Columbia. 1985. "A Note on the General Social Survey's Ersatz Network Density Item." GSS Technical Report No. 63.**

Data obtained with the GSS ersatz network density item are compared to density data obtained with the more traditional, more costly, GSS sociometric network items. The inexpensive ersatz density data are not independent of network density, but they are almost completely unreliable. The full range of possible densities occurs at each level of ersatz density & only 1% to 2% of variation in network density can be described with ersatz density. Hypotheses operationalized with the ersatz density variable specified as a predictor will be biased toward the null hypothesis. Given this GSS experiment, the reliability of conclusions from studies replacing sociometric network items with inexpensive items purporting to measure network structure directly should be viewed with suspicion.

**BURT, RONALD. Soc, Columbia. 1985. "A Note on Missing Network Data in the General Social Survey." GSS Technical Report No. 64.**

There is very little network data missing on respondents to the 1985 GSS. Missing data on relations between discussion partners pose the greatest problem but the unknown relations are strongly associated with relations known to be weak. The association between missing & weak relations remains strong after controls for the number, strength, & nature of a respondent's discussion relations. Moreover, the association remains strong across different kinds of respondents despite significant tendencies for certain kinds of respondents to have provided incomplete network data. The implication is that the missing network data can be replaced with quantitative data indicating a weak relation.

**BURT, RONALD, & MIGUEL GUILARTE. Soc, Columbia. 1985. "A Note on Scaling the General Social Survey Network Item Response Categories." GSS Technical Report No. 62.**

The idea of structural balance is used to suggest quantitative intervals between relationship strength response categories in the GSS network data. In contrast to an assumption of equal intervals between the categories of relationship strength, the intervals appear quite unequal. Relations with discussion partners "less close" to their respondent than other cited discussion partners are about .7 the strength of relations with "especially close" discussion partners. The middle category of relations between discussion partners appear to be little more than acquaintance relations; about .2 of the distance from people who are "total strangers" to people who are "especially close".

**BURT, RONALD & MIGUEL GUILARTE. Soc, Columbia. 1986. "A Note on Scaling the General Social Survey Network Item Response Categories." SOCIAL NETWORKS 8:387-396.**

The idea of structural balance is used to suggest quantitative intervals between relationship strength response categories in the GSS network data. In contrast to an assumption of equal intervals between the categories of relationship strength, the intervals appear quite unequal. Relations with discussion partners "less close" to their respondent than other cited discussion partners are about 0.17 the strength of relations with "especially close" discussion partners. The middle category of relations between discussion partners appear to be little more than acquaintance relations; about 0.2 of the distance from people who are "total strangers" to people who are "especially close".

**CAMPBELL, KAREN. Soc, Vanderbilt. 1987. "Untitled." Working paper.**

Despite the conventional wisdom that employed women suffer by dint of their exclusion from "old-boy" networks, there has been little investigation of gender differences in networks & their implications for occupational outcomes. This paper represents a first step toward incorporating network concepts into analysis of gender-based occupational inequalities. I document differences between the job-related networks of women & men in a sample of recent job-changers in four white-collar occupations. Women know persons in fewer occupations than men; their networks are negatively affected by having children younger than 6, & by changing jobs in response to their spouses' mobility. Men's networks are unaffected by these constraints.

**CAPPELL, CHARLES & THOMAS GUTERBOCK. Soc, Virginia. 1986. "Dimensions of Association in Sociology: An Organizational Map of an Academic Discipline." BULLETIN DE METHODOLOGIE SOCIOLOGIQUE 9, Jan:23-39.**

Sociologists' voluntary memberships in specialty sections within the American Sociological Association can be assumed to reflect both the social organization of an intellectual society & the cognitive structure of the discipline's subject matter. Data describing the frequencies of joint memberships in each pair of the ASA's specialty sections from 1980 to 1984 are analyzed using multidimensional scaling & clustering techniques. A large joint frequency of membership in two sections is taken as an indicator of intellectual affinity between the 2 specialty areas. Sociology has developed a multidimensional associational structure with three dimensions able to account for most of the relational structure. Nine broad specialty areas subsume the 23 specialty sections. A major bifurcation of the discipline appears between the explicitly Marxist specialty (and related "critical" specialties) & "Standard American Sociology." A few specialties, notably among them the Sociology of Population, appear as isolates.

The major cognitive dimension appears to be a paradigmatic divergence between the Marxist-Critical school & a collection of specialties oriented around the major institutions & problems of the welfare state. The other major dimensions accounting for the overlaps in section membership appear to be methodological distinctions based on different units of analysis & different degrees of quantification. Sociology in North America, viewed through its formally organized association, displays a complex pattern of differentiation, but the discipline nevertheless remains segmented by competing paradigms.

**CAPPELL, CHARLES & TERENCE HALLIDAY. Sociology, Virginia. 1983. "Professional Projects of Elite Chicago Lawyers, 1950-1974." American Bar Foundation :291-.**

This article reports results of an inquiry into the composition & policies of the leaders of the Chicago Bar Association. The leadership cadre was partitioned into three status groups on the basis of background characteristics & law school attended. Outside educational elites, dominating the board during the early 1950s, pursued policies that defended prestigious areas of legal work from other encroaching professionals & sought to constrain the plaintiff side of the personal injury bar. Local ethnic elites obtained a share of the leadership during the mid-1960s & transformed the judicial politics of the CBA

to conform to local Democratic party objectives. At the center of the leadership cadre was a group of local aristocrat, well connected to major corporate & civic organizations, whose participation in the leadership roles fluctuated less dramatically than that of the other groups. A review of policies suggests that the local aristocrat were responsible to some extent for integrating the various specialized projects pursued by disparate segments of the Chicago bar. Detailed examination of the composition & policies of this local bar leads to the conclusion that associations of the legal profession are capable of accommodating diverse interests to an extent not previously measured or assessed.

**CARLEY, KATHLEEN. Carnegie-Mellon. 1986. "Structural Constraints on Communication: The Diffusion of the Homomorphic Signal Analysis Technique through Scientific Fields." Working paper.**

The communication of mathematical methods takes place within a paradoxical environment. On the one hand, the objectivistic scientific mode of analysis assigns validity only to those methods that are context free, whose utility does not reside in the empirical data or the social context. On the other hand, the pragmatic research tradition promotes rapid scientific development by encouraging the utilization of data driven methods. Within this paradoxical environment new methods are developed & diffuse to the scientific community. The diffusion pattern of a particular method, Homomorphic Signal Analysis, is explored relative to the underlying socio-cultural environment. The formal structure of this scientific community is found to direct the pattern of diffusion. Generalist journals are found to play a critical role in the diffusion process; one, that nurtures both traditions thus maintaining the paradoxical environment.

**CARLEY, KATHLEEN. Carnegie-Mellon. 1986. "Separating the Effects of Structure & Interaction." Working paper.**

The flow of information is often expected to follow the network of ties between the individuals in the society. At the individual level such ties are seen as affecting the propensity for interaction & hence shared knowledge through communication. At the group level the patterns of ties, as the indicators of shared social structural position, are seen as affecting the acquisition of shared knowledge or social knowledge through shared or at least similar experience. In both cases, evidence has been offered that suggests that neither interaction nor shared position are, in & of themselves, sufficient for producing shared knowledge. Herein, it is argued that both structural position & interaction play a part in the acquisition of knowledge by the individual, the consequent transferral of innovative information, & the development of social knowledge. A dynamic reflexive model of the individual & society is forwarded in which the interaction between individuals is key to the consequent construction of both the individual's cognitive structure & the social world. Using this model, an attempt is made to determine on theoretic grounds expected differences in the impact of shared structural position & level of interaction on what information individuals acquire, the amount of information that they share, the production of consensus, & expected diffusion of new information.

**CARROLL, GLENN & KARL ULRICH MAYER. Bus Admin, U. of California, Berkeley. 1986. "Job-Shift Patterns in the Federal Republic of Germany: The Effects of Social Class, Industrial Sector, & Organizational Size." AMERICAN SOCIOLOGICAL R 51, 3:323-341.**

Research on stratification has shifted from a focus on the characteristics of individuals to a focus on the characteristics of larger social structures such as organizations & industries. Using new life-history data from the Federal Republic of Germany, we draw on three structuralist perspectives to specify more complete models of the mobility process. Specifically, we investigate the effects of organizational size, social class & industrial segmentation on job-shift patterns, using event-history methods. The findings show that recent structuralist perspectives which are commonly thought to be contradictory are in fact complementary.

**CHAPMAN, NANCY. Urban & Public Affairs, Portland State U. Forthcoming. "The Relationship Between Gender, Marital Status, & Childlessness of Older Persons & the Availability of Informal Assistance." Pp. in M. Peterson & D. White (eds.), INFORMATION SYNTHESSES: HEALTH CARE SERVICES & THE ELDERLY PATIENT.**

Contents: Introduction; Methods - Search Process, Relevance R, Search Results, Validation R; Personal Characteristics of the Elderly Influencing Their Social Networks - Gender (network, frequency of contact, assistance from the network), Marital Status (network size, frequency of contact, assistance from the network), Lack of Children (size & contact with network, assistance from network), Type of

Help Given by each Sector of the Network; Conclusions & Implications - Implications for Practice & Policy - Implications for Researchers (future research directions, non-kin helpers, measurement).

**CHEAL, DAVID. Soc, Winnipeg. 1986. "The Social Dimensions of Gift Behaviour." J. OF SOCIAL & PERSONAL RELATIONSHIPS 3:423-439.**

This article describes in general terms the social dimensions of valuable interpersonal gifts at Christmas, & draws certain comparisons with giving to community organizations. The data are drawn from a random sample survey of 573 adult respondents in Winnipeg, Canada. Three classes of factors that structure gift behaviour are identified. They are: interaction processes within personal relationships; economic resources; & social statuses. The relational significance of gifts is particularly evident where one gift is matched by a return gift in a process of gift exchange or reciprocity. It is shown that reciprocal giving is a prominent feature of valuable Christmas gift transactions. As expected, personal income, household income, & the proportion of household income spent on housing all have some effect on the level of gift expenditure. However, no evidence is found to support the hypothesis from the functionalist theory of the extended family that valuable Christmas gifts are used for the intergenerational redistribution of wealth. It is also noted that there is little evidence to support Veblen's views of gift behaviour as conspicuous consumption. Social statuses, in the form of kinship & gender positions, affect the directions in which gifts flow. The majority of valuable Christmas gifts are given to primary kin, with transactions between husbands & wives being the most important. It is found that gift transfers between the sexes are asymmetric, with men giving more & women receiving more.

**COATES, RANDALL, et al. Epidemiology, U. of Toronto. 1986. "A Prospective Study of Male Sexual Contacts of Men with AIDS-related Conditions (ARC) or AIDS: HTLV-III Antibody, Clinical, & Immune Function Status at Induction." CAN. J. OF PUBLIC HEALTH 77, May:26-32.**

Between July, 1984 & July, 1985, 248 men who have had sexual contact with a man diagnosed as having either AIDS or an AIDS-related condition (ARC) [the 'primary' cases] were recruited into a prospective study. Of those participating, 51 were sexual partners of men with CDC-defined AIDS & the remaining 49% were sexual partners of men with an AIDS-related condition (ARC). The cohort is monitored every three months with extensive interview-administered questionnaires, history & physical examinations by the project physician, & a battery of immunologic tests. The cohort will be followed for a minimum of three years following the last sexual contact with the corresponding primary case. To October 1985, we have a cumulative follow-up experience with this group totalling 278.33 person/years (mean of 1.12 years per participant) since the date of last sexual contact with the primary cases. During this period, generalized lymphadenopathy has developed in this group at the rate of 19.4 cases per 100 men per year since last sexual contact with the primary cases. At induction, 59% of participants had antibodies to HTLV-III. Analysis of immunologic tests from the induction visits of these men reveal significant differences according to HTLV-III & lymph node status.

**COATES, RANDALL, et al. Preventive Medicine & Biostatistics, Medicine, Microbiology, Pediatrics, & Pathology, U. of Toronto. 1986. "The Reliability of Sexual Histories in AIDS-Related Research: Evaluation of an Interview-Administered Questionnaire." CAN. J. OF PUBLIC HEALTH 77, September:343-48.**

Prior to recruitment for a prospective study of male sexual contacts of men with AIDS or ARC, a detailed interview-administered questionnaire was tested for reliability. Twenty-six homosexual men volunteered to undergo the same interview 72 hours apart & administered by two different interviewers. On average, interviews lasted 60 minutes. Agreement between nominal responses on variables such as history of various sexually transmitted diseases & recreational drug use was consistently greater than 90%. Quantitative variables including numbers of sexual partners, frequencies of various sexual behaviours, infections, alcohol consumption, tobacco use, & exposure to semen demonstrated highly significant correlation coefficients & were generally greater than 0.80. We conclude that sexual histories can be reliably captured & that it will be possible to assess dose-response relationships with reasonable confidence in the formal study. Further, we will be able to verify sexual behaviour data by comparing responses between pairs of primary cases & sexual contacts in the formal study for which we are recruiting subjects.

**COURTIAL, JEAN-PIERRE.** Centre de Sociologie de l'Innovation. Ecole des Mines de Paris. "The Contribution of the Co-Word Analysis Method to the Study of a Scientific Field." LASST. Strassbourg. 1986.

1 convenient way to grasp the interaction among actors & their networks is to analyse the interfaces between all the literature they produce. This paper describes a way to study the scientific & technological literature produced in the field of A.I., contained in the French database PASCAL. We gathered 750 articles, 1984-85, using cword analysis to study the relations inside that literary set of documents. We calculate an association coefficient between key words—a product of their mutual implications. Then the word pairs are taken in decreasing order of association intensity, & we calculate the subnet work of the 1st 10 words, then delete these words in the remaining pairs, calculate the next subnetwork of 10 words, etc.

**COURTIAL, J.-P., & J. JUAN.** Sociology, Ecole de Mines, Paris. 1986. "L'Obtention de Cartes Strategiques de la Recherche Scientifique a Partir de L'Analyse des Mots Associes Dans les Fichiers Documentaires." BULLETIN DE METHODOLOGIE SOCIOLOGIE 12, Oct:22-38.

Cette analyse a notamment pour objet de degager les reseaux que les textes scientifiques et techniques tissent, tant du point de vue des personnes que du point de vue des concepts employes. L'analyse de co-citations a plutot pour objet la construction du premier type de reseau. Partant des paires de documents statistiquement "co-cites", c'est-a-dire cites l'un et l'autre dans les references bibliographiques des articles, elle construit le reseau des documents associes par ceux qui les citent. Il en resulte des groupes de chercheurs associes mettant en evidence des articles ou livres "leaders", des articles "passerelles", etc. Les resultats de cette analyse peuvent evidemment s'interpreter aussi en termes de concepts scientifiques et techniques.

**DANOWSKI, JAMES, GEORGE BARNETT & MATTHEW FRIEDLAND.** Communic, SUNY-Buffalo. Forthcoming. "Interorganizational Networks Via Shared Public Relations Firms: Centrality, Diversification, Media Coverage, & Public's Images." Pp. in M.L. McLaughlin (ed.), in COMMUNICATION YEAR-BOOK 10. Beverly Hills, CA: Sage.

This research linked theories of organizational & mass communication with a focus on public relations. Interorganizational networks were defined among the FORTUNE 100 organizations according to the number of shared public relations firms. Hypotheses were tested that: more central organizations in the interorganizational network are more diversified, receive more media coverage, & have more favourable images within the investing community. Network analysis was used to define interorganizational network centrality. To measure relevant media coverage, content analysis was performed for the number of news stories appearing about the organizations in 1984 in the Wall Street Journal, New York Times, & over 295 trade & professional publications indexed in Business Periodicals Index. Image favourability was indexed by the percentage increase in common stock value over a five-year period. All three hypotheses received some degree of support.

**DE LEEUW, JAN, & JACQUELINE MEULMAN.** Data Theory, Leiden. 1986. "A Special Jackknife for Multidimensional Scaling." J. OF CLASSIFICATION 3:97-112.

In this paper we develop a version of the Jackknife which seems especially suited for Multidimensional Scaling. It deletes one stimulus at a time, & combines the resulting solutions by a least squares matching method. The results can be used for stability analysis & for purposes of cross validation.

**DIDIER, MARCELO.** Escuela psicologia U.C., Av. V. Mackenna 4860, Santiago. 1985-86. "Redes Sociales y Busqueda de Ayuda." REVISTA CHILENA DE PSICOLOGIA 8, 1:3-7.

A sample of 83 heads of households of both sexes, living in the Villa Olimpica housing project (Santiago) were asked about family health, offspring & parents' emotional & access to job & educational resources problems, & about the people whose help they had sought to solve them. Results showed a tendency to seek from professionals for all types of problems, but to discriminate in their help-seeking from the family, neighbours & friends, according to the type of problem. The evidence suggests that neighbours & friends frequently act as sources of reference to professional resources, while the family does not.



**DOMHOFF, WILLIAM. Soc, Cal - Santa-Cruz. 1986. "The Growth Machine & the Power Elite." Pp. 53-76. in Robert Wise (ed.), COMMUNITY POWER. Newbury Park, CA: Sage.**

So what are the hot new ideas in community power studies? Drawing from Molotch, Logan, & Stone, the basic argument goes as follows: a local power structure is an aggregate of land-based interests that make their money from the increasingly intensive use of their land. Contrary to what some of us used to think, it is not a junior-sized edition of the national-level power elite, which is rooted in a nationwide corporate community that sells goods & service for a profit.

**DONNINGER, C. Inst. for Advanced Studies, Vienna. 1986. "The Distribution of Centrality in Social Networks." SOCIAL NETWORKS 8:191-203.**

For a random directed & undirected graph the distribution of point- & graph-centrality based on degree is derived. Statistical tests, based on Poisson or normal approximations are proposed & the behaviour of graph centrality for different network sizes & densities is analysed. The analytic asymptotic results are checked by extensive simulation.

**EKONG, SHEILAH. Soc & Anthr, U. of IFE, Nigeria. 1986. "Industrialization & Kinship: A Comparative Study of Some Nigerian Ethnic Groups." J. OF COMPARATIVE FAMILY STUDIES 17, Summer.**

This paper is an analysis of three Nigerian ethnic groups (Yoruba, Igbo, Ibibo), their kinship structures, & their efforts at industrialization. We argue that in Nigeria, kinship & historical development have necessitated alternative approaches to industrialization, which do not comply with the Western model of urbanization & the transition to nuclear families. We suggest that the various ethnic groups of Nigeria direct their industrializing activities to certain types of industry in accord with their own social, cultural, & historical development.

**ENNIS, JAMES. Soc, Tufts. 1986. "Fields of action: The Structure of Movements' Tactical Repertoires." SOCIOLOGICAL FORUM.**

The structure of choice among available tactics is a key to understanding the roles of individuals & organizations within a social movement industry. This paper proposes a method for operationalizing the notion of repertoires of collective action. Using data from a recent disarmament campaign, it models the tactical field faced by activists. Dimensions of this field & clusters of tactics within it suggest how individuals organized their options, & how they understood the distinctive features of an innovative course of action. Such field models can illuminate ideological & organizational differentiation, as well as cooperation & competition within movement industries.

**ENNIS, JAMES. Soc, Tufts. 1986. "University-Corporate Links in Biotechnology: The Network Structure of Dual Affiliations." SOCIOLOGICAL INQUIRY.**

Scientists' dual affiliations with universities & with for-profit biotechnology companies are widespread & controversial. Social network modelling enables detailed examination of the pattern & extent of this phenomenon, as well as exploration of its consequences. The aggregate pattern of connections between 56 schools & 66 firms suggests a market segmented by geography & substantive specialty. Clusters within the network show the impact of size & strategy within the local market. The correlates of this stratification of schools & firms are explored, along with the bases of their affinities.

**ESCOLIER, J.C. (Hopital Saint-Jean-de-Dieu, Lyon), & S. REICHMANN (CNRS-MIRE, Paris). "Analyse Des Réseaux Sociaux Des Patients Psychotiques Apres La Sortie De L'Hopital et/ou Le Sejour Dans Un Foyer De Post-Cure (Les Celestins)." Psychiatric Epidemiology Conference. Nancy, France. 1986.**

This paper is the first report of the cross-sectional phase of an evaluation study of discharge patients from a mental hospital, in Lyon. Subjects had spent about 6 to 9 months in a new (1983) sheltered-care facility before moving to independent dwellings in the community. Two widespread criteria for evaluation of the after-care programs are the rehospitalization rates & the amount of utilization of outpatient facilities. However, the relationship between the two criteria has been challenged by several studies which suggested that after-care may be related to higher readmission rates. Our results show that several dimensions of the patients social networks (existence of clusters, direction & content of links) are pertinent indicators of the readmission risk, which is explained in the framework of the vulnerability model.

**EULAU, HEINZ.** *Pol Sci, Stanford.* 1986. "From Labyrinths to Networks: Political Representation in Urban Settings." Pp.139-72. in Robert Wise (ed.), **COMMUNITY POWER.** Newbury Park, CA: Sage.

Our current research on social networks & political representation in an urban setting, the Redwood Network Project begun in 1980 in cooperation with James Kuklinski of the University of Illinois, is largely a pilot or feasibility study. Because it grew out of our prior studies of representation, I shall briefly review the contextual, reflexive, & latent aspects of these earlier projects - more directly the City Council Research Project conducted in more than 80 cities of the San Francisco Bay Area between 1961 & 1972, & less directly the State Legislative Research Project conducted in four American states between 1955 & 1962. Our concern in this project is with a citizen's ability to contact another person as a resource when seeking to do something about some problem of importance to him or her. To discover whether people see their political representatives or other persons as resources to achieve a goal is a major aspect of our research.

Persons in tightly knit networks seem to be more disposed to trust their representatives & let them act in their interest than persons in loosely knit networks. But they also seem to have a more efficacious view of their own ability to influence the representational decision-making process than persons in loosely knit networks. As a result, they see their own interests involved with public interests, & they see government as a benign patron on whom they can count. Citizens in loosely knit networks, having a more suspicious view of representation in general & feeling that their influence is limited, do not view government as benign & as an agent of their interests. As they see nongovernmental aid available, they do not seem compelled to rely on government as much as persons in tightly knit networks do. Trusting government & relying on government to advance their interests, persons in tightly knit networks reject the norm of participation & in fact expect not to get involved in local issues which they would rather entrust to the representatives. Persons in loosely knit networks behave in opposite ways. They have a less favourable view of the city council as the ongoing local representative institution.

**FAITH, DANIEL & LEE BELBIN.** Commonwealth Scientific & Industrial Research Organization, Canberra. 1986. "Comparison of Classifications Using Measures Intermediate Between Metric Dissimilarity & Consensus Similarity." *J. OF CLASSIFICATION* 3:257-280.

Two fundamental approaches to the comparison of classifications (e.g., partitions on the same finite set of objects) can be distinguished. One approach is based upon measures of metric dissimilarity while the other is based upon measures of similarity, or consensus. These approaches are not necessarily simple complements of each other. Instead, each captures different, limited views of comparison of two classifications. The properties of these measures are clarified by their relationships to Day's complexity models & association measures of numerical taxonomy. The two approaches to comparison are equated with the use of separation & minimum value sensitive measures, suggesting the potential application of an intermediate sensitive measure to the problem of comparison of classifications. Such a measure is a linear combination of separation sensitive & minimum value sensitive components. The application of these intermediate measures is contrasted with the two extremes. The intermediate measure for the comparison of classifications is applied to a problem of character weighting arising in the analysis of Australian stream basins.

**FARARO, THOMAS & JOHN SKVORVETZ.** *Sociology, Pittsburgh.* 1986. "E-State Structuralism: A Theoretical Method." *AMERICAN SOCIOLOGICAL R* 51, October:591-602.

This paper unifies two strands of theoretical method in sociology. On the one hand, the structuralist or network program of research involves the fundamental rule that basic data & analytic procedures of sociology must focus on social relations. This leads to theories about structural stability or change, for example, although the network approach generally has been stronger on technique than on explanatory theory. An interest in theoretical explanation is the basis of the second theoretical method, which is drawn from the expectation states theoretical research program: namely, the idea of a dynamic co-causal process involving an unobservable relational construct termed an expectation state & an observable form of social behavior. The paper outlines the basic ideas of each of these two theoretical methods. It then proposes a new theoretical method which synthesizes the two & whose function is to provide a procedure for constructing explanatory models of social structural stability & change. This new method is termed "E-State Structuralism." An extended example is provided of how the method is used to construct a theory, first presenting the theory in axiomatic form & then empirically testing it. The subject matter of the theory is the over-time transformation in the structure of dominance relations among a small group of animals.

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**FARARO, THOMAS & JOHN SKVORVETZ. Sociology, Pittsburgh. 1987. "Unification Research Programs: Integrating Two Structural Theories." AMERICAN JOURNAL OF SOCIOLOGY 92, 5:1183-1209.**

This paper combines two structural theories: Blau's macrosociological, social differentiation theory & Granovetter's strength-of-weak-ties principle. Each was previously formalized within a common biased-net mathematical framework. These two formalizations are integrated within a single approach to the study of social relations. Blau's theory is associated with quantities such as heterogeneity, consolidation, & a bias parameter pertaining to homophily. Granovetter's principle is formalized in terms of another bias parameter pertaining to the likelihood of relational closure in triads. A concluding discussion examines empirical literature on diffusion processes to see if hypotheses implied by the unified theory are supported by evidence.

**FAULKNER, ROBERT & ANDY ANDERSON. Soc, Massachusetts. 1987. "Short-Term Projects & Emergent Careers: Evidence from Hollywood." AM. J. OF SOCIOLOGY 92, 4:879-909.**

The Hollywood film industry is considered as a system of recurrent ties among the various major participants who usually work under short-term contracts for single films. This form of project-based organization is seen as a response to uncertainty & risk in the film industry. The paper examines the ways in which independent contractors - producers, directors, cinematographers, & actors - organize & operate to reduce uncertainty & risk & to increase profits. The analysis of data from 2,430 films made in the period 1965-80 establishes patterns of recurrent ties among participants who are at comparable levels of cumulative productivity with respect to earnings, Oscars, Oscar nominations, & number of previous films. The paper also considers the degree to which film earnings are influenced by the past productivity of the major participants.

**FERLIGOJ, ANUSKA. Soc, University Edvard Kardelj, Ljubljana, Yugoslavia. 1986. "Clustering With Constraints: Sociological Applications." Working Paper.**

Clustering with a relational constraints approach can be used for the analysis of a combination of attribute-based data & relational data. The clustering problem is treated as an optimization problem over a set of feasible clusterings, which are usually determined by some additional conditions - constraints, in this particular case by a relation. Different sets of feasible clusterings, also called clustering types, determined by the same relation, can be defined. The choice of clustering type depends on the characteristics of the given problem. The adapted hierarchical agglomerative clustering methods compatible with the specific clustering type can be used to solve the particular clustering problem with relational constraints. The influence of the relational constraints on the obtained clustering solution according to the attribute data can be measured by the structure enforcement coefficient. Two types of problems which require an analysis of the attribute & relational data are treated with the clustering with constraints methods: (1) Regionalization: clustering of geographical regions on the basis of socioeconomic indicators in such a way that the clusters are formed by geographically neighboring regions. (2) The study of the relationship between transition matrix (e.g. exchange of cultural products, migration) & selected variables. For a given threshold, the transition matrix can be presented by a binary relation.

**FERLIGOJ, ANUSKA. Soc, U. Edvard Kardelj. "Clustering with Constraints: Sociological Applications." XI World Congress of Sociology. New Delhi. Aug., 1986.**

The social sciences, especially sociology, require analysis methods capable of combining attribute-based data & relational data. Clustering with a relational constraints approach can be used for the analysis of a combination of such types of data. In this approach, the clustering problem is treated as an optimization problem over a set of feasible clusterings, which are usually determined by some additional conditions - constraints, in this particular case by a relation. Different sets of feasible clusterings, also called clustering types, determined by the same relation, can be defined. The choice of clustering type depends on the characteristics of the given problem. The adapted hierarchical agglomerative clustering methods compatible with the specific clustering type can be used to solve the particular clustering problem with relational constraints. The influence of the relational constraints on the obtained clustering solution according to the attribute data can be measured by the structure enforcement coefficient. Finally, two types of problems which require an analysis of the attribute & relational data are treated with the clustering with constraints methods: (1) Regionalization: clustering of geographical regions on the basis of socioeconomic indicators in such a way that the clusters are formed by geographically neighboring regions, (2) The study of the relationship between transition matrix (e.g. exchange of cultural products, migrations) & selected variables. For a given threshold, the transition matrix can be presented by a binary relation.

**FERLIGOJ, ANUSKA, & VLADIMIR BATAGELJ. Soc, Edvard Kardelj U, Ljubljana. 1983. "Some Types of Clustering With Relational Constraints." PSYCHOMETRIKA 48, 4:541-52.**

For the clustering problem with general (not necessarily symmetric) relational constraints, different sets of feasible clusterings, also called clustering types, determined by the same relation, can be defined. In this paper some clustering types are discussed & adaptations of the hierarchical clustering method compatible with these clustering types are proposed.

**FINK, CHARLES. Beh Sys Sci Org, Falls Church, VA. "Multivariate, Descriptive Modeling with Self-Regulation." Int'l Congress on Cybernetics. Namur, Belgium. Aug 1986.**

To try to capture the whole of human behavior in any way other than multivariately with at least the dynamics of self-regulation & environmental interaction is to trivialize it. Studies with smaller foci are useful in that findings at low resolution levels should be integratable eventually into a higher resolution view, hopefully approximating the whole. But low resolution human behavior studies with sample sizes that do not factor in burgeoning population diversity & do not measure lasting results but still claim generality, e.g. many of today's narrow inferential statistical analyses, are presumptuous, & they may mislead. Multi-variable, self-regulatory statistical analysis methodology called Behavior Causal Modeling will be presented & discussed, & explicated in an example which strips misleading ambiguity from narrow-view inferential findings in a case study & tries to give a larger view, including self-regulation & environmental interaction, of one person's behavior over time. Likely sources of ambiguity in the inferential view of this case study will be discussed.

**FINK, CHARLES. Falls Church, VA. "Computer-Assisted Self-Help: Self-Reprogramming." International Congress on Cybernetics, Namur, Belgium. Aug, 1986.**

What if a person were presented a holistic but intelligible model of how his/her behavior is determined, then asked to project troublesome situations on this model, to consider what changes might be done to produce more beneficial results, & finally to change whatever he/she wants? Wouldn't this approach be acceptable to the person & likely produce lasting benefit? The question in technical terms is: Might not a person willingly use a computer-based human behavior simulation test bed to help him/herself lastingly? Such a test bed would be demonstrated, explicated & discussed in its full context within Behavior System Coaching: Self-Reprogramming, a computer-assisted, professional helping technique developed over the past few years for individuals, & families & other groups.

**FLIGSTEIN, NEIL. Sociology, Arizona. 1987. "The Intraorganizational Power Struggle: Rise of Finance Personnel to Top Leadership in Large Corporations, 1919-1979." AMERICAN SOCIOLOGICAL R 52, February:44-58.**

Choosing a president in an organization is an important political decision that reflects who controls the organization & the bases for that control. In this paper, a model of power based on resources in the organization & the environment is specified in order to understand how power shifted between intra-organizational units in the 100 largest U.S. firms between 1919 & 1979. Early in the century, large firms

were controlled by entrepreneurs or personnel who came up through manufacturing. In the middle decades, sales & marketing personnel controlled large firms. In the past 25 years, finance personnel have become increasingly dominant. These shifts resulted from changes in the strategy & structure of the organizations, changes in antitrust laws that promoted an increase in product-related & unrelated mergers in the postwar era, & the mimicking of firms in similar environments.

**FOSTER, BRIAN. Anthro, Arizona State. 1986. "Tracing the Thai Domestic Cycle Through Time." J. OF COMPARATIVE FAMILY STUDIES 17, Summer.**

This analysis examines the use of the development concept in the study of the Thai family & household structure. In a Thai farming village near Bangkok, evidence indicates a decline in the stem family form during the period from 1971 to 1980. During this time period, the village experienced several other changes as well, including an increase in the number of residents who commute to jobs outside the village, the development of modern transportation & a money economy, & considerable population growth. Consequently, changes in family households might reflect either demographic processes or norms in household composition. This study shows that the changes in Thai household composition are accounted for by the domestic cycle rather than changes in norms. Internal village forces appear to preclude the influx of developmental forces.

**FOX, JOHN & MICHAEL ORNSTEIN. Soc, York, Toronto. 1986. "The Canadian State & Corporate Elites in the Post-War Period." CANADIAN JOURNAL OF SOCIOLOGY & ANTHROPOLOGY 23, 4:481-506.**

This study examines the links between the boards of the largest Canadian corporations & the Canadian state (1946-77), focussing on individuals who held both corporate & state positions at any time during the study period. Although high levels of interlocking between corporations & the state were observed, the numbers are not nearly large enough to suggest corporate domination of the state. The densest corporate ties were with universities & hospitals, followed by the federal crown corporations & Royal Commissions, the provincial crown corporations, the Senate, & the federal & provincial cabinets. The lowest level of ties was found for the federal & provincial bureaucracies. The level of interlocking increased somewhat during the period of the study.

**FREUDENBURG, WILLIAM. Rural Soc, Wisconsin. 1986. "The Density of Acquaintanceship: An Overlooked Variable in Community Research?" AMERICAN JOURNAL OF SOCIOLOGY 92, 1:27-63.**

One of the most basic characteristics of a community's social structure is the proportion of its residents who are acquainted with one another - the community's "density of acquaintanceship." Although versions of this variable have been discussed for at least three-quarters of a century, quantitative studies have found little evidence that it has any significant consequences for psychosocial adjustment. Drawing from a study of rapid community growth, this paper reports that a marked decline in the density of acquaintanceship did in fact lead to significant consequences - but that the effects were strongest in areas other than psychological functioning. Changes were particularly evident in control of deviance, socialization of the young, & care for the community's weaker members. Psychosocial impacts, by contrast, were lessened by the continuing vitality of intimate social supports.

**GALASKIEWICZ, JOSEPH & STANLEY WASSERMAN Soc, Minnesota. "Social Action Models For the Study of Change in Organizational Fields." Revision of a paper presented at the Annual Meetings of the American Sociological Assoc. New York, NY. Sept., 1986.**

The purpose of this paper is to offer a theory of social change from the social action perspective that can help explain how & why organizational fields change over time. Inspired by Coleman's recent article, we suggest that interests of actors & social processes interact with micro-level structures to bring about a new condition in the organizational field. The paper derives testable hypotheses & uses data on changes that took place in a corporate grants economy to see if the hypotheses are true. In particular, we study changes in the grant-making & grant-getting of business firms & nonprofit organizations in Minneapolis-St. Paul between 1980 & 1984.

**GHOSH, BHOLA. Soc. Research Unit, Indian Statistical Institute, Calcutta. 1982. "From Cooperation to Competition: Changing Pattern in West Bengal Village." J. INDIAN ANTHROP. & SOC. 17:235-244.**

When all the identities are rapidly changing in a society, what happens to the pattern of mutual help & cooperation among the villagers? There were both competition & cooperation among the villagers in the past. It is argued, that cooperation prevails in the rural areas more than in the urban areas. The

paper will discuss the situation that existed a decade ago & compares it with what it is now seen in West Bengal villages using the data collected during two different periods of time.

**GOLDSTONE, JACK. Soc, Northwestern. 1986. "State Breakdown in the English Revolution: A New Synthesis." AMERICAN JOURNAL OF SOCIOLOGY 92, 2:257-322.**

This essay develops & tests a formal time-series model of the pressures leading to state breakdown in England in 1640-42. The model has several novel features: it applies a quantitative analysis to the logic of structural-historical studies of revolution that generally proceed in a qualitative fashion; it yields a strong prediction of political crisis in mid-17th-century England & of relative stability in the preceding & succeeding centuries; & it helps resolve several problems in the historiography of the English Revolution & the current theory of revolutions.

**GRANOVETTER, MARK, & CHARLES TILLY. Soc, SUNY-Stony Brook. 1986. "Inequality & Labor Processes." Centre for Studies of Social Change, Working paper 29.**

We have argued that the inequality of rewards received by those who work can best be understood by paying attention to two main processes: the creation & ranking of work positions, & the differential sorting of individuals & groups into those ranked positions. These processes take place in three arenas: broad categories of employment, labour markets - the level of firms & industries - & within firms. We pinpoint five sets of actors shaping these processes in these arenas: capitalists, workers, households, organized groups, & governments. Inequality results from conjunction of ranking & sorting.

**GREEN, PAUL & ABBA KRIEGER. Marketing, Wharton Schl., Pennsylvania. 1986. "The Minimal Rank Correlation, Subject to Order Restrictions, with Application to the Weighted Linear Choice Model." J. OF CLASSIFICATION 3:67-95.**

The weighted linear choice model is one of the most popular models in the social sciences. In this model the utility of a choice object is represented as a weighted sum of attribute-level desirabilities, where the weights are attribute importances. In many empirical contexts the choice objects are such that individuals are highly correlated in terms of their desirability ordering of levels within attribute but may differ appreciably in terms of their evaluations of each attribute's importance. In this paper we address the problem of how dissimilar two individuals may be, in a rank correlation sense, given that they agree completely on the desirability ordering of levels within attributes, but may disagree considerably regarding the importance they attach to the attributes themselves. The problem has interesting implications regarding the potential value of clustering individuals' utility functions for market segmentation or other such purposes.

**GREENBAUM, SUSAN. Anthropology, Florida. "Afro-Cubans in Ybor City: A Centennial History." 1986.**

Despite economic transformations, Ybor City has remained an important element in Tampa. The dual identity of Afro-Cubans there as both black & Cuban American makes their historical experiences a unique lens thru which to observe the nature of ethnic & race relations.

**HALL, THOMAS. Soc, Oklahoma. 1986. "Incorporation In the World-System: Toward a Critique." AMERICAN SOCIOLOGICAL R 51, 3:390-402.**

This paper examines the incorporation of non-state societies in the American Southwest into the Spanish & American states. The analysis strongly suggests that incorporation begins much earlier & has stronger effects than world-system theory typically recognizes; that incorporated groups, especially non-state societies, play an active role in the process; that incorporation is a variable & sporadic process; that too close a concern with the imperialism thesis detracts from the analysis of other causes & processes that accompany incorporation into the "modern world-system."

**HELLERSTEIN, LAUREL. Communication, Massachusetts. "Gender Differences in Active Political Participation & Attention to Politically-Oriented Media." Western Speech Communication Association. Salt Lake City. Feb., 1987.**

This research looked at descriptive statistics from a national survey conducted prior to & directly after the 1984 Presidential campaign to determine if there were gender differences in political participation. Between gender groups, males were more politically active than women, however when comparing means within groups for both socio-economic & political orientation variables, results were not consistently statistically significant, although men were found to participate more than women in both the

active & less active roles. Findings do not support past research efforts that have found controlling for socio-economic variables make gender differences disappear.

**HIRSCH, BARTON & BRUCE RAPKIN.** U. of Illinois. 1986. "Multiple Roles, Social Networks, & Women's Well-Being." *J. OF PERSONALITY & SOCIAL PSYCHOLOGY* 51, 6:1237-1247.

In contrast to earlier approaches to the study of multiple roles, our research was concerned with the frequency & conditions under which both positive & negative outcomes occur. Using data from a random sample of 235 married female nurses, we focused on marital & job satisfaction as important criteria of success in managing multiple roles. In the first phase of the research, a cluster analysis identified five different profiles of marital & job satisfaction. Of the two most positive profiles, one was defined by high scores in both areas, the other by high job satisfaction but only moderate marital satisfaction. In two other profiles, women were very dissatisfied with one role & at best moderately satisfied with the other. In the second phase, the profiles were found to be meaningfully associated with measures of psychological symptomatology & overall life satisfaction. The third phase considered how the profiles were linked to measures of social support & social rejection provided by five key network members. The strongest univariate profile discriminator was the level of work rejection from the spouse. A discriminant function analysis revealed that the level of spouse's work rejection was even more powerful when it was compared to the level of work rejection received from the next closest family member (typically the mother).

**HUCKFELDT, ROBERT, & JOHN SPRAGUE.** Indiana. "Networks in Context: Problems & Method." *Annual Meeting of the American Political Science Assoc. Wash., D.C. 1986.*

The final wave of interviews from a purposive neighbourhood based sample of voters in South Bend, Indiana, taken before, during, & after the 1984 presidential election campaign, & interviews with their political discussants, are employed to evaluate the effects of individual political preferences & the socially structured distribution of such preferences on the transmission of political information. It is found that, to some extent, individuals do purposefully construct informational networks corresponding to their own political preferences & also that they selectively misperceive socially supplied political information. Both processes are shown to be conditioned by the constraints imposed by the distribution of political information in the social context. These information transmitting processes interact with the social context in a manner which favours sustaining partisan majorities in their beliefs while undermining the beliefs of political minorities.

**HUNTER, ALBERT & STEPHANIE RIGER.** Centre for Urban Affairs & Policy Research, Northwestern. 1986. "The Meaning of Community in Community Mental Health." *J. OF COMMUNITY PSYCHOLOGY* 14, Jan:55-71.

This article critically reviews the development of community mental health in both theory & practice & explores new directions & dilemmas for future policy & programs. First, we trace the dialectical development of the ideology of community mental health & the rediscovery of community. Second, we outline the two key transitions:(a) from professionals to natural helpers & (b) from catchment areas to natural networks. Third, we offer alternative conceptions of community from the sociological literature & suggest ways that these can benefit new program planning. We conclude with a series of policy questions that legitimate the expansion of community mental health beyond the parochial confines of the local community.

**HUTT, MICHAEL & PETER REINGEN.** Business, Arizona State. "Social Network Analysis: Emergent versus Prescribed Patterns in Organizational Buying Behavior." *Association for Consumer Research. Toronto, 1986.*

Adopting a social network perspective, this paper argues that insights into organizational buying behavior can be secured by examining the work flow & communication network operative during ongoing purchasing activities in the firm. Social network analysis provides a method for studying the structural dimensions of individual influence within an organizational context. By focusing on recurring patterns of behavior, the present conceptualization represents a departure from past organizational buying center studies which explore the influence & communication patterns surrounding a particular purchasing decision.

**HWANG, KWANG-KUO.** Psychology, National Taiwan U. 1987. "Face & Favour: The Chinese Power Game." *AM. J. OF SOCIOLOGY* 92, 4:944-74.

Western research on interpersonal behaviour patterns & rules of exchange needs to move beyond the assumption of isolated individuals socialized to make rational decisions on the basis of self-interest. A review of recent research shows that Chinese society & other similar societies follow rules that deviate from those of the West. In such societies, norms of reciprocity (bao) are intense, but these norms are heavily shaped by the hierarchically structured network of social relations (guanxi) in which people are embedded, by the public nature of obligations, & by the long time period over which obligations are incurred through a self-conscious manipulation of face & related symbols. These special cultural symbols, as well as the historical monopoly of valuable resources by powerful leaders, help explain the origin of these patterns. There are several forces leading to change but also some sources of continuity, which help maintain these patterns regardless of political & economic context.

**IACOBUCCI, DAWN & STANLEY WASSERMAN.** Psychology, U of Illinois at Urbana-Champaign. 1986. "A General Framework for the Statistical Analysis of Sequential Dyadic Interaction Data." Working Paper.

Recent interest in sequential dyadic interactions has motivated researchers to develop methods appropriate for the analysis of such data. After briefly reviewing a series of methodological papers focusing on the analysis of discrete-valued observations, we present a general framework for studying many substantive effects, such as dominance & autodependencies, in social interactions measured on dyads. We show how this framework allows a researcher to study dyadic interactions measured at two or more time points on one or more relations. The methods described here are general enough to permit the simultaneous analysis of the sequential relational variables & attribute variable (such as sex of actors or emotional status of the dyad) recorded on either the dyad or the actors.

**JOHNSEN, EUGENE.** Math, U. of California, Santa Barbara. 1986. "Structure & Process: Agreement Models for Friendship Formation." *SOCIAL NETWORKS* 8:257-306.

In this paper we study the relationship between certain fundamental social microphenomena & the micro-and macrostructures they generate in a social group or network. The microphenomena of interest concern the effect of agreement or disagreement between members of the group on the friendship or nonfriendship between them. We examine various versions of this type of microprocess & focus our attention on five which, at equilibrium, are in close structural relation to the five affect models arising in the Davis-Leinhardt set of empirical sociomatrices. The theoretical results of this paper, together with substantive results from earlier empirical & experimental studies, are used to construct a broad description, with some detail, of how friendship structure can emerge & decline in social groups for which other persons, issues & values are important to the members.

**JOHNSON, JEFFREY.** Inst. for Coastal & Marine Resources, East Carolina U. 1986. "Social Networks & Innovation Adoption: A Look at Burt's Use of Structural Equivalence." *SOCIAL NETWORKS* 8:343-364.

This paper examines Burt's model of innovation adoption based on an application of structural equivalence. The proposition that 2 structurally equivalent actors will adopt an innovation at approximately the same time is explored. The diffusion of two innovations through a network of commercial fishermen provides the basis for an empirical test. Tentative support for this proposition is found, particularly if the effects of information availability, economic competition, & the appropriateness of the innovation are taken into account.

**JOHNSON, STEVEN.** Soc, Gustavus Adolphus College, St. Peter, Minn. 1985. "Kin & Casinos: Changing Family Networks in Atlantic City." *CURRENT ANTHROPOLOGY* 26, 3:397-399.

When a city is also experiencing rapid economic growth & the development of a popular entertainment industry, dramatic change may follow. Expansion of the effective kin networks of Atlantic City residents along with increased interaction with distant relatives strongly suggests that family networks serve an important utilitarian function for those hoping to exploit the city's economic growth & entertainment opportunities.



**KEEFE, SUSAN. Anthropology, Appalachian State. 1986. "Southern Appalachia: Analytical Models, Social Services, & Native Support Systems." AMERICAN JOURNAL OF COMMUNITY PSYCHOLOGY 14, 5:479-.**

It is argued that the analysis of social services in southern Appalachia benefits more from a model based on ethnicity than on more commonly used models based on lower socioeconomic status or rural residence. A theoretical model of ethnicity is generated which covers structural, cultural, & symbolic aspects. Results of an exploratory study of ethnic differences between Appalachians & non-Appalachians in a mountainous North Carolina county are presented which lend validity to the ethnicity model.

**KLOVDAHL, ALDEN. Soc, Arts, Australian Nat. U. 1986. "View Net: A New Tool For Network Analysis." SOCIAL NETWORKS 8:313-342.**

Advances in computer graphics technology in the last decade have made it possible to create & manipulate complex visual images in real times & these advances provide the basis for developing new tools for network analysis. This paper describes the present state of the art of interactive computer graphics, & a graphics package for interactive visually-assisted network analysis is discussed.

**KRAUSE, NEAL. Family Medicine, Texas. 1986. "Social Support, Stress, & Well-Being Among Older Adults." J. OF GERONTOLOGY 41, 4:512-519.**

The purpose of this study was to examine whether social support buffers the deleterious effects of stressful life events on depressive symptoms among a random community sample of older adults. Previous research has provided contradictory conclusions regarding the stress buffering capacity of supportive social relations. The reason for these inconclusive findings may be traced in part to the failure of researchers to disaggregate their social support & stressful life event inventories. The findings from the present study reveal that, although social support fails to modify the effects of a global stressful life events indicator, specific types of social support buffer the impact of specific types of stressors (bereavement, crime, & social network crises).

**LAUMANN, EDWARD, & DAVID KNOKE. Soc, Chicago. 1986. "Social Network Theory." Pp. in S. Lindenberg, James Coleman, & Stefan Nowak (eds.), APPROACHES TO SOCIAL THEORY. New York: Russell Sage Foundation.**

Our task is threefold. First, we quickly adumbrate the particular sort of social structural analysis with which we & our associates have been concerned over the past ten years or so. We then step back to indicate some of the central theoretical issues that have been plaguing us as we set about applying this theoretical perspective to empirical problems. Finally, we take a particular problem, issue linkage & the communication structure among influential corporate actors in a national policy domain, to illustrate the intricate interplay of theory & substance in motivating the sorts of questions structural theory & network analysis can & should address. We try to show how these questions depart in crucial & promising ways from those conventionally raised in policy analysis.

**LEIFER, ERIC. Soc, North Carolina. "Equality through Involvement & Ambiguity." Unpublished paper.**

I observe a bifurcation in the behaviour of high skilled chess players not found among lesser players. HS players display foresight in positions with winning opportunities, making & implementing choices in the pursuit of outcomes that lead to the termination of play. Where equal opportunity exists, however, HS players display a distinctive behaviour that regenerates the involvement & ambiguity I associate with Equality. Decision as activity extends across would-be choices to sustain uncertainty, & robust action is used to buy time for more observation & decision. A peculiar equilibrium can arise where the robust action of one player sustains the need for more observation & decision by the other, & then vice versa, so that the opportunity for committing choice is constantly pushed off. The resulting Equality may be an albeit "unintended" consequence of skillful behaviour in a variety of settings where participants are motivated to become involved.

**LIN, NAN, & MARY DUMIN. Soc, SUNY - Albany. 1986. "Access to Occupations Through Social Ties." SOCIAL NETWORKS 8:365-385.**

Previous studies which examine the theory linking social resources to instrumental action have focused on a particular activated set of social ties in order to assess the effects of social resources on a specific action (finding a job or finding a stranger). However, the theory also implies that an individual's access to such social resources is contingent upon his/her social position as well as the nature

of the social ties used. Assuming positions in the occupational structure represent resources, this paper reports a study designed to examine access to occupations through social ties.

Data tend to support two major propositions in the theory. The strength of positions (as indicated by father's occupation) as well as the strength of ties (as indicated by the nature of the tie being a relative, friend or acquaintance) affect one's access to high-prestige occupations & affect the range of occupations accessed. Higher original positions & weaker ties (friends & acquaintances rather than relatives) provide better access to white-collar or more prestigious occupations, and, as a consequence, provide access to a wider range of occupations. Weaker ties provide better access to social resources than stronger ties, especially for those whose original positions are relatively low. There is also some evidence that friends, as opposed to relatives & acquaintances, may provide the widest access to different positions in the occupational structure.

**LIN, NAN. Soc, SUNY-Albany. 1987 - Forthcoming. "Social Resources & Social Mobility: A Structural Theory of Status Attainment." Pp. In Ronald Breiger (ed.), SOCIAL MOBILITY & SOCIAL STRUCTURE. Cambridge: Cambridge U Pr.**

The purpose of this paper is to extend a theory of social resources & social actions in the context of status attainment. The paper begins by recapping briefly the fundamental assumptions & propositions of the theory & then elaborates various structural parameters that condition further specifications of the propositions regarding status attainment.

**LONDON, BRUCE. Sociology, Florida Atlantic University. 1987. "Structural Determinants of Third World Urban Change: An Ecological & Political Economic Analysis." AMERICAN SOCIOLOGICAL R 52, February:28-43.**

Quantitative, cross-national studies of peripheral urbanization have been rooted in human ecology or political economy. Studies in the human ecology tradition cite rural adversity as a major determinant of Third World urban growth. Studies in the political economy mode emphasize economic dependency. This paper (a) argues that no quantitative analysis of Third World urbanization can be complete if it fails to incorporate determinants suggested by one or the other theory & (b) conducts such a "complete" quantitative, cross-national analysis, which examines simultaneously both rural adversity & dependency as predictors of urban change. Findings suggest that both factors are important.

**MARSDEN, PETER. Sociology, North Carolina at Chapel Hill. 1987. "Core Discussion Networks of Americans." AMERICAN SOCIOLOGICAL R 52, February:122-131.**

Aspects of interpersonal networks in which Americans discuss "important matters" are examined using data from the 1985 General Social Survey. These are the first survey network data representative of the American population. The networks are small, kin-centered, relatively dense, & homogeneous in comparison with the sample of respondents. Bivariate examination of subgroup differences by age, education, race/ethnicity, sex, & size of place indicates that network range is greatest among the young, the highly educated, & metropolitan residents. Sex differences consist primarily of differences in kin/nonkin composition of networks.

**MARSDEN, PETER, & JEANNE HURLBERT. Soc, North Carolina. "Small Networks & Selectivity Bias in the Analysis of Survey Network Data." Seventh Sunbelt Social Network Conference, Clearwater Beach, Florida. Feb., 1987.**

Selectivity bias is a danger whenever observations are systematically excluded from a data set on the basis of a dependent variable, whether this exclusion is explicit or implicit. If present, the problem has severe consequences for the validity of statistical estimates of effects. The problem is of importance to the analysis of survey network data, since many network measures (such as density) are defined only for persons having networks of size two or larger, while others (such as % kin) are defined only for those having networks of size one or more. Analysts can correct for selectivity bias by modelling the risk of exclusion (in this case, of having a network of size 0 or 1), & including the modelled risk as a control in substantive equations. This paper presents such estimates for the 1985 General Social Survey network data; in doing so, it replicates results of Fischer & Phillips on loneliness. Other ways of guarding against selection bias are also discussed; at a minimum, network size should be included among the set of regressors in analyses of survey network data, as a methodological control if not as a substantive variable.

**MARSDEN, TERRY, et al.** Planning, South Bank Poly, England. 1986. "Towards a Political Economy of Capitalist Agriculture: a British Perspective." *INT. J. OF URBAN & REGIONAL RESEARCH* 10, 4:499-521.

We aim here to examine critically the value of existing work which has pursued the political economy perspective. Then, in the light of British experience, we suggest the need for a further development of the approach at the theoretical & empirical levels. It will be argued that the perspective needs to accommodate a more extensive agenda which suitably matches the process of agricultural change occurring in capitalist societies today. A major consideration must be to assess the validity of a structural approach & the need to incorporate the specificity of farm business & family change within it.

**MASSEY, DOUGLAS.** Soc, Pennsylvania. 1987 (in press). "The Social Organization of Mexican Migration to the United States." *ANNALS OF THE AMERICAN ACADEMY OF POLITICAL & SOCIAL SCIENCE*.

Mexico-U.S. migration is supported by social networks that link sending communities with specific worksites in the United States. This paper uses a combination of ethnographic & survey methods to study how these networks develop, & how they facilitate the migrant enterprise. Migrant networks are based on the bonds of kinship, friendship, & paisanidad which are reinforced through frequent contact in voluntary organizations. Over time, as networks develop & mature, migration becomes self-sustaining. The maturation of migrant networks in western Mexico after 1965 helps to explain the sharp rise in Mexican migration to the United States during the 1970s.

**MATTHEWS, SARAH.** 1986. "Friendships in Old Age: Biography & Circumstance." Pp.233-70. in Victor Marshall (ed.), *LATER LIFE: THE SOCIAL PSYCHOLOGY OF AGING*. Beverly Hills, CA: Sage.

Friendship as a social relationship will be analyzed with an eye toward delineating what is meant by this label. Characteristics unique to friendships in old age will then be discussed in order to describe the circumstances with which the old must deal. Several "styles" of friendship with which social actors come to old age will then be examined. Last, the various ways that biography & circumstance come together in old age will be presented.

**MAYNARD, MARIANNE.** 1986. "Measuring Work & Support Network Satisfaction." *J. OF EMPLOYMENT COUNSELING* 23, 1:9-19.

The development & pilot testing of a Work & Support Network Satisfaction Scale for early detection & intervention of troubled & dissatisfied workers is described. The results suggest the scale has potential use in detecting at-risk workers.

**MICHAELS, JAMES, ALAN ACOCK & JOHN EDWARDS.** Soc, Virginia Tech. 1986. "Social Exchange & Equity Determinants of Relationship Commitment." *J. OF SOCIAL & PERSONAL RELATIONSHIPS* 3, 2:161-175.

*The present study examines the explanatory power of alternative determinants of relationship commitment derived from the social exchange & equity perspective. We hypothesized that relationship commitment varies directly with relationship outcomes, outcomes relative to the attractiveness of alternatives, relationship satisfaction & duration. We also hypothesized that commitment varies inversely with relationship inequity & females would be less committed to their relationships than would males. Using self-report data from college students dating one person exclusively & multiple regression procedures, we found clear support for the first set of hypotheses, marginal support for the effect of inequity, & no support for the hypothesized gender difference in commitment.*

**MILLER, GERALD, PAUL MONGEAU & CARRA SLEIGHT.** Communications, Michigan State. 1986. "Fudging With Friends & Lying to Lovers: Deceptive Communication in Personal Relationships." *J. OF SOCIAL & PERSONAL RELATIONSHIPS* 3, December:495-512.

*We argue that the occurrence, substance, & outcomes of deceptive communication are markedly influenced by the nature of the communicators' relationship. To redeem this claim, we examine how several differences between impersonal & personal relationships may influence deceptive exchanges, & consider some of the implications of the distinctions.*

**MILROY, JAMES & LESLEY MILROY.** Linguistics, Sheffield. 1985. "Linguistic Change, Social Network & Speaker Innovation." *J. LINGUISTICS* 21:339-384.

This paper is concerned with the social mechanisms of linguistic change, & we begin by noting the distinction between 2 different approaches to the study of linguistic change. The first & more idealized, associated initially with traditional nineteenth century historical linguistics, involves the study of successive 'states of the language', states reconstructed by the application of comparative techniques to necessarily partial historical records. Generalizations (in the form of laws) about the relationships between these states may then be made, & more recently the specification of 'possible' & 'impossible' processes of change has been seen as an important theoretical goal. The second approach, associated with modern quantitative sociolinguistics, involves less idealization of the data base. An important objective is to specify how languages pass from state A to state B in terms of both the social processes involved & the effect on linguistic structure of a given change. The major goal is to develop a theory which is sensitive both to the constrained & regular nature of change & to its relationship with social structure.

**MITNICK, BARRY.** Grad School of Bus, Pittsburgh. "The Theory of Agency & Organizational Analysis." Annual Meeting of the American Political Science Association. Washington, D.C. 1986.

The theory of agent-principal relationships is a very large area of research in accounting, economics, & finance, which is now expanding to sociology & political science. Despite expressed concern for the development of organizational theory using this approach, few researchers have actively applied & extended agency to truly organizational as against formal settings. This paper offers a critique of some existing agency work on organizations, including both the form & subject of the analyses; offers a brief assessment of some agency-like literatures in social science that ought to contribute toward development of the agency approach; & outlines some aspects of agency relationships in & among organizations that would be appropriate to explore in order to derive an agency-based understanding of organizations. For example, research may be directed at the reasons why & the methods by which agency relations are created & terminated, the mapping & analysis of incentive systems & generalized control systems, the characteristic agent & principal "problems" in organizations & the remediation techniques used to manage them; the characteristic types of agency relations & behaviors, & so on.

**MIZRUCHI, MARK & THOMAS KOENIG.** Scientific Computing Center, Albert Einstein College of Medicine. 1986. "Economic Sources of Corporate Political Consensus: An Examination of Interindustry Relations." *AM. SOC. REV.* 51, Aug:482-491.

This paper examines the sources of political consensus between major industries in the American economy, employing data on campaign contributions of corporate political action committees in the 1980 Congressional elections. Drawing on elements of the resource dependence & social class models of intercorporate relations, we examine the effects of volume of transactions between industries, the economic leverage of one industry over another, & interlocking directorates, on the similarity of contributions between dyads created by fourteen major industries. Volume of transactions is negatively related to consensus, as are direct interindustry officer interlocks. However, economic leverage between industries is associated with increased consensus, suggesting the importance of this variable as a source of conflict resolution within the business community.

**MIZRUCHI, MARK & LINDA STEARNS.** Scientific Computing Center, Albert Einstein College of Medicine. "Broken Tie Reconstitution & the Functions of Interorganizational Interlocks: A Reexamination." *ADMINISTRATIVE SCIENCE QUARTERLY*.

Researchers studying the reconstitution of disrupted corporate interlock ties have argued that interlocks reflecting interorganizational coordination should be reestablished if accidentally broken by death or retirement. They have interpreted the empirical finding of low rates of reconstitution as evidence that most interlock ties are not a result of organizational attempts to manage their environments. Instead, these researchers have argued that most interlocks are the result of attempts by business elites to coordinate overall business policy, independent of the interests of particular organizations. We argue that because the resource dependence model does not necessarily predict that broken ties will be reconstituted, broken tie research is incapable of resolving the debate between the interorganizational & intraclass approaches. We argue that ties are most likely to be reconstituted if one partner exercises power over another. We propose the concept of "functional reconstitution," in which a firm establishes a tie with another firm in the same industry as the previous tie, as distinct from "direct reconstitution," the standard concept. Employing financial interlocks to illustrate this concept, we find that including functionally reconstituted interlocks increases the rate of reconstitution by nearly one-half. However, we

argue that the determinants of direct & functional reconstitution differ. Our findings support this argument.

**MIZRUCHI, MARK & LINDA STEARNS.** Scientific Computing Center, Albert Einstein College of Medicine. "Dependence, Cooptation, & Infiltration: A Longitudinal Study of the Formation of Interlocking Directorates." Revised version of a paper presented at the Annual Meeting of the Am. Sociological Assoc. New York. August, 1986.

The present study examines the creation of new interlock ties. We examine data on 22 large U.S. industrial corporations from 1955 to 1984 to determine factors affecting the appointment of representatives of financial institutions to the industrials' boards. The longitudinal design enables us to focus on the effects of the general economic environment at a particular point in time as well as on characteristics peculiar to individual firms. Hypotheses are developed to distinguish the cooptation & infiltration models of financial interlocking. Employing event-history analysis, we find that declining solvency, declining profit rate, the correspondence of increased demand for capital with contraction stages of the business cycle, are associated with subsequent appointment of financial directors.

**MOGEY, JOHN & HEINZ BACHMANN.** Soc, Arizona State. 1986. "Kinship Under Two Strategies of Development." J. OF COMPARATIVE FAMILY STUDIES 17, Summer.

This paper identifies two strategies used to accommodate the process of development by African villages: (1) in villages utilizing a traditional strategy, village councils retain control over most economic & political decisions that affect their households; (2) in villages utilizing an industrial strategy, heads of households consult the village council less often in decisions that affect savings or investment or about life course ceremonies. The industrializing villages give more support to the village welfare system which is run by the local religious leader. In traditional strategy villages, large multifamily compounds are present. The complex residences are not found in villages with wage-earning households. The industrializing strategy, therefore, seems to increase family consultations, to decrease the political power of the village council, & to increase the influence of the local welfare system.

**MORGAN, DAVID.** Inst on Aging, Portland State. 1986. "Personal Relationships as an Interface Between Social Networks & Social Cognitions." J. OF SOCIAL & PERSONAL RELATIONSHIPS 3, Dec:403-422.

The concept of shared knowledge structures is introduced as one way of demonstrating how personal relationships serve as a bridge between collective activity at the level of the social network & cognitive activity at the level of the individual. The field of social cognition has studied how individuals organize information, & social network analysis has studied how information is passed within groups, but both have largely ignored the role that personal relationships play in leading individuals to share the ways they organize & interpret this information. This conceptual framework is applied to two qualitative studies on the production of shared knowledge structures: first, for knowledge about coping with the stresses of recent widowhood, & second, for the organization of knowledge about preventing heart attacks. The results point to the importance of integrating work on social cognition, personal relationships, & social networks.

**NEUMANN, DEAN & VICTOR NORTON.** Mathematics & Statistics, Bowling Green State. 1986. "Clustering & Isolation in the Consensus Problem for Partitions." J. OF CLASSIFICATION 3:281-297.

We examine the problem of aggregating several partitions of a finite set into a single consensus partition. We note that the dual concepts of clustering & isolation are especially significant in this connection. The hypothesis that a consensus partition should respect unanimity with respect to either concept leads us to stress a consensus interval rather than a single partition. The extremes of this interval are characterized axiomatically. If a sufficient totality of traits has been measured, & if measurement errors are independent, then a "true" classifying partition can be expected to lie in the consensus interval. The structure of the partitions in the interval lends itself to partial solutions of the consensus problem. Conditional entropy may be used to quantify the uncertainty inherent in the interval as a whole.

**NOMA, ELLIOT. Psych, Rutgers. 1986. "Using Blockmodels to Map the Structural Congruence of Social Relations." SOCIAL NETWORKS 8:175-189.**

The equivalence of actors with respect to their roles is the cornerstone for many analyses of group structure. In particular, blockmodels assume that individuals can be grouped into structurally equivalent blocks using the interaction data from several relations. These blocking methods, however, assume not only the structural equivalence of individuals within relations, but also the congruence of social structure across relations: the number & division of individuals is the same in each relations. Structural equivalence within relations & congruence across relations are two separate concepts & this article proposes a procedure by which these concepts can be computationally separated within the context of blockmodeling.

**NUMAZAKI, ICHIRO. 1986. "Networks of Taiwanese Big Business: A Preliminary Analysis." MODERN CHINA 12, 4:487-534.**

This study examines the nature of corporate interlocks among a select sample of the business elite in contemporary Taiwan. My analysis of 37 business groups show that (1) each business group - a cluster of interlocking holding companies & manufacturing subsidiaries - is controlled by a group of owner-managers who are related through kinship, marriage & other personal ties; (2) 15 business groups have two or more interlocking directorships & constitute a closely knit single network ("the inner circle"), while 8 business groups are linked to the inner circle through only one interlocking directorship & 14 others have no such ties at all; (3) business groups in the inner circle are more likely to have some of their managers elected as representatives in the local & national assemblies, & tend to have joint ventures with Japanese transnational corporations. I therefore argue that the inner circle of mutually related business groups constitutes a distinct class segment & occupies a dominant position in the power structure of Taiwan business.

**OBERSCHALL, ANTHONY & ERIC LEIFER. Soc, North Carolina at Chapel Hill. 1986. "Efficiency & Social Institutions: Uses & Misuses of Economic Reasoning in Sociology." Ann. Rev. Sociology 12:233-53.**

We review recent applications of the "new institutional economics" to a variety of social institutions. The applications use the idea of efficiency to account for the emergence & persistence of institutions such as the family, sharing groups, private property, discrimination, & the norm of reciprocity. Efficiency entails eliminating costly externalities with the least possible transaction costs (i.e. costs involved in negotiating, writing, & enforcing agreements). Our critique of efficiency shows how power relations, goal ambiguity, & the institutional relativism of choice render efficiency problematic. The sociological criterion of reproducibility may be more relevant where these features hold. If efficiency analysis is used, the sociologist should insist that it allow the identification of inefficiencies & that institutional participants welcome suggested improvements in efficiency.

**OKE, ADEWALE. Soc, U. of Ibadan, Nigeria. 1986. "Kinship Interaction in Nigeria in Relation to Societal Modernization: A Pragmatic Approach." J. OF COMPARATIVE FAMILY STUDIES 17, Summer.**

This paper argues that although industrialization & urbanization affect the structure & functions of the extended family, the extended kin group remains a viable force in Nigeria. This concern is expressed from two perspectives: the relationship between the extended family & industrialization & urbanization; the manner in which the individual participates in the kin network. It is concluded that interaction with kin groups varies with both situational & individual needs.

**ORNSTEIN, MICHAEL. Soc, York, Toronto. 1986. "Extending the Reach of Capital: Corporate Involvement in Canadian Hospital & University Boards, 1947, 1977." Inst for Soc Res, York U, Canada 1P3.**

This paper examines the extent of interlocking between the boards of the 100 largest Canadian corporations & major hospitals & universities between 1946 & 1977. Interlocking between corporations & universities is found to decline dramatically in the 1960s & there is a similar but weaker decline in interlocking with hospitals. Corporations in the financial, utility, & transportation sectors are much more likely to have interlocks with hospitals & universities than corporations which are foreign controlled or in the manufacturing industries. Long-established, major universities in Atlantic Canada, Quebec & Ontario are found to have more interlocks with corporations than universities in Western Canada. The findings are interpreted as evidence against an instrumentalist approach to understanding the influence of business.

**PALMER, DONALD, ROGER FRIEDLAND, & JITENDRA SINGH.** Grad Schl of Bus, Stanford. 1986. "The Ties That Bind: Organizational & Class Bases of Stability in a Corporate Interlock Network." **AMERICAN SOCIOLOGICAL R 51, Dec:781-796.**

We use the interorganizational & intraclass perspectives to examine how hypothesized causes & consequences of interlocking influence one stage in the process by which the interlock network connecting large U.S. corporations is reproduced over time - the reconstitution of disrupted ties. The results of our analysis suggest that only two of the organizational & class interests associated with interlocking in previous cross-sectional studies operate in the reconstitution stage - the level of interindustry resource constraint between nonfinancial & financial firms & the membership of firms' directors in the same local capitalist class segment; that the interorganizational linkages & intraclass bonds in which ties may become embedded & which they may facilitate are also important determinants of this stage; & that the interorganizational & intraclass perspectives provide valid & interrelated explanations of interlocking, & thus should be integrated in future studies.

**PEARSON, JUDITH.** 1986. "The Definition & Measurement of Social Support." **J. OF COUNSELING & DEVELOPMENT 64, 6:390-395.**

Research indicates that socially supportive relationships & effective social networks have therapeutic value in mental & physical health. Counselors & psychologists believe support facilitates coping. Examines definitions, constructs, & theories of social support & summarizes studies concerning recently devised scales for measuring social support & analyzing social networks.

**PESCOSOLIDO, BERNICE.** Soc, Indiana. 1986. "Migration, Medical Care Preferences & the Lay Referral System: A Network Theory of Role Assimilation." **AM. SOC. R 51, Aug:523- 540.**

This paper documents a recurring but often overlooked pattern in adult socialization & proposes the mechanism that produces this regularity in role assimilation. Three broad stages (Expectancy, Disillusionment & Reconciliation) produce a curvilinear pattern over time in the adoption of "ideal-typical" role attitudes, beliefs & values. The migration of individuals to & from urban areas & their medical care preferences provide a unique case for the illustration of two crucial, organizational elements of the socialization process: context & networks. Data from Taiwan indicate that for both in-migrants & out-migrants, preferences for western as opposed to indigenous medical care parallel the same between contexts. Additional analyses that incorporate Granovetter's "strength of weak ties" idea are consistent with the network explanation.

**PICKVANCE, C.G.** Urb Stud, Kent. 1986. "Comparative Urban Analysis & Assumptions About Causality." **INT'L J. OF URB. & REGIONAL RESEARCH 10, 2:162-84.**

The aim of this paper is to clarify the meaning of comparative urban analysis, to distinguish three approaches to it, & to argue for the importance of two of them which has not been recognized in the past. Although the examples are drawn from urban & regional studies the arguments made apply equally to comparative analysis in other fields. First I consider the uses of comparative studies, & distinguish between comparative research & comparative analysis. I then present some conflicting views about the execution of comparative analysis which reflect different theoretical positions & different ideas about underlying causal relations in society. Section 3 uses examples to introduce the three approaches to comparative analysis. Two of these involve the idea of plural causation & the importance of this concept & its implications in urban & regional studies are stressed in the fourth section. I conclude by discussing the scope of comparative analysis in the light of the earlier arguments.

**PLAKANS, ANDREJS.** Hist, Iowa State. 1986. "The Study of Kinship in Modernizing Europe: Sources & Methods for a Comparative Inquiry." **J. OF COMPARATIVE FAMILY STUDIES 17, Summer.**

Recently, historians have started to test sociological propositions about kinship on evidence from the period of European modernization. Census lists & registers of vital events are two types of sources from which personal kinship networks can be reconstructed. The nature of historical kinship evidence requires, however, that a distinction be made between analytically & socially relevant kin ties if propositions about kinship are to be tested accurately.

**RAMU, G.N.** Soc, Winnipeg. 1986. "Kinship Structure & Entrepreneurship: An Indian Case." **J. OF COMPARATIVE FAMILY STUDIES 17, Summer.**

The central thesis of this paper is that in societies such as India extended family & kinship ties may facilitate rather than restrain the process of development. Contrary to mainstream sociological

assumptions, the Indian socio-cultural milieu has effectively assimilated the secular & rational aspects of economic development without completely renouncing its traditional institutions of extended family & kinship. Specifically, the paper examines the role of kinship structure in the entrepreneurial activities of a money-lending caste group in a South Indian town.

**RAO, RAMACHANDRA & SURAJ BANDYOPADHYAY. Stats, Indian Statistical Unit, Calcutta. "Measures of Reciprocity in a Social Network."**

A measure of reciprocity in a network is derived using graph-theoretical methods & a deterministic model which can be used for comparing different populations. The limitations of the alternative measures based upon other deterministic models & the inappropriateness of the usual probabilistic measures are discussed with illustration from empirical sociological survey data.

**REICHMANN, SEBASTIEN. Lab. Psych. Med., Paris. "Intercultural Comparison of the Community Mental Health Concept in France & USA: Psychiatric Ideology, Professional Services & Community Support Systems." IV European Symposium Social Psychiatry/WHO Regional Office. Copenhagen. June, 1985.**

This paper will discuss the following issues of the deinstitutionalization movement: (1) The validity of diverse commonly used psychosocial criteria for the evaluation of effectiveness of the community mental health policy. The necessity to extend the theoretical perspective called "the career of the mental patient" to the new patterns of community care will be emphasized. (2) The impact of the prevailing psychiatric ideology on the range & characteristics of available professional services. Aspects of the American community psychiatry will be compared with the psychoanalytically-oriented non-interventionist attitude & other aspects of French psychiatric ideology. (3) The development of community support systems as non-professional modalities for the community care of the mentally ill. The problem of relying on community support systems can be managed by taking into consideration (1) the fact that while various elements of the support system may be spontaneous: in an unorganized or disorganized society such spontaneous support systems may be inadequate, especially for marginal people. (2) The agencies working as substitutes for unavailable or destructive natural helping networks may provide services on a voluntary basis & as a part of an informal pattern of helping.

**RICHARDSON, R.J. Soc, McMaster. "'A Sacred Trust': The Trust Industry & Canadian Economic Structure." Trends in Social Inequality. London, Ontario. Oct, 1986.**

This paper began with an analysis of the dramatic rise of the Canadian trust industry from a second-rate also-ran to a position where it can now challenge even the big banks in many arenas of the domestic capital market. In this analysis, I have demonstrated that the management control thesis does not apply to this industry. More importantly, the manner in which the trust industry achieved its present prominence is of unprecedented significance to the development of Canadian economic & social structure. The conversion of the trust industry from management to ownership control has been accompanied by a dramatic increase in concentration & the incorporation of virtually the entire industry into huge financial-nonfinancial conglomerates. This latter development provided the crucial missing ownership ties which were required to make most elements of finance capital theory truly applicable to the structure of the Canadian economy.

**RILEY, DAVE & MONCRIEF COCHRAN Child & Family Studies, Wisconsin. 1987. "Children's Relationships With Non-Parental Adults: Sex-Specific Connections to Early School Success." J. OF SEX ROLES.**

Do the social networks of 6-year old girls & boys differ? It then extends previously reported findings by asking: do different groups of non-parental adults affect the early school success of boys versus girls? Data were collected from the mothers of 162 6-year olds, using a standard procedure. The networks of boys & girls in 1-parent & 2-parent households are contrasted throughout the presentation of results. The composition of networks was quite similar for boys & girls, except that each group had more same-sex than opposite-sex peers. In analyses predicting early school success, the number of adult male relatives who took the child on outings away from home was positively related to the child's report card score. This effect, however, was restricted to the subgroup of one-parent (mother-only) boys. This had been predicted, based on knowledge that single-parent boys are the most at-risk subgroup in the sample, the effect of social network resources are known to be accentuated by environmental press, & male adults represent the most salient models for young boys.



**RILEY, DAVE & JOHN ECKENRODE.** *Child & Family Studies, Wisconsin.* 1986. "Social Ties:Subgroup Differences in Costs & Benefits." *J. OF PERSONALITY & SOCIAL PSYCHOLOGY* 51, 4:770-778.

Social ties can be stressful as well as supportive. Are these opposing effects linked, & can they help explain subgroup differences in the efficacy of social support? These questions were applied to data on social support in response to stressful life events. The subjects were 314 women randomly chosen from the registration list of a neighborhood health center in Boston. The data were from the initial interviews of a larger study. The findings included the following: (a) The mobilization of social support was associated with better psychological well-being for women with greater personal resources, but not for those with lower levels of personal resources. (b) Women with lower levels of personal resources were more distressed by life events in the lives of their significant others, especially as the number of these events increased. (c) The subgroup effects of interpersonal support & stress on psychological well-being were independent, separate effects. In sum, women with greater material & psychological resources derived more beneficial support & suffered less stress from their social ties.

**ROSE, SUZANNA & FELICISIMA SERAFICA.** *Psychology & Women's Studies, Missouri-St.Louis.* 1986. "Keeping & Ending Casual, Close & Best Friendships." *J. OF SOCIAL & PERSONAL RELATIONSHIPS* 3, Sept :275-288.

Strategies for maintaining & ending casual, close & best friendships were investigated using a sample of ninety young adults, aged twenty to twenty-eight. As hypothesized, best friendships were regarded as more self-maintaining, more based on affection & less affected by a decrease in contact than close friendships, which in turn were more dependent on affection & interaction & less dependent on proximity than casual friendships. Best & close levels were more clearly differentiated for hypothetical cases of friendship than for actual ones. Life-stage & sex also affected friendship conceptions. The implications of the friendship level results for friendship research methodology are discussed.

**ROSECRANCE, JOHN.** *U. of Nevada, Reno.* 1986. "Racetrack Buddy Relations: Compartmentalized & Satisfying." *J. OF SOCIAL & PERSONAL RELATIONSHIPS* 3, Dec:441-456.

Although friendship is a topic of universal interest, social scientists have not precisely defined this concept. Traditional definitions have emphasized the all-encompassing, generalized, & personalistic quality of the relationship. On the other hand, current research has suggested that modern relationships are often compartmentalized & confined to the situational. My investigation builds upon the latter research. Using qualitative data drawn from a two-year study of the social world of off-track horse race gamblers, I delineate the buddy relationships that have developed among the participants. Within this distinct social world, the gamblers share contingencies & communication channels that set them apart from non-horse-players. Despite being specialized & contextual, racetrack buddyship is a relationship that is meaningful, enduring, & satisfying to the interactants.

**ROSENTHAL, CAROLYN.** *Beh Sci, Toronto.* 1986. "The Differentiation of Multigenerational Households." *CANADIAN J. ON AGING* 5, 1.

Previous research on multigenerational households in later life has generally ignored the distinction between multigenerational households located in the home of a parent & those located in the home of a child. This distinction has implications for dependency on the part of the older adult & also for social policy which is primarily concerned with the child-provided type of multigenerational household. The present analysis employs the distinction of parent's home versus child's home, & investigates multigenerational households in a random sample of adults in Hamilton, Ontario. In a qualitative analysis, the two types of multigenerational households are shown to be related to different family life course phases & to differ on a number of dimensions, including family size, age, affectual & consensual solidarity, income, marital status, & gender. The analysis indicates the need for future research on multigenerational household to explicitly differentiate between the two types of households examined in this paper.

**ROUVRAY, DENNIS.** *Chem, Georgia.* 1986. "Predicting Chemistry from Topology." *SCIENTIFIC AMERICAN* 255, Sept:40-47.

The chemical behaviour of a molecule can be predicted from the geometry of the links between atoms. Methods relying on the topology of molecules - the geometric patterns in which their atoms are linked - but ignoring their 3-D shapes predict a broad range of properties.

**SCHOENBACK, VICTOR, BURTON KAPLAN, LISA FREDMAN & DAVID KLEINBAUM.** *Epidemiology*, Schl of Public Health, U. of North Carolina at Chapel Hill. 1986. "Social Ties & Mortality in Evans County, Georgia." *AM. J. OF EPIDEMIOLOGY* 123, 4:577-91.

In an attempt to replicate Berkman & Syme's study of social networks & mortality in Alameda County, California, the authors investigated the relationship between a social network index & survivorship from 1967 to 1980 in the Evans County, Georgia, cohort. They constructed an index modeled after the Berkman Social Network Index & tested it in race- & sex-specific proportional hazards models for 2,059 subjects who were examined in 1967-1969 during the Evans County Cardiovascular Epidemiologic Study. The present study emphasized a priori specification of the social network index & statistical hypothesis test. Descriptive analyses were consistent with a modest social networks effect. Among white males, the age-adjusted hazard ratio comparing the lowest to the highest value of our six-level index was 2.0, but control for potential confounders reduced this value to 1.5. The social networks effect among white females, black males, & black females was weaker & clearly nonsignificant. Exploratory analyses suggested that marital status, church activities, & an alternate social network index predicted survivorship, but not in a dose-response fashion. Reduced survivorship among older subjects with few social ties was the most important feature of the data.

**SEIDMAN, STEPHEN.** *Computer & Information Sciences*, George Mason Univ. 1985. "Structural Consequences of Individual Position in Nondyadic Social Networks." *J. OF MATHEMATICAL PSYCHOLOGY* 29:367-386.

The pattern of dyadic relationships among members of a population has often been used to obtain important information on the way that social structure can further or constrain social action. More recently, it has been proposed that nondyadic relationships can play a similar role. In this paper, a formalism is proposed that allows the dyadic structure & the non-dyadic structure to be considered simultaneously. If this formalism is applied to the study of the structure arising from attendance at significant social events, it becomes possible to identify potential loci for social action. Still further, it is shown that information on individuals' structural perspectives with respect to such potential loci can be translated into conclusions about the individuals' positions in the dyadic structure. Such considerations can be used to evaluate the relative potential of these loci for social action.

**SHRUM, WESLEY.** *Soc.*, LSU. 1986. "Peer Relations During the School Years: Gender & Racial Homophily in Friendship & Popularity." Unpublished manuscript.

Developmental theories suggest that homophily in peer relations varies systematically for certain traits during the school years. Some theories postulate a continuous increase while others suggests a model of discrete stages. We analyze the development of racial & gender homophily within a population of 2135 schoolchildren, grades 3-12, in all public schools within a biracial Southern community. Sociometric friendship nominations are used to examine changes in racial & gender segregation & self-preference & the relationship between network ties & popularity. The results suggest that for these major status variables, the relationship between homophily & grade is curvilinear, first increasing due to increments in racial homophily from elementary to middle school (while gender homophily remains stable), then decreasing due to the decline of gender homophily from middle school onward (while racial homophily remains stable). Findings are most consistent with theories which give the middle school a prominent role in shaping peer relations.

**SKVORETZ, JOHN, & THOMAS FARARO.** *Soc.*, South Carolina. 1986. "Inequality & Association: A Biased Net Theory." *CURRENT PERSPECTIVES IN SOCIAL THEORY* 7:29-50.

Blau's theory of social structure suggests that social relations in a population are outcomes composed partly of individuals' tendency to inbreed - choose others like themselves for associates - & partly of the opportunity to associate with others of similar ( or different) background afforded by the population's distribution along the social dimension. Blau's theory as it applies to nominal dimensions has been formally developed in Fararo (1981) & Skvoretz (1983). The simple Heterogeneity Theorem is demonstrated to hold for all types of dimensions of differentiation, not just ones along which associational homogamy inbreeding prevails. The Multi-form Heterogeneity Theorem is shown to be false if applied to other than inbreeding dimensions although analogues to it can be formulated for the other types. More interestingly, the formal work shows how a negative result of recent research which apparently disconfirms the theory is entirely consistent with it & could have been anticipated by it. The finding in question is that, contrary to the Simple Heterogeneity Theorem, the racial heterogeneity of an SMSA is unrelated to its rate of interracial marriage, even though the race dimension is clearly one

along which associational homogamy prevails with respect to marriage. In this paper we extend this formal work to encompass graduated dimensions.

**SOUTH, SCOTT, & STEVEN MESSNER. Soc, SUNY-Albany. 1986. "Structural Determinants of Inter-group Association: Interracial Marriage & Crime." AMERICAN JOURNAL OF SOCIOLOGY 91, 6:1409-30.**

Using data on interracial marriage & interracial violent crime for a sample of 25 metropolitan communities, this article tests several hypotheses derived from Blau's theory of social structure. Consistent with theoretical predictions, moderate, positive correlations are found between rates of interracial marriage & crime. The article also explores the relationship between the dimensions of social structure identified by Blau - group size, heterogeneity, intergroup inequality, & segregation - & these two forms of social association. Both interracial marriage & interracial crime are influenced significantly by at least one of these structural conditions. Contrary to initial expectations, however, the effects of social structure vary by the form of association. The rate of interracial marriage is positively affected by the degree of racial income equality, whereas interracial crime rates are more strongly influenced by relative group size & racial residential segregation. The article concludes with a few speculative remarks concerning the differential effects of structural variables on different forms of association.

**STARK, DAVID. Soc, Wisconsin. 1986. "Rethinking Internal Labor Markets: New Insights From a Comparative Perspective." AM. SOC. R 51, Aug:492-504.**

"Internal labour markets" take different forms in the capitalist & the socialist firm as the distinctive organizational problems in each economic system produce differing but comparable institutional solutions. Analysis of systemic uncertainties & the organizational response of workers & managers yields a comparative model of mirrored opposition: in economies in which the firm operates in a market environment, systemic uncertainties regarding labour are reduced through internal bureaucratic rules operating according to a classificatory logic. In the socialist economy, by contrast, where systemic uncertainties are produced by a bureaucratic environment, the firm responds through internal market transactions based on affiliative ties. The market-like character of these internal mechanisms is brought into even sharper relief in an analysis of the recent establishment in Hungary of semi-autonomous subcontracting units inside the enterprise.

**STEWART, DOREEN & ALAN VAUX. 1986. "Social Support Resources, Behaviours, & Perceptions Among Black & White College Students." J. OF MULTICULTURAL COUNSELING & DEVELOPMENT 14, 2 :65-72.**

Results indicated the social support resources, supportive behaviours, & perceptions of support among Black & White college students were strikingly similar. However, sex differences are reported.

**STRECK, BERNHARD. Ethnology, Freien Universitat Berlin. 1985. "Netzwerk: Der transaktionale Einspruch gegen das Paradigma der struktural-funktionalen Ethnologie." ANTHROPOS 80:569-586.**

From the beginning of "Urban Anthropology" & since small groups have been studied as parts of complex societies a change of paradigma has been tried: away from the structural-functional model of corporations & institutions determining the behaviour of individuals to individuals using corporations & institutions for their own goals. In spite of being mostly refused & neglected for example in Firth's way of Social Anthropology from "function" over "structure" & "process" to "symbol" the transactional position has shown once again the gap between personal code of ethics & social prescriptions. Acting with the aid of "friends of friends" is, as Boissevain has described, not only typical for the mediterranean societies, but also for all social fields with weak institutions as well as for marginal groups within modern societies. Even in the classical "segmentary society" of the Nuer the "homo manipulator" has been discovered (Holy 1979) especially in the case of "bulls" collecting adherents from their cognatic & affinal kin, impoverished tribesmen & incorporated captives. The key to this strategic view of social behaviour seems to be the transactional concept of multiple choice & selfish moral for acting individuals, which makes comparable simple societies with highly fragmented pluricultural environments.

**TRIPATHI, RAMA, ROBERT CAPLAN & R.K. NAIDU. Psych, U. of Allahabad, India. 1986. "Accepting Advice: A Modifier of Social Support's Effect on Well-Being." J. OF SOCIAL & PERSONAL RELATIONSHIPS 3, 2:213-228.**

Advice is not always wanted or correct. Nevertheless, it is sometimes difficult for the provider of advice to judge the quality of advice. Giving recipients the freedom to reject advice may increase the

chances that other forms of intended aid, such as social support, will continue to be accepted & to have beneficial effects on well-being. This may be particularly the case in obligatory relationships, such as between parent & child or between supervisor & subordinate compared to voluntary relationships, such as among friends. These hypotheses were tested with a cross-sectional survey design which gathered self-report questionnaire data from 207 university students facing the stress of annual examinations in India. The findings support the hypothesis. Evidence is presented which suggests that the freedom to reject advice is particularly important in obligatory relationships because the donor & recipient of advice are likely to differ in their diagnosis of the cause of problems. Attention is given to the costs & benefits which the advice-giver may incur by encouraging the recipient to feel free to reject advice.

**UEDA, YOSHIKI. Japan Securities Res Inst, Osaka. 1986. "Intercorporate Networks in Japan: A Study of Interlocking Directorates in Modern Large Corporations." SHOKEN KEIZAI 157, Sept:236-53.**

Japanese business & financial groups such as Mitsui, Mitsubishi & Sumitomo are well known, but the intercorporate networks beyond the framework of each group are equally strong. Interlocking directorates were studied. All corporations quoted on the stock exchanges (1,772) & all mutual life insurance companies (23) in 1983 were analyzed for this study. The 1,795 corporations had a total of 30,602 director positions & 1,249 multiple directors. The number of interlocking directorates was classified by industry, person & corporation. Three interesting cases of interlocking directorates were studied. Based on these multiple directors, the intercorporate networks, the largest component of which contained 851 firms, were examined. Focusing on banks, general trading companies & mutual life insurance companies, further analysis was carried out. My idea about the Japanese "inner circle" is provided.

**WALLERSTEIN, IMMANUEL. Soc, SUNY-Binghamton. 1986. "Societal Development, or Development of the World-System?" INTERNATIONAL SOCIOLOGY 1, 1:3-17.**

The terms, society & development, are two of the most common, most ambiguous, & most deceptive words in the sociological lexicon. "Society" is closely identified with "state". "Development" is closely identified with "evolution". Using an empirical analysis of the problems surrounding any discussion of two "societies" - Germany & Puerto Rico - it is argued that the "boundaries" of these "societies" turn out to be redefined constantly, with changing political fortunes, & consequently offer no solid basis for the analysis of social processes. If there is any "society" that has "developed" in modern times, it can only have been that of the world-system. A rereading of modern history offers the possibility of a reformulation of our conceptual apparatus which would allow us to observe the growth of *Gemeinschaften* as part of the process of creating a world-scale *Gesellschaft*. The article concludes by discussing the links of this process of reconceptualization by historical social scientists with the process of rethinking about strategy going on among the world's anti-systemic movements.

**WASSERMAN, STANLEY & DAWN IACOBUCCI. Psych, Illinois. 1986. "Statistical Analysis of Discrete Relational Data." BRIT. J. OF MATH. & STATISTICAL PSYCHOLOGY 39:41-64.**

Social interaction data record the intensity of the relationship, or frequency of interaction, between two individual actors. Recent methods for analysing such data have treated these relational variables as continuous. A more appropriate method, described here, views these dyadic interactions as variables in multidimensional discrete cross-classified arrays, thus permitting analysis by log-linear models. These methods extend previous approaches to social interaction data, which were limited to binary relations, by focusing on discrete-valued relations. Dyadic interactions, measured for a single discrete relational variable, are modelled stochastically using tendencies towards expansiveness (actor-effects), popularity (partner-effects) & reciprocity. Actor-characteristic variables may be used to group actors into a substantive partition, thus simplifying the analysis & subsequent interpretations.

**WASSERMAN, STANLEY, & DAWN IACOBUCCI. Psychology, U of Illinois, Urbana-Champaign. 1986. "Sequential Social Network Data." Working Paper.**

A new method is proposed for the statistical analysis of dyadic social interaction data measured over time. The data to be studied are assumed to be realizations of a social network of a fixed set of actors interacting on a single relation. The method is based on log linear models for the probabilities for various dyad (or actor pair) states & generalizes the statistical methods proposed by Holland & Leinhardt (1982), Fienberg, Meyer, & Wasserman (1985) & Wasserman (1986) for social network data. Two statistical models are described: the first is an "associative" approach that allows for the study of how the network has changed over time; the second is a "predictive" approach that permits the researcher to model one time point as a function of previous time points. These approaches are briefly

contrasted with earlier methods for the sequential analysis of social networks & are illustrated with two examples of longitudinal sociometric data.

**WEEDE, ERICH.** *Sociology, Köln.* 1986. "Rent-seeking or Dependency as Explanations of Why Poor People Stay Poor." *INTERNATIONAL SOCIOLOGY* 1, 4:421-441.

A plausible answer to the question of why poor people stay poor reads that privileged people make or keep them poor. Dependency theories seem to derive their popularity among sociologists & political scientists from containing this answer. While this basic insight might be true to some extent, dependency theories still might be false as accumulating anomalies suggest. The rent-seeking approach offers a competing paradigm according to which price distortions with LDCs & between LDCs & industrialised societies contribute to the preservation of poverty. In contrast to dependency theory, the rent-seeking approach is fully compatible with neo-classical micro-economic theory. While a review of cross-national studies serves to call dependency theories into question, it cannot yet provide much support for a rent-seeking approach. There are simply not enough studies.

**WELLER, SUSAN, KIMBALL ROMNEY & DONALD ORR.** *Pediatrics, Penn.* 1986. "The Myth of a Sub-Culture of Corporal Punishment." *Working Paper.*

This paper addresses the question of whether adolescents coming from families using physical punishment have disciplinary beliefs similar to adolescents coming from families not using physical punishment. A related question is whether different ethnic groups share similar disciplinary beliefs. Anglo & Hispanic adolescents were asked to judge the appropriateness of certain disciplinary actions for specific teenage misbehaviors & asked if "physical punishments" were used in their families. Results indicated that Hispanic & Anglo adolescents did not differ significantly in their disciplinary attitudes nor in the proportion of each group reporting physical punishment at home. Rather, a single value system was detected & adolescents reporting physical punishment were more likely to be on the periphery of that system. There appears to be a common set of beliefs concerning appropriate disciplinary actions & adolescents reporting physical punishment deviate from this norm. Furthermore, physically punished adolescents do not share a single well-defined set of values among themselves, but instead deviate in a variety of ways from the consensual view.

**WELLMAN, BARRY.** *Soc, Toronto.* "Organizational Buying: Never an Individual Hardly Ever a Duet, Rarely a Group, But Always a Network Phenomenon." *Association for Consumer Research.* Toronto. 1986.

The title says it all in this brief programmatic piece.

**WELLMAN, BARRY & ALAN HALL.** *Soc, Toronto.* 1986. "Social Networks & Social Support: Implications for Later Life." Pp.191-232. in Victor Marshall (ed.), *LATER LIFE: THE SOCIAL PSYCHOLOGY OF AGING.* Beverly Hills, CA: Sage.

We present a brief background description of the nature of social network analysis in an effort to argue its utility for health care research. We then present cross-sectional data from our current East York study on the composition, structure, & content of community ties, in order to show the greater analytic utility of taking the variation of these networks into account when studying informal health care for the aged.

**WELLMAN, BARRY & BEVERLY WELLMAN.** *Soc, Toronto.* "Networking, Moving, Connecting, Supporting: Getting, Maintaining & Using Supportive Social Networks." *Wellness '86.* Toronto. 1986.

Supportive social networks reduce stress. We begin by talking about how to use our existing social networks to get social support. We will then explore using movement analysis to develop new network ties. Working together, we will examine our own body language - & the body language of others - as keys to developing ties & finding support.

**WIGAND, ROLF.** *Communications, Arizona State.* 1986. "Substituting Communication for Transportation." *Centre for Advanced Research in Transportation, Arizona State U., Global Mobility Paper, 3.*

We are emerging from a transportation-dominant environment of object transfer to a communication-dominant environment of symbol transfer. Two critical turning points in our social history occurred when money transfer became a symbolic substitute for goods transfer, & the invention of electricity permitted communications systems to become more efficient carriers than transport systems. The more

important symbol transportation (that is, information transmission) becomes, the less value we place on object transfer. The international telecommunications network already functions as the largest machine in the world, consisting of over 440 million phones & 1.2 million telex devices, specific data networks, communication satellites & various special purpose communication systems. In this context, telecommunications & computer technology emerge as potential alternatives to transportation. Telecommunications can substitute for transportation in four general areas: travel to & from work, trips in the course of work, education & instructional delivery, and shopping & personal business.

**WISEMAN, JACQUELINE.** Soc, U. Of Cal - San Diego. 1986. "Friendship: Bonds & Blinds in a Voluntary Relationship." *J. OF SOCIAL & PERSONAL RELATIONSHIPS* 3, 2:191-211.

This paper develops an approach to the understanding of cultural problems in the friendship bond. Utilizing depth interview field data from respondents of both sexes aged eighteen to eighty, plus self-reports of friendship problems by college students & applicable theories of relationship behaviour, two important aspects of friendship culture are probed: the desirable personality traits of friends & the expectation that these will not change; the assumption of an unwritten contract between friends concerning the provision of aid & the repayment of kindnesses. The two major characteristics of the friendship bond that make it both unique in human group life & attractive - freedom & intimacy - also set in motion an internal dialectic which can be the basis of problems between friends or the eventual demise of the relationship. The voluntary aspect of friendship means that it has little of the societal support that other relationships enjoy & that behaviour between friends is freely selected; the intimacy aspect is in direct contradiction to this in that it suggests that the behaviour between friends should fulfill certain expectations which they individually develop. These contradictory pressures also make prior discussion of continuance of attractive traits & expectations almost impossible. Thus, the friendship bond is exceedingly fragile when compared with other, more institutionalized relationships such as marriage. Analytic points for this study are illustrated by descriptions of problematic situations from actual friendships in which the exigencies of life trigger the contradictory aspects of the friendship bond.

**YI, EUNHEE KIM.** Anthropology, Chicago. 1986. "Implications of Conjugal Role Segregation For Extrafamilial Relationships: A Network Model." *SOCIAL NETWORKS* 8:119-147.

The present paper derives an intrafamily interaction network from the conjugal role segregation & examines the consequences of the density of interaction & of the individual positions in the network for the external relationships of the family. It is shown that the less cohesive interaction network within the family with the segregated conjugal roles leads to the extensive involvement in extrafamilial relationships & that the position of mother/wife as a liaison person within the family results in the pivotal position of women in maintaining extrafamilial kinship.

**ZARLING, CYNTHIA, BARTON HIRSCH & SUSAN LANDRY.** Texas Research Institute of Mental Sciences, Houston. 1986. "Maternal Social Networks & Mother-Infant Interactions in Fullterm & Very Low Birth-weight, Preterm Infants." *CHILD DEVELOPMENT*. Forthcoming.

The relation between maternal social networks & mother-infant interactions at 6 months of age was examined in 34 mother-preterm & 20 mother-fullterm dyads. All preterm infants were of very low birth-weight & experienced medical complications. Mothers were interviewed regarding their social networks; ratings of maternal behaviours were derived from videotaped mother-infant interactions. There were few between-group differences in mean levels of network variables; however, the association between network structure & maternal sensitivity differed in the two groups. A larger number of ties between the mother's family of origin & the mother's friends related to higher maternal sensitivity in fullterms, but to lower maternal sensitivity in preterms. The birth of a fullterm infant is typically a positive event around which a tightly knit network can coalesce to support the mother. It is less clear that the birth of a preterm infant is a positive event, leaving network members unsure of their roles & how to respond. Under the latter circumstances, fewer ties among network members may decrease the likelihood of ambiguous or stressful communications.

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**APPLICATIONS OF NETWORK MODELS (1986)****[Alvin Wolfe, Anthro, S. Florida]****DESCRIPTION OF COURSE**

The topic in this urban track special topics course is the use of network models in understanding urban organization and other social phenomena. This seminar explores an approach, network analysis, with potentially important application to urban situations. Theoretical and empirical and practical issues will be considered under a number of major headings, including: transaction/relation; modes of transactions; networks of transactions; collecting transactional and network data; networks as sets of links; network structure; network flow; and uses of network models. Students will get some experience in collecting relational data, in computer processing of data, and in applications of such analysis to practical situations.

**Requirements**

A. Reading will be done from 2 "textbooks" (Burt and Minor 1983; Maguire 1983); materials placed on reserve in the library; the journal SOCIAL NETWORKS, the newsletter CONNECTIONS and a variety of other journals and periodicals. All will read Burt and Minor (1983) and Maguire (1983). Other readings will be selected by each student from among the items referred to under each heading in the attached schedule of topics, with whatever additional items serve the student's purposes.

B. Because network analysis requires electronic computation, it will be necessary for each student to become proficient in the use of the USF mainframe computer, accessing it through terminals using both WYLBUR on the IBM3080 MVS system and VM/CMS on the IBM3033. For the most part, programs and data sets will be supplied by the instructor, but students will often have or collect their own data which they will analyze in the satisfaction of project requirements described below. Programs available include ALSCAL, CATIJ, CENTRL, COMPATH, CREMAT, G3D, ISETSORT, KYST, NETFLOW, ROLEQ, STRUCTURE, and others. Aside from the evaluation of specific projects below, computer proficiency will count for approximately one sixth of the course evaluation. (15 points)

C. From the second week on, each student will come to each seminar meeting with a brief (approx. 200 words) written comment on some point relevant to that week's topic. Comments should make use of both assigned readings and outside readings to which complete citations should be provided if they are not clearly identified in the bibliographies associated with the course as discussed in paragraph A, above.

**SCHEDULE****1. Introduction. Overview of network thinking. Introduction to WYLBUR. Assignment of teams.**

d'Abbs 1982, Chap 1. Maguire 1983, Chap 1. Mitchell 1974. Whitten and Wolfe 1973, Wolfe 1982a (Improving Communication among Network Theorists and Practitioners) 1976ms (Network Models in the Social Sciences, Chap 1).

**2. Transaction/relation: Elementary structure of actors, actions, resources.**

Maguire 1983 Ch 2. Barth 1966, 1981. Blau 1964. Dow 1973. Ekeh 1974. Emerson 1969, 1973, 1976. Foa 1971. Foa and Foa 1974. Gouldner 1958, 1960. Heath 1976. Homans 1971. Lebra 1975. Mauss 1954. Meeker 1971. Nadel 1957. Thibaut and Kelly 1959. Whitten and Whitten 1972. Wolfe 1970, 1971, 1978, 1986ms. Wolfe nd (Codebooks and Instruments for Network Data Collection).

**3. Transactions/relations: Modes of transactions. Spheres of transactions.**

Maguire 1983, 2. Barth 1981. Bohannon and Dalton 1962, 1965. Boulding and Pfaff 1972. Boulding et al 1973. Ferman 1978. Joy 1967. Meeker 1971. Piore 1971. Wolfe nd (Codebooks and Instruments...).

#### 4. Networks of transactions. Sets of relations at various levels.

Burt and Minor 1983 I (1,2). Willer and Anderson 1981. Bernard, Killworth, and Sailer 1981 (on small world). Emerson 1969, 1973, 1976. Gottlieb 1982 passim.

Project 1. Using as a guide an appropriate codebook or instrument (e.g. from Wolfe's Codebooks and Instruments, on reserve in the library) collect link/relational data on at least two persons or organizations, entering those data as a data set in your WYLBUR library. Model the data set after some of the members in the partitioned data set named DLEABAA.Z.POLINKS.

#### 5. Collecting transactional and network data. Techniques. Accuracy, validity, reliability.

Burt and Minor 1983 I (3-5). Maguire 1983, 1. Bernard, Killworth, and Sailer 1981. Hammer 1984. Knoke and Kuklinski 1982. Wolfe nd (Codebooks and Instruments for Network Data Collection).

Project 2. Using ISETSO, or some other program, sort a data set of link data into at least two useful subsets.

#### 6. Networks as sets of links. Size, density, variety.

Burt and Minor 1983 I (6,7,8). Maguire 1983 2. Wolfe 1970, 1974, 1981, 1982a.

Project 3. Compare two or more sets of network links, making some statement about how they are alike and how they differ. (Use Wolfe 1970 or 1974 as a guide if you like.)

Project 4. Present some data (a small network or part of one) in two formats: as a network graph and as a matrix.

#### 7. Network structure: Connectedness. Centrality. Range. Segregation & Integration.

Burt and Minor 1983 II (9,10). Berkowitz 1982 passim. Freeman 1978, Freeman et al 1980. Smith and Wolfe 1981. Wolfe 1982a, 1983.

Project 5. Using Wolfe's CENTRL program compare some centrality measures of at least two networks.

Project 6. Contrast the density or connectedness of two or more networks.

#### 8. Network structure: Clusters and Hierarchies. Multidimensional Scaling.

Burt and Minor 1983 II (13,14). Berkowitz 1982 passim. Bernard and Killworth 1973. Faust and Romney 1985. Harary and Battel 1981. Marsden and Lin 1982. Killworth and Bernard 1974. Knoke and Kuklinski 1982. Kruskal and Wish 1978. Sailer 1978. Schiffman, Reynolds and Young 1977. Smith and Wolfe 1982. White and Reitz 1983. Wolfe 1982a, 1983, 1984b, 1985, 1986ms.

Project 7. Using Killworth and Bernard's CATIJ program, analyze at least one network so that clusters are exhibited.

Project 8. Using Burt's STRUCTURE program, analyze at least one network so that "structural equivalence" is illustrated.

Project 9. Using White and Reitz's ROLEQ program, analyze at least one network so that "regular role equivalence" is illustrated.

Project 10. Using some symmetrical matrix of distances, run the multidimensional scaling program ALSCAL to produce a two-dimensional presentation of multi-dimensional data.

#### 9. Network flows.

Bazarra and Jarvis 1977. Bernard and Killworth 1978. Burgess 1978. Dunn 1980. Elmaghraby 1970. Ford and Fulkerson 1962. Granovetter 1973. Phillips and Dessouky 1977. Travers and Milgram 1969. Turk 1970. White, Harrison 1973. Wolfe 1977. Zachary 1975, 1977.



Project 11. Using the NETFLOW algorithm through MAGNET, HAIRNET, SIGNET or WOLFNET, illustrate the way a network may have a "minimal cut" which determines the maximum flow through the network.

Project 12, optional. Using some network flow algorithm (cut-search, OKA, PERT etc.), illustrate how network analysis can help in the management of a complex operation.

#### **10. Uses of network models: Personal support systems. Domestic domains.**

Maguire 1983, 2-5. Bott 1955, 1971. Fischer 1981. Gottlieb 1981, Part I and passim. Wellman 1982. Wolfe et al 1968. Wolfe and Clark, nd?.

Project Reports: Lifetime network of Howard Hughes. Separated spouses. Networks of the elderly.

#### **11. Uses of network models: Societal, international, supranational domains.**

Burt and Minor 1983 II (12,16). Baker and O'Brien 1973. Berkowitz 1982, chs 3,4. Burt 1979. Dunn 1980. Galaskiewicz 1979, 1984. Granovetter 1973, 1982. Greenbaum 1982. Hine 1977. Knoke and Laumann 1982. Laumann, Galaskiewicz, and Marsden 1978. Laumann and Pappi 1973 (in Leinhardt 1977). Levine 1973 (in Leinhardt 1977). Mayer, Adrian 1966. Poggie and Miller 1969. Mintzberg 1979. Mizruchi 1982. Rothman 1980. Shortell 1977. Thompson 1973. Wolfe 1982b(EPPP), 1982d (SOCINT), 1984a(HSIS), 1984b(NMUE), 1985, 1986.

Project Reports: Electronic ethnography. Supranational system. Neighborhood networks. Urban systems.

#### **12. Uses of network models: Work, employment, occupations, careers, professions. Organizational networks.**

Baker and O'Brien 1973. Battersby 1970. Bernard and Killworth 1973. Chapple 1971. Burt 1982a. Elmaghraby 1970. Ferman, et al 1978. Granovetter 1974. Gunter 1970. Hoare 1973. Lawrence and Lorsch 1967. Mintzberg 1979. Philips and Dessouky 1977. Rice 1981. Richardson 1974. Rogers 1981. Van Winkle 1979. Wolfe 1973, 1974, 1985.

Project Reports: Job finding. Job satisfaction. Careers. Networks in bureaucratic situations. Professional linkages.

#### **13. Uses of network models: Health and human services.**

Maguire 1983 5,6,7. Burgess, John 1978. Collins 1976. Gordon, Edmunson and Bedell 1979. Garrison and Werfel 1977. Gottlieb 1982 passim. Hammer 1963, 1975. Horwitz 1977. Lee 1969. McKinlay 1973. Pattison et al 1979. Salloway 1973, 1974. Sarason 1977. Sokolovsky et al 1978. Tolsdorf 1976. Wolfe 1980a, 1981, 1982a, 1982b, 1982c, 1984, 1985.

Project Reports: Interorganizational linkages. Human Services Information System. Networks and support after crises. Network structure of MADD. Networks of Women's Services.

#### **14. Uses of network models: Therapeutic interventions.**

Attneave 1969. Attneave and Speck 1974. Callan et al 1975. Garrison and Howe 1977. Gatti and Colman 1976. Gordon et al 1979. Gottlieb 1982, Ch 8 and passim. Pattison 1977. Pattison et al 1979. Ruevini 1979. Speck and Attneave 1973. Wolfe 1980, 1981, 1982a.

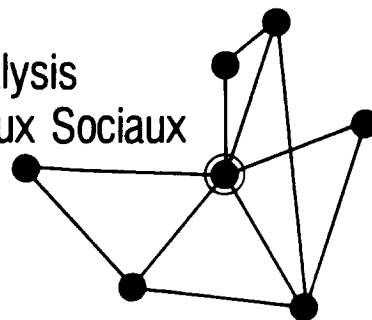
Project Reports: Separated spouses. Community network development. Client tracking and case management.

[Reference list available from the author.]

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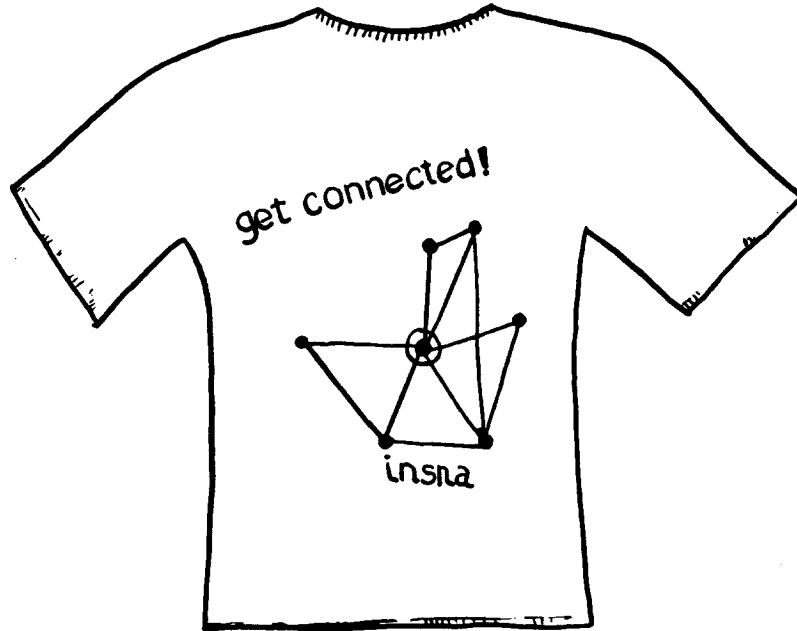
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