
CONNECTIONS

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Please make all remittances payable to INSNA. Members outside North America, please use an International Money Order drawn on a U.S. bank in U.S. currency. Whole volumes subscriptions only please. Volumes will be sent out only on receipt of payment. These requests are designed to reduce office work and costs.

SOCIAL NETWORKS: Subscriptions and renewals will be accepted through INSNA at US\$20.00 per volume for individuals; institutions should contact the publisher: Elsevier Sequoia S.A., P.O. Box 851, CH-1001 Lausanne 1, Switzerland.

CONTRIBUTIONS are solicited from members and colleagues; papers of any length, especially news, abstracts, reviews of applications of networks in different fields, critiques, problem areas, etc. If acknowledgment of a manuscript is desired, please enclose a self-addressed postcard (NOT stamped). In order to keep costs down, we prefer not to return manuscripts, please retain a copy for yourself.

Instructions on how to prepare camera-ready copy for Connections will be found elsewhere in this issue. (p.18)

THANK YOU TO: Peter Carrington (Associate Co-ordinator) for our computer programme, Natalie Reigler, Edward Lee, Olga Kuzmochka, Jack Richardson, Stephen Berkowitz, June Corman for proofreading, Ann Stevens and Susan Haggis for typing and layout for this issue and everybody who appeared in the Structural Analysis office and was cajoled into sticking down labels, licking envelopes and carrying them all to the Post Office.

NETWORK NOTEBOOK

Out of the RutsInto the Mire!

Networkers have been living on much of the same intellectual capital for a long time. The sensitizing concept of the social network is so appealing that it has been too easy to score intellectual points. Yet there have not been enough major breakthroughs -- we've tended to rely endlessly on the original sensitizing network concept, on Tilly *et al*'s demonstration of the underlying structural organization of political processes, and White *et al*'s demonstration of ways of using determinate mathematics.

Many INSNA members would disagree with the above paragraph. We hope so! Even more, we hope to be proven wrong. We warmly welcome letters presenting contrary arguments and evidence.

To get us out of our rut, *CONNECTIONS* has asked a bevy of networkers to propose intellectual agendas for the future and to evaluate our current state. Several have already agreed. We invite additional contributions as well. We expect such agendas and reviews to be a continuing feature in future issues.

Bibliography of Network Measurement Instruments

The Center for Schizophrenia Studies, NIMH, is sponsoring the preparation of an annotated bibliography of network and social support measurement instruments with potential relevance to mental health, especially schizophrenia.

Send material to Christian Beels, NYS Psychiatric Institute,
722 W. 168 Street,
New York, NY 10032, USA.

The Diffusion of Innovations: An Assessment

"This collection of papers by researchers in the field of innovation is the output of a workshop funded by the (U.S.) National Science Foundation. A limited number of copies of the unpublished report (edited by Michael Radnor, Irwin Feller and Everett Rogers) are available from the NSF Office of Policy Research and Analysis" (Washington, D.C.) (This information from the Society for Social Studies of Science Newsletter, Spring, 1979).

Networking

"Networking" is in many ways a sibling activity to social network analysis. Networkers are interested in developing communities and organizations in non-hierarchical, non-bounded ways. The movement combines organizational analyses with community development, decentralist, social action concerns. (For a brief introduction, see Peter and Trudy Johnson-Lenz, *Connections*, Volume 1, No. 2 (Winter 1978), p. 5.

Jessica Lipnack (399 Waltham Street, West Newton, Mass. 02165) writes that she and Jeffrey Stamps are writing "a very practical guide to social change networks, aimed at helping people both develop the skills to find networks and to start networks. In large measure, the book (to be published by Methuen Spring, 1981) will be a directory of existing networks in the following topic areas: health, communities, education, ecology, politics, religion (both eastern and western) and global and future networks. Several chapters will also be devoted to more discursive material on the nature of networks, indepth studies of a few networks, and the down-to-earth information people need to start networks. We would be very grateful for any information, references, names, bibliographies and/or publication you could send us that could contribute to our work. Please bill us for any costs involved."

GIANT NETWORK BIBLIOGRAPHY AVAILABLE (FREE) (Limited Supply)

The German social network analytic consortium, Forschungsprojekt Analyse Sozialer Netzwerke, has an 89 page network bibliography available, with many thousands of entries. It comes complete with a KWOC listing. A revised version is promised soon (and indeed, may have preceded publication of this issue of *CONNECTIONS*). In addition, a FORTRAN computer tape version is also available. Those interested should contact: Prof. Dr. W. Sodeur, Gesamthochschule Wuppertal, Fb 6 Wirtschaftswissenschaft, Gausstrasse 20, 5600 Wuppertal 1, WEST GERMANY.

Nice Work if You Can Get It

"The Boys Town Center for the Study of Youth Development" announces a new program to bring experienced individuals to the Center for a period of uninterrupted study, synthesis of a field or research and dissemination. Preference will be given to topics in which research knowledge needs to be communicated, such as delinquency, abuse and neglect, alcohol and drug abuse, foster care, the juvenile justice system and the like.

Inquiries, applications, or nominations to Morton Weir - at the Center, Boys Town, Nebraska 68010.

Innovations Updated

"Communication, Diffusion and Adoption of Innovations: A Bibliography Updated", by Curtis Stofferahn and Peter Korsching. February, 1980. 50 pp. \$5.50 from Vance Bibliographies, P.O. Box 229, Monticello, Ill. 61856.

Grantspersonship (U.S. National Science Foundation Sociology, 1979).

Michael Hannan and Nancy Tuma (Stanford), "Selection and competition in the life cycle of organizations." - - \$96,835.

Ivan Light (UCLA) and Edna Bonacich (Cal-Riverside), "Economic adaptation of recent Asian immigrants in Los Angeles." - - \$48,931.

Phillip Bonacich and Oscar Grusky (UCLA), "The role of children in family coalition formation."

Barbara Laslett (USC), "Demography and economic determinants of family form and function." - - \$56,511.

Nicholas Mullins and Lowell Hargens (Indiana), "The social structure of scientific specialities."

Michael Useem and S.M. Miller (Boston U.), "Comparative study of the social organization and social mobility of business leaders." - - \$11,138.

Charles Tilly (Michigan), "Collective action in large-scale social change." \$112,752.

Stephen Fienberg and Stanley Wasserman (Statistics, Minnesota), "Statistical methods for the analysis of social network data." - - \$17,977.

Peter Blau (Columbia), "Effects of metropolitan social structure on intergroup interaction." - - \$72,467.

Robert McGinnis (Cornell), "Networks of basic and applied research communities in agricultural science." - - \$102,663.

Christopher Chase-Dunn (Johns Hopkins), "World division of labor and the development of city systems: a longitudinal cross-national study." - - \$29,213.

Immanuel Wallerstein and Terrence Hopkins (SUNY, Binghamton), "Cycles and trends of the modern world-system." - - \$72,769.

Mark Granovetter (SUNY, Stony Brook) "Threshold models of collective behavior." - - \$51,112.

Samuel Leinhardt (SUPA, Carnegie-Mellon), "Exploratory research on a statistical approach to social network analysis." - - \$93,738.

Bruce Mayhew and John Skvoretz (South Carolina-Columbia), "Stratification and vertical mobility in organizations." - - \$17,445.

Karen Cook and Richard Emerson (U of Washington), "Experimental studies of exchange networks and corporate groups." - - \$107,173.

Erik Olin Wright (Wisconsin), "Dimensions of social inequality in modern Western societies." - - \$135,710.

The above represent 17/61 (28%) of basic research grants awarded.

Info Flows

Nan Lin appointed Chair at SUNY-Albany...David Cooperman appointed Chair at Minnesota-Minneapolis.

Samuel Leinhardt (INSNA member) is the new editor of SOCIOLOGICAL METHODOLOGY. One of the principal themes for the 1981 volume will be network analysis -- manuscripts are solicited on this topic, as well as on survey methods, discrete data analysis and robustness. Leinhardt writes (in FOOTNOTES) that he will try to have in the annual volume more methods from other disciplines, qualitative approaches, discussion of pedagogic and didactic implications of methods, and special thematic focii for each volume.

Harrison White appointed to the US National Research Council's Assembly of Behavioral and Social Sciences.

Mark Granovetter awarded a Woodrow Wilson Faculty Development grant to study "economic theory for sociologists".

Directory Updates

W.D. Ratcliffe now moved to Longwoods Research, Suite 503, 55 Eglinton Avenue East, Toronto, Ontario, Canada. M4P 1G4, (416) 481 3311.

Of Rivers, Water Molecules, Emergent Properties and Renormalization

"In describing a river there is no need to specify the state of every water molecule", says a recent article in Scientific American (March, 1979, pp. 67-70), which we've excerpted.

"The movements of individual molecules can be ignored because they have no influence on hydrodynamic currents and waves." (Sounds like emergent properties versus dyadic and attitudinal interpretations.)

"There are conditions, however, under which microscopic events can have macroscopic consequences. For water those conditions are a temperature near 647 degrees Kelvin and a pressure near 217 atmospheres." This critical point, "disturbing a single molecule can change the phase of the entire volume. Any description of water under these conditions would have to account for its structure at all possible scales. From the scale of single molecules to that of the bulk fluid. Formulating such a description has proved to be an intractable problem."

What makes this and similar phenomena "difficult to explain theoretically is the need to deal simultaneously with many scales of length or energy. In the past several years a new approach to these problems, called the renormalization group, has begun to make a little progress. The essence of the technique is to treat each scale of length in turn, starting with the smallest. The modern method was introduced in 1971 by Kenneth G. Wilson of Cornell." It is a series of iterative procedures, which for successively larger scales, replaces the values of all the units with an average value of the "blocks" (that's their word), into which these units can be grouped.

"The program for describing a lattice at progressively larger scales can lead to a correct description, Wilson has pointed out, because it relates events at adjacent length scales, which are closely coupled in nature." To date, this has been done only for model systems.

There may be some major leads for network/structural analysis here, but the editors lack the mathematical and physical perspicacity to check them out. Will some networkers please do so, and report back?

Course Outline: The Analysis of Social Networks
 Submitted by Paul Müller, (Köln)

Social Networks -- A New Paradigm?
 The Network Structure of Informal Relations
 Primary Environments: Egocentric Networks
 Network Density and Conjugal Roles
 Community as a Network of Networks
 Mediating Everyday Life and Societal Institutions
 The Search for Specialized Persons
 Reachability of Local Elites
 Networks of Collective Actors
 Structure of Local Elite Networks
 Decisions within Networks: Patterns of Conflict and Coalition
 Structure of the Network of Formal Organizations
 Societal Interlocks: Positions and Collective Actors
 Formal and Informal Relations between Corporations
 National Elites: Monolithic or Polycentric?

Publications

"The Social Exchange Theory Newsletter has been formed to encourage efficient development of methodologies and theories of exchange processes. Each issue will have four sections:

- (1) A brief interview of a major figure, focusing on such questions as; What contributions have theories of exchange processes made? Where are the present strengths and weaknesses? What is the future of social exchange perspectives?
- (2) Book reviews of exchange-related publications.
- (3) Detailed abstracts of all current published articles, as well as detailed abstracts of papers not published (e.g. statistically significant results were not obtained).
- (4) A national (international?) platform for announcements, questions, observations, suggestions, solicitations of others interested in a specific research topic etc." (from I,1).

Manuscripts and subscription (\$1.00 -- a bargain!:) to Keith Campbell, Department of Sociology, Fort Hays State University, Hays, Kansas 67601.

The new Journal of Family Issues will cover "both general and theoretical issues focusing on family problems, social issues relating to marriage and family life and professional concerns." Forthcoming special issues on Runaways, Remarriage, Dual Worker Families and Family Violence.

Send manuscripts to Graham Spanier, Editor, Pennsylvania State. Subscriptions \$15, from Sage Publications, P.O. Box 5024, Beverly Hills, California. 90210.

Tranet is a "newsletter-directory of, by and for those individuals around the world who are actively developing Appropriate/Alternative Technologies." Very concerned with "networking" Information from Transnational Network for Appropriate/Alternative Technologies. P.O. Box 57, Rangely, Maine 04970.

Ms. are solicited by September, 1980, for special Dual Worker Families issue by Joan Aldous (Sociology, Notre Dame). Among suggested topics are family roles and organization: relationships with kin, the economy and other extra-familial groups and institutions; trends in incidence, divorce rates and other family indicators; varying types of dual-earner families.

LINKAGE is a new journal "addressed to all who are concerned with practical problems of co-ordination and management that cut across organizational boundaries." Its issues to date have broadly had an inter-organization network perspective. It plans to publish both case studies and more analytic general articles, with eight to ten articles per issue. Among the main themes in the next two issues will be "Innovation: How far can experiments in new forms of inter-organizational working help people in coming to grips with new and unfamiliar challenges? Skills: What kinds of personal skills help make inter-organizational initiatives likely to succeed?; Economy in Co-ordination: In the face of demands from all sides for more and more co-ordination, how can people keep their networks of communication within practical bounds?; Getting the Structures Right: Are official liaison arrangements more likely to encourage, or stifle, informal initiatives? How can accountability be maintained?"

Substantial issues to be covered include: the organizational politics of budget-cutting, new forms of industrial linkage, welfare policies and networks, the future of development planning.

Manuscripts and subscriptions (2 issues £6.50 Europe, £7 Other) to Mrs. B.P. Fox, COOR, Tavistock Institute of Human Relations, 4 Coptall House, Station Square, Coventry CV1 2PP, England.

Large Scale Systems: Theory and Applications is a new journal devoted to the emphasis of unifying trends in "research areas in which Complexity and High Dimensionality play a dominant role." It will have a "relatively pragmatic editorial policy", accepting contributions on any aspect of the theory and practice of "Large Scale and Complex Systems. This would cover at the present time, theoretical contributions on: Aggregation, Stability of Interconnected Systems, Multicriterion Optimisation", etc. "On the applications side, contributions will be accepted in any area where complexity exists and standard approaches fail", e.g. Traffic and Transportation Systems, Socio-Economic Systems, Data Networks, Management Systems, Environmental Systems."

Subscriptions: Dfl.155 from Elsevier North Holland, P.O. Box 211, 1000 AE Amsterdam, The Netherlands. (US \$75 from North-Holland, 52 Vanderbilt Avenue, New York, N.Y. 10017). Manuscripts to the editor, Madan G. Singh, Control Systems Centre, UMIST, P.O. Box 88, Manchester M60 1QD England.

Politics and Society is a journal "committed to developing Marxist and other radical frameworks for understanding the social roots and consequences of politics. In its broadest sense, politics encompasses conflicts over the shape of social life from the shop floor and the family to the realms of the state and world economy." The interdisciplinary journal "publishes theoretical essays, historical investigations and theoretically structured empirical research. Forthcoming issues will include articles on: the French labour movement and Eurocommunism; state organization and policy formation in the U.S.A.; Rosa Luxemburg's theory of organization; 19th-century English liberalism; education and labour markets.

Manuscripts to Erik Olin Wright, Department of Sociology, University of Wisconsin, Madison, Wisconsin 53706, U.S.A. Subscriptions: Geron-X Publishers, Box 1108, Los Altos, Calif. 94022, U.S.A. \$17.

Studies in Political Economy "is a new Canadian semi-annual periodical designed to publish substantial studies in political economy." The most recent issue (#2) includes papers on migrant workers, Victorian Toronto, means of regulating the poor, and the Parti Québécois.

Manuscripts and subscriptions: Box 4729, Station "E", Ottawa, Ontario. K1S 5H9. Canada -- \$6.50.

CONTINUED FROM NEW BOOKS (page 32)

Albert Bergesen, ed. 1980. Studies of the Modern World-System. New York: Academic Press.

Contents

Albert Bergesen, "From Utilitarianism to the World-System: The Shift from the Individual to the World as a Whole as the Primordial Unit of Analysis"; Immanuel Wallerstein, "Imperialism and Development"; Robert Wuthnow, "The World-Economy and the Institutionalization of Science in Seventeenth-Century Europe"; Robert Wuthnow, "World Order and Religious Movements"; John Boli-Bennet, "Global Integration and the Universal Increase of State Dominance, 1910-1970"; John W. Meyer, "The World Polity and the Authority of the Nation-State"; George M. Thomas and John W. Meyer, "Regime Changes and State Power in an Intensifying World State System"; Michael Hout, "Trade Dependence and Fertility in Hispanic America: 1900-1975"; Christopher Chase-Dunn, "The Development of Core Capitalism in the United States: Tariff Politics and Class Struggle in an Upwardly Mobile Semi-Periphery"; Albert Bergesen and Ronald Schoenberg, "Long Waves of Colonial Expansion and Contraction, 1415-1969".

Thomas C. Schelling, Micromotives and Macrobehavior. New York: W.W. Norton & Company.

Contents

Micromotives and Macrobehavior; The Inescapable Mathematics of Musical Chairs; Thermostats, Lemons and Other Families of Models; Sorting and Mixing: Race and Sex; Sorting and Mixing: Age and Income; Choosing our Children's Genes; Hockey Helmets, Daylight Saving, and Other Binary Choices; Index.

CONTINUED FROM MEETINGS CALENDAR (page 8)

*AMERICAN SOCIOLOGICAL ASSOCIATION ANNUAL MEETING
Late August 1980. New York City Hilton*

Thematic session on formal models in sociology includes papers by Thomas Fararo, Michael Hannan and Barry Wellman. Other network papers undoubtedly will be given, but schedule not yet available.

*AMERICAN PSYCHOLOGICAL ASSOCIATION ANNUAL MEETING
September 1980. Montreal, Canada*

Among the sessions tentatively planned is one on "Helping Networks".

*GERMAN SOCIOLOGICAL ASSOCIATION NATIONAL CONVENTION
16-19 September 1980. Bremen, West Germany*

Session on network analysis organized by Wolfgang Bick.

*AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE ANNUAL MEETING
March 1981. Toronto, Canada*

Planned symposium on the use of formal network models and health research, organized by Alvin Wolfe, Anthropology, South Florida).

MEETING CALENDAR

INTERNATIONAL COMMUNICATION ASSOCIATION ANNUAL MEETING
 Acapulco, Mexico. 19-23 May, 1980. (Contact Everett Rogers for details)

Selected Sessions:

Methods of Communication Network Analysis

The objective is to familiarize participants with network analysis as a way of looking at communication processes and as a research tool, including Historical and theoretical overview (systems theory, sociometric studies, communication theory); Network analysis, methods and programmes; Applications including communication and development (a case study from Brazil with sample analyses and references from other studies); Measurement, philosophical issues and problems. Papers by William D. Richards, Ronald Rice, Carlos Cavalcanti and EMBRATER.

Human Communication via Computer

An overview of the use of computers to facilitate communication with geographically-dispersed people including: The variety of communication structures that can be created (e.g. electronic mail, conferences, highly-organized information exchanges, learning games and experiences); Impacts of the medium on individual and group communication patterns; Projection of the future public use of the technology; Unique opportunities by the medium for the study of human communication. Papers by S. Roxanne Hiltz and Murray Turoff.

Constructing and Assessing One's Occupational/Professional Network

The objectives of this workshop are to construct a network focused on the individual's types of relationships with his/her acquaintances beyond the level of the primary/work group, and to relate this network to the sociogram, dendrogram, and other sociometric techniques (including a new instrument, the "Small Organizational World"). Visual demonstration, with discussion, of drafting symbols, logic, and guidelines, will be presented. Participants will then each privately construct his/her own network, going step by step through the process, coached by the workshop leader, in a lively give-and-take of questions and answers.

The symbols, logic, and guidelines of a technique that maps acquaintanceship networks, focusing on the individual and graphically indicating types of relationships are featured. Levels of applicability are discussed besides the "larger associational self" (business, professional, and civic acquaintances outside the employing firm/institution): Primary and work groups. Paper by Thomas Carney.

"Reciprocity and proximity of communication links in a Korean village". Paper by Joung-Im Kim.

Human Communication Technology Research

"Social research in computer-mediated communication: What we know about organization contexts, interactive cable, tele-conferencing, and more", Ronald Rice. "Computer-linked memo systems, expectations and utilization: a case study", Harold Geoffrey Plain. "Acceptance of telecommunications applications: a study of one-user community", Ronald Goldman.

COMMUNICATIONS, COMPUTERS AND HUMAN SETTLEMENTS CONFERENCE
 Urban Studies Programme, York University, 19-21 March, 1980.

Peter Sindell, "The arts in Canada and their relationship to the emerging information society". Ronald Keeble, "Urban and rural planning information: the prospects for participation". Chuck Feaver, "The computer must speak Chipewyan". Lyndsay Green & David Simailak, "Inuit communications needs". Norm Bromberger & John Jordan, "Co-operatives, communications and computers". Gerald Haslam, "Information provider activities in Canada". John Syrett & Maria Cioni, two papers on "Telidon".

Conference proceedings available from organizers.

*CANADIAN COMMUNICATION ASSOCIATION, FOUNDING CONFERENCE
Université du Québec à Montréal, 31 May - 2 June, 1980.*

Includes sessions on "New Directions for Methodology" (John Jackson, Rowland Lorimer, Doug Baer) and "Organization Communication" (William Richards, David Conrath, Tom Carney). Association membership \$20 write to Jay Weston, Department of Journalism, Carleton University, Ottawa, Canada K1S 5B6.

*GLOBAL CONFERENCE ON THE FUTURE OF THE WORLD (WORLD FUTURES SOCIETY)
21 - 18 July 1980. Harbour Castle Hotel, Toronto, Canada.*

A number of INSNA people are giving papers on such topics as the future of communities and computer conferencing.

SOUTHERN CLUSTER

Jon Miller (Sociology, Southern California) would like to organize a session for the World Conference of Sociology, (Mexico City, 1982), that deals with "organizational applications of network analysis. Such a session would concentrate on the internal properties of organizations, inter-organizational relations or organization-community relations, though my preference would be for one, or a combination of the first two".

It is not too early to plan for the World Conference. After running the last two network ad hoc groups (Toronto and Uppsala), Barry Wellman invites, nay implores, someone to take on the job this time. Time is of the essence--the first step is to get us an official status with the ISA. All those interested, contact INSNA Headquarters.

*POLITICAL ECONOMY OF THE WORLD SYSTEM - THIRD ANNUAL SPRING CONFERENCE
Johns Hopkins University, Baltimore, Maryland, U.S.A. 23-25 May 1980.*

The purpose is to further the theoretical and empirical study of the stages, cycles and trends of the capitalist world-economy. Papers on the long-term development of that world-economy in addition to specific case studies and comparative analyses of development and under-development, the relationship between the state and the world-economy, the dynamics of class and ethnic formation, and technological change in relation to changes in the world-economy.

Information from Richard Robinson, Department of Social Relations, Johns Hopkins University, Baltimore, Maryland 21218, U.S.A.

*PEWS/ASA/PSA
WORLD SYSTEMS STUDIES SESSION AT THE 1980 PACIFIC SOCIOLOGICAL ASSOCIATION MEETINGS.
9-12 April 1980. Sheraton Palace Hotel, San Francisco, U.S.A.*

Call for papers for two world systems sessions at American Sociological Association meetings, late August, New York City Hilton.

Topics proposed: causes and likely consequences of the contemporary slump in the world-economy; the relationship among class formation, ethnic groups and national movements. Other topics and session organizers invited.

Contact Immanuel Wallerstein, Department of Sociology, SUNY-Binghamton, Binghamton, New York, U.S.A.

Continued on page 6

NETWORK ANALYSIS: A REAPPRAISAL¹

Jeremy Boissevain (Department of European-Mediterranean Studies,
University of Amsterdam, Sarphatistraat 106A, Amsterdam, The Netherlands)
3 iv 78

Reprinted by permission from *Current Anthropology* 20, June, 1979; 392-394.

Since the network revival in anthropology in the late 1960s (Barnes 1968, 1969; Boissevain 1968; Mitchell 1969), there has been ever increasing interest in the field. There have been at least a dozen conferences and symposia, a flood of articles and discussion papers by anthropologists, sociologists, and political scientists, a computerized bibliography with almost 1,000 entries (Freeman 1975), the collection and consolidation of computer programmes, and, to crown this interdisciplinary activity, the establishment of the International Network for Social Network Analysis and the journal *Social Networks*. How is the enthusiasm for network analysis to be explained? Barnes (1954) and Bott (1957) planted the concepts in the mid-1950s, but they only sprouted into substantial growth 15 years later and now threaten to become an impenetrable jungle.

Network and Theory

The enthusiasm for network analysis is related to and part of the theoretical shift in the social sciences away from the structural-functional analytical framework which dominated anthropology, sociology and political science in Britain and the United States for the past 30 years. This is obviously not the place to explore the reasons and dimensions of this methodological and paradigmatic shift (cf. Boissevain 1974, 1975, among others). I can only discuss the appeal that network analysis has had for anthropology, although I suspect that similar considerations have also influenced sociologists and political scientists.

Network analysis opened a door to permit the entry of interacting people engaged in actions that could alter and manipulate the institutions in which they participated. This introduced a new dimension into the self-regulating structural-functional edifice of formal groups, systems, and moral order which was seen as impinging upon people, socializing them, moulding their character, and determining their behaviour. In anthropology the work of Firth (1951), Leach (1954), and some of Gluckman's students (Turner 1957, Van Velsen 1964) had led to a growing concern with people and their relations to the institutions which were supposed to dominate them. Network Analysis provided an analytical framework for data at a lower level of abstraction than the institutional complex. It was more down-to-earth. Moreover, it also provided apparently "hard" data which could be plotted and even computerized. This last has particularly appealed to sociologists, who, more than anthropologists, seem to revel in data that can be quantified and fitted into elaborate formulae, thereby seeming to support their claim to being considered a hard science. Network analysis has also appealed to those who have sought to plot and analyze the manipulation of power brokers, leaders, and coalitions as they seek to further their interests and in so doing bring about or block development of the groups, institutions, and society of which they form part. Finally, and more recently, network analysis has provided social scientists working in cities with a tool which enables them to deal with the relation between face-to-face interaction and institutions in an extremely complex social field (Wellman 1976; Shulman, 1976). In short, network analysis has promised to provide a release from some of the constraints of structural-functional analysis. It has consequently appealed to different social scientists for varying reasons.

Network analysis, while not a theory, has theoretical implications. It is an analytical instrument which views circles of relatives and friends, coalitions, groups and business houses, industrial complexes, and even nation-states as scatterings of points connected by lines that form networks. The points are of course the units of analysis, the lines social relations. Network analysis asks questions about who is linked to whom, the content of the linkages, the pattern they form, the relation between the pattern and behaviour, and the relation between the pattern and other societal factors. This has theoretical implications in that it forms part of a paradigmatic shift away from structural-functionalism. The failure to recognize these theoretical implications and to provide a consistent theoretical framework within which network analysis can be used has resulted in a sterile overelaboration of classification and definition, in short, a methodological involution (cf. Kapferer 1973; 167). By linking network analysis to theoretical assumptions, both Kapferer and Boissevain have attempted to move beyond the butterfly collector's preoccupation with classification and technique, as represented, at least in anthropology, by Barnes's recent work (1968, 1969, 1972), into the realm of ideas (Kapferer 1969, 1972, 1973; Boissevain 1974; for further discussion of the relation of network analysis to theory, see Whitten and Wolfe 1974, Mitchell 1974). The most fruitful theoretical assumptions at present appear to be derived from exchange and (trans) action theory. Even without explicit consideration of basic theoretical assumptions, however, network analysis is a powerful tool for social scientists seeking to further their understanding of social behaviour and processes.

1 This paper was presented to the conference "Mathematical Approaches in Social Network Analysis", held at the Werner-Reimers Stiftung, Bad Homburg, Federal Republic of Germany, March 17-19, 1977 (Hummel and Ziegler 1977). Earlier versions were presented to seminars at the universities of Toronto, York, and Amsterdam. I am grateful to them for their hospitality and discussion, to Hannie Hoekstra for converting work into print, and to Rod Aya, Norm Shulman, and Marilou Creighton for commenting on the final version.

What Network Analysis Can and Cannot Do

As an adjunct or complement to other research techniques, network analysis has at least ten important virtues:

1. Network analysis focuses systematic attention on interlinkages between units of analysis. These interlinkages may be outward links between individuals and between groups; they may also be inward links, setting out the interrelations between members of a group or other unit of analysis.
2. By focusing systematically on the relations between units of analysis, network analysis highlights their interdependency. In fact, this interdependency and its consequences for social action are assumptions underlying the network approach. The configurations of interlinked, and therefore interdependent, persons and groups are thus taken into account in trying to predict behaviour. By systematically tracing all interlinkages between units of analysis, one eliminates prior assumptions and therefore biases in favour of particular types of relations. Kinsmen, neighbours, and friends are not singled out and viewed in isolation from other relations.
3. The focus on interlinkage and interdependency provides a framework within which it is very difficult to separate micro- from macro-analytical levels and part from whole. Among other things, the network approach develops the view of a social field or of a society as a network of networks. While this is metaphorical--for a city or nation-state is obviously more than simply a network of networks--network analysis does force upon the social investigator pathways that lead away from micro-units of analysis. These last are therefore placed in a wider field of social relations. It is only through focusing on such outward links that Wolf (1956), for example, developed the concepts necessary to understand the relation between different levels of integration in the same society, thus breaking down the artificial boundaries between part and whole that had hitherto impeded social analysis in complex societies.
4. Network analysis focuses not only on interlinkage, but also on the content of the relations. In other words, the first plot of a network of relations provides a systematic blueprint for further investigation into their content.
5. Network analysis, by also focusing upon content, sensitizes the investigator to the inherent tension in social relations between persons who have differential access to resources which affect power chances. The way in which network analysis accents this inherent tension and asymmetry in social relations is an antidote to the structural-functional preoccupation with consensus, order, balanced opposition, and harmony.
6. Network analysis, thus, by providing a systematic framework for analyzing tension and asymmetry in social relations, sensitizes the investigator to the inherent dynamics in such relations. Since such relations are part of groups as well as institutional complexes, the social investigator is alerted to the dynamic nature of society and to the human dimension of such dynamism. Changes are thus perceived as inherent in personal relations and hence in society. This again is an antidote to the structural-functional assumption of equilibrium.
7. Network analysis also gets away from the piecemeal or institutional approach. By charting, for example, a person's network of intimates or the network activated by an action set or that of a politician mobilizing votes, network analysis moves beyond the tradition of limiting analysis to discrete institutional spheres such as economics, politics, or, especially for anthropologists, kinship. Network analysis cuts across the conceptual barriers of an institutional approach.
8. By its focus on interrelation, interdependency, and interaction, network analysis also makes it possible to deal with forms of social organization that emerge from interaction, such as patron-client chains, leader-follower coalitions, cliques, factions, cartels, and other temporary alliances at various social levels. These forms of social organization in the recent past were generally ignored or relegated to interstitial, peripheral, or residual categories of social analysis (Boissevain 1968). It will be obvious that there are forms of social organization the understanding of which is essential to the comprehension of many large and small events in the lives of persons and groups.
9. Network analysis provides a way of relating formal, abstract sociological analysis to everyday experience, for it links interpersonal relations to institutions. It thus humanizes social analysis by reintroducing "people", as opposed to "roles", and their choices and actions into the stream of events that constitutes history.
10. Finally, network analysis brings into sharp sociological focus the difficult analytical category of friends-of-friends, those persons who lie just beyond the researcher's horizon because they are not in direct contact with his informants.

These, then, are some of the things that network analysis can do. There are also things that it cannot do.

While network analysis can help plot the direction and concentration of immigrants and the location of industry, for example, used alone it cannot deal with the social processes that bring about immigration and industrialization. In other words, it cannot deal with the social forces underlying long-term processes. Nor can it deal adequately with the impact of educational reform, land distribution, more rights for women, etc., or with culture, cognition, or the social forces deriving from economic activity. These dimensions are essential for a complete understanding of social behaviour and developments. Network analysis alone cannot provide them. Used alongside other research methods and forms of conceptualization, however, it can provide important additional dimensions.

The Future of Network Analysis

Network analysis has an important future. Researchers have already demonstrated that it is useful for gaining insight into urban-rural contrasts, male-female relationships, the relative importance of kinship in complex societies, the ways in which leaders recruit and manipulate support, and the way in which gossip is circulated. It has been used to combat organized crime, to delineate the overlapping positions from which power is exercised through interlocking directorships, and to examine many other problems. Network analysis can also be used to learn more about class and interclass relations, inter-ethnic relations, the ramification of multinationals, and the way in which social milieu affects mental health. Yet it has made little contribution to these fields.

Network analysis has not realized its potential for a number of reasons. Among these are an over-elaboration of technique and data and an accumulation of trivial results. Basically, network analysis is very simple: it asks questions about who is linked to whom, the nature of that linkage, and how the nature of the linkage affects behaviour. These are relatively straightforward questions, the resolution of which is fairly simple. For various reasons, they have given rise to an arsenal of concepts, terms, and mathematical manipulations that terrifies potential users. Anthropologists, sociologists, and political scientists have borrowed heavily--far too heavily, in my opinion--from mathematical graph theory. As a result, they are in very real danger of suffocation by the jargon, theory, and techniques developed to resolve quite different problems in another discipline. To present the anthropologist interested in political mobilization with this arsenal is like giving a do-it-yourself programme for network analysis and a computer terminal to a fisherman who merely wishes to explain to his son how to unravel his tangled net.

The battery of techniques with which social scientists have equipped themselves to answer the limited questions that network analysis can resolve produces overkill. Flies are killed with dynamite. Certainly, the help of statistical and computer specialists is needed if the numbers of informants and variables make hand computation problematic. Most calculations, however, have to do with simple nose counting and cross-tabulation. Neither the questions asked nor the type and reliability of the data normally warrant the use of the techniques and concepts which have reached us from graph theory. As enthusiastic network practitioners strive towards ever greater rigour, network analysis risks becoming further removed from human life and bogged down ever deeper in the swamp of methodological involution (Hannerz 1975: 27; Leeds 1972: 5; Sanjek 1974: 596; Ottenberg 1971: 948; Kapferer 1973: 167).

The second danger facing network analysis is that those who have chosen to use this method of research tend to trivialize its results. As Sanjek has remarked, "One does not study networks; one uses network methods to answer anthropological questions" (1974: 589). Far too much of the research now being done on networks lacks any clear formulation of the problems it seeks to resolve. Networks are compared with regard to density, size, and even composition, much in the way butterfly collectors compare the colouring, wingspread, and number of spots of their favourite species. Trivial but extremely costly results based on samples of thousands are put forward with great solemnity by sociologists. Thus we learn that if you ask several hundred persons to name a few persons outside their household with whom they have close relationships, these turn out typically to be kin and friends. Other studies have discovered that affective relations change over time. Is this news? What is the social or theoretical significance of these "scientific" discoveries? We are left, too often, to draw our own conclusions. My conclusion is that many of the studies presented by enthusiastic network analysts seem merely to confirm the popularly held view that sociology is the discipline which sets out the obvious at great cost in an unintelligible language. The concern with method, classification, and networks-as-things-in-themselves, rather than with the ideas and problems that the practitioners are attempting to solve, characterizes not only the results but also, alas, the way in which those results are reviewed. For example, Barnes's review (1974) of Boissevain and Mitchell (1973) is exclusively concerned with terminology and technique, while Sanjek's (1974) also examines the problems with which the analysts attempted to deal.

It is becoming increasingly obvious that if anthropologists and sociologists continue to view network analysis as a special field of inquiry, and if those who use it continue to encourage this view, it will rapidly become overly technical and its results progressively trivial (Sanjek 1974: 596). Network analysis is a research instrument which can help resolve certain social and theoretical problems. It must not become

an esoteric end in itself whose practitioners can communicate only with each other about scientific puzzles of interest only to themselves. If those who have used network analysis consider that it can provide valuable insights, let them demonstrate this to their sceptical critics by making their results and methods relevant and understandable. Conferences of network "specialists", a journal, and a special society to cater to their needs are disturbing signs of an involution which will ultimately result in network analysis's joining the dodo, Neanderthal man, and sociometry as an extinct species.

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RESEARCH REPORTS

SOME COMMENTS ON THE VALIDITY OF NETWORK DATA

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Investigation of the accuracy of the data used in network analyses has not yet attracted a great deal of attention. However, with the striking increase in network research in the last few years, and with the recent interest in using network analyses in applied research in health, education, and other fields, problems of reliability and validity are beginning to be raised. In this context, I think it is unfortunate that the most prominent studies that are relevant to these issues draw unduly negative conclusions. Because these studies overemphasize the inaccuracy of informants' reports, they may seem to justify rejecting informant reports as a source of data on social connections, thereby severely limiting the kinds of network data that can be used; or, at another extreme, to justify neglecting the importance of the actual social behavior in favor of analyzing informant reports exclusively as "cognitive" data; or, finally, to justify dismissing the network approach entirely, on the grounds that the data are either too limited or too subjective. I would therefore like to make some preliminary comments on these issues.

Killworth and Bernard have published a series of articles on informant accuracy which deal with various ways of estimating the amount of error in informants' reports on their social contacts, as compared with their social behavior as observed by the investigators. They state that "...one conclusion stands out from our data: people simply do not know, with any degree of accuracy, with whom they communicate" (Killworth and Bernard 1976:283); and "As usual, nobody knew who they talked to with any degree of reliability" (Killworth and Bernard 1978:40). Since network studies typically rely on informant reports rather than on the investigators' systematic observations, these conclusions would suggest that such studies be abandoned completely, or, at the very least, restricted in aim to research on people's "cognitive mappings" of their social connections.

But are these conclusions warranted? Since Killworth and Bernard present their data and the results of specific analyses, and since my co-workers and I have also collected and analyzed relevant data, it will be possible at a later time to consider this question empirically in some detail. For the present, however, I would only like to comment briefly on a few of the issues involved, and on the simplest of the empirical findings, in order to draw conclusions which are more complex and considerably less pessimistic than those of Killworth and Bernard.

There are many different measures of informant accuracy derivable from the sets of data presented by Killworth and Bernard, and, as they themselves clearly indicate, for most of these measures informant reports are significantly and strongly related to their observed social behavior. While people may not accurately report their relative frequency of speaking with A, B, C, etc., they do systematically rank the people they are observed to speak with as being closer than the people they are not observed to speak with -- Killworth and Bernard find a highly significant correlation of .8 between informants' rankings and the probability of their speaking with those ranked. In our own work we obtained similar results: a number of measures based on the informants' reports were highly correlated with our observations (Hammer et al 1969).

At the same time, informant reports deviate sufficiently from observed behavior to yield markedly different patterns if one compares the network structure derived from informants' reports with the structure derived from systematic observations. We found (Polgar and Hammer 1966 and ms.), as did Killworth and Bernard (1976), that the reported data (the "cognitive mapping") showed considerably more structuring than the interactional data. The conclusion thus seems warranted that analysis of the structure of an interactional network should not be based on informants' reports of their relative amounts of interaction with others, without correcting for bias. It should be noted, however, that the deviations shown by the reported data, as compared with the observed data, were lawfully related to those observed data rather than random (Polgar and Hammer 1966). If this turns out to be generally true, then, in addition to being of theoretical interest, it is suggestive, methodologically, of possibilities of correcting for bias rather than rejecting sources of data. We clearly need more systematically collected data on the kinds of accuracy that can or cannot be obtained from informant reports, on the degree of accuracy that may be achieved by different approaches to data-collection, and on the social meaningfulness of the differences between different sources of data.

Moreover, it should be pointed out that the investigators' observations are necessarily drawn from a limited sample of the subjects' behavior and need not reflect the larger universe of social behavior more "accurately" than the subjects' reports. If the observer systematically records interactions several hours a day for several weeks, patterns of behavior that fluctuate over longer intervals will be misrepresented. As a simple instance, in one of our studies, a participant who typically interacted frequently with a number of others happened to be sick for several weeks, and was not included in our observations. She was nonetheless reported, both by other informants and by herself, as a frequent interactant in the group -- which was, of course, more accurate as a reflection of the group's ordinary social behavior than was our observational record.

This limitation is obviously even more pronounced in studies of networks with no single common location. For example, irregularly seen but socially consequential kin might be missed entirely by sampled observations. More generally, social contacts in open, branching networks are dispersed in space and time -- A sees B somewhere on a Monday; B in turn sees C later that day at a different place; A may see C at still a different place a week or two later, and so on. Even at best, such networks are not accessible exclusively through observation, and studies of these open networks rely heavily on informants' reports. Since there is reason to believe that these open networks are structurally rather different from locality-based networks (Hammer ms.), estimates of the accuracy of informant reports drawn from studies of locality-based networks cannot simply be extended to issues of accuracy in non-locality-based networks.

There are, however, other approaches to assessing the validity of reported data, such as the extent to which reported measures are related to other theoretically relevant behaviors that one can measure. For example, we analyzed the relative comprehensibility of the participants' speech among a connected group of informants, as a function of their degree of centrality in the group. We had a number of measures of social centrality available from informants' reports of several kinds (questionnaires, interviews, self-reports and proxy-reports) as well as from different sets of observations. For some of these measures -- whether observed or reported -- the relationship between relative speech comprehensibility and social centrality was weak; for others -- both observed and reported -- it was quite strong. (Some of this material appears in Hammer et al. 1969.) Neither "observations" nor "informant reports" refers to a single kind of data, and neither should be accepted or rejected as a totality. Developing the most strategic measures for answering questions about social networks will require substantial and painstaking methodological work (as is of course the case in any other scientific area).

In summary, I think the following points must be made:

1. Informants' reports of their social contacts are not isomorphic with observations of their social contacts; and neither source of data perfectly reflects their actual social behavior. However, Killworth and Bernard's conclusions which imply that informants' reports cannot be used as a source of data on their actual behavior are too extreme a generalization. Based on both the Killworth and Bernard material and our own studies, informants seem able accurately to report whether a relationship exists or not, and whether a relationship is fairly close or not. In general, finer judgments should probably not be relied on.
2. The amount and kind of distortion introduced by using informant reports as a source of data for observable behavior must be evaluated to judge whether they are within permissible limits for the interpretations being made. However, if observations are being used, the distortions introduced by sampling the behavior must also be evaluated.
3. Informants' reports of their social behavior may differ in different situations or in response to differently formulated questions; and different informants may vary in their level of accuracy. While these variations present certain methodological problems, they also offer the opportunity for selecting the techniques that elicit high levels of informant accuracy.
4. As Killworth and Bernard remark (but do not elaborate), the cognitive data are also important. The degrees of consistency and coherence found in some of the network data derived from informant reports are quite remarkable. However, while these findings are in no case trivial, it is of fundamental importance to determine the extent to which they are based on actual social behavior, and the extent to which they are based on the "distorted" cognitions of the reporters. Validation procedures should include cross-checking of reports from different informants, analysis of relationships with other theoretically relevant variables, and systematic observations where these are feasible.

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A DIFFERENT APPROACH TO STRUCTURAL EQUIVALENCE
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With all the different approaches to blockmodeling that are now stirring, I want to share a reconceptualization of structural equivalence which leads to a much richer basis for structural role theory, and to a formal algorithm for algebraic blockmodeling. I am working on an article, now tentatively called "Role Equivalence, Distance and Structure: A Reconceptualization of Blockmodeling Social Networks". The algorithmic solution for this approach has been programmed as part of Networker and has been extensively tested on various datasets.

We all know of the 'gap' between blockmodeling I (structural equivalence of social positions) and II (role structure through images) and of the deficiencies of the basic definition of SE (see Sailer, 1979).

The current definition of SE stemming from Lorrain and White (1971) and White, Boorman and Breiger (1976), although I am simplifying somewhat, is that two actors are defined as structurally equivalent if they have identical relations with each of the N (or N-1) actors in the network. The common generalization (e.g. Burt, 1976) is to define social distance, D_{ij} , by the degree of non-identity in I and J's social relations, then under strict equivalence $D_{ij} = \emptyset$ while under approximate equivalence D_{ij} is close to \emptyset . The Breiger algorithm amounts to a principal component analysis of correlations between sets of relations for each actor as a basis for blockmodeling.

Conceptually, this definition and its derivatives, are too narrow. Two individuals are not equivalent under this definition because they have the same pattern of relations with others, as implied by the discussion is Lorrain and White, or White, Boorman, Breiger, but only if they have the same relations with the same others. This is absurd if we consider that the structural equivalence of fathers does not depend on their having the same children, for example.

A new definition, which is more suited to the underlying conceptualization or intuition of structural equivalence, which I will tentatively call Role Equivalence (as opposed to Burt's use of social equivalence) is as follows:

Two persons are role equivalent with respect to N individuals and M relations among them if each of their bundles of relations, both direct and indirect, with a specific other has an exact counterpart.

Indirect relations are defined using the inverse semigroup with M generators (the original relations) and their inverses. As in Boorman and White, relations in the semigroup are equated if they have an identical pattern of ties. (We can use Boyd's work on the universal semigroup to avoid equating null or universal relations if we want).

Each pair of persons i and j has a relation R_{ij} for each R or relations in the semigroup (S, G, o) , where G are the generator relations and their inverses, S is the set of all relations in the semigroup, closed under composition, o . Now each pair, i, j has a profile of relations for all R_{ij} in S (Lorrain and White's idea of the morph). Each unique profile of ties for a pair of individuals is given a distinct value V . We will call the bundle of ties between i and j for all R in S by B_{ij} , where $B_{ij} = V$.

Persons i and i' are role equivalent if and only if $B_{ij} = B_{i'j}$ for each j and some j' , and for each j' and some j , that is, if i and i' have counterparts for each of their bundles of relations.

Persons in the same role position, defined by role equivalence, are not necessarily linked with the same concrete others. They do, however, have identical patterns of relations with persons in other role positions.

We can define role distance by the degree of non-identity between closest counterparts for any pair i and i' .

How does the algorithm work? Following the definitions we compute the semigroup of relations from the generator set. We next examine the profiles of relations in the semigroup for each pair of persons and assign unique labels to distinct profiles. This gives an $N \times N$ matrix of profiles. Two rows are structurally equivalent if for every distinct value in one there is a matching value (in any position) in the other.

Maximal role equivalence is not always achieved in one pass or iteration. Successive iterations, however, will achieve the maximal role equivalence structure, which is also the maximal homomorphic reduction of the original multigraph.

We can also break role equivalence into two parts, one for row or sender equivalence and the other for column or receiver equivalence. In the first instance we do not include inverses in the generator set of the semigroup. In the second we include only the inverses.

There are a lot of interesting things about this definition and the algorithm. I have noted the correspondence with maximal homomorphic reduction of a multigraph. John Boyd has told me something sufficiently vague about some kind of left and right operators used by algebraists that I think these correspond to row and column equivalence as defined above, but I'm not sure.

More importantly, I think this concept really gets at what we mean by a role system in terms of the abstract pattern of relations rather than ties to the same concrete others. The algorithm has been tested and it works. It will, for example, reduce two disconnected homomorphic graphs into their common 'image' or homomorphic reduction. There are a whole bunch of other things which are neat about it, but I think I've conveyed enough for people to react to.

I've incorporated these ideas into our renewal proposal for the Tlaxcala social network project and will test them using community level network data. I will also want to test them against EIES data. Since the Networker program does this kind of analysis for small graphs (e.g., less than 20 nodes) rather nicely, I'd be happy to run the program for a few more test datasets if anyone wants to send them. I've had good results so far in finding out new things about the Sampson Monastery data, as well as replicating the general block structure found by Harrison White. The old definition is, of course, a special case of the new, so any blockmodel under the old definition ought to replicate. Conceptually distinct aspects of role structure, however, are brought out by this approach. It's rather like the jump from cliques to 'concrete' blocks (blockmodeling I): now we go from 'concrete' to abstract blocks.

More to Say

The whole business of generalizing the application of role equivalence using role distance is an interesting one. The measure of role distance between persons i and i' , across K direct and indirect relations in the inverse semigroup (or row or column semigroup) involves a problem of how to weight the different distinct relations. Equal weighting treats direct relations in the same way as a seven-fold composition. The weighting could use a cutoff (first, second, third order, etc.), or could use some external cultural or psychological evaluation (e.g., which are socially recognized; which are named; which are salient). Or, the weights could be some kind of distance decay by number of links. It would be interesting to see (1) what kind of theoretical models lead to different weightings and (2) empirically, to compare a whole bunch of different weightings to see what kind of results they give with respect to some criterion variable for a good blockmodel.

The other question is given the weightings, and thus the distance measure, which of the distance-scaling methods to use to produce the final blockmodel. Do we want discrete partitions, hierarchical clusters or trees, MDS representations, asymmetric topological clusters (Boyd has developed such an approach) or what? Who has been playing around with this kind of question?

Final Note: Credit Where Credit is Due

Boyd's original idea of this topic that two people are SE iff they have identical relations with SE others, was the germ from which this work grew. The development of a formal definition and algorithm which makes that germ grow into an operational and conceptually consistent approach is my own work. I say this because I think it is important to cite others' contribution even when the germ is borrowed, and I certainly do not want to overemphasize the originality of this approach, since the basic concept was kicking around in many people's minds, and is already present in Lorrain and White, Boorman and White, although not defined in such a way as to be operational.

HOW TO PREPARE CAMERA-READY COPY FOR CONNECTIONS

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The title, author's name and affiliation, and abstract, should be typed in Light Italic, 12 pitch, followed by a double space before beginning the text in Prestige Elite 72. Please indent the abstract 5 space on each side. Leave titles, author's name etc. blank if no italic script is available (but leave an appropriate space for their inclusion).

For references follow the American Journal of Sociology style, using a 5 space indent for the second and subsequent lines of each reference. Do not begin the references or footnotes on a new page; double space after the text is sufficient, and single space between each item listed.

SPECIAL JOURNAL ISSUES

Abstracts from *THE CANADIAN JOURNAL OF SOCIOLOGY* 4, No. 3, Summer 1979. Special Issue on "New Directions in Anglo-Canadian Historical Sociology", edited by Robert Brym (Toronto).

BERKOWITZ, S.D. (Toronto) "Forms of State Economy and the Development of Western Canada".

This paper develops a model to describe several dimensions of the strategies whereby state elites may intervene in the operation of their economies. Six types of state-economy relations are defined: "state participation", "state directed", "state centered", "state based", "state dominated", and "state controlled". Each form is defined and the scope of the state's activities within each delimited. Goals of government intervention and the common difficulties encountered in each form are outlined. This model is then related to the institutional history of Crown corporation development in the Canadian West. Patterns of growth of the number and kinds of these firms are then analyzed and conclusions are drawn in terms of what they indicate about patterns of capital development in the region. Alberta and Saskatchewan are compared and assessed in terms of the model derived earlier.

CURTIS, Bruce, (McMaster) and Barry EDGINTON (McMaster) "Uneven Institutional Development and the 'Staple' Approach: A Problem of Method".

This paper deals with the development of social welfare institutions in Upper Canada to 1851. In Upper Canada, institutions usually associated with industrialization appear prior to substantial industrialization. The paper points to the anomalous character of this pattern of development. It argues that the peculiar character of the colonial economy--which is the focus of the "staple" approach--forms only part of the analysis necessary to explain institutional development. To treat the problem of uneven development, a knowledge of the structure of capitalist development in general is also necessary.

HUXLEY, Christopher, (Trent) "The State, Collective Bargaining and the Shape of Strikes in Canada".

This paper examines the role of the state in order to explain the distinctive pattern of Canadian strike activity, particularly the long duration of stoppages. Two inter-related aspects of state intervention in collective bargaining are considered: direct regulation involving restrictions on use of the strike; and enactments designed to legitimate the role of the state. Both types of policy are shown to have influenced the shape of strikes. It is suggested that Canadian employers may have preferred more protracted strikes to more frequent, but less predictable stoppages. Certain counter-trends to this institutionalization of industrial conflict, and the likely form of further state response, are discussed.

MEDJUCK, Shia (Mount St. Vincent) "Family and Household Composition in the Nineteenth Century: The Case of Moncton, New Brunswick 1851 to 1871".

This study examines the transformations that occurred in the structure of the family and household in a nineteenth-century Maritime community as a result of rapid economic fluctuations. The evidence from this research suggests an enormous malleability of household structure, not only as a consequence of individual family circumstances, but also as a consequence of the larger economic structure of the community. A number of major theories about the history of the development of household and family are re-examined in light of the findings of this research.

POMFRET, Alan (King's College, Western Ontario) "Comparative Historical School Change: Newfoundland, Southern Ontario, and New England".

Existing interpretations of historical school change do not account for development in peripheral societies. Consequently, a more general model is needed. This paper proposes such a model by combining the notions of the modern world economy and cultural markets for schooling. The model's potential usefulness is illustrated by examining the origins of schools and the relations among schools, church, and state in three different types of societies. The paper concludes with some hypotheses about the linkages among an area's position in the modern world economy, the workings and composition of its cultural market for schooling, and its pattern of historical school change.

SACCUMAN, R. James (Acadia) *"The Differing Origins, Organization and Impact of Maritime and Prairie Cooperative Movements to 1940."*

Variations in the capitalist underdevelopment of primary production in the Maritime and Prairie regions of Canada are investigated with a view to explicating the origins, organization and success/failure of Maritime and Prairie cooperative movements to 1940. A comparison of Maritime and Prairie cooperative paths (1) helps negate the dominant view of Prairie protest and Maritime calm, (2) cautions against uncritically extrapolating from analyses of primary production that are rooted in western grain growing, and (3) provides a socio-structural and temporo-spatial base for understanding other "third road" strategies and tactics in Canada.

From THE JOURNAL OF COMMUNITY COMMUNICATIONS 3, (September, 1979)

Contents:

HINE, Virginia H. *"The Basic Paradigm of a Future Socio-Cultural System."*

ZARSKY, Luba and VILLAGE DESIGN, *"Networking in San Francisco."*

FREUNDLICH, Paul. *"Networking, or: Don't Get Fazed by the Maze."*

DARNOVSKY, Marcy. *"Is Networking Not Working in the Anti-Nuclear Movement?"*

ROSSMAN, Michael. *"On Some Systems of Language."*

ARMSTRONG, David. *"Corporations Co-Opt New Age?"*

EMERSON, Sandy, *"Introduction to the Issue."*

"Networking" is becoming a popular term for the familiar human activity of making connections with others to achieve some goal. As Virginia Hine points out in *"The Basic Purpose of a Future Socio-Cultural System,"* making purposeful interconnections in order to attain power is done both by neighborhood groups and by multinational corporations. For big business and big government, such networking has long been an important factor in maintaining their influence in political and economic spheres.

Networking by the powerless is, likewise, nothing new. However, grassroots community organizations and groups such as the anti-nuclear movement are building their networks with increasing self-consciousness, often paying as much attention to the internal process of joining forces as to the overall action strategy for which they are empowering themselves and each other. However, it is still questionable whether this organizational form will lead to a more liberated and humane society, or whether these networks will merely take their places at one end or the other of the current spectrum of power and influence.

For grassroots organizing, the network structure is seen as important not only for whatever external effects it might have, but also because it can, internally, facilitate decentralized and autonomous activities of its members and non-hierarchical power relationships among them. The anti-authoritarian network model that many community organizers are currently promoting features lateral and equal connections between network members, with no one sector attaining the position of central power broker or "boss". Throughout such a network, organizational structures and decision-making processes would tend to be collective and egalitarian.

Obviously, the networks of multinational corporations or within and among governments can be strikingly different from the non-authoritarian model. That is, the network structure in itself does not imply a redistribution of power. Unfortunately, those who promote non-hierarchical networks as the necessary and desirable social form of the future may tend to equate structure with function, feeling that because the network form CAN facilitate redistribution of power that such a form MUST do so. When the non-authoritarian ideal based on the network model is put into practice, it runs into some problems which the theory can't solve.

As Marcy Darnovsky points out in *"Is Networking Not Working in the Anti-Nuclear Movement?"*, the ability of California's Abalone Alliance to take action has at times seemed stymied by its avowed wish to maintain an egalitarian, fully participatory network structure. For example, the recent rapid growth of the Alliance has made its process of consensus decision-making, in which all members must agree before any action can be taken, highly unwieldy.

Success is also a problem. In the context of our image-oriented society, the media can effectively destroy the egalitarian nature of a social change movement by making delegated spokespeople, once accountable to their popular base, into media stars.

The urgency of the situation to which a network responds can also determine how well it works, and how equitably. When there's a "war" on, the issue of survival can make 'everyone a hero,' with people working together bravely and unselfishly for their common good.

For most of us, this is ostensibly a time of peace. Elections and crises (both real and manufactured) come and go, and so do grassroots networks. The struggles which have been going on and will continue on many levels for a long time - such as those against nuclear energy, racism, sexism, capitalism - are suffering from the difficulty of building broad-based organizations which can continue to be effective between crises.

The crucial issue for grassroots networks, then, is how to maintain egalitarian ideals while pursuing an effective strategy for social change. From our point of view, one possible way to release the sword of strategy from the stone of idealism is through the new communications technologies. If equal access to information and an equal chance to participate in decision-making are to be maintained in a large non-authoritarian network, the communications systems are going to have to be appropriate to these needs. As we have pointed out in previous issues, we feel that networks of small computers could be the communications tool which can help hold together a people's network over the long term and support planning and organizing around a variety of issues.

But it's not that simple. The existence of an accessible, community-controlled communications system on a network of small computers will not necessarily change society. A model of a non-hierarchical communications system, like the model of a non-authoritarian network, has only the limited influence of example - and our times have seen the demise of many good examples. A current effort at creating a non-authoritarian network with the help of modern communications technology is the Hexiad, a network linking three futuristic communities (Arcosanti, Findhorn and Auroville) through the exchange of video-tapes and, in part, by computer conferencing on the Electronic Information Exchange System. (See "The Hexiad - A Network of Intentional Communities.")

In their discussions of the problems and potentials of networking, the articles in this issue show that there are many definitions for 'network' and 'networking', and that there are many different views about the importance of the network paradigm for our socio-cultural evolution. Certainly the ideal of the non-authoritarian network as the structural model for the new society will have to fight against both the current bureaucratic structures and the international networks of the powerful. As David Armstrong points out in "Corporations Co-Opt New Age?", we live in a time in which ideas and symbols, however well-intentioned, are continually subject to manipulation by the political and economic marketplace. In "On Some Systems of Language", an analysis of New Age communications, Michael Rossman points out that even the vocabulary and syntax used to describe emerging socio-cultural concepts is crucial to their ultimate impact. The point for developers of grassroots networks is that their theory must be clarified, and their practice must be carried out with continual self-analysis.

"Marxism and Structuralism", Special issue of The Insurgent Sociologist 9, October 1979

APPELBAUM, Richard. *"Born-Again Functionalism? A Reconsideration of Althusser's Structuralism"*

A critical appraisal of Althusser's structuralism and its hidden links with Parsonian functionalism which concludes with the author's proposal for an alternative conception of social structures and their historical transformation.

BURRIS, Val. *"The Structuralist Influence in Marxist Theory and Research"*

A discussion of the basic principles of structuralist methodology and an examination of their practical application in specific areas of Marxist sociology.

CLAWSON, Pat and James KEENAN. *"Economism Exposed: Bettelheim on the Bolshevik Revolution"*

A critical review of Bettelheim's reinterpretation of Soviet history.

HARRIS, Richard. *"The Influence of Marxist Structuralism on the Intellectual Left in Latin America"*

An examination of the historical circumstances which have conditioned the introduction of structuralist concepts among Latin American Marxists and an overview of contemporary applications of these concepts within the Latin American context.

POULANTZAS, Nicos. *"The New Petty Bourgeoisie"*

Poulantzas defends his theory of the new petty bourgeoisie from recent critics and elaborates its political implications.

SKOTNES, Andor. *"Structural Determination of the Proletariat and the Petty Bourgeoisie: A Critique of Nicos Poulantzas"*

A rigorous interrogation of Poulantzas' theory of social class which employs Poulantzas' own methodological criteria in order to question his restrictive definition of the proletariat and his conception of the petty bourgeoisie.

"New Directions in Power Structure Research, II" edited by G. William Domhoff. Special issue of *The Insurgent Sociologist* 9, December 1979.

DOMHOFF, G. William. *"Introduction"*

DUNN, Marvin G. *"The Family as a Coordinating Mechanism within the Ruling Class."*

ZWEIGNEHAFT, Richard L. *"American Jews: In or Out of the Upper Class?"*

OSTRANDER, Susan A. *"Class Consciousness as Conduct and Meaning: The Case of Upper Class Women."*

WHITT, J. Allen. *"Can Capitalists Organize Themselves?"*

RATCLIFF, Richard E. *"Capitalist Class Structure and the Decline of Older Industrial Cities."*

LICHTEN, Eric. *"The Fiscal Crises of New York City and the Development of Austerity."*

ALPERT, Irvine and Ann MARKUSEN. *"The Professional Production of Policy, Ideology and Plans: Brookings and Resources for the Future"*.

USEEM, Michael. *"Which Business Leaders Help Govern?"*

SALZMAN, Harold and G. William DOMHOFF. *"Corporations, Non-Profit Groups, and Government: Do They Interlock?"*

DITOMASO, Nancy. *"The Contributions of Organizational Sociology to Power Structure Research."*

Technological Forecasting and Social Change 14, September 1979

NORBERG, Arthur L. and G. Patrick JOHNSON. *"Structure and Understanding: Some Observations on Current Activities in the Field of Structural Modeling"*.

LINSTONE, Harold A., G. G. LENDARIS, S.D. ROGERS, W. WAKELAND and M. WILLIAMS. *"The Use of Structural Modeling for Technology Assessment"*.

LENDARIS, George G. *"On the Human Aspects in Structural Modeling"*.

ROBERTS, Fred S. *"Structural Modeling and Measurement Theory"*.

GERARDIN, Lucien A. *"Structural Modeling, Including Temporal Dimensions as an Aid to Study Complex System Governabilities and to Foresee Unforecastable Alternative Futures"*

BURNS, James R. and William M. MARCY. *"Causality: Its Characterization in System Dynamics and KSIM Models of Socioeconomic Systems"*.

GUR, Yehuda. *"An Extension of Structural Modeling"*.

MITCHELL, Robert B. and John GEORGIADES, *"Structuring the Future--Application of a Scenario-Generation Procedure"*.

Annual Review of Sociology 4, 1978

Selected Articles: Phillip BONACICH and John LIGHT, *"Laboratory Experimentation in Sociology"*; Richard FLACKS and Gerald TURKEL, *"Radical Sociology: The Emergence of Neo-Marxian Perspectives in U.S. Sociology"*; Anthony OBERSCHALL, *"Theories of Social Conflict"*; Edward O. LAUMANN, Joseph GALSKIEWICZ and Peter MARSDEN, *"Community Structure as Inter-organizational Linkages"*.

THESIS SUMMARIES

STRUCTURAL INVESTIGATIONS OF THE SCHOOL CLASS. AN ANALYSIS USING MULTI-DIMENSIONAL SCALING MODELS

Rolf Langeheine (Ph.D. Thesis, 1979, Kiel.) To be published by Lang: Frankfurt, Bern, Las Vegas, 1979.

There is a broad consensus concerning the significance of the school class for the development of the individual pupil. In general, teachers are claimed to have a profound knowledge of the informal social-emotional structure of their classes, which may be achieved by sociometric techniques. So far, however, certain shortcomings may be stated as to sociometric research work, among others: though authors generally stress structural aspects of the learning group, most results reported so far rest heavily on concepts such as sociometric status; though attraction research suggests a multivariate as well as multidimensional approach this fact has hardly been realized.

This work therefore concentrates on the following research goals:

- Functional equivalence of a battery of 14 sociometric choice criteria.
- Structural stability of 5 sociometric choice criteria over a period of 5 testings.
- Perceptual equivalence of structures reported by pupils as well as teachers based on the global criterion of sympathy.
- Internal analysis of the resulting structures, i.e., determination of cliques etc.
- External analysis of the resulting structures, i.e., identification of dimensions of attraction using a total of 48 external variables hypothesized to be associated with attraction.
- Development of a new index of centrality and examination of its usefulness according to theoretical considerations as well as psychometric criteria.
- Pushing theory into practice: Diagnosis of outsiders, intervention, and evaluation of efforts undertaken to integrate outsiders.

In order to adequately tackle these problems, multidimensional scaling models, especially models of scaling individual differences, are utilized in this research.

SEX, SOCIAL TIES, AND STATUS ATTAINMENT

Walter M. Ensel (Ph.D. Thesis, 1979, Sociology, SUNY, Albany)

In the present study, a general theory of the instrumental use of social relations in the process of status attainment is presented and tested. Specifically, a social network element is added to the basic status attainment model first laid out by Blau and Duncan in 1967, and a comparison is made between males and females with regard to this overall process.

Utilizing data from a survey conducted in the fall of 1978 and the spring of 1979, the basic model of status attainment for males and females in New York State is examined. Comparing the types of job seeking methods used by males and females, it was found that approximately one-third of males and females used social ties or contacts in obtaining information related to their first and current jobs. A comparison of those using social ties to those utilizing other job seeking methods (i.e., direct application and formal means) showed that there was no differential efficacy regarding type of method used and status attainment.

However, upon further examination of the individuals utilizing social ties, it was found that the incorporation of social tie characteristics (specifically the occupational status of the source used for first and current job) played a critical role in the process of status attainment for both males and females. Specifically, the new variable significantly reduced the portion of the variation heretofore unexplained in occupational achievement.

While having a positive direct effect on the occupational achievement of males and females, the occupational status of the source used in the job seeking process was also found to mediate the effect of family background and education, on the one hand, and occupational attainment, on the other. A discussion of the findings and implications for future research are also presented.

SOCIAL SCIENCE NETWORKS

Stephen O. Murray (Ph.D. Thesis, 1979, Sociology, Toronto)

This study of the history of anthropology and linguistics in North America tests a formalization of the theory proposed by Griffith and Mullins(1972) to explain the formation of scientific groups and to account for the differences between what Kuhn(1962) termed "scientific revolutions" and changes within "normal science."

The cases deal with leading theorists, the formation of groups around some of them and the failure of groups to form around others. The cases, thus, provide a continuum from isolated scholars to successful groups dominating whole disciplines. The proposed necessity of "intellectual leadership" and either "organizational leadership" or the self-recruitment of a critical mass of followers is supported, since these "functional prerequisites of group formation" were present in all cases in which groups did not coalesce around ideas that plausibly could have served as the basis for elaboration.

Of the three variables put forth to account for the choice between a rhetoric of revolutionary breakthrough and a rhetoric of continuity with preceding lines of work - eliteness of background, perceived access to recognition and professional age - only the latter two have demonstrable effects.

The concluding comparative analysis applies the logic of multivariate analysis to qualitative data, viz. existing case studies of scientific groups(N=59), to systematically test the abstract Griffith-Mullins theory. Cases from the histories of economics and sociology supplement the case studies from anthropology and linguistics.

The histories are based on examination of the research literature, correspondence, published and unpublished memoirs, patterns of publication, citation and acknowledgement, and interviews. In the most intensive case study - of the interdisciplinary group termed "the ethnography of speaking" - these sources of data were supplemented by participant observation and a survey of core participants.

ROLES AND NETWORKS: A LOCAL APPROACH

Michael Jeffrey Mandel (A thesis presented to Applied Mathematics, Harvard College, Honors Requirement B.A., May, 1978)

INTRODUCTION: Roles and Sociology 1, Networks 2, Mathematical Models of Roles, An Example 3, Global versus Local 6, Purpose and Outline 9;
 THEORY: Theoretical Machinery 12, Local Role Construction: Concrete versus Algebraic 15, Winship-Pattison Equivalence 18, Winship-Mandel Equivalence 22, Structure Theorem 26, Extended Structure Theorem 28, Local Roles and Blockmodels 31;
 DATA ANALYSIS I: Purpose and Outline 36, Distance Measures and Algorithms 38, Bank Wiring Room 45, Kapferer Clothing Factory 50, Cross-Data Analysis: An Example 58, Sampson Monastery 62;
 DATA ANALYSIS II: Purpose and Outline 69, Theory 71, Results 77;
 DISCUSSION AND CONCLUSIONS: Summary and Evaluation 88, Further Directions 93;
 APPENDIX "A" MATHEMATICAL BACKGROUND: Graphs 98, Algebra 100;
 APPENDIX "B" BLOCKMODEL ANALYSIS;
 APPENDIX "C" MORE THEORY: Compatibility 108, Invariance of Inclusions 111, Structure Theorem 112, Empty Relation Vectors and Empty Rods 114, Self-Rods 117;
 APPENDIX "D" DISTANCE MEASURES: Definition of Local Role Distance Measures 122, Relationship Between Distance Measures 127, Pure WM Clusterings 128, Computer Algorithms 131;
 APPENDIX "E" SUPPLEMENT TO CHAPTER THREE: Bank Wiring Room 133, Kapferer 136, Sampson 138, Cross Population Analyses 139;
 APPENDIX "F" SUPPLEMENT TO CHAPTER FOUR: Bank Wiring Room 143, Kapferer 149, Sampson, 150;
 APPENDIX "G" ROLE INTERLOCK: WP Role Interlock 153, WM Role Interlock 160, Interlock and Blockmodel Analysis 161;
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NEW BOOKS

Robert J. Brym, 1978. *The Jewish Intelligentsia and Russian Marxism: A Sociological Study of Intellectual Radicalism and Ideological Divergence.* London and New York: Macmillan & Schocken

"This monograph is a sociological study of the recruitment of Jewish intellectuals to four Marxist political parties--Bolshevik, Menshevik, Bundist and Poalei-Zionist--in turn-of-the-century Russia. Through an examination of biographical and historical sources, it isolates the structural forces which radicalised intellectuals and led them to diverse ideological viewpoints.

"Unlike many students of the subject I have not sought to employ an explanatory framework which emphasises the structural 'rootlessness' or cultural 'alienation' of intellectuals. The thrust of this study is aimed at bringing intellectuals back in to society. We can learn a good deal more about the behavior of intellectuals by examining their mutual social connections than by assuming their isolation from social structure. Specifically, (the book seeks) to demonstrate that ideologies are shaped and reshaped by (a) intellectuals' shifting occupational ties in changing social structures; and (b) their learning and relearning of culture patterns associated with different positions in society." (From the Preface)

Contents

THEORETICAL PROSPECTUS. CLASS AND ETHNIC STRUCTURE TO 1905: The Jewish Community in Pre-capitalist Poland. The Decline of Serfdom and the Development of Capitalism in Russia. Peasant and Working Class Unrest. The Jews Between Feudalism and Capitalism. Jewish Workers. THE EMBEDDING PROCESS: Classification. Declassification. Reclassification. STRANGERS AND REBELS: The Jewish Question. The Role of the Intelligentsia. The Agents and Character of the Revolution. ROOTLESS COSMOPOLITANS?

Robert J. Brym, 1980. *Intellectuals and Politics.* London and Boston: George Allen & Unwin

This essay analyses the relationship between intellectuals' social locations and their political orientations. Dr. Brym provides a critical discussion of the various sociological views of intellectuals and specifies some of the social conditions which encourage intellectuals to follow various directions on the political compass (towards moderation or radicalism; democratism or elitism; leftism or rightism). He demonstrates in a theoretically integrated manner that intellectuals are not, as has frequently been claimed, either socially rootless or necessarily tied to one particular class or group within society. In developing further some of the themes outlined in his provocative first book, *The Jewish Intelligentsia and Russian Marxism*, Dr. Brym shows that only by analysing intellectuals' mobility patterns, i.e. their shifting ties to various classes and other major groups in society, can we hope to arrive at an adequate understanding of their politics. (Publisher's summary)

Contents

INTRODUCTION. RADICALS AND MODERATES: Radicalisation; embourgeoisement or proletarianisation?; radicalism and power. OLIGARCHS AND DEMOCRATS: The iron law of oligarchy; the iron law of democracy. LEFTISTS AND RIGHTISTS: Rootless or seinsverbunden?; ideological divergence. CONCLUSIONS. REFERENCES. INDEX.

Robert J. Brym and James Sacouman (eds.), 1979. *Underdevelopment and Social Movements in Atlantic Canada.* Toronto: New Hogtown Press.

This collection analyses some of the collective responses of petty commodity producers and workers in twentieth century Atlantic Canada to the socio-economic underdevelopment of their region. Aside from collecting and interpreting historical, sociological, economic, and political data concerning this subject --a considerable recommendation in itself since it has been altogether too much ignored by scholars-- this volume is theoretically noteworthy on at least two counts. First, it challenges conventional theories of Atlantic regional underdevelopment, which contend that poor geographical conditions, a lack of entrepreneurial talent, and/or maltreatment by the more powerful provinces of central and western Canada are

responsible for the Atlantic region's plight. Second, it calls into question a key element of the dominant "centrist" interpretation of Canadian political history--the view that Atlantic Canadians have not tried to alter radically the conditions of their existence because they are of an inherently conservative or traditional nature. Empirical grounding is provided for alternative interpretations: Atlantic regional underdevelopment is a consequence of capitalist development itself; Atlantic Canadians have engaged in a wide variety of both formally political and non-political movements to improve their lot; and, if formal political attempts have not been as successful as they have elsewhere in Canada, this is largely due to the fact that the nature of regional underdevelopment has until the present distributed power in such a way as to militate against widespread success. (*Publisher's summary*)

Contents

Robert J. Brym and R. James Sacouman, "Introduction"; Henry Veltmeyer, "The Capitalist Underdevelopment of Atlantic Canada"; R. James Sacouman, "The Differing Origins and Impact of Maritime and Prairie Co-operative Movements to 1940"; Robert J. Brym, "Political Conservatism in Atlantic Canada"; David Frank and Nolan Reilly, "The Emergence of the Socialist Movement in the Maritimes, 1899-1916"; R. James Sacouman, "Underdevelopment and the Structural Origins of Antigonish Movement Co-operatives in Eastern Nova Scotia"; L. Gene Barrett, "Underdevelopment and Social Movements in the Nova Scotia Fishing Industry to 1938"; Rick Williams, "Inshore Fishermen, Unionization, and the Struggle Against Underdevelopment Today"; Steven P. Antler, "The Capitalist Underdevelopment of Nineteenth Century Newfoundland"; Robert J. Brym and Barbara Neis, "Regional Factors in the Formation of the Fishermen's Protective Union of Newfoundland"; James Overton, "Towards a Critical Analysis of Neo-Nationalism in Newfoundland".

Joseph Galaskiewicz, 1979. *Exchange Networks and Community Politics*. Beverly Hills, California: Sage. Note: New title for volume briefly described in II, 2.

"Galaskiewicz describes inter-organizational networks in the small midwestern community of Towertown, analyzing in detail how decision-makers there went about solving problems. The map produced by each of three symbolic media--money, information, and moral support--is used to identify such topological attributes as proximity and centrality, and their association with various characteristics of organizations and organizational pairs is assessed. Also identified are relationships between these constructs and such traditional concerns of community research as participation in local issues, the influence of reputation, and consensus among elite.

"The purpose behind the writing of *Exchange Networks and Community Politics* was to develop some new and powerful strategies for studying complex social organizations and the social structures within them--to understand better the relationships between the individual in a social organization and the structure of relationships that he finds himself in. Through the use of structural imagery and network methodologies, Galaskiewicz's theories of community structure and collective decision-making are grounded with clear empirical meanings. In the process it is shown that the characteristics of individual actors influence the configuration of relationships in the larger social organization and that the position of actors in the larger social structures in turn affects the actor's own subsequent behavior. The result is a powerful set of strategies with which to study social organizations." (*Publisher's summary*)

Walter Goldfrank (ed.), 1979. *The World System of Capitalism: Past and Present*. Beverly Hills, California: Sage.

"The 'world-system approach', formulated by Wallerstein, serves to unify the contributions. They have rejected the traditional ahistorical approach of Western social research in favor of this interdisciplinary, historically-oriented, often radical approach to the study of the capitalist world-system. Contributions include theoretical articles and case studies from both the 17th and 20th centuries, including a preview of Vol. 2 of Wallerstein's *The Modern World-System*, dealing with stagnation in 17th century Europe and its effects". (*Publisher's summary, edited*)

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Walter L. Goldfrank, "Introduction: Bringing History Back In"; PART I: ISSUES IN THEORY AND METHOD Terence K. Hopkins, "The Study of the Capitalist World-Economy; Some Introductory Considerations"; Edwin A. Winckler, "China's World System: Social Theory and Political Practice in the 1970's"; PART II: THE DEVELOPING CORE IN THE SEVENTEENTH CENTURY, Immanuel Wallerstein, "Underdevelopment and Phase-B: Effect of the Seventeenth-Century Stagnation on Core and Periphery of the European World-Economy"; Michael S. Kimmel, "Absolutism in Crisis: The English Civil War and the Fronde"; PART III:

THE DEVELOPING CORE IN THE TWENTIETH CENTURY, Michael Hechter, "The Position of Eastern European Immigrants to the United States in the Cultural Division of Labor: Some Trends and Prospects"; David Montejano, "Frustrated Apartheid: Race, Repression, and Capitalist Agriculture in South Texas, 1920-1930"; PART IV: INCORPORATION AND RESISTANCE IN THE PERIPHERY, Dilip Basu, "The Peripheralization of China: Notes on the Opium Connection"; Paul Lubeck, "Islam and Resistance in Northern Nigeria"; Timothy Weiskel, "Labor in the Emergent Periphery: From Slavery to Migrant Labor among the Baule Peoples, c. 1880-1925"; PART V: CLASS STRUGGLES IN THE TWENTIETH-CENTURY PERIPHERY, Richare Curt Kraus, "Withdrawing from the World System: Self-Reliance and Class Structure in China"; Ruth Milkman, "Contradictions of Semi-Peripheral Development: The South African Case"; Martin Murray, "The Rubber Plantations of Colonial Indochina: The Colonial State and the Class Struggle between Wage-Labor and Capital, 1910-1940".

Charles Froland and Diane Pancoast (eds.), 1978. *Networks for Helping: Illustrations from Research and Practice*. Portland, Oregon: Regional Research Institute, Portland State University, P.O. Box 751, (A Publication of the Natural Helping Networks Project)

"The organization of the proceedings reflects a belief that the importance of social networks for human service professionals can best be understood first, by being clear about what we mean by the term network; second, by understanding how networks affect those we intend to serve; and finally, by integrating this information in everyday situations confronted in practice".

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1. NETWORK CONCEPTS, Charles Froland "Talking about Networks that Help".
2. ILLUSTRATIONS FROM RESEARCH, Charles Froland, Gerry Brodksy, Madeline Olson and Linda Stewart "Social Support and Social Adjustment: Implications for Mental Health Professionals".
Laurance Baker, "Natural Support Systems and the Former Psychiatric Patient".
P. MacElveen-Hoehn and K. Smith-DiJulio, "Social Network Behavior in Long-Term Illness: Preliminary Analysis".
Donna Wagner and Nancy Chapman, "Informal Group Interaction, Informal Supports and Neighborhood Environment: Perspectives on the Frail, Urban Elderly".
3. NETWORKS IN PRACTICE, Diane L. Pancoast, "A Method of Assisting Natural Helping Networks".
Sarah A. Smith and Alice H. Collins, "Training Professionals for Consultation with Natural Networks".
Sister Grace A. Boys, "Preventive Mental Health".
David L. Cutler, "Building Folk Networks for Chronic Patients".
Richard W. Wollert, "Professional Collaboration with Self-Help Groups".

Nancy Howell, 1979. *Demography of the Dobe !Kung*. New York: Academic Press.

This volume represents an empirical study of the demographic processes--fertility, mortality and marriage patterns--of the !Kung, a contemporary hunting and gathering population in the Kalahari desert of Botswana. Stable population theory is used as a framework for construction of an overall view of the functioning of this remote group, examining the implications of parameters for long-run stability and evidence for recent change caused by contact. Computer microsimulation is used to examine interactions of variables, and to estimate the expected amount of stochastic fluctuation. The population presents a consistent picture of a nearly stationary population, with a low level of natural fertility. Causes of low fertility are sought in the diet and activity patterns of women engaged in the activities of hunting and gathering life, and evidence for increased fertility with sedentarization and increased fatness is discussed. Implications of the demographic patterns of the !Kung for their kinship relationships and for genetic transmission are discussed.

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An Overview of the Population: Study of a Hunting and Gathering People. Age Estimation and Age Structure. Causes of Sickness and Death. The Measurement of Mortality. Simulating Mortality. An Overview of !Kung Women's Fertility: Completed Reproductive Careers. Fertility Performance, 1963-1973. !Kung Fertility Performance in Comparative Perspective. Primary and Secondary Sterility, Normal and Pathological Causes. Fatness and Fertility. Population Size, Growth Rates, and the Age Distribution: Simulation of Fertility and Mortality. Marriage and Remarriage Among the !Kung. Fertility Performance of !Kung Men. The Simulation of Fertility Within Marriage. Social Structural Implications of Demographic Parameters: Kinship Ties and Kinship Groups. Genetic Implications of !Kung Demography. The Demographic Prospects for the Future of the Dobe !Kung.

Lynn H. Lees, 1979. Exiles of Erin: Irish Migrants in Victorian London. Ithaca, N.Y.: Cornell University Press.

"This book offers a...picture of the effects of urbanization on peasant migrants in a large and complex Victorian city. It traces the movement of Irish laborers, craftsmen, and their families from the farms and villages of western and southern Ireland to the back streets of London. [The author] examines the reasons for their leaving Ireland and the timing and mode of their emigration, placing their exodus within the framework of both transatlantic movement and the Atlantic economy. She shows that their migration was not a direct result of poverty and overpopulation but a conscious choice, by families in rural areas beginning to modernize, to seek higher wages and better employment opportunities. Laying stress on the process by which the Irish built new lives for themselves, she explores the impact of city living on work patterns, neighborhoods, housing, family life, religious beliefs, and political behavior". (From Sage Urban Studies Abstracts 7, August 1979)

Elmer P. Martin and Joanne Mitchell Martin, 1978. The Black Extended Family. Chicago: University of Chicago Press.

"Data for this descriptive study were collected from thirty extended families in four communities --two small town areas and two urban ones. Structured interviews, group discussions, and the authors' introspective comprehension of familial experiences comprised the data-gathering methodology. What is important about this product is its informative content and objective portrayal of the structure, functions, and internal dynamics of extended families among American black poor.

"What are the features of these contemporary family networks? Among others they have the following properties: (1) interdependency, in that relatives depend on each other for emotional, social, and material support; (2) multigenerational linkages headed by a dominant family figure who assumes leadership in virtually all aspects of extended family life, ranging from regulation of moral behavior of members to the socialization of children; (3) commonly an elderly female as the focal status-role occupant since "most of the aged females outlived their husbands"; (4) grooming process of a sub-dominant figure for eventual assumption of leadership role; (5) a mutual aid system having its genesis in a slave culture; (6) a communal orientation toward members; (7) an absorption mechanism for taking in those unable to care for themselves; (8) informal adoption of children, characterized by motives ranging from obligatory codes to status acquisition; (9) marriages with a closer affinity to the "female's family than the male's"; (10) responsibility for children on the part of fathers; (11) adherence by women to marriage as an institution in which to achieve womanhood; (12) no domination or emasculation of males; (13) disfavor of interracial marriage, giving rise to a norm of racial endogamy; (14) a "significant something" from which status, power, and self-worth are derived.

"The analysis results in a volume with the potential for being a treasure in the archives of family studies. The thorough inspection of kinship configurations among small town and urban black poor families provides data beyond the scope of its intent. And the emphasis on extended familial systems in a technocratic social order with its concomitant isolated nuclear prototype, provides a glimpse of the traditions, psycho-economic potency, and biography of African American kinship dynamics". (From the Contemporary Sociology, 3-79, review by Doris Wilkinson)

W.E. Mitchell, 1978. Mishpoke: A Study of the New York City Jewish Family Clubs. New York: Mouton, distributed by Walter de Gruyter, Berlin-New York.

"Jewish families, it is said, are 'clannish'. They like to 'stick together'. But how does a family stay together when its members range from doctors to butchers; from the devoutly Orthodox to ham-eating atheists? Families with conflicting life styles scattered over a sprawling urban area tend to fall apart. This book is about family circles and cousins' clubs, two remarkable social innovations by New York City Jews of Eastern European background, that attempt to keep relatives, mishpoke (Yid.) together even as the indomitable forces of urbanization and industrialization continue to rend them apart". (From Sage Urban Studies Abstracts 7, August 1979)

Alejandro Portes and Harleu L. Browning, (eds.), 1976. *Current Perspectives in Latin American Urban Research*. Austin, Texas: Institute of Latin American Studies.

"Three contributions (in this book), based on field work, show that there is no crisis of urban studies and that fruitful new concepts and methods are being developed. Bryan Roberts's "view from the provinces" reveals a resilient urban structure in the Peruvian highlands around Huancayo, easily holding its own against nearby Lima. Although heavy industry and other enterprises of scale did not take root there, an amazing proliferation of small businesses did, taking advantage of informal economies and other coping mechanisms. Moreover, much migration in and beyond the region is two-way, mitigating the demographic drain. In all he shows that the periphery is far from defenceless against metropolitan domination. The study by Larissa Lomnitz demonstrates the existence of reciprocal networks among poor migrants to Mexico City. Unlike patron-client, kinship, or personalist relations, the networks link some four to six families in egalitarian self-help groups which provide substantial benefits to the participants. Virtually no return migration occurred because of the success of the migrants and their improved standard of living. The final paper by Jorge Balan, examines the late nineteenth century entry of Argentina and Brazil into the international economy. Departing from William McGreevey's hypothesis that primacy came with the export economies. Balan compares urban development in Tucuman, Mendoza and the Brazilian coffee frontiers. After discounting technological causality, he explores protectionism, labor systems, class relations, and historical patterns in order to explain the strikingly different trajectories of these regions. His suggestions for a theory of regional urbanization are refreshingly complex". (From the *Contemporary Sociology*, 3-79, review by Michael Coniff)

Karl F. Schuessler (ed.), 1979. *Sociological Methodology 1980*. San Francisco: Jossey-Bass.

Contents include:

Joseph Schwartz and Christopher Winship, "The Welfare Approach to Measuring Inequality"; Kenneth Land, "Modeling Macro Social Change"; Nancy Tuma, "When can Interdependence in a Dynamic System of Qualitative Variables be Ignored?"; Stanley Wasserman, "A Stochastic Model for Directed Graphs with Transition Rates Determined by Reciprocity"; Phillip Bonacich and Maureen McConaghy, "The Algebra of Blockmodeling"; Jean Gibbons and Gordon Stavig, "Quantitative Coefficients for Selecting a Measure of Central Location".

Wolfgang Schulz, 1978. *Sozialkontakte in der Grosstadt*. Vienna: Institut für Stadtforschung, Wahringer Strasse, A-1090.

Different patterns of social contacts related to different groups of people are analyzed in this study. The hypotheses tested were obtained by a set of qualitative interviews. The study is based on a random sample of inhabitants of Vienna, and on a special analysis in the context of the 1975 Austrian micro-census, too.

The study demonstrates an astonishing unimportance of the neighborhood as an institution, whereas kinship often has the function of a 'social security' agency. It is also the most relevant basis for social contacts for the lower classes ("blue collar worker"). In the middle and in the upper classes, friends are generally more contacted than relatives.

Social contacts are categorized according to different functions, and there is some evidence that functional relevance is an important factor for the development of sympathy. (From *Quantum* 10, 4-79)

Steffen W. Schmidt, Laura Gausti, Carl H. Lande and James C. Scott (eds.), *Friends, Followers and Factions*. Berkeley: University of California Press.

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Carl H. Lande, Introduction: "The Dyadic Basis of Clientelism". PART I: BASIC THEORY: RECIPROCITY, NETWORKS AND DYADS, Sidney W. Mintz and Eric R. Wolfe, "An Analysis of Ritual Co-Parenthood (Compadrazgo)"; George M. Foster, "The Dyadic Contract: A Model for the Social Structure of a Mexican Peasant Village"; Alvin W. Gouldner, "The Norm of Reciprocity: A Preliminary Statement"; Adrian C. Mayer, "The Significance of Quasi-Groups in the Study of Complex Societies"; Ralph W. Nicholas, "Factions: A Comparative Analysis"; PART II: THEORIES OF CLIENTELISM, Carl H. Lande, "Networks and Groups in Southeast Asia: Some Observations on the Group Theory of Politics"; Rene Lemarchand, "Political Clientelism and Ethnicity in Tropical Arica: Competing Solidarities in Nation-Building", James C. Scott, "Patron-Client Politics and Political

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Georg Simmel, 1978. *The Philosophy of Money*. (*Philosophie des Geldes*, 1900). Tr. by Tom Bottomore and David Frisby. Boston: Routledge and Kegan Paul.

Of the book itself, since it is known to enough sociologists as a 'classic' to have been eagerly awaited, now to be read and discussed, it may suffice to say that contrary to what its title might suggest, it is not a work in economics but, among other things, a study of modern industrial society, a diagnosis of its time (thus significantly of ours), and an essay in what may be called the social phenomenology of money, in this respect intimately related to Simmel's study of the metropolis. But these are only some of its most conspicuous features; there also are insights into many other topics, such as social change, types of societies, the means-end scheme, "ideal types", the sociology of knowledge, the sociology of development. (*From the Contemporary Sociology*, 7-79, review by Kurt Wolff)

Theda Skocpol, 1979. *States and Social Revolutions: A Comparative Analysis of France, Russia, and China*. Cambridge: Cambridge University Press.

State structures, international forces, and class relations--Theda Skocpol shows how all three combine to explain the origins and accomplishments of social-revolutionary transformations. From France in the 1790s to Vietnam in the 1970s, social revolutions have been rare but undeniably of enormous importance in modern world history. *States and Social Revolutions* provides a new frame of reference for analyzing the causes, the struggles, and the outcomes of such revolutions. And it develops in depth a comparative historical analysis of three major cases: the French Revolution of 1787-1800, the Russian Revolution of 1917 through the 1930s, and the Chinese Revolution of 1911 through the 1960s.

Believing that existing theories of revolution, both Marxist and non-Marxist, are inadequate to explain the actual historical patterns of revolutions, Skocpol urges us to adopt fresh perspectives. She argues for "structural" rather than voluntarist analysis, and for an emphasis upon transnational and world-historical contexts rather than purely domestic forces. Above all, Skocpol maintains that states--conceived as administrative and coercive organizations potentially autonomous from class controls and interests--must be made central to explanations of the causes, processes, and outcomes of revolutions. Thus, to explain the contradictions in old regimes that lead to revolutionary political crises, Skocpol focuses on the relationships of state rulers and their staffs to international competitors on the one hand, and to dominant classes on the other. And to explain revolutionary outcomes, she highlights the ways in which revolutionary leaderships build up new state organizations in the context of class conflicts and counter-revolutionary military threats, and the ways in which state power, once consolidated, is used in society.

In this book, the French, Russian, and Chinese Revolutions are treated as fundamentally similar instances of a single pattern of social-revolutionary transformation. According to Skocpol, there was no revolutionary capitalist bourgeoisie in France, and the Bourbon Old Regime came into crisis for reasons analogous to those that explain the revolutionary crises of China in 1911 and Russia in 1917. Peasant revolts against landlords played a pivotal role in the French and Russian Revolutions, just as they did in the Chinese. And an important similarity among the outcomes of all three Revolutions was the emergence of a more powerful, highly centralized, and fully bureaucratic state. The uniquely protocapitalist accomplishments of the French Revolution are not denied; rather they are explained in new ways. Likewise, Skocpol analyzes and explains the important differences between the Stalinist outcomes of the Russian Revolution and the more equalitarian and mass-mobilizing developments in the Chinese Communist Regime. (From the publisher's summary)

Louise A. Tilly and Joan W. Scott, 1978. *Women, Work, and Family*. New York: Holt, Rinehart and Winston.

"In this book we examine the historical record of women's work in England and France, from about 1700 to 1950. The two nations had different economic histories during the eighteenth, nineteenth, and twentieth centuries. England industrialized rapidly after 1750. France had a very different form of industrialization and the rate of change was slower. A comparison of the two countries permits us to isolate the influences on women's work and to determine which are historically specific, which are more general. We focus almost exclusively on those social groups which involved large numbers of women in productive activity at home and in the labor market. These groups include peasants, artisans, small shopkeepers, skilled and unskilled laborers--members of the working or popular classes.

"Our analysis of women's work approaches the subject from two sides. First it looks at the jobs women did and asks: What were the particular economic and demographic factors that influenced women's work? Aggregate descriptions and statistics are used to compare women's work on the national level in England and France. In addition, we compare women's work in rural and urban areas and we contrast their occupations in cities with different economies. Our purpose is to understand the specific circumstances which created jobs of different types for women.

"The second part of the analysis examines the women themselves. Who worked? How many women worked in a given period? What were the age and marital status of working women? Why did they work? These questions inevitably lead to the family and household setting in which women were embedded as daughters, wives, and mothers. By looking at women within a household context we can talk not simply about women's work, but about women's domestic activities as well. How did married women, for example, allocate their time among productive and domestic and childbearing activities--all of which had value for the family? What was the impact on women's work on changes in their domestic and reproductive activity?" (excerpts from Introduction)

Randolph Trumbach, 1978. *The Rise of the Egalitarian Family: Aristocratic Kinship and Domestic Relations in Eighteenth-Century England*. New York: Academic Press.

Trumbach argues that, from the end of the eleventh century until the end of the seventeenth century, European society in general and English society in particular were patrilineal in terms of inheritance at the same time that ties to kindred and friends were used to consolidate power. During this period the nature of the relationship between husband and wife, parent and child, and master and servant were patriarchal. At the end of the seventeenth century we see the patrilineage give way to the kindred and perhaps more significantly, patriarchy give way to "domesticity". It is the latter point that sociologists may find more interesting. Trumbach uses the term "domesticity" in a conscious attempt to break with previous discussions concerning the rise or persistence of the nuclear family. He maintains that by focusing on the composition of the domestic unit we miss the really key issue, *viz.*, the change in the qualitative character of the relations between members of the household. More specifically, the strengthening of the position of women, the growing affective bonds between members of the nuclear family, and the acknowledgement of servants having an independent life.

The novelty of reading Trumbach's work is to be found in his discussions of such topics as patterns of inheritance, marriage, childbearing, childrearing, education, master-servant relations, as well as a number of other smaller topics which he also deals with. He uses each of these to elucidate his major theme and tries, at times, to discard historical dogma in the process. For example, he does not share the enthusiasm many of his colleagues have for Freud and Erikson and instead maintains that Bowlby has much more to offer us in the way of a theoretical perspective that is historically relevant. (From the *Contemporary Sociology*, 7-79, review by Michael Gordon)

Erik O. Wright, 1979. Class Structure and Income Determination. New York: Academic Press.

Erik O. Wright, a sociologist in the Marxist tradition, has made a systematic effort to bridge the gap between that theoretical perspective and the growing body of quantitative studies of social and economic inequality. His basic theme is that class, defined not as an aggregation of individuals but as positions within social relations of production, plays a central role in mediating income inequality in advanced capitalism. Wright pays particular attention to those locations in the class structure, such as managers and supervisors, which do not fit neatly into the traditional class categories of Marxist theory (i.e., workers, capitalists, and the self-employed petty bourgeoisie). He argues that in order to understand income inequality it is necessary to examine the specific structural mechanisms through which income is determined within each of these different class positions.

Working with data from the Michigan Panel Survey of Income Dynamics, the Survey of Working Conditions (1969), and the Quality of Employment Survey (1973), Wright undertakes an intensive empirical analysis of class as a predictor of income, comparing its effects with those of occupational status, education, race, and sex. His results demonstrate conclusively that class has a systematic and pervasive impact on income inequality, and that to ignore the social relations of production in social science research is to ignore one of the fundamental dimensions of inequality in capitalist society. (From Focus)

David Hall & Loren Tepperman, 1979. The Roots of Disunity: A Look at Canadian Political Culture. Toronto: McClelland and Stewart.

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Paul W. Holland & Samuel Leinhardt, eds. 1979. Perspectives on Social Network Research. New York: Academic Press

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Paul W. Holland & Samuel Leinhardt, "The Advanced Research Symposium on Social Networks"; Fritz Heider, "On Balance and Attribution"; Dorwin Cartwright and Frank Harary, "Balance and Clusterability: An Overview"; James A. Davis, "The Davis/Holland/Leinhardt Studies" An Overview"; Paul W. Holland and Samuel Leinhardt, "Structural Sociometry"; John M. Light and Nicholas C. Mullins, "A Primer on Blockmodeling Procedure"; Anatol Rapoport, "Some Problems Relating to Randomly Constructed Biased Networks"; Everett M. Rogers, "Network Analysis of the Diffusion of Innovations"; H. Russell Bernard and Peter D. Killworth "Deterministic Models of Social Networks"; Claude Flament, "Independent Generalizations of Balance"; Patrick Doreian, "Structural Control Models for Group Processes"; John E. Hunter, "Toward a General Framework for Dynamic Theories"; Robert P. Abelson, "Social Clusters and Opinion Clusters"; D. Garth Taylor and James S. Coleman, "Equilibrating Processes in Social Networks: A Model for Conceptualization and Analysis"; Charles H. Proctor, "Graph Sampling Compared to Conventional Sampling"; Ove Frank, "Estimation of Population Totals by Use of Snowball Samples"; Joel H. Levine and William S. Roy, "A Study of Interlocking Directorates: Vital Concepts of Organization"; Edward O. Laumann, "Network Analysis in Large Social Systems: Some Theoretical and Methodological Problems"; John A. Barnes, "Network Analysis: Orienting Notion, Rigorous Technique, or Substantive Field of Study?"; J. Clyde Mitchell, "Networks, Algorithms, and Analysis"; Bo Anderson, "Cognitive Balance Theory and Social Network Analysis: Remarks on Some Fundamental Theoretical Matters"; Richard C. Roistacher, "Acquisition and Management of Social Network Data"; Anthony P.M. Coxon, "Perspectives on Social Networks"; Mark Granovetter, "The Theory-Gap in Social Network Analysis"; Nicholas C. Mullins, "Social Networks and Scientific Ideas: The Case of the Idea of Networks".

Everett M. Rogers & D. Lawrence Kincaid. 1980. Communication Networks: A New Paradigm for Research. Free Press.

Free Press has announced publication in August, 1980 of Communication Networks: A New Paradigm for Research. Chapters deal with a convergence model of communication and network analysis, the methodology of network analysis, network effects on individual behavior, network effects on group behavior, and who is linked to whom in networks.

COMPUTER PROGRAMS

CONCEPTS AND TACTICS IN ANALYSING SOCIAL NETWORK DATA

John A. Conquist (University of California, Santa Barbara) April 1980.

I. INTRODUCTION. A few years ago Coxon (1973) argued for a research approach which integrated the Lazarsfeld-Pearson quantitative tradition with social network analysis, the combination to be informed by a kind of ethnomethodological emphasis on the meanings of human behavior to the persons involved. To some extent his recommendations, at least for the coupling of the first two partners, have already been followed. For example, Burt (1977) and Laumann and Pappi (1976) explicitly employ both conventional structural equation modelling and network data in their explanatory analyses. Progress in the evolution of research paradigms continues.

On the other hand, the development of data structure concepts, integrated series of computer programs, well articulated procedures for processing data, and documentation of all of these is as yet in a state comparable to that of conventional statistical analysis in the early 1960's. This paper represents a modest step in explicating these technical underpinnings of descriptive and explanatory analysis using both network and attribute data (1). It sets forth a series of data structure concepts adapted from the existing social science framework and from commercial database theory, relates them to network analysis data computations, indicates the data management steps that accompany and precede computation, and surveys the available computer programs.

Section II sets forth in detail the logical (as contrasted with physical) structure of the data files needed for research using both network and attribute data.

Section III reviews the computational options that confront the prospective researcher. These include:

1. generation of descriptive statistics with the units being individuals, groups, relations, and the total system itself,
2. extraction of a model of network structure based on:
 - a. structural equivalence (Burt, 1978b) or
 - b. local density of the graph (Harary, et al. 1965)
3. estimation of an explanatory model in which the dependent variables are both attribute and structural data.

The section concludes with a review of available computer programs.

Section IV outlines a set of data management procedures that may be required to take raw attribute and network data through to the end of the computation phases. A flowchart of the entire process is presented.

Section V presents some additional considerations.

II. DATA STRUCTURES. One of the important prerequisites for the development of a combined network-attribute (N-A) data analysis paradigm is a vocabulary for working with relational as well as with attribute data. This section sketches the elements of the data structures implied by the choice of a minimal N-A study design and sets forth a rule for laying out those for more complex designs. An example is given. The structures are adequate either for sampled or complete system data. The concepts employed are based on the Entity-Relation data structure model set forth by Chen (1976). The structures correspond to the canonical data structure described by Martin (1976) (which is a 3NF relational form). The conceptual scheme draws heavily on work by Codd (1972, 1979) and on relational data structures as outlined by Tsichritzis and Lochovsky (1977). Some ideas are drawn from Teitel (1976). See also Date (1977) for a lucid explanation of the relational model.

The system under study is represented as a graph. Each subsystem or unit is represented by a point. Each relation between two units is a line. Points may be classified into point-sets representing different kinds of entities (e.g. some represent individuals, others corporations, others government agencies). Some point-sets may represent those entities in the environment with which the system and its' subsystems interact. A line joining two points represents a relation between them. Lines may be classified into line-sets. A line-set is defined by (1) the types of points at the ends and (2) a type of relation. A line-set may be symmetric or directed. A pair of entities may be joined by several types of arcs or lines. For example, a line joining two individuals may represent the relation "common membership on the board of a corporation"; another arc joining the same two entity types might be "live in the same metropolitan area."

The minimal N-A data structure is illustrated in Figure 1. It includes two files: a rectangular point-attribute file, P(1), containing information about the points in the graph, and a rectangular line-attribute file, L(1), containing information about the lines. There is only one point-set and one line-set. Both ends of all lines are members of a single point-set. There is one row in P(1) for every point, and one row in L(1) for every line.

File P(1) may contain attribute data from several time periods, lagged information, etc. It contains one row for each entity (person, corporation, author, etc.) or point in the graph, and one column for each attribute measured over that group of entities. One of the attributes is a unique entity identifier which is completely unidimensional (i.e. it has no other attribute or identifying information coded with it). P(1) is a conventional "flat" rectangular file (Sonquist and Dunkelberg, 1977).

File L(1) is also a rectangular file and contains one row for each defined relation between members of the class of entities represented by P(1). Thus, it contains one row for every line in the graph of the network. Each row contains a "from" and a "to" column depicting the origin and destination of the line. In addition, it contains a set of attributes describing the properties of the line. The presence or absence of the line, of course, is indicated by the two endpoint identifiers. However, as is discussed below, even a minimal study may generate additional attributes of a relation via a homophily analysis of the endpoints; so additional columns will generally be needed. Typical attributes of a relationship between two entities might be the strength of the relationship, how long it has been in existence, etc. The "from" and "to" attributes of the relation contain the entity identifiers from those points bracketing the line. Concatenated together, they form a unique line identifier or "key".

The rules for extending these minimal structures are as follows:

1. Establish one P file for every additional point-set
2. Establish one L file for every additional line-set.

An example is provided in Figure 2. Data are collected on individuals and on a particular relation between individuals. These are recorded in P(1) and in L(1). A clique analysis of the group is run using L(1) and individuals are classified according to which subgroup they are in (note that it is possible for an individual to be in more than one clique). This data is recorded in L(2). The individual number is recorded in "From". The clique number to which that individual belongs is recorded in "To". The individual relation in L(2) is assigned a unique identification number consisting of the concatenation of the individual and group identification numbers. Attributes of the "clique membership" relation between individual and group are recorded in other columns, (e.g. whether the membership is as a central or peripheral member, how long he or she has been a member, etc.).

After the clique analysis has been run, the array P(2) can be established, containing the properties of the cliques. It is a conventional flat file and contains such information as clique diameter, density, number of members, etc. It may also contain data aggregated from clique members, (e.g. total resources available to them, proportion having a certain characteristic, etc.)

The final array that might be established is L(3). It depicts a particular relation, say "value homophily", between cliques. The clique identification numbers from P(2) are used in the "from" and "to" columns of L(3), marking each ends of each line. To compute value homophily, the attribute in P(1) which depicts a value orientation of the individual is averaged over the clique members. The average is a property of the clique itself and is recorded as an attribute in P(2). The discrepancies between the *i*th and *j*th clique averages are recorded in L(3) as an attribute of the relation. Each row in L(3) is given a unique identifier, the concatenation of the two clique numbers. This particular example is symmetric.

Obviously, additional information about the data structure of the study must be recorded, but not necessarily kept in computer-readable form. These include:

1. Attributes of the total system itself, e.g. number and types of point sets.
2. For each point-set:
 - a. Name of the set
 - b. number of points
 - c. number of attributes
 - d. pointer indicating which attribute is the entity ID.
 - e. dictionary information about each variable.
3. Number and types of line-sets
4. For each line-set:
 - a. name of the relation
 - b. pointers indicating the "from" and "to" attributes comprising the line identification key.
 - c. symmetry and reflexivity markers
 - d. number of attributes
 - e. dictionary information about each attribute
 - f. number of lines

The symmetry marker records whether the adjacency matrix A corresponding to L is symmetric or not; if it is, only one of the two sets of off-diagonal elements need be recorded. The reflexivity marker records whether the diagonal elements are recorded as lines or not.

Some study designs are capable of generating the adjacency matrix A directly, and L is never recorded. It is argued here that A is best viewed as one type of temporary logical arrangement of L-file data used as computer program input, and that L is a preferable archive and working file organization. L's chief advantages are that its organization facilitates statistical analysis of the relation as a unit of analysis, focuses attention on the possibility of a function of several attributes of a relation used to measure it (via conventional scaling techniques), and provides a convenient data organization for the computation of various indices involving the attributes of the relation and its end points. Both L and P are compatible with SPSS, OSIRIS, BMDP, etc. input requirements. L's disadvantages are that it takes up space, and that it generally cannot function as input into present-day clique analysis programs, thus requiring an extra step in the processing.

Since both the P and L files have a conventional "flat" rectangular organization, much of the processing on them can be accomplished using readily available statistical packages. Only those operations beyond the packages' capability need receive special-purpose programming.

It is possible initially to record line endpoints as attributes in the P matrices corresponding to the ends of the lines. This follows naturally from the frequently used data collection method of interviewing. Respondents are simply asked who their friends are, who they talk to, etc., and the answers are recorded in a list and then later coded as numbers in a multiple response vector (Sonquist and Dunkelberg, 1977, pp 17-40). The L format is probably better as an archive and working organization, however, and the data should be converted to this form as the N-A file structure is established.

Various data-generating schemes in network analysis produce data structures that fit the N-A pattern set forth here. They include "small world" chain designs (de Sola Pool and Kochen, 1978; Bernard and Killworth, 1978; Erickson, 1978); sampled random walk designs (Klov Dahl, 1978a); and ego-node designs (McCallister and Fisher, 1978); as well as the currently more frequent designs in which data are gathered on a complete population or its elite upper echelon. The complex data files of the Altheustadt study (Laumann and Pappi, 1976) appear to fit the model. Over-time data can be accommodated as blocks of attributes in the L and P arrays.

Since one or more of the point-sets can be defined as particular entities in the system's environment, the data structures appear useful for studying system-environment transactions (Cartwright and Harary, 1977), and as a basis for the data organization in a computer simulation of the system under study.

III. COMPUTATION OPTIONS. This section will review some of the alternatives available to the N-A analyst: choice of descriptive statistics, using position vs structural equivalence in the decomposition of the system into components, and use of explanatory modelling. It will list available computer programs and discuss the input requirements for various techniques. Section IV will outline a series of steps for preparing N-A data structures for input into these options.

DESCRIPTION. The network aspects of the system under study may be described at any or several levels. Various connectedness properties of individuals may be averaged over the entire system, or over groups to which they are connected. The unit of analysis remains the individual, the connectedness properties are computed and recorded in $P(\text{individual})$, and then statistics are computed over that P -array. Freeman's (1979a) centrality index is an example. Point-centrality can then be cross-classified by other individual attributes to depict the positions of important statistical subgroups in the population. The same logic can be applied to cliques within the population. A positional attribute can be computed at the group level, stored in $P(\text{group})$ and used as any other attribute. The computations typically would require converting L into adjacency matrix form, transcribing clique analysis program output for merging into D , and performing the merge before being able to do the final statistical analysis of the new structural information. For example, one might characterize cliques of corporations as to the number of steps each clique is removed from a central clique (say, one located in New York City). Distance from NY might later be cross-classified with other clique attributes, such as the number of banks in their central regions or their total assets.

Holland and Leinhardt (1976, 1978a) emphasize the need to include an analysis of local structural properties and their distribution across the larger system. They propose a census of 16 types of triads as a methodology, and describe an F -test for the significance of the resulting statistics. The unit of analysis is a group, the triad. The computations here would also require converting L into the corresponding A before running the triad census program. A later use of the results of a triad census involves summarizing the properties of ego's triads as individual attributes of ego and recording this in the appropriate P array for use as a descriptor variable.

Klovdahl's (1979a) random walk procedures for sampling relations in a large system also yield descriptive information. Individuals are sampled, asked to name friends, and then one of these friends is sampled to continue the chain. Attribute information on both individuals and relations is obtained. The data structure is: $P(1)$ -- individuals, $P(2)$ -- chains, $L(1)$ -- individuals \times individuals, $L(2)$ -- individuals \times chains, $L(3)$ -- chains \times chains (the last included because chains may overlap). Klovdahl uses $P(1)$ and $L(1)$ information to compute the average number of steps required for a random walker to move between elite and non-elite strata, an example of a statistic that most standard package programs would not be able to produce.

Other examples of descriptive statistics are Freeman's (1978) index of segregation between points with different values of one of their attributes, and the statistics on ij - ji discrepancies printed by NEGOPY (Rice, 1975).

MODELLING NETWORK STRUCTURE. Description of the system in terms of its internal structure is probably the most frequent objective in recent research. Burt (1978b) points out that there are two principal approaches, relational and positional. The former examines many L arrays over the same point-set pairs, correlates the relationships between individuals over all these pairs, and establishes classes of individuals who are structurally equivalent vis a vis their relationships with all of the other group members. The latter isolates cliques on the basis of local density, rather than on structural equivalence, though it, too, may base the analysis on many L arrays over the same point-set pairs.

Sailer (1978) in his exposition of the relationship between roles, social structures, and networks of individuals further distinguished between structural equivalence computed by correlating the ties of individuals and that computed by correlating their attributes. In the latter case, data from the P arrays as well as adjacency information from L arrays is involved in the analysis of the structure of the network. Variables from both must be involved in the input.

Perhaps the most widely used alternative in the isolation of internal network structure is blockmodeling (Arabie, et al, 1978; Breijer et al, 1975). Here, the required input is a set of concatenated adjacency and/or proximity matrices over the same pair of point-sets. The processing procedures required are (1) creation of the adjacency and proximity matrices from their L counterparts, and (2) copying them into the right computer input form. If Burt's (1977) role distance concepts are used, at least some of the proximity matrices will be based on attributes of the individuals from the corresponding P arrays, and they will be required in the step (1) computations.

The input data to the person X person correlation section of Burt's procedure requires addition to the P matrix or a subset C of the interpoint distances in the system (twice this number if L is asymmetric), plus all of the relevant other characteristics in P.

The second approach, the positional tradition, has roots in work by Harary, et al (1965) and is exemplified by writers like Alba (1973), Doreian (1974), Bonacich (1977), Freeman (1979b), Seidman and Foster (1978a). Alba's (1973) n-clique concept provided for the direct isolation of cliques from a single adjacency matrix. Seidman and Foster (1978 a) extended this notion to a k-plex, a clique of n individuals in which each is connected to at least n-k others. Like Alba's procedures, their partitioning of the graph is accomplished directly from the adjacency matrix and is based on local density.

Despite the fact that computations are done directly from an adjacency or proximity matrix without computing correlations between vectors of pair distances, preliminary processing of one or more L and P arrays may be required to produce A as input. For example, it may be necessary to symmetrize L by ANDing ij and ji elements. A concrete instance is an analyst deciding to measure connections between two scientists by ANDing two L arrays, say, citation and personal acquaintance. Like the structural equivalence case, writing a Fortran program may be a necessary step in preparing the clique analysis input.

EXPLANATORY MODEL DEVELOPMENT. There appear to be two requirements. First, a mixture of attributes and structural properties will be used as input, hence data from both the clique analysis and the appropriate P-array will be required to be placed together in the input to a conventional statistical analysis. The former may require either manual processing and coding of clique analysis program output, or an additional Fortran program, or both. Secondly, it may be necessary for the statistical program used to have the capability of storing predicted values and residuals back in the P matrix.

COMPUTERS. The development of software support for research data handling and computation appears to proceed in phases. First, experimental single purpose programs are written to deal with specific computation problems on a particular research project, then these are generalized to do that computation on other similar sets of data. Later these are integrated into libraries with common input and output formats. In a further stage, these libraries are organized as subroutines and called from a single control language. Finally, formal programming languages specifically oriented to this class of problems are implemented. The latter contain control statements (e.g. conditional transfer, and loop) and the ability to do incidental computation as well as perform specific library tasks. Sometimes an enterprising researcher writes an integrated set of subroutines early in the game and builds a subroutine library that can be called from a Fortran program. These are much easier to integrate together in later software development stages. Usually, data handling capabilities fail to keep pace with computation options.

At present, network analysis programming appears to be in phase one or two. Isolated, unintegrated programs predominate. However, some larger, more flexible systems are under development. The data management capabilities tend to lag far behind.

Table 1 lists the computer programs that appear to be generally available for performing a series of computation tasks that characterize today's network research. The capabilities of widely known statistical systems, (e.g. SPSS, SAS, OSIRIS, BMDP, etc.) for factor analysis and clustering have been omitted, as have other clustering packages, (e.g. BC-IRY, MDS(X), and the Guttman-Lingoes programs), though they obviously can be used. The programs listed all appear to have been developed specifically for network analysis. Some additional information about the programs is listed in Appendix A, the current version of a Network Analysis Computer Program Census. This includes the computer for which it was written, the programming language, the name and address of its distributor, a reference to a publication either describing it further, or giving an example of its use, and several keywords describing its general areas of use.

If the data structure consists only of individuals and cliques, then statistical systems which process hierarchical files can be used to advantage (e.g. OSIRIS IV), provided the clustering techniques used for clique detection are hierarchical.

Programs keyworded "structural equivalence" follow that method of clique identification and partitioning; those labelled "relations" use local density methods. The information in the table represents that available at the time of writing.

Most programs provide limited flexibility in the computations they can perform. A few (e.g. NETWORKER) provide somewhat more in the way of options. Unfortunately at the time of writing two of these (GRADAP and SNAP) appear not to be available yet for distribution. Two of the others, SOCK and DIP run only on IBM equipment, while the third, STRUCTURE runs on the CDC 6400. SOCK and COMPT have integrated input and output formats for additional computational flexibility. The bulk of the other routines perform one, or perhaps several functions.

Getting from L and P arrays to the adjacency or proximity matrix format generally requires various data management capabilities not possessed by any of the available programs. It is to these problems we now turn.

IV. DATA MANAGEMENT PROCEDURES. That data management procedures can be an important part of a complex study is illustrated by Laumann and Pappi's (1976) sophisticated analysis of the Altnestadt data. The objective of this section is to explain what steps generally must be taken in preparing L and P files for input into one of the computation programs listed above.

Table 3 lists the operations most frequently required. Merging (Step 1) can usually be accomplished with a conventional statistical package (e.g. SAS, OSIRIS) provided the outside data to be merged into the files are in P-file format. However, the output of a clique analysis program may not be in this form. This means either modifying the network analysis program in use to write out an appropriate file, or coding that file by hand from the program output. The latter is a clear choice. Future writers of blocking and clustering programs please take notice.

Index construction within any P or L array (Step 2) can generally be accomplished with any statistical package, indeed that is one of the motivations for keeping the L array in its proposed organization, rather than as an adjacency matrix (Sonquist and Dunkelberg, 1977, Chap. 6).

A constructed index to be placed in a P array, and involving both a D and an associated L array as input will generally require a special purpose program accessing all of the required arrays and which writes the output as a file suitable for merging. Merge operations require use of the ID fields (see Figure 1). The procedure is the same if the results are to go in an L array.

Subset selection (Step 5) can usually be performed by a statistical package (e.g. SAS, OSIRIS, or SPSS). The problems come with the next step -- doing something with the array subset. SOCK, NETWORKER and SNET-1 have some capabilities in this area.

Such operations as manipulation of points and lines (Step 6) currently must be handled by special purpose programs in many environments, though programs like DIP and NETWORKER have some capabilities in this area. OSISTS III, IV, and SAS have excellent capabilities in this area.

Generation of adjacency matrices (Step 7) appears to be the most likely candidate for a useful general purpose program. At present, the alternatives appear restricted to writing a special-purpose program. This capability should certainly be considered a candidate for inclusion in future versions of general purpose statistical systems like SAS, SPSS, or OSIRIS.

Other input matrices (Step 8) also appear to require a Fortran program also.

Sorting (Step 9) of P and L arrays is a capability usually present in most statistical packages, and appears to present no problem if the format suggested here is followed. However, sorting rows and columns of an adjacency matrix A or proximity matrix would also appear currently to require a special purpose program in most environments (fortunately a trivial problem in Fortran). NETWORKER has useful capabilities here.

Some statistical packages accept correlation matrix input (e.g. SPSS, OSIRIS), hence, it is likely to prove useful to output adjacency or proximity matrices from special purpose programs (Steps 7 or 8) in a form acceptable to them as input (Step 9).

A satisfactory solution is likely to be to keep all P and L arrays in the "standard system file format" specified by one's favorite statistical package, and to write A arrays in the format needed by its cluster analysis programs. Then, if other network analysis programs are to be used, special-purpose Fortran will suffice to convert L arrays to its input requirements (Step 11).

Another useful data management function is the ability to list or display nodes and their immediate neighbors, or to display even more complex subgraphs. NETWORKER, INTERLINK and BARON have this capability, as does one of the ELITES routines (SOCLRAID). A useful addition to the current statistical packages might be this capability, if L and P arrays are used as the primary archives in network studies.

NETWORKER (Pesner and White, 1979) is one important exception to the current state of the art in network software. In addition to significant data management capabilities, it has structural analysis routines as an integral part, and can interface directly to an effective multiple regression package. Its disadvantage is its limited portability (written in Xercx APL).

An overview. Figure 3 provides an overview of the steps discussed here as they are integrated with computation phases.

1. In steps 1 to 4 data are entered into the arrays L and P. Adjacency matrix A may be generated directly from the data collection. L and P may arise from several sources and require file merging operations.
2. Steps 5 through 10 result in clean, correct raw data. In step 11, such index construction as can be performed on all the raw data takes place and these derived variables are stored in the updated L and P files (step 12).
3. The study is now ready for either a standard attribute analysis (see Sonquist and Dunkelberg, 1977), or for processing of the network information (choice of boxes A or N).
4. If the attribute analysis is to come next, then a unit of analysis is chosen (individual (P), other entity (P), or one of the relations (L)), variables and subsets of entities are selected, and the analysis is performed. Residuals are added back to the L and P files, if computed, and the process iterates (steps 15 and 16).

5. If the network analysis is to follow, the sequence is somewhat more complex. Steps 17-20 generate a clique analysis input (or perhaps input for a triad census, etc.) The preliminary analysis (step 21) may result in modifications of this procedure and it is repeated. In steps 22-23 the reachability properties of the data are explored. This is especially important if a large network ($N > 75$) is being analysed, because disjoint subsets of points may exist, and if analysed separately, can result in substantially reduced complexities in the processing.

A new variable is established in the P-file corresponding to the partitioned point-set --- this variable identifies which of the disjoint subsets a given point is in.

6. The data (perhaps for several disjoint subsets) are prepared for clique analysis input. Fortran programs are used, if needed for computation of proximities, covariances, etc. (steps 24-27).
7. In steps 28-31 the analysis is carried out. Steps 28, 30, and 31 set forth the details of computing the properties of the clique subgroups, creating a 2 file with the clique as the unit of analysis, and then merging data from that file back to the pre-existing files as needed. (For example, recording clique characteristics in the records of the individuals comprising that clique.)

Variations on this sequence would occur if, for example, steps 20 and 21 included a triad census, with data about ego's triads stored in the P file.

The need for a Fortran programmer on the analysis staff should be clear. Steps in Figure 3 in which his or her services will be likely to be needed in most environments are labelled "F". Another service may well be to convert analysis programs from one manufacturer's computer to another. It is hoped that the program census in Appendix A will minimize that problem insofar as it is possible to do so. Unfortunately, most of the programming likely to be needed involves data-management, an area in which few social science researchers and students are proficient. It is clear that professionals need to be involved --- funding agencies take note.

Complex data processing sequences like these require accurate keeping of study records and the suggestions in Sonquist and Dunkelberg (1977, Chapter 8) are of considerable relevance.

V. DISCUSSION. This paper has sought to explicate the data structures that underlie a merging of social network analysis and conventional multivariate data analysis. It reviewed the available programs for analysing networks with a view to outlining the relationships between these data structures and program input requirements. Then, it set forth a series of data management operations that typically would be required to make the transition between the L and P data structures and network analysis program input requirements. A further objective has been to inventory available software with a view to readers negotiating their own copies of routines that are prospectively useful.

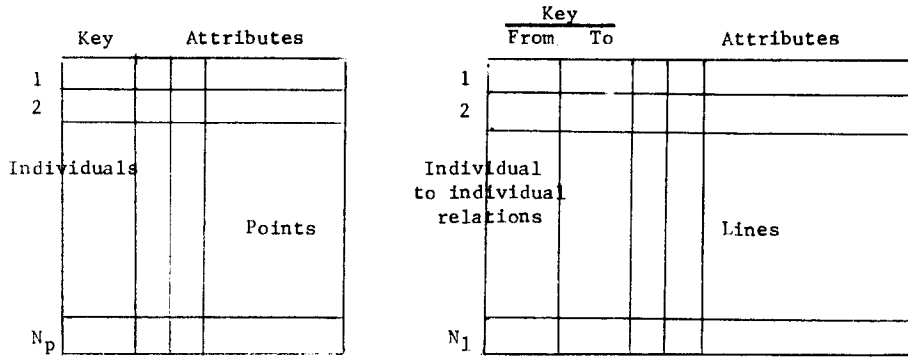
It might be argued that since most of the currently available structural analysis programs require adjacency matrix input, one should simply code network information in that form from the very beginning of the study, rather than in the P- and L- array structure proposed here. That way one could avoid the extra expense and delay of converting it to adjacency matrix form for input to one of the structural analysis programs. There are several reasons not to do so. First, conversion from L-file to adjacency matrix format is a straightforward, almost trivial programming problem. Second, a particular analysis may require selection of a subset of the lines, and many structural analysis programs have little capability in this data-management area. If the L-format is used, a general purpose statistical package may be able to provide most of the subset selection capabilities needed. If a special purpose subsetting program has to be written, then conversion to adjacency format is a simple by-product. Third,

and most important, if a combined network-attribute research paradigm is in fact to be used by the study, then accomplishing the structural analysis using blockmodelling, n-clique, k-plex, or other approaches is only an early step in the project. Ultimately, the individuals or other entities whose behavior is to be explained will have to be classified according to the aggregated properties of their network environments in order to perform a contextual analysis using conventional statistical procedures. Or, the classification may take place according to the aggregated properties of their subsystem components. The P- and L-file formats facilitate this, whereas the adjacency format does not. Indeed, the L-file may be needed simply because the demands of theory may eventually be to include models which explain variation in the properties of lines rather than those of points.

Many topics related to data structures have been left untouched. These include the problem of establishing system boundaries (especially if the study is of elites), sampling and confidence interval problems in the study of large networks, missing data, the reliability and validity of measurements of network attributes, record matching if several sources of data about relations are used, and a host of others. Their implications for the data structures used, and for the tactics used in handling the data processing must be left for further work. Another important task, as yet undone, is to work out the specific procedures needed for mapping the L- and P-file data structures into the variety of specific adjacency matrix formats required by available network analysis programs.

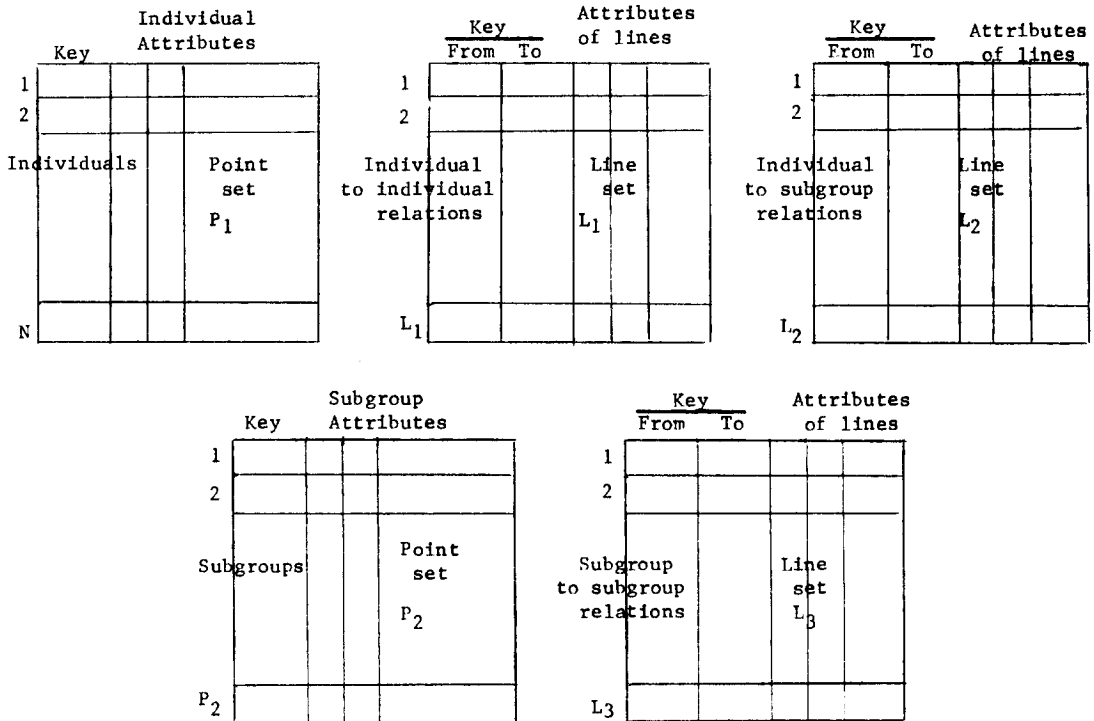
FOOTNOTES

1. Revision of a paper presented at the American Sociological Association, Boston, August 1979. This work was supported, in part, by a grant from the Academic Senate, University of California, Santa Barbara. The ideas presented here benefitted greatly from my conversations over the years about this topic with Dr. R. Teitel, and from the referees suggestions. The mistakes are my own.
2. It is not yet clear whether Burt's (1977c) paradigm provides for relations as the unit of analysis. This remains as a problem for further investigation.



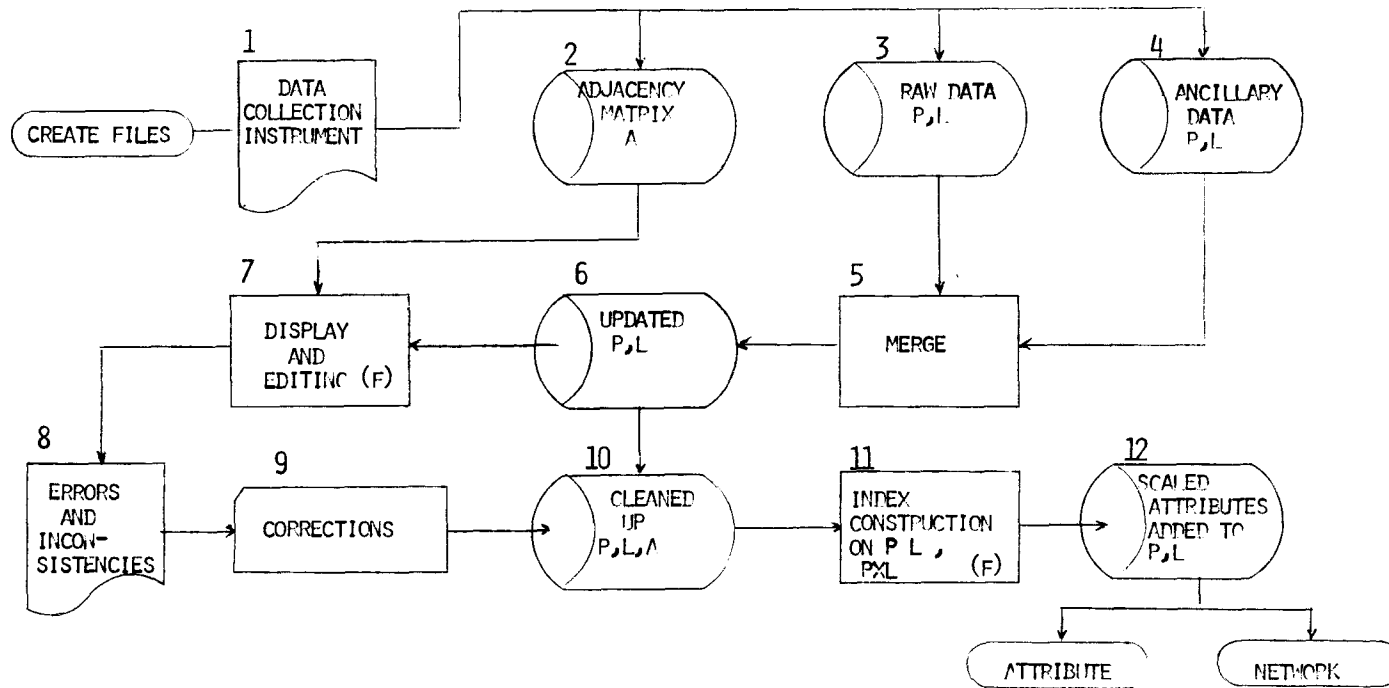
A minimal N-A data structure

Figure 1



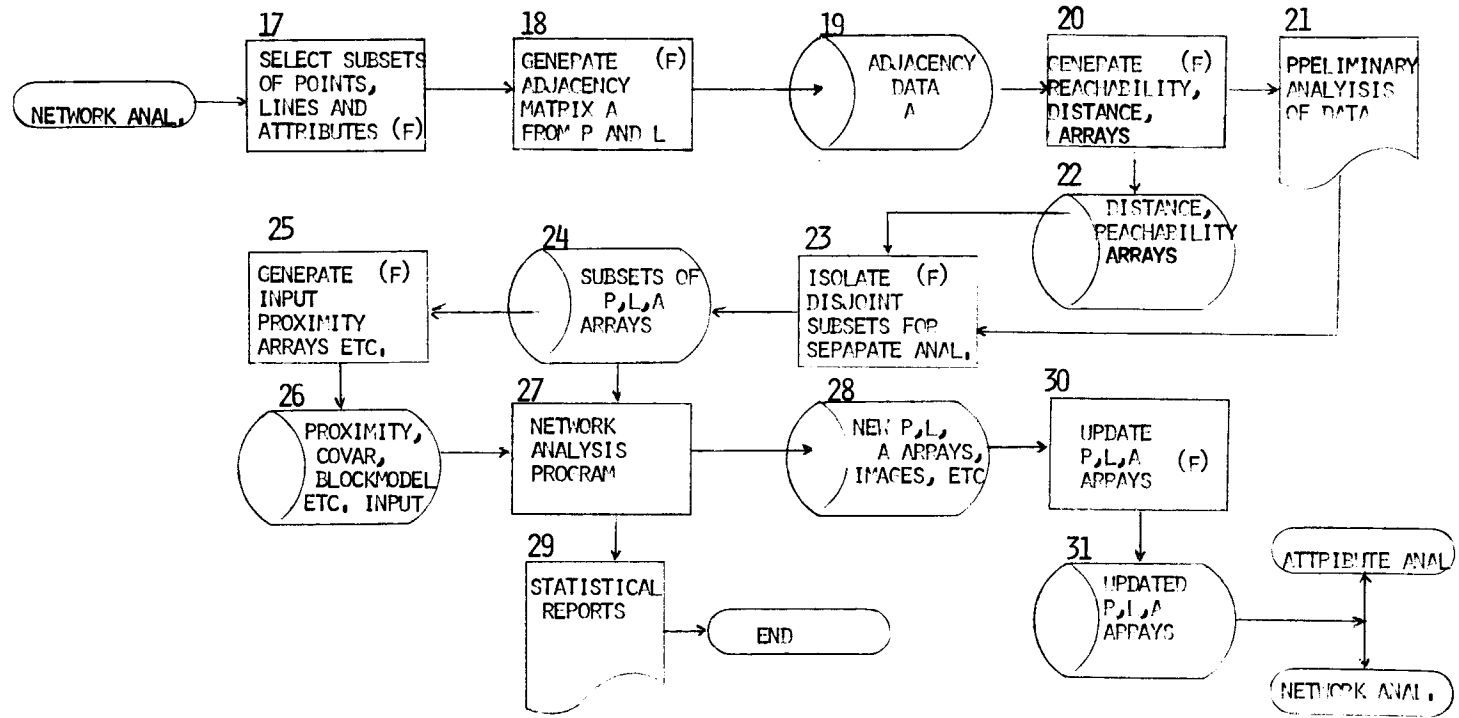
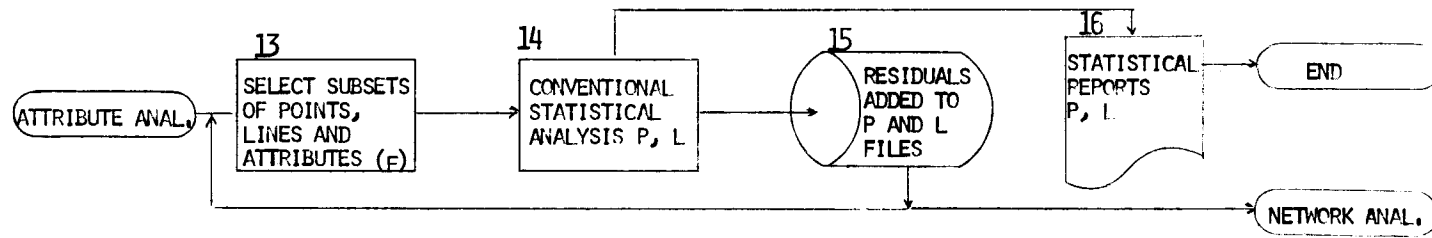
Data structures when individuals and groups are analysis units

Figure 2



STEPS IN COUPLED NETWORK AND ATTRIBUTE ANALYSIS

FIGURE 3



STEPS IN COUPLED NETWORK AND ATTRIBUTE ANALYSIS
FIGURE 3 CONT'D.

Table 1

Computer programs available for various analysis techniques.	
adjacency matrix, miscellaneous statistics on	KBPAK, NETWORKER, ANU-MACRONET2, NETWORK ANALYSIS, SOCK, SDAS
blockmodel	STRUCTURE, CONCOR, COBLOCK BLOCKER, JNTHOM
cluster analysis, hierarchical	STRUCTURE, SONENT-I, DIP, SOCK, COBLOCK ADCLUS, UPWARD/DOWNWARD, CONCOR
cluster analysis, non-hierarch	SNAP, SONENT-I, DIP, SOCK, SDAS
comparison of two graphs	SONET-I
correlations between inter-point distances	STRUCTURE, NETWORKER, CONCOR
equilibrium, system	STRUCTURE
factor analysis	KBPAK, SDAS
graph components	COMPLT, SOCK, GRADAP, SONET-I, KBPAK, DIP, ZRC, NETWORKER, SNAP, NEGOPY, NETWORK ANALYSIS
graph reduction	GRADAP, SNAP, SONENT-I
homomorphic correspondence to image, reduction of semigroup	HOMOMORPHIC CORRESPONDENCE BLOCKER, JNTHOM
language, graph processing	DIP
multidimensional scaling	DIP, SNAP
plot cliques	NETPLCT, COMPLT
position index	STRUCTURE
point centrality	SUB, NETWORKER, GRADAP, ANU-MACRONET2
propensity to initiate acts	STRUCTURE
proximity matrix, computation of	KBPAK
role distance	STRUCTURE
rotation of factors	KBPAK
rush	GRADAP
shortest paths	STRUCTURE, SOCK, DIP
triad census	SOC PAC-I, NETZ

TABLE 2
Data Manipulation and Computation Capabilities
of
Network Computer Programs

A. Computation

1. None: INTERLINK, BARON
2. Limited: NETZ, COMPLT, HARARY/ROSS, ADCLUS, OVERLAP, CONCOR, ANU-MACRONET2, ANU-RANDNET, ANU-MARKOV, UPWARD/DOWNWARD, HOMOMORPHIC CORRESPONDENCE, ZRC, KBPAK, TAU-SQ, SOCPAC-I, SOCPAC-I(TSS), SUB, SONEI-1, NEGOPY, NETWORK ANALYSIS, SDAS, BLOCKER, JNTHOM, COBLOC, CORPORATE INFORMATION
3. Extended: SOCK, GRADAP, NETWORKER, STRUCTURE, DIP, SNAE

B. Data Management

1. None: COMPLT, OVERLAP, ADCLUS, CONCOR, STRUCTURE, ANU-MACRONET2, ANU-RANDNET, ANU-MARKOV, UPWARD/DOWNWARD, HOMOMORPHIC CORRESPONDENCE, ZRC, TAU-SQ, SUB, BLOCKER, JNTHOM, COBLOC
2. Limited: SOCK, INTERLINK, KBPAK, BARON, SONEI-1, NEGOPY, NETZ, ELITES, NETWORK ANALYSIS, SDAS
3. Extended: GRADAP, DIP, SNAP, NETWORKER, CORPORATE INFORMATION

Note: Ratings based on information available at time of writing.

TABLE 3
Data Management Operations

1. Merging of data from outside files (e.g. output from external clique analysis program, multidimensional scaling program, etc., into conformable P or L data files.
2. Index construction within any P or L array.
3. Index construction for P matrix, based only on data in it and on data from those L's which are conformable.
4. Index construction for L matrix, based only on data in it and on data from those P's which are conformable.
5. Subset definition and selection of units and variables from a P or L matrix.
6. Manipulation of structural relations: condensation of points in P, combination of lines in L, reversal of lines in L, generation of new L matrices by induction.
7. Generation of adjacency matrix from conformable L's or from L information stored as list variables in P.
8. Generation of reachability, distance, similarity, proximity, covariance, correlation, homomorphic correspondence, blockmodel input etc. matrices from one or several conformable adjacency matrices.
9. Sort P, L, or A array
10. Output P, L, or A array in a form suitable for use by conventional statistical package or program.
11. Accept input standard statistical package P, L, or A array.

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Winship, C. (1977). "A distance model for sociometric structure." Journ of Math. Sociology, 5, 21-39.

COMPUTER PROGRAM CENSUS

PROG SOCK, COMPLT
MACH IBM 360/370
LANG FORTRAN, BAL
SRCE Alba, R
ADDR Cornell Univ.
PUBL Alba (1973)
REFR ?
KEYW relations, partitioning, data management

PROG ADCLUS
MACH CDC series
LANG ?
SRCE Arabia, P.
ADDR University of Minnesota
PUBL Arabia (1977), Arabia and Shepard (1973)
REFR J. of Math. Sociology, 5, (1977)
KEYW overlap, hierarchical clustering

PROG Harary-Ross Maximal subgraph enumeration
MACH ?
LANG ?
SRCE Alt, J.; Schofield, N.
ADDR Univ. of Essex, Colchester, England; Univ. of Texas, Austin
PUBL Alt and Schofield (1978)
REFR J. Math Soc. 6, 1 (1978)
KEYW relations, partitioning, clique detection.

PROG INTERLINK
MACH Univac 1108, Honeywell 66/60
LANG ?
SRCE Bell, D.C.
ADDR University of Houston
PUBL ?
REFR Connections, 1, 3, Summer 1978, pp. 48
KEYW sectors, multiple links, data management

PROG CONCOB
MACH
LANG APL
SRCE Breiger, R.L.
ADDR Harvard Univ.
PUBL Breiger, Boorman and Arabia (1975)
REFR
KEYW structural equivalence, partitioning

PROG GRADAP
 MACH CDC ?
 LANG ?
 SRCE Brouwer, J.J. et al
 ADDR University of Amsterdam
 PUBL Specification (1977)
 REFR Connections 1,2, Winter 1978, pp 21-25
 KEYW data management, SPSS, partitioning, relations

PROG STRUCTURE
 MACH CDC 6400
 LANG Fortran IV, EISPACK
 SRCE Burt, R.S
 ADDR Survey Research Center, Univ. of California, Berkeley.
 PUBL Burt, R.S. (1977a, 1977b)
 REFR Connections 1,2, Winter 1978, pp. 29-31
 KEYW data management, structural equivalence, partitioning

PROG OVERLAP
 MACH ?
 LANG ?
 SRCE Bonacich, P.
 ADDR Univ. of California, Los Angeles
 PUBL Bonacich (1977)
 REFR Connections 2,2, Spring 1979, pp 114
 KEYW relational, overlapping memberships,

PROG ANU-MACRONET2, ANU-RANDNET, ANU-MARKOV
 MACH Univac 1100
 LANG Fortran V
 SRCE Carrick, D.W.
 ADDR Australian National Univ.
 PUBL Klovdahl and Omodei (1978)
 REFR Connections 2,2, Spring 1979, pp 110
 KEYW reachability, distance, centrality, markov

PROG COBLOC
 MACH ?
 LANG APL
 SRCE Carrington, P, and G. Heil
 ADDR Dep't of Computer Sci, Univ. of Toronto, CDN
 PUBL Carrington and Heil (1979)
 REFR ?
 KEYW structural equivalence, partitioning
 hierarchical clustering

PROG DIP (Digraph Processor)
 MACH IBM 360/370
 LANG PL/1
 SRCE Gleason, T.
 ADDR Carnegie-Mellon Univ.
 PUBL ?
 REFR ?
 KEYW multidimensional scaling, factor analysis

PROG SNAP
 MACH ?
 LANG ?
 SRCE Payne, C.
 ADDR Nuffield College, Oxford, England
 PUBL ?
 REFR Connections, 2,1, Fall 1978 pp 49 (review by G.Heil)
 KEYW data management, relational, multidimensional scaling

PROG UPWARD/DOWNWARD
 MACH CDC 6400
 LANG Fortran
 SRCE Peay, E.
 ADDR Flinders University of Southern Australia
 PUBL Peay (1974)
 REFR ?
 KEYW hierarchical clique detection, partitioning

PROG Homomorphic Correspondence
 MACH ?
 LANG APL
 SRCE Heil, G.
 ADDR Comp. Sci. Dep't. Univ. of Toronto
 PUBL Heil and White (1975)
 REFR Connections, 1,2, Winter 1978, pp 20
 KEYW blockmodelling, image graphs

PROG BLOCKER
 MACH ?
 LANG APL
 SRCE Heil, G.
 ADDR Computer Science Dept. Univ. of Toronto, CDN
 PUBL Heil and White (1976)
 REFR ?
 KEYW blockmodelling, partitioning

PROG ZRC (Zones of relative clustering)
 MACH ?
 LANG Fortran
 SRCE Kappelhoff, P.
 ADDR Universitat Wien, Vienna, Austria
 PUBL ?
 REFR Connections, 1,2, Winter 1978, pp 49
 KEYW relational, partitioning

PROG KBPAK (CATij)
 MACH IBM 360/370
 MACH Fortran
 SRCE Killworth, P.D.
 ADDR Univ. of West Virginia
 PUBL Killworth and Bernard (1975)
 REFR Connections, 2,2, Spring 1979, pp 107-109
 KEYW relational, partitioning

PROG TAU-SQ
 MACH ?
 LANG Fortran
 SRCE Leinhardt, S.
 ADDR Carnegie-Mellon Univ., Pittsburgh
 PUBL Holland and Leinhardt (1978), pp 254
 REFR ?
 KEYW significance test, triad census

PROG SOCPAC-1 and SOCPAC-1/TSS
 MACH IBM 360/67
 LANG Fortran
 SRCE Leinhardt, S. (also available on TROLL at NBER)
 ADDR Carnegie-Mellon Univ., Pittsburgh
 PUBL Leinhardt (1971), Holland and Leinhardt (1976)
 REFR Holland and Leinhardt (1976)
 KEYW triad census, local structure

PROG BARON
 MACH GE 635
 LANG BASIC
 SRCE Levine, J.
 ADDR Dartmouth College
 PUBL ?
 REFR Connections, 1,2, Winter 1978, pp 20
 KEYW data management

PROG SUB
 MACH IBM 360
 LANG FORTRAN IV
 SRCE Moxley, N.F.
 ADDR North Carolina Educational Computing Service
 PUBL Moxley and Moxley (1974)
 REFR Connections, 1,2, Winter 1978, pp 20; 2,2 pp 48
 KEYW centrality

PROG SONET-1
MACH IBM 360/370
LANG PL/1
SRCE Foster, B.L.
ADDR Center For Social Analysis, SUNY, Binghamton, N.Y.
PUBL Foster and Seidman (1978), Seidman and Foster (1978)
REFR Connections, 2,1, Fall 1978, pp 46-48; 1,3, pp 57a
KEYW data management, relation, multidimensional scaling

PROG NEGOPY, NETPLOT
MACH CDC
LANG Fortran, Assembly language
SRCE Richards, W.
ADDR Simon Fraser Univ., Vancouver, B.C., CDN
PUBL Richards (1975)
REFR Connections, 1,2, Winter 1978, pp 26
KEYW relational, partitioning, plotting

PROG NETWORKER
MACH Xerox Sigma 7
LANG APL
SRCE Sailer, L, and D. White
ADDR Univ. of California, Irvine
PUBL Pesner and White (1979)
REFR Connections, 1,2, Winter 1978, pp 21
KEYW data management, relation

PROG NETZ
MACH CDC CYBER 72, 76
LANG ?
SRCE Sodeur, W.
ADDR Wuppertal, W. Germany
PUBL Sodeur (1979)
REFR ?
KEYW data management, triad census, SPSS

PROG ELITES
MACH IBM 360/370
LANG PL/1
SRCE Sonquist, J.A.
ADDR Univ. of California, Santa Barbara
PUBL ?
REFR ?
KEYW data management, interlocking directorates

PROG JNTHOM
MACH ?
LANG APL
SRCE White, H.
ADDR Harvard Univ., Cambridge, Mass.
PUBL Boorman and White (1976)
KEYW homomorphic reduction of semigroups

PROG NETWORK ANALYSIS
MACH CDC 6500
LANG FORTRAN
SRCE Wigand, R.T.
ADDR Arizona State Univ., Tempe, Ariz.
PUBL Wigand, 1976
REFR Connections, 1,2, Winter 1978, pp 57
KEYW data management

ABSTRACTS

ALBA, Richard D. (Cornell) 1978. "Ethnic Networks and Tolerant Attitudes". *Public Opinion Quarterly* 42 (Spring): 1-16.

That different social characteristics, like social class and ethnicity, imply distinct subcultures is a familiar observation, usually mentioned only incidentally in addressing the question of which attitudes and values typify which social characteristics. This question appears answerable by a simple method: tabulate the attitudes of individuals by their social characteristics. But this method neglects the crucial ways in which an individual's attitudes and values are attached to the interpersonal network of which he or she is a part. In this article, I argue that a consideration of the ethnic composition of an individual's interpersonal network--precisely, its degree of ethnic homogeneity or heterogeneity--helps to illuminate processes of cultural change, which might otherwise lie hidden in simple tabulations of ethnic differences.

ALLAHAR, Anton (Toronto) 1978. "Peasants and Revolution in the Twentieth Century: A Theoretical Treatment Paper presented at the Second Annual Workshop on Agrarian Transformation, University of Toronto, March.

This paper juxtaposes two opposing strands of thought which have emerged within the Marxist literature on "peasants and revolution". Following a very brief discussion of the Marxian theory of revolution, I argue against the orthodox view that revolutions are made by one class (the proletariat) located in the industrial centres of the developed countries. This position has just not been supported by historical evidence, thus necessitating a new and more accurate interpretation of the phenomenon.

The second direction begins with the question of imperialism and seeks to show how the vicissitudes of capitalist production which have been exported to the backward, under-industrialized areas of the globe, have transformed these latter areas into the most likely places for the development and persistence of revolutionary movements, among the ranks of peasants, proletarians (rural and urban), and fractions of other social classes.

The questions then are: How is this potential harnessed and given form? Where does leadership come from? And what is the nature of the obstacles encountered? Such questions are addressed initially in a theoretical sense, and finally by reference to the concrete case of Cuba.

Three papers by:

BATTY, Michael (Reading) 1974. "Social Power in Plan-Generation". *Town Planning Review* 45 (July): 291.

In the quest to explore the relationship between problem-solving and political processes, an elementary theory of the plan-generation activity will be proposed and demonstrated in this paper. This theory is based upon an analogy between the concept of weighting in preparing a plan and the idea of social power in any political context. The model of the plan-making process is based upon a scheme in which various actors holding relevant attitudes towards the issues in hand engage in a process of conflict resolution which relates to their power in the political arena. This model is, of course, a highly abstract means of representing a decision-making process and, like all modelling, its value lies not in the production of plans but in its focus upon critical issues and on its power to clarify and develop an understanding of the real decision-makers and planners in terms of the problem in hand. This emphasis will lead into fields which at first sight may appear to have little to offer to the planning process; yet such subjects as group dynamics, communications theory, task-oriented problem-solving and dynamic programming provide oblique insights concerning the form of the planning process.

1975. "Design as Collective Action". *Environment and Planning*: 151-176.

In this paper a model of the design process based on finite Markov processes is elaborated and extended in the context of a theory of collective action. The interpretation developed here is based on the notion that design is a process of social problem-solving within a small group or collectivity, and specific comparisons between the Markov model and Coleman's (1966) theory of collective decision-

making are thus possible. The paper is introduced by a brief summary of previous work in design methods, and previous presentations of the model by the author are summarized. The main extension to this model involves disaggregating relationships within the design process into actor interests and control over factors or events, and this leads quite naturally to two associated Markov processes which are consistently and unambiguously related in the steady state. The model is then used to reinterpret Coleman's theory which is developed in terms of the value of control and power, and this leads to some oblique insights into the relationship between the two theories. To demonstrate the use of the model a problem of locating conservation areas in Waterloo County, Ontario, is simulated, with the emphasis on the speed of convergence of the process and the prior and posterior distributions of power in the system. A brief excursion into Monte Carlo simulation is presented to test whether or not the same results could be generated randomly; finally, conclusions for further research are drawn together.

"Plan Generation. Design Methods Based on Sieve Maps, Potential Surfaces, Trees, Lattices and Markov Chains". Geographical Papers, Dept. of Geography, University of Reading.

A series of related design methods relevant to generating solutions to land-use planning problems, are outlined in this paper. The need for methods based on qualitative rather than quantitative techniques is suggested by the poorly-defined, ill-behaved problems encountered in planning, and a central issue in this paper concerns the various weighting strategies relevant to each design method. The traditional averaging procedures based upon sieve maps and potential surfaces are described and Alexander's hierarchical design theory is explored. Techniques for synthesis based on tree-like and lattice-like structures are proposed and finally, a theory of design based on the sequential decision-making, characteristic of discrete state, discrete time Markov processes, is suggested. Each design method is illustrated by a problem involving residential expansion in a small English town.

BATTY, Michael (*Reading and Waterloo*) and Keith J. TINKLER. "Symmetric Structure in Spatial and Social Process". (*unpublished paper*).

This paper outlines an exploration into the effect of symmetric structure on the equilibrium properties of a widely applied class of ergodic Markov processes. An initial discussion of the notions concerning structure and process in this context, sets the scene for the statement and proof of a fundamental theorem relating structures with a symmetry property to their associated steady state relationships. The implications of the theorem are extensive, through many disciplines. Symmetric structures and their related interpretation in terms of reversible processes occur in a variety of fields, and thus a series of examples pertaining to the spatial and social realms are used to illustrate these implications. The examples involve: access in spatial systems, diffusion based on random walks in spatial structures, economic exchange and equilibrium, social power and conflict resolution, design method in architecture and planning, and collective action in social systems. The themes running through all of these examples relate to balanced or equal movement, diffusion, exchange, or communication, which all imply reversible process. The logic of the theorem is reinforced by each of these examples in intuitive terms, and by way of conclusion, the many implications arising from this analysis suggest directions for future research.

BAUM, Rainer C. (*Pittsburgh*) 1978. "The Holocaust--Anomic Hobbesian 'State of Nature'." *Zeitschrift für Soziologie* 7. (October): 303-26.

Guided by Hannah Arendt's characterization of the Holocaust as the "banality of evil", this paper summarizes the pertinent evidence attesting to the involvement of normal human beings in mass murder, and supplements it with an interpretation in terms of "identification with the victim". Identifying moral indifference among German elites as the key factor, the origins of the Holocaust are traced to value dissensus, domination by virtue of interest constellation, elite-destratification, loss of societal identity, and de-socialization of personal identity.

BENIGER, James R.C. (Princeton) 1979. "Stratification in Information and Commodity Networks: Toward a Statistics of 'Exchange Dominance'." (Paper presented to the Business and Economic Statistics Section of the American Statistical Association, Washington, August).

This paper presents a methodology for describing and analyzing the stratification of individuals and their aggregates with respect to interpersonal networks of information and commodity exchange. These two items are seen to move in opposite directions in a strict hierarchy: information moves downward and commodities upward in status. This finding prompts introduction of the term exchange dominance; actors or sectors are said to dominate all others for which they supply information and receive commodities. The ideas are applied to a survey of interpersonal information and commodity exchange among 3,786 individuals in 12 professions in two cities. Using independent measures of status, higher status individuals and sectors are found to provide more information than is provided to them and, conversely, to provide fewer valued commodities. Professions are strictly stratified in a dominance hierarchy with respect to the opposite movements of information and commodities.

BJURULF, Bo and Ove FRANK (Lund). "On Inferring Social Preferences from Voting Statistics". Unpublished paper.

A voting procedure is investigated which consists of an initial voting for the best alternative followed by a series of paired knock-out comparisons which starts with the two alternatives of fewest initial votes and continues by successively adding an alternative with more initial votes. This procedure yields a voted order between the alternatives and a voted winner. For three alternatives the voting procedure is shown to perform reasonable well, but for four and even more for five alternatives there is a bias towards the alternative which receives most initial votes. All tournaments are described which are compatible with each possible voted order and each possible voted winner among three, four and five alternatives. We also make comparisons with the voted order and voted winner obtained by applying random ranking instead of the ranking based on initial voting.

BODEMANN, V. Michal and Anton ALLAHAR (Toronto). "The Micro-Organisation of Backwardness in Central Sardinia: A Reappraisal of Luxemburg's 'Three Phases' of Underdevelopment". (Unpublished paper).

It is argued here that unlike theories which view underdevelopment from the "world system" perspective, Rosa Luxemburg's critical elaboration of the concept of primitive accumulation is a key contribution to the understanding of dependency and backwardness at the local level. Luxemburg outlines three phases in the destruction of pre-capitalist formations by capitalism: the separation of the producer from the traditional bonds and hierarchies; introduction of a commodity economy and the separation of handicraft from agriculture; the separation of the producer from the means of production. In contrast to Luxemburg, it is argued that this final phase has not often been fully achieved and that it has been replaced by a partial/temporal separation of peasant producers from their means of production. Luxemburg's approach nevertheless shows how economic interpretations which deal neither with the transformation of the class structure nor the internal political structure of dependent societies can be overcome. The case material here, which confirms much of Luxemburg's three phase schema stems from a community study conducted by one of the authors in Sardinia.

BOISSEVAIN, Jeremy (Amsterdam) 1979. "Towards a Social Anthropology of the Mediterranean". *Current Anthropology* 20 (March): 81-85.

Davis's People of the Mediterranean provides a detailed survey of the writings of anthropologists who have worked in Southern Europe, North Africa, and the Middle East. Its author focuses on economic organization, stratification, patronage, family and kinship, and the way anthropologists have dealt with history. He concludes that they have failed to compare, to work in cities, to relate part to whole, and to make use of history. These failures, he argues, may be the consequences of a mass inferiority complex among Mediterraneanists.

While partly admitted, these failures are inherent in the structural functionalism that until recently dominated most anthropologists, not just Mediterraneanists. Davis's work, while provocative and informative, is limited by his own failure to provide a set of problems that could have placed his abundant data in a meaningful comparative framework. The consequences of variations in the region's geography and economy, dimensions Davis ignores when discussing Mediterranean unity, might well have provided such a framework; they furnish part of the answer to some of the similarities and differences he notes but does not explain.

BREIGER, Ronald L. (Harvard) 1979. "Toward an Operational Theory of Community Elite Structures." *Quality and Quantity* 13: 21-57.

This paper develops the relevance of a multiple network analytical strategy, termed 'blockmodel analysis', for the study of community elite structures. (A synopsis of the recent literature on this approach is offered in Section 1). My central contention is that, by providing a systematic framework for relational description, blockmodel analysis bridges the gulf between specific case studies and general hypotheses.

Formulation of a blockmodel derived from Laumann and Pappi's own partition of 44 community influentials was seen to reinforce their analysis of the coalitional structure, while at the same time generalizing and extending their interpretation to other networks. The CONCOR algorithm led to a different aggregation of elite actors, while nonetheless producing discrimination of mean block attributes and image patterns whose similarity to the blockmodel constructed from the Laumann-Pappi partition is remarkable. In addition, the CONCOR application had the virtue of unifying discussions of the overall structure and the internal structure of Laumann and Pappi's largest clique within a single analysis. Perhaps the most significant finding is the convergence of the derived Laumann-Pappi blockmodel and the CONCOR blockmodel in the identification of a substantively interpretable role structure for this population. (Ed.'s Note: The paper contains a clear, readable introduction to blockmodelling concepts.)

BROWN, John R. and Rodney SCHNECK 1979. "A Structural Comparison Between Canadian and American Industrial Organizations". *Administrative Science Quarterly* 24 (March): 24-47.

This paper examines differences in the degree of bureaucratization and professionalization in industries in Canada and the United States. Three hypotheses are tested with census data from both countries. The first provides a comparative test of the hypothesis that structural characteristics of an industry at the period of its development persist over time. The second hypothesizes that cultural factors produce structural differences in industries in the two countries. The third argues that foreign ownership of corporations results in greater bureaucracy and less professionalization in Canadian industries than in American industries. The results provide general support for the persistence of structural characteristics, no support for the structural effects of cultural differences, and some support for the structural effects of foreign control.

BRYM, Robert J. (Toronto) 1978. "Regional Social Structure and Agrarian Radicalism in Canada: Alberta, Saskatchewan, and New Brunswick." *Canadian Review of Sociology and Anthropology* 15: 339-51.

In this paper it is suggested that regional variations in Canadian populist ideologies are largely a function of variations in the social organization of farmers. Of particular importance in this connection are (a) the degree of social connectivity among farmers; (b) the degree to which farmers are able to retain their position as independent commodity producers; and (c) the density of inter-class ties between farmers and others. It is tentatively concluded through an examination of agrarian organization and unrest in Alberta, Saskatchewan, and New Brunswick that (a) the greater the degree of social connectivity, the greater the degree of radicalism (left or right); (b) the greater the degree of independence, the more likely it is that radicalism will take on a right-wing colouring; (c) the greater the density of ties between farmers and urban workers, the more likely it is that left-wing populism will emerge; and (d) the greater the density of ties between farmers and non-working-class urban groups, the more likely it is that right-wing populism will emerge.

BRYM, Robert J. (Toronto) and Barbara NEIS (Memorial, Newfoundland) 1978. "Regional Factors in the Formation of the Fishermen's Protective Union of Newfoundland". *Canadian Journal of Sociology* 3: 391-407.

This paper discusses the social-structural factors which produced regional variations in level of support for the Fishermen's Protective Union of Newfoundland, a populist movement/party of the 1910s and 1920s. It suggests that fishermen were engaged in different forms of labor organization in different parts of Newfoundland; that the type of labor organization in which they were involved determined their propensity to engage in collective political action; and that different forms of labor organization were the result of different patterns of economic underdevelopment. On the other hand, the social organization of the church elite was an important determinant of the capacity of opponents of the FPU to suppress involvement of fishermen in the movement, and attention is therefore devoted to regional variations in this factor as well. Finally, theoretical implications and directions which further research on the subject might take are discussed.

Four Papers by:

BURT, Ronald (SUNY, Albany)

1979. "Relational Equilibrium in a Social Topology". *Journal of Mathematical Sociology* Reprint A199.

Once made explicit, the equilibrium assumption in network analysis poses two questions for any analysis of a system of actors interconnected by one or more networks of observed relations: (1) Are the observed relations structured so as to define an equilibrium state? (2) If the relations are not in an equilibrium state, how different would the structural analysis of the observed relations be if they were in such a state? The purpose of this discussion is to transform the implicit equilibrium assumption endemic to network analysis into an explicit instrument for such analysis; an instrument capable of answering the above two questions. Coleman's restriction on the general equilibrium model is used to derive from one or more networks of observed relations a class of relational equilibria. Particular equilibria within the class are obtained by assuming particular social/role distances among actors within a system. Recent developments in network analysis based on the concept of structural equivalence are used to define stratification in terms of distances among actors. These developments also provide statistical tests for assessing hypotheses linking observed and equilibrium social structure. Numerical illustration is provided by analyzing the system of elite experts in methodological and mathematical sociology as such a system existed in 1975.

1980. "Actor Interests in a Social Topology: Foundation for a Structural Theory of Action." *Sociological Inquiry* 49 (Forthcoming) (Reprint A196)

Actors use their resources to realize their "interests". How are actor interests patterned by the social structure in which actors find themselves? The purpose of this discussion is to propose a structural law of perception that provides a general basis for applying network concepts in empirical studies of human action so as to bridge two heretofore irreconcilable perspectives in social action theory. In terms of postulates of purposive action and marginal evaluation, "atomistic" versus "normative" perspectives on action differ in their interpretation of how actors make perceptions within a social context. Stevens' law provides a rigorous functional form describing subjective evaluations. Network analysis provides rigorous description of the social context in which subjective evaluations are made. Modifying Stevens' law so as to take into account a social context of evaluation--that context being a structure of distances between actors in a system insured by an inevitable division of labor, a structural law of perception is proposed. The proposed perceptual model states that actor interests are patterned by actors' positions in social structure. Using the proposed model, conditions sufficient for the occurrence of social norms in a group and a specific functional form for relative deprivation effects are derived. The derivations are in accord with, and generalize, classic empirical studies of social norms and relative deprivation. Implications for structural action theory are discussed.

1980. "Autonomy in a Social Topology." *American Journal of Sociology* 85 (Forthcoming) (Reprint A194).

My purpose here is to define and illustrate a concept of "structural autonomy" based on recent developments in network analysis. The concept is stated in terms of the pattern of relations defining a network position and incorporates aspects of oligopoly from economics and group-affiliation from sociology. Eight hypotheses are derived from the proposed concept. These hypotheses concern the direction of effects on autonomy from aspects of the form of relations defining a network position, the places in social structure where cooptive relations should appear--as well as places where they should not appear, and the increase in autonomy that can be expected from effective cooptation. Numerical illustration is provided. As a useful research site, firms in manufacturing industries of the 1967 American economy are treated as structurally equivalent actors and total profits in an industry are taken to be a result of the relative autonomy of firms in separate industries. The autonomy hypotheses are used to explain relative industry profits and strategies for coopting other firms. Those industries with high "structural autonomy" tend to have high profits. Firms in an industry tend to purchase other firms in mergers patterned so as to coopt constraints on the industry's "structural autonomy."

1979. "Disaggregating the Effect on Profits in Manufacturing Industries of Having Imperfectly Competitive Consumers and Suppliers." *Social Science Research* 8 (June) (Reprint A191).

CASTING the American economy as a network of economic exchange relations between firms in sectors, industries are those sectors engaged in manufacturing and are here analyzed as network positions. The structure of an industry's dollar transactions with suppliers is demonstrated to affect industry profits in a manner distinct from that in which its structure of transactions with consumers affects profits. For the 335 four-digit SIC manufacturing industries corresponding to unique sectors of the 1967 Input-Output Study, price-cost margins corrected for interindustry differences in capital requirements are regressed over four-firm concentration ratios and various structural indicators of imperfect competition among suppliers versus consumers. The structural indicators are computed from dollar flow coefficients among 492 sectors of the 1967 Input-Output Study. Only one type of product flows from an industry to its consumers, who have no trouble seeing the value of collusion despite the multiple sectors in which their own products are sold; however, products from different sectors may flow to the industry without

creating the competition among suppliers that prompts collusion. Industry profits are constrained by suppliers to the extent that firms in the industry purchase supplies from few separate sectors as product markets. In contrast, industry profits are constrained by consumers to the extent that firms in the industry sell to a small number of oligopolistic sectors.

BURT, R.S., K.L. LIEBEN and M.G. FISCHER. 1980. "Network Power Structures from Informant Perceptions". *Human Organization* 39 (forthcoming) (Reprint A195).

The purpose of this brief discussion is to illustrate that substantively meaningful, yet surprisingly inexpensive, ersatz network data can be gathered from key informants in a community in order to study the community's power structure. Discussion focuses on data collection and the seriousness of random versus systematic error in the data. Using interviews with informants in 51 cities representative of American places of residence in 1967, the ersatz network data are shown to be efficient and reliable.

CAPOBIANCO, Michael (St. John's) and Ove FRANK (Lund). "Comparison of Graph-Size Estimators". Unpublished paper.

We investigate several unbiased estimators of the size of a graph G which are based on sampled induced subgraphs, stars and dyads. By comparing their variances we find some general dominance relations between them, and we also give some conditions on G which guarantee some other instances of dominance.

CARRINGTON, Peter J. and Greg H. HEIL (Toronto). 1979. "COBLOC" A Hierarchical Method for Blocking Network Data". *Structural Analysis Programme Research Paper #2, Toronto*. (A revised version of paper presented at the 74th Annual Meeting of the American Sociological Association, Boston, August 1979).

A method is described for finding blockmodels of a given network using an agglomerative hierarchical clustering technique with optional look-ahead capabilities. The clustering criterion, or index of similarity, is an index of the goodness of fit of the blockmodel that would be produced by a given clustering. This index is recomputed for each clustering decision. This method is compared on a priori grounds with other methods and comparative results are reported for its application to the Western Electric Bank Wiring Room data.

CARRINGTON, Peter J., Greg H. HEIL and Stephen D. BERKOWITZ (Toronto). 1980. "A Goodness of Fit Index for Blockmodels". Working Paper No. 7914, Institute for Policy Analysis, Toronto, *Social Networks*, (forthcoming).

The "fit" between blockmodels and data networks is extended from a binary to a continuous concept. An index of goodness of fit for a fit blockmodels is proposed, based on the purity (density of 1's and 0's) of the submatrices of the data matrix(es) after the blockmodel partition is imposed. The characteristics of this index are compared with those of correlation coefficient. Some applications are described.

CARROLL, J. Douglas (Bell Laboratories, Murray Hill) and Phipps ARABIE (Minnesota, Minneapolis). 1980. "Multidimensional Scaling". To appear in M.R. Rosenzweig and L.W. Porter (eds.), *Annual Review of Psychology*. (also available as a Harvard-Yale reprint in *Mathematical Sociology*, No. 14).

Outline: A new taxonomy of measurement data and of multidimensional measurement models. 1. One-mode two-way data. Unconstrained symmetric distance models. Constrained symmetric Euclidean models. Unconstrained nonsymmetric Euclidean models. 2. Two-mode two-way data. 3. Two-mode three-way data. 4. Three-mode three-way data. 5. Higher-way data. 6. Data collection and related uses. 7. MDS: new areas of usage. 8. Prospects.

CLARK, William E. and Michael GORDON (Connecticut) 1979. "Distance, Closeness and Recency of Kin Contact in Urban Ireland." Journal of Comparative Family Studies 10 (Summer): 271-75.

What sets this study apart from the rest of the literature on kin interaction is that we have been able to show that while distance is perhaps the single most powerful predictor of recency of contact, when the kin category being considered is mother-in-law the quality of the relationship is also a significant factor.

CRENSON, Matthew A. (John Hopkins) 1978. "Social Networks and Political Processes in Urban Neighborhoods." American Journal of Political Science 22 (August)

In a comparative case study of six urban neighborhoods and their community organizations, interviews were conducted with all active members of the neighborhood associations and with random samples of community residents. Paradoxically, residents with close-knit neighborhood friendship ties were relatively unlikely to be informed about community associations, and their associations did a relatively poor job of representing their interest. Residents of close-knit neighborhoods, however, were more likely than others to exhibit a capacity for regulating their neighborhoods informally.

The paper concludes that as neighborhoods in modern cities become less village-like, the nature of their political capacities changes. But it is not necessarily true, as some have suggested, that their political capacities diminish.

FEINBER, G. Stephen, and Stanley WASSERMAN (Minnesota). 1979. "Categorical Analysis of Directed Graphs: Models for a Single Generator". Proceedings of the American Statistical Association, Social Statistics Section.

A directed graph, or digraph, is defined as a set of g nodes or individuals and a set of directed arcs, connecting pairs of nodes. Digraphs are the natural mathematical representations of social networks, and have been used by sociologists since the breakthrough research of Moreno (1934). Many of the mathematical and statistical methods for the analysis of directed graph data have been developed by social scientists. Unfortunately, these methods are rather elementary and very rarely make use of contemporary multivariate statistical analysis (See Sørensen 1978 for a review of current methodology.). Indeed, a typical analysis of network data makes virtually no use of statistics. In this paper, we describe some methods for analyzing social networks based on a class of log-linear models for multivariate categorical data proposed by Holland and Leinhardt (1979). We demonstrate their usefulness in a simple situation, that of a single sociomatrix.

Three Papers by:

FRANK, Ove (Lund) 1979.

"Estimating a graph from triad counts." Journal of Statistics, Computing, Simulation 9: 31-46.

An empirical graph \bar{G} is described by a random graph model which generates \bar{G} from an unknown graph G by independent removals and additions of edges. We consider the problem of estimating G by using the triad counts in \bar{G} , i.e. the numbers of different induced subgraphs of order three in \bar{G} . We describe methods of estimating a transitive graph and a forest, and we indicate a possible approach for a general graph G .

"Estimation of the number of vertices of different degrees in a graph." Statistiska Inst., Lund. Report

An unknown graph is partially observed by selecting a vertex sample and observing the edges in the subgraph induced by the sample. The sample is selected by either simple random sampling or Bernoulli sampling. We consider the problem of estimating the numbers of vertices of different degrees in the unknown graph by using the sample information. Unbiased estimators are given and their variance-covariance matrix is shown to depend on a set of intrinsic graph parameters which can hardly be satisfactorily estimated from the sample information without further assumptions. In particular, the problem of estimating the number of isolates (vertices of degree zero) is considered in some detail.

"Transitivity in Stochastic Graphs and Digraphs." Statistiska Inst., Lund. Report.

Transitivity is a central concept for many relational structures, e.g. clusterings and partial orderings. Stochastic graph models which are used to describe uncertain relational structures can be tested for transitivity by using indices based on triad counts. The pure random variation of such counts and indices is investigated assuming simple stochastic models. Some earlier results on transitive

triads in tournaments are generalized, and a modified version of a randomization model by Holland and Leinhardt is introduced which simplifies the required moment calculations.

FRANK, Ove and Jerker RINGSTRÖM (Lund) 1979. "Bayesian Graph-Size Estimation." (Paper presented at the 12th European Meeting of Statistics, Varna, Bulgaria, September)

Let G be an unknown graph with known node set V , and H a subgraph of G induced by a stochastic node set $S \subseteq V$. The set S may be a selected node sample or an unknown set. Sampling and reliability models are used as illustrations. We consider the problem of estimating the size of G by using H or, if S is unknown, by using only the subgraph of H spanned by the edges in H . A simple prior stochastic model for G is used to find Bayesian estimators; their risks are determined and compared to the risk of the linear unbiased estimator based on the size of H .

Four papers by:

FRANK, Ove (Lund, Sweden) 1978. "Estimation of the Number of Connected Components in a Graph by Using a Sampled Subgraph". *Scandinavian Journal of Statistics* (5): 177-188.

The number of connected components in an unknown parent graph is to be estimated by using a sampled subgraph. This problem is first discussed for two kinds of parent graph: a transitive graph and a forest. Some approaches pertaining to a general parent graph are then illustrated by simple computer experiments.

1979. "Inferring Individual Information from Released Statistics". *Statistiska Inst., Lund, May Report*. (In English with French summary).

Disclosure control of statistics to be released aims at judging the potential disclosure of information about individuals which may be obtained by combining previous statistics and other prior knowledge with new statistics. The main difficulties of disclosure control arise from the uncertainty about what different sources of information are available and useful for making disclosures. To cope with these difficulties a stochastic model is introduced for the prior disclosures, and by using concepts from probability and information theory certain privacy and disclosure parameters are defined which may be used for disclosure control. Two simple specifications of the model are used to illustrate the effects on disclosure potentials of releasing categorical frequency distributions for census and sample data. The need for better modelling and for practical testing is briefly discussed.

with Frank HARARY (Michigan) 1979. "Maximum Triad Counts in Graphs and Digraphs". *Statistiska Inst., Lund*.

A triad in a given graph or digraph is an induced subgraph of order three, and a triad count is the frequency of a certain triad among all the triads. For each distinct triad, we investigate the maximum triad count in the class of graphs or digraphs of order N . There are four distinct graph triads and for each of them we give the maximum triad count and the corresponding extremal graph. There are sixteen distinct digraph triads, and we show that it is sufficient to consider eight of them. For five of these we give the maximum triad counts and the extremal digraphs. For the other three we give upper and lower bounds to the maximum triad counts.

with Frank HARARY (Michigan) 1979. "Balance in Stochastic Signed Graphs". *Statistiska Inst., Lund, May Report*.

Signed graphs provide a model for investigating balance in connection with various kinds of social relations. Since empirical social networks always involve uncertainty because of errors due to measurement, imperfect observation or sampling, it is desirable to incorporate uncertainty into signed graph models. We introduce a stochastic signed graph and investigate the properties of some indices of balance involving triads. In particular, we consider the balance properties of a graph which is randomly signed and of one which has been randomly sampled from a large population graph.

FREEMAN, Sue C. and Linton C. FREEMAN (California-Irvine) 1979. "The Networkers Network: A Study of the Impact of a New Communications Medium on Sociometric Structure." (Unpublished paper).

Forty social scientists and mathematicians, all concerned with problems in the study of social networks, were linked together by means of a computer to facilitate their interpersonal communication. The present paper presents the early results of this experiment. Interpersonal linkage patterns among participants prior to the start of the experiment were used as a "base line" from which the impact of this unique medium of communication was examined. The authors attempt to uncover some of the dimensions of sociometric patterns as they have developed through and around the computer based network of networkers.

FRY, Christine L. 1977. "The Community as a Commodity: The Age Graded Case." *Human Organization* 36 (Summer): 115-23.

An implicit assumption of community studies is challenged. Some forms of communal organization may be better understood if we view them as commodities. Commodity communities are characterized by architectural and social planning as an entrepreneurial effort and by a long-term involvement of the developer. These communities evolved as a product of an increase in scale and the subsequent industrialization and suburbanization of the post-World War II housing market. The issue of the commoditization of community life is examined in two small scale age graded trailer communities. The degree of risk directly affects the complexity and commitment to the respective community's social organization.

GARBARINO, James (Boys Town, Nebraska), Nancy BURSTON, Suzanne RABER, Robert RUSSELL and Ann CROUTER, (Cornell) 1978. "The Social Maps of Children Approaching Adolescence: Studying the Ecology of Youth Development". *Journal of Youth and Adolescence*, 7 (December: 417-28).

This article reports the first results of the three-year longitudinal study of the social maps of children beginning the transition to adolescence. This exploratory study is guided by Bronfenbrenner's conception of the ecology of human development, stressing the importance of a phenomenological orientation to development in the context of ecological transitions. The study focuses on characteristics of children's social networks (the web of relationships in which the individual is involved) as a function of neighborhood type, socioeconomic status, and level of physical maturation. The social heterogeneity of the social network (e.g., the relative salience of peers versus adults) is a primary concern. The child's and parent's perceptions of the network, of the people available to help the child, and the child's friends are compared within the context of ecological, socioeconomic, and maturational factors. The results (for 111 sixth-grade children from three contrasting neighborhood schools) shed some light on age segregation and the overall heterogeneity of the social environments of children facing the transition to adolescence. They provide a context and a baseline for the longitudinal study.

GRANOVETTER, Mark. 1979. "The Idea of 'Advancement' in Theories of Social Evolution and Development". *American Journal of Sociology*, November. (Forthcoming).

Implicit in most theories of social evolution, modernization, or development is the idea that systematic rank ordering of societies is feasible. This paper argues that in our present or foreseeable state of knowledge such rank orderings are not empirically meaningful. Evidence is cited from nonlinear models in mathematical ecology to support this argument.

GREER, Ann Lennarson (Wisconsin-Milwaukee) 1979. "Medical Technology and Professional Dominance Theory." (Revision of a paper presented at the Sixth International Conference on Social Science and Medicine, Amsterdam, August).

The research reported in this paper focuses on the role played by physicians in the adoption of medical technologies in voluntary hospitals. Hospital decision making is examined with particular attention to the existence within hospitals of a dominant professional elite and to the bifurcated authority structure which results. Common assumptions about the source of physician influence over hospital technology decisions are tested through analysis of seventy focused interviews conducted with hospital administrators, physicians and other health system actors in a large metropolitan area.

Analysis of the resulting qualitative data, using the technique of analytic induction, leads to hypotheses concerning 1) the constraints limiting the ability of community physicians to use control over patient admission to require hospital conformance to physician preference; 2) categories of physicians who may be differentiated in terms of life style and practice preference, hospital roles, and other occupational circumstances; 3) the relationship of these categories to technical innovation at hospitals; and 4) the role played by hospital administrators in the process of technology expansion including reasons it is underestimated.

HAMMER, Muriel, Susan MAKIESKY-BARROW, and Linda GUTWIRTH (New York State Psychiatric Institute) 1978. "Social Networks and Schizophrenia." *Schizophrenia Bulletin* 4: 522-45.

In this article we have set forth an approach to the social aspects of schizophrenia based on social network concepts and methods. We have argued that a social network perspective can provide a unifying framework for social research on schizophrenia: it is consistent with the findings from more traditional approaches to the role of social variables in the development and course of schizophrenic illnesses; and it may help to resolve some persistent methodological issues.

A selective survey of the literature has indicated the relationship of social network analysis to other research approaches: (1) epidemiological findings on such diverse variables as migration, minority status, and social class can be reinterpreted in terms of hypothesized variations in social networks; (2) variations in network structure may be inferred from some of the studies of schizophrenic friendship patterns, family interaction, and communication suggesting that a common social process may underlie these varied findings; and (3) studies dealing with the social contact patterns of schizophrenic individuals seem to show an impact of network size or structure on the level and type of schizophrenic symptomatology and on prognosis. We have also briefly described a theoretical model which attributes a critical role in the onset and recurrence of schizophrenia to social network processes. In this view, the individual's personal network is the primary source of social feedback essential to the development and maintenance of culturally appropriate behavior. However, the potential value of social network analysis for schizophrenic research does not depend on a particular theoretical viewpoint. We have attempted to indicate how network analysis may contribute to resolving some basic methodological and conceptual problems in social research on schizophrenia. The use of network variables permits systematic, comparable studies of individuals in their social contexts, despite cultural variations in such factors as family composition and role definitions, a range of socializing agents, and other cultural differences. Analysis of the effects of continuities, disruptions, or distortions in people's social networks may help to explain the role of such large-scale variables as social class or ethnicity. Network variables can also contribute to definition and measurement of concepts like stress or overstimulation, which are difficult to assess directly across individuals and especially across cultural contexts. A social network approach to schizophrenia might be used, for example, to provide objective social measures of the impact of events; to assess the similarity of social environments for identical and fraternal twins; and to contribute to social outcome measures in followup studies of patients.

In conclusion, we believe social network variables should contribute importantly--both methodologically and empirically--to other approaches to research and therapy; that they probably play a critical role in shaping and eliciting symptomatology and in the recurrence of episodes; and that they may be significantly involved in the etiology of schizophrenia.

HANEY, Emil B. and Wava G. HANEY 1978. "Social and Ecological Contradictions of Community Development and Rural Modernization in a Colombian Peasant Community." *Human Organization* 37 (Fall) 225-34.

This study analyzes attempts at local development in a Colombian peasant community over a four decade period. Although the types of expanded services created by the development efforts have been viewed positively by most members of the community, our evidence shows that the direct benefits of these programs have accrued differentially to owners of the community's productive resources. Rather than increasing community control over resource decision making, the programs have consisted of a series of discontinuous projects initiated and directed by the dominant groups in the community. Hence the programs have tended to reinforce social inequalities and natural resource deterioration engendered by the penetration of modern institutions and technology.

At the same time, there is some evidence that the local peasantry has begun to recognize the growing number of contradictions within the present social order. To be sure, this understanding is seriously limited by the restrictive values, norms, and institutions of the present order which tend to frustrate and impair any vision of change. While we share the view with many peasants and others that property redistribution is fundamental to improving the welfare and participation of the rural masses, we do not believe that this condition is sufficient to foster sustained people-oriented community development. Such development appears to be heavily premised on substantial modifications in the macroeconomic and political systems in order to reduce the one way flow of resources out of rural communities and enhance the self-reliance of peasant families.

HINE, Virginia H. 1979. "The Basic Paradigm of a Future Sociocultural System." *Journal of Community Communications* 3 (September).

A summary of research done along with anthropologist Luther P. Gerlach on 'movements'. Hine importantly points out that non-vertical organizational structures (non-hierarchical and non-bureaucratic), such as networks are not only growing within 'movements' on the grass-roots ends of things but that also networks of individuals and organizations that cross many boundaries in fact constitute a power structure that is eclipsing the power of nation-states. The rise of a managerial elite provides a linking mechanism. Networks of personal ties are formed as corporate executives move from one hierarchy to another in their ascent to positions of global influence.

Two papers by:

HIRSCH, Barton J. (Stanford) 1979. "Psychological Dimensions of Social Networks: A Multi-method Analysis". *American Journal of Community Psychology* 7 (3): 263-77.

Two exploratory studies are reported which sought to identify important dimensions of social networks. Both studies investigated the social networks of college students, using as subjects the same 16 male and 16 female students. The first study employed multiple regression to generate predictor variables to students' ratings of satisfaction with their social network. The second study assessed how structurally contrasting social networks might function as natural support systems during a period of environmentally induced stress (final examinations). Results from the first study suggest that multidimensional relationships are an important source of social network satisfaction. Results from the second study indicate that social networks can provide considerable quantities of support to individuals under stress. Denser or more integrated social networks furnished substantially greater quantities of support, though less satisfying emotional support. Discussion centres on delineating those social networks which best promote personal growth and enhance adaptation under stress.

"Natural Support Systems and Coping with Major Life Changes". *American Journal of Community Psychology*, in press.

An exploratory study is reported which sought to identify those natural support systems (NSS) that enhance coping with major life changes. Subjects were 20 recent younger widows and 14 mature women recently returned to college. NSS were classified on the basis of five alternative supports, as well as on two measures of structural integration adopted from sociology and anthropology. Supports were assessed on daily logs for 14 consecutive days. Mental health was assessed via standard measures of symptomatology, mood, and self-esteem. Among supportive behaviours, cognitive guidance was significantly associated with symptomatology and mood, while socializing was significantly associated with self-esteem. Both lower density (less integrated) NSS and multidimensional friendships were significantly associated with better support and mental health. Discussion centres on delineating two prototypical NSS and developing a model for conceptualizing their differential impact on coping and adaptation.

HOLLINGSWORTH, J. Rogers, Jerald HAGE and Robert HANNEMAN (Wisconsin-Madison) 1978. "Social Structure and the Diffusion of Medical Innovations in the United States, Great Britain, Sweden and France." (Paper presented at the IX World Congress of Sociology, Uppsala, August).

This paper explores the relationship between (1) several structural characteristics--(the level of centralization of the health delivery system, the level of professionalization of the health delivery system, and the level of development of the society's communication system)--and (2) the diffusion of medical innovations in four countries: Great Britain, France, Sweden, and the United States during the period between 1880 and 1970.

The medical interventions included in this study were low cost and highly efficacious and thus were of greater value to low income groups than most other medical interventions which are less efficacious and more expensive. However, social structural variables influenced the rate at which these technologies diffused across countries. By focusing on the role of social structural variables in influencing diffusion rates, one can better understand why some societies benefit earlier than others from new technologies which have considerable benefit to low income groups.

The paper demonstrates that the theoretical literature on complex organizations and communications may be integrated in order to explain the diffusion of innovations at the societal level. The dependent variables are the rate at which innovations are adopted at the societal level and the speed with which innovations are implemented throughout the society once an innovation has been adopted.

To assess the rate of diffusion and the rate of implementation of health innovations, the research focuses on highly efficacious vaccines and measures the rate of decline in the mortality of specific diseases once a vaccine has diffused to a particular country. The following diseases were selected: smallpox, diphtheria, tetanus, whooping cough, tuberculosis, polio, and measles.

Most of the data are obtained from official publications for each of the four countries.

Three Papers by:

LANGEHEINE, Rolf (Institut für die Pädagogik der Naturwissenschaften, Kiel)

1978. "Structural stability - A New Approach to the Assessment of Reliability in Sociometry." Psychologische Beiträge 20: 571-88.

Just as in other areas of social science research classical test-criteria known in psychometry are expected to hold in sociometry as well. In order to assess the stability of sociometric structures in a longitudinal fashion a new model for scaling inter-individual differences is presented (Lingoes' PINDIS model). Contrary to expectation results obtained in four school classes (data regarding five sociometric choice criteria were collected at five different times) indicate a high degree of stability. Results turn out to be more stable for highly relevant choice criteria as compared to those of lower relevance. Age, time intervals between testings as well as familiarity of pupils did not effect the results.

1977. "Measures of Social Proximity and their Use in Sociometric Research." Zeitschrift für Soziologie 6: 189-202.

Concepts of social proximity for pairs of persons within a network as well as possibilities to quantify similarity, interaction and cohesion respectively, are discussed. A computer program is presented that allows computation of a variety of "proximity measures". These measures are rescaled into a 2- and 3-dimensional euclidian space by Nonmetric Multidimensional Scaling. Finally, using the same data, it is demonstrated how cliques within a network may be identified by combining the program at hand with techniques of Nonmetric Multidimensional Scaling and Cluster Analysis.

1978. "The Evaluation of Classroom Social Structure by Three-way Multidimensional Scaling of Sociometric Data." Studies in Educational Evaluation 4: 185-208.

Given a data cube of sociometric choices where modes 1 and 2 correspond to chooser and chosen and mode 3 is constituted by different sources of data, e.g., choice criteria, points in time, raters etc., identification of cliques by means of a simultaneous analysis is proposed by using methods of three-way multidimensional scaling instead of performing separate analyses for each single matrix. Substantial issues as well as methodological problems are dealt with in applying both the Carroll-Chang INDSCAL and Lingoes' PINDIS procedures to two sets of data.

LIN, Nan, John C. VAUGHN and Walter M. ENSEL (SUNY at Albany) "Social Resources and Occupational Status Attainment." (Unpublished paper).

The paper reports a study from a research program designed to examine the effects of social resources on the status attainment process. Social resources is defined as the wealth, status, power as well as social ties of those persons who are directly or indirectly linked to the individual. We propose that access to and use of social resources through one's network provide the essential transition between family background and education on the one hand and the socioeconomic status achievement on the other. The study focuses on the social ties individuals used in seeking first and current jobs. By identifying the occupational status of the social tie used, assessment became possible as to the relative contributions of family background (e.g., father's occupational status), education, and social resources (source status) to the explained variation of achieved occupational statuses. Data from a representative sample of males, 20-64, who were then or had been in the civilian labor force in a tri-city area of Northeast United States confirmed the important and independent effect of social resources on occupational achievement. Implication for a potential shift in theorizing social stratification and mobility toward a focus on the use and manipulation of resources from one's social network are discussed.

LIN, Nan and Walter M. ENSEL (SUNY at Albany) and John C. VAUGHN (National League for Nursing) "Social Resources, Strength of Ties, and Occupational Status Attainment." (Unpublished paper).

Two structural factors, the strength of ties and social resources, were examined for their effects on occupational status attainment. The strength of the tie between an individual seeking a job and the personal source used, as predicted, is negatively related to the occupational status attained. Social resources (as measured by the occupational status of the source) are positively related to the status attained. When these two structural factors were examined jointly, the results support the theory that weak ties reach up the status structure accessing greater social resources which, in turn, directly affect one's occupational status attainment. Incorporation of the strength of the tie between the source and the hiring firm further clarifies the significance of social resources in the process of occupational status attainment.

LINCOLN, James R. and Jon MILLER 1978. "Work and Friendship Ties in Organizations: A Comparative Analysis of Relational Networks." *Administrative Science Quarterly* 24 (June) 181-99.

This study examines the effects of five attributes - authority, education, sex, race, and branch assignment - on the proximities among the members of five professional organizations in networks of instrumental and primary relations. Sex and race are found to have greater influence on primary ties than instrumental ties. While there is some evidence in two organizations that authority and education affect instrumental ties more than primary ties, the data as a whole favor the hypothesis that these two attributes, which are associated with position in the formal division of labor, give rise to both instrumental and primary ties. These attributes generally serve to place high status persons in central network positions. In one organization where these attributes prove to have little predictive power, we examine the effects on network form of a conflict which led to the disintegration of the organization shortly after it was surveyed. The factions into which the organization was divided are readily apparent in a spatial representation of the network. In conclusion we review the implications for organizational theory and research of the attribute analysis in conjunction with the case study findings.

MESSINGER, Lillian, Kenneth N. WALKER, and Stanley J.J. FREEMAN (Clarke Institute of Psychiatry) 1978. "Preparation for Remarriage Following Divorce: The Use of Group Techniques." *American Journal of Orthopsychiatry* 48 (April).

The experiences of four series of weekly group meetings with a total of 22 couples, in which at least one partner had children by a previous marriage, are discussed. Major complexities arose from the permeable boundaries of the second marriage due to continuing ties to the former marriage, and from resultant ambiguity of roles among new partners and their spouses' children. The group experience was found to be beneficial in clarifying roles in the remarriage family.

MOKKEN, Robert J. (Netherlands National Bureau of Statistics) 1979. "Cliques, Clubs and Clans." *Quality and Quantity* 13 : 161-73.

In the analysis of social networks adequate concepts are necessary to indicate various types and configurations of social groups such as peer groups, coteries, acquaintance groups, etc. The problem has theoretically been argued convincingly by e.g. Kadushin (1968), who introduced the general concept of "social circle". In the actual empirical study of social networks there is therefore a need for adequate operational and analytically useful concepts to represent such more or less closely knit groups.

Many of these can be developed with the help of the theory of graphs and networks. A well-known concept, more or less corresponding to that of the peer group is the clique: a group all members of which are in contact with each other or are friends, know each other etc. However, similar concepts will be necessary to denote less closely knit, yet significantly homogeneous social groups, such as "acquaintance groups", where every pair of members, if they are not in mutual contact, have mutual acquaintances, or common third contacts, etc. In this latter type of social group an important aspect is brought out by the position in a larger social network in which it is embedded, or whether it is a property of the group itself as a more or less autarchic unit, independent of the surrounding social network. In the first case, for instance, a group may be as closely knit as an "acquaintance network", just because there are "mutual acquaintances" outside the group in the surrounding network. Changes in the environment, i.e. the outside network, may change the character of the group as an acquaintance group. In the latter case, however, a group is an acquaintance group, because mutual acquaintances linking members are themselves members of that group. Therefore changes in the outside social network will not affect the nature and structure of the group itself as an acquaintance group. Such concepts can be worked out in terms of graph theoretic cluster-concepts. For instance, the familiar concept of n -clique deals with the tightness of a group as a global property, due to the interrelationships or interactions of all members of a larger social network. The concepts of clubs and clans, to be introduced here denote a local property of structural autarchy in the sense that the interrelationships within the particular social group are sufficient for its homogeneity, and independent of those interrelationships involving members or parts of the surrounding larger social network.

In this paper we introduce three different cluster concepts of graphs, cliques, clubs and clans, and investigate their interrelationships. The graphs treated here will be simple graphs: finite, non-empty, and having no loops or multiple lines. We mainly follow the notation and concepts given by Harary (1969)

We conclude that the two classes of n -cliques L_n and n -clubs N_n of a graph G are classes of cluster which are in general but loosely interrelated and have a significance of their own. The latter, the n -clubs, are maximal subgraphs N of G with respect to internal reachability of points within distance n , i.e. independent of the connection of the points of N with order points in G : $G-N$. In that sense n -clubs are essentially local concepts: their reachability as diameter n subgraphs is not affected by changes in

the subgraph $G - N$ and the connection of $G - N$ with L . This independence of the environment given by the outer network $G - N$ can be seen as a certain local autarchy. In short, N as a subgraph would have at most diameter n in any other graph G .

The n -cliques L are global concepts in G in the sense that their reachability of points within distance n can involve points external to L . Hence their reachability can be determined outside L in $G - L$: elimination of points from $G - L$, or lines in the subgraph $G - L$ or connecting $G - L$ and L , can effect the reachability of points in L . The n -clans M of G , when they exist, combine these local and global aspects as they are cliques as well as clubs. However, the class M_n of n -clans may be empty for a graph G . Finally, n -clubs N are always contained in some n -clique L . In that sense they are "smaller" than n -cliques. Only n -clans, as n -clubs have the "size" of an n -clique. Moreover different n -clubs can be contained in the same n -clique and different n -cliques can contain the same n -clubs.

MOORE, Gwen (SUNY, Brockport) 1979. "The Structure of a National Elite Network." (Forthcoming in American Sociological Review, October)

This paper addresses a long disputed issue: the degree of integration among political elites in the United States. This issue is examined through an investigation of the structure of an elite interaction network as revealed by recently developed procedures for network analysis. The data, taken from the American Leadership Study conducted by the Bureau of Applied Social Research in 1971 and 1972, consist of interviews with 545 leaders of major political, economic, and social institutions. The study's wide institutional representation, sociometric data, and focus on major issues of the early 1970s make it virtually unique for examining elite integration.

OLIVER-SMITH, Anthony 1977. "Disaster rehabilitation and social change in Yungay, Peru." Human Organization 36 (Spring): 5-13.

Disaster commonly calls for rapid local, national, and international aid which may bring private and public groups into the stricken area with personnel, materials, and practices, all often completely foreign or strange to local populations. Ultimately, this rehabilitative system may produce greater change than the disaster agent itself, particularly as it may last indefinitely. The rehabilitative system established in the earthquake-stricken area of the Peruvian Andes in 1970 included programs with important implications for social change. A housing program initially provoked great social conflict, but ultimately may contribute to a more cohesive social fabric. A program supporting peasants with food allotments while rebuilding their communities exaggerated schismatic tendencies present in the communities and contributed to important attitudinal changes among the peasants. A relocation project, designed to establish a provincial capital in a geologically safe zone, encountered resistance because it would have brought about radical structural changes in traditional social patterns.

PILISUK, Marc (California-Davis) and Charles FROLAND (California-Berkeley) 1978. "Kinship, Social Networks, Social Support and Health." Social Science and Medicine B 12 (October): 273-80.

Urbanization and mobility have not destroyed the extended family but have greatly decreased its utility for continuous and reliable support. The loss or absence of familiar networks of social support has been linked to coronary disease, disorders of pregnancy, accidents, suicides, mental hospital commitment, school truancy, ulcers and recovery from certain types of cancer. Such findings suggest the general immunological value that may be obtained from the nurturance of social support networks. To accomplish this in an informed manner, the tools and concepts of network analysis should be seriously examined. Such examination can prove of value in understanding just what is meant by reliable social support and how it may be related to health maintenance and to the delivery of health services.

RICE, Ronald E. (Institute for Communication Research, Stanford) and RICHARDS, William D., Jr. (Simon Fraser). 1979. "Network Analysis Methods." Unpublished paper.

Interest in sociological, anthropological and communication networks (Leinhardt, 1977; Lindzey and Byrne, 1969; Rogers and Kincaid, 1980) has flourished since the early work by Katz (1947), Moreno (1953, 1960), Coleman et al. (1966) and the small group researchers (see Shaw, 1971). An excellent history of this early sociometry has been written by Nehnevajsa (1960). Lengthy bibliographies are provided by Freeman (1976), Klodahl (1979a) and Pitts (1979). The range of these studies include substantive interests such as corporate directorates, organizational communication, community helping networks, diffusion of innovations, social and kinship links, community power structures, and public service agency interaction. A comprehensive description of the development, goals and foundations of network analysis has been recently provided by Wellman (1979).

This growth has generated, and has been generated by, considerable graphical, mathematical, algorithmic and computerized techniques for processing and analyzing network data. Quite often, in spite of this large literature, network researchers use an approach or method based upon accessibility, cost or the influence of the nearby implementor, and perhaps less on the conceptual foundations or practical validity of the program. This paper reviews and examines network analysis programs in terms of their theoretical, operational and pragmatic aspects, in order to help alleviate that condition.

Several topics are considered in four sections. Section One introduces and explicates three aspects of network analysis methods. In Section Two, the major methods are described and examined with respect to each of these aspects. This section then briefly comments on a variety of other programs and notes an apparent trend in their development. A review of research which compares programs in their handling of identical or known sets of data, with an extension of one study to include additional programs, comprises Section Three. The final Section Four indirectly extends a number of prior studies by considering the interaction between simulated inaccurate and incomplete data and a particular network analysis program.

RICHARDSON, R.J. (Toronto), Bonnie H. ERICKSON (Toronto) and T.A. NOSANCHUK (Carleton) 1978. "Community Size, Network Structure, and the Flow of Information". *Canadian Journal of Sociology* (Fall) 379-92.

The flow of information following a disaster is compared for two Canadian communities: North Bay, previously reported on, and Port Alice. It is argued that the main difference between the two cases is the difference in size, with North Bay much larger. Size is found to go with differences in the networks and communication flows of housewives but not of the formally employed. Workplaces have broadly similar structures whatever the size of the communities in which they are located; but the networks of housewives are much denser in smaller towns so that small town housewives have better access to communication during the day. It is conjectured that similar results may hold for the leisure networks of the formally employed, which is consistent with another North Bay study tracing communication flows over a weekend instead of during a working day.

RICHARDS, William D., Jr. (Simon Fraser) 1979. "Measurement Problems in Network Analysis I: Reciprocity and Directed Relationships." Paper presented at the annual meeting of the International Communication Association, Philadelphia, May.

This paper provides a general introduction to the area of measurement, with the primary focus on the concepts of symmetry and reciprocity. After several problematic aspects are outlined for both symmetrical and asymmetrical relationships, data collected in a study of information seeking and advice giving behaviors in a community of physicians are used to illustrate the problem for the case of directed relationships. These data are especially useful because they represent an attempt to measure both "halves" of an asymmetrical relationship.

ROBBINS, Michael and Linda Coffman ROBBINS 1978. "A Stochastic Model of the Adoption of Microtechnology in Rural Buganda." *Human Organization* 37 (Spring): 16-23.

A pronounced need exists to develop models that can be used to describe and forecast the adoption of small-scale technology. Using data on the cumulative adoption of microtechnological items (e.g., bicycles, lanterns, clocks) in a rural region of Uganda, an absorbing Markov chain is used to make future projections. The rate of change of the technological adoption process is also measured. The model's prospects and limitations are mentioned.

ROBERTS, Bryan (Manchester) 1979. "Mobility of Labour, the Industrial Economy, and State Provision." (Paper presented at the Urban Change and Conflict Conference, Nottingham, January).

The focus of this paper is the extent to which industrialisation entails a convergent process which, through the concentration of industry in large urban agglomerations, leads to similar patterns of class conflict. A major factor in this convergence is often seen to be the contradictions arising from the need for a massive state intervention to provide the social and economic infrastructure appropriate to the expansion of industrial capital. In contrast, I suggest that a considerable variation is possible in the organisation of the industrial economy and in the extent and nature of state intervention. Likewise, this variation is associated with differences in the pattern of class conflict and of economic expansion.

I concentrate on three contrasting types of industrial economy which illustrate the significance of these variations for the pattern of state intervention: the 'classic' case of Manchester's industrialisation; industrialisation in the semi-periphery of Spain and industrialisation in the truly peripheral locations. Despite the use of these specific cases, the differences we will examine are general ones, resulting from a common, but structurally different, participation in an interdependent capitalist world economy.

The suggestion is that the development of collective services is not only a means of ensuring the reproduction of collective services and of providing the infrastructural needs of large firms in face of the increasing spatial and technological complexity of the modern capitalist economy. The significance of collective services also lies in the specific problems of labour management posed by different types of industrial economy. I argue that the geographical mobility of labour influences the private and public provision of collective services in the industrial economy. This issue is partly that of analysing the individual characteristics of migrants and their likely demand for collective services. This demand is likely to depend, for example, on access to alternative sources of security and material support, such as kinship networks, ethnic or religious identity. More basically, I explore the relationship between the system of labour mobility, the problem of labour management it entails, and the type of collective services that prevail in the city.

ROSENBAUM, James R. 1979. "Tournament Mobility: Career Patterns in a Corporation." *Administrative Science Quarterly* 24 (June): 220-41.

Promotions and demotions are important events in most people's work lives. This study analyzes the career mobility of a cohort of employees in a large corporation over a 13-year period using official personnel records. Derived from the status-attainment, Markov, and organization-career literatures, two conflicting models of mobility are described: an ahistorical (path independence) model and a historical (tournament) model. The empirical analysis supports the tournament model, finding that mobility in the earliest period of one's career has an unequivocal relationship with many of the most important parameters of one's later career: career ceilings, career floors, and probabilities of promotion and demotion in each successive period. Some speculations are presented about Bowles and Gintis's correspondence principle, about functional and dysfunctional consequences of this selection system, and about the implications of organizational opportunity structures on employees' career behaviors.

Two papers by:

SANJEK, Roger (SUNY, Queens College)

1977. "Cognitive Maps of the Ethnic Domain in Urban Ghana: Reflections on Variability and Change." *American Ethnologist* 4 (November) 603.

Recent work on cognitive domains has stressed the themes of intracultural variability, "larger cultural informational systems," the relationships between cognition and behavioral performance, and diachronic change in cognitive organization. These themes are taken up in an analysis of the domain of ethnic identities ("tribes") among an urban Ghanaian population. It is shown that individual outlooks vary considerably; that few of the many ethnic terms have high salience; that alternative hierarchical modes of organization of the domain coexist; that a widely shared implicit structure of language groupings underlies surface diversity; that the domain "tribes" embraces a world-wide array of ethnic identities; that cognitive salience and structure correspond closely, but not perfectly, with behavioral experience; and that change in cognitive organization may arise both "on the ground" through changing patterns of interethnic relations, and "from above" in state-sponsored modes of organization of the ethnic domain. Twelve dimensions of cognitive variability that arise in the analysis are recapitulated in conclusion.

1978. "A Network Method and Its Uses in Urban Ethnography." *Human Organization* 37 (Fall): 257.

Network analysis has been heralded as a potentially valuable tool for urban anthropological research. It is suggested that certain of the problems associated with a more widespread use of this tool may be overcome with one particular network method - network-serials as pioneered by Epstein. A discussion of the problems and payoffs of this approach is offered, with ethnographic examples from network research in urban Ghana.

What I have called the "problem" of urban dispersal is the pattern of city life. The problem is not that of the actors, who navigate the streets from interaction to interaction with purpose clear to them. The problem rather is that of the ethnographer, who wishes (1) to describe the behavior and purposes of the members of the unit of study when assembled, and (2) to chart the range of interaction settings, the

sorts of activities, and the types of social relationships characteristic of the population when dispersed.

One solution of this methodological problem lies in the behavioral network research strategy pioneered by Epstein (1969) in urban Zambia. This method--its strengths, its applications, its payoffs, and its problems and technical options--is the subject of this paper. I will offer first a brief critical analysis of Epstein's presentation. Although his study has been cited repeatedly, several weaknesses have never been identified. This lack of critical appraisal has contributed to a curious situation (perhaps not unique in anthropology) where an author's words are quoted ritualistically, but his methodological suggestions hitherto have never been taken seriously and applied. Epstein's is unlike any other form of "network analysis"; the potential it holds for urban ethnography remains to be tapped. To illustrate this potential, I will discuss my own use of Epstein's approach in urban Ghana, and I will identify a range of substantive issues that are particularly suited to this urban research method.

A set of concepts which serve as a basis for extending Epstein's approach is provided in the framework for analysis of the ongoing behavior stream developed by Harris (1964). Harris pays attention to both people and places - his focus upon settings represents an important direction that has not yet been addressed in network analysis.

The level at which Harris's scheme intersects with Epstein's method is the multiactor scene (Harris 1964: 94-99). A scene "begins when an actor enters a place, and ends when all the actors who have entered have left, that is, when behavior stream events are no longer happening" in the particular setting (1964:95). A series of multiactor scenes linked by an ego, with full record of sequence, activity, place, and actors present, is "a multi-actor scene, actor-linked serial" (Harris 1964:105-106).

I will join Epstein's and Harris's two concepts and speak of "network-serials" to mean the documentation of an actor's spatial movements and interactions over a relatively short sample period of time. By my count, Ghana's five-day network-serial consists of 26 multiactor scenes. Precisely how much information is recorded about these movements, and about the characteristics of the alters who appear in the network-serial, will depend upon the substantive hypotheses for which the evidence is being collected to test.

SCHERVISH, Paul G. "A Theory of the Social Relations of Unemployment." *Institute for Research on Poverty, Reprint Series, Reprint 292.*

The contention of this paper is that in Marxist analysis, unemployment as well as employment must be treated as a structure of differentiated positions. The value of this approach is first, that it specifies more adequately for advanced capitalism the empty places of unemployment described more globally by Marx (1867) in his treatment of the industrial reserve army and the relative surplus population, and by labor economics in its use of official categories of unemployment, underemployment, and subemployment. Second, this stress on the social relations of employment is valuable because it examines how the structure of employment mediates how larger forces in the political economy affect the structure of employment. Finally, it suggests how the structure of employment and unemployment extends to workers capacities for class struggle.

SMITH, Carolyn A., and Christopher J. SMITH (Oklahoma) 1978. *Area 10* (2): 012-110.

This paper advocates that social geographers devote some of their research efforts to the study of positive or 'pro-social' behavior in the city. Social network analysis is outlined as a viable method and is illustrated in a theoretical study of rural-to-urban migration.

SMITH, Christopher J. 1980. "Social Networks as Metaphors, Models and Methods." (Revised version). *Progress in Human Geography* (Forthcoming).

This paper attempts to explain the current widespread popularity of social networks and evaluate the claim that social networks are a conceptual and methodological breakthrough in social science research. The paper will (also) speculate on the potential usefulness of social networks for geographers interested in applied social issues.... (In conclusion): The network properties of social and spatial structures allows a more optimistic view of urban life, and although social networks still appear to promise more than they have produced, their potential methodological benefits are evident. Network analysis helps to solve the problem of putative boundary drawing, and it also provides a partial solution to the problems associated with contextual effects (ecological fallacy). Although social networks may not provide the theoretical guidance that is urgently needed in social geography, they may generate a host of testable hypotheses during the next few years.

SNYDER, David (Indiana) 1978. "Collective Violence: A Research Agenda and Some Strategic Suggestions." *Journal of Conflict Resolution*. 22 (September) 499.

This paper is based on the premise that current empirical analyses of collective violence are largely inadequate, and takes as its primary objective a detailed specification of alternative methodological strategies. Quantitative research on violence is cited for problems of measurement and causal inference, which stem from attempts to represent important theoretical concepts (relative deprivation, resource mobilization) at levels of analysis other than those at which they are formulated. Alternative strategies for empirical investigation of violence include time series analyses of individual perceptions and data on organized groups, as well as studies of crowd dynamics. Methods for linking the latter type of qualitative approach to quantitative ecological analyses are indicated. In general, the conclusions strongly suggest a theoretical and empirical reorientation toward "disaggregated" approaches to collective violence, and away from global conceptual and cross-national methodological efforts. Although consideration is limited to the determinants of domestic violence, the concluding section outlines the potential relevance of international linkages and the outcomes of violence to these central concerns.

SNYDER, David (Indiana) and Edward L. KICK (Utah) 1979. "Structural Position in the World System and Economic Growth, 1955-1970 : A Multiple-Network Analysis of Transnational Interactions." *American Journal of Sociology* 24 (March) 1096.

This paper addresses world-system/dependency theories of differential economic growth among nations. We grant that such perspectives have considerable analytic potential but have serious reservations concerning their current empirical status. Our criticisms focus particularly on the absence of evidence on the theoretically specified structural positions (core, semiperiphery, periphery) in the world system and the dynamic relations among them. After indicating why extant quantitative studies that claim to represent "position" are inadequate, we propose that blockmodel analyses of social structure through multiple networks address world-system formulations far more appropriately. We present a blockmodel of the world system circa 1965 that is based on four types of international networks: trade flows, military interventions, diplomatic relations, and conjoint treaty memberships. While we invite replications with additional network data, this blockmodel provides strong evidence for a core-semi-periphery-periphery structure. We then report regression analyses of the effects of these structural positions on nations' economic growth (change in GNP per capita) from 1955 to 1970. Net of other plausible determinants, these effects are large in magnitude and entirely consistent with world-system/dependency theories. Further analyses reinforce the interpretation of these findings as the structural, accumulative advantage of location in the core over that in the periphery. Substantively, our results suggest that exogenetic theories of economic growth are even more powerful than previous analyses have indicated. Moreover, they demonstrate the natural wedding of a conceptual framework (the world system) with an empirically grounded theory of social structure (blockmodel analysis), which has applicability much beyond issues of economic growth.

SOKOLOVSKY, Jay, Carl COHEN, Dirk BERGER and Josephine GEIGER 1978. "Personal Networks of Ex-mental Patients in a Manhattan SRO Hotel." *Human Organization* 37 (Spring): 5-15.

This paper describes the results of the first systematic investigation of ex-mental patients residing in a large Manhattan Single Room Occupancy hotel. Utilizing a "Network Profile" questionnaire, personal interviews, and participant observation, the study focuses on the relationship of social networks to the degree of personality disturbance and the chances of remaining in a nonhospitalized environment. The findings indicate that: (1) schizophrenics have significantly fewer numbers of personal contacts than nonpsychotics; however, even the most impaired schizophrenics are not totally isolated; (2) within the schizophrenic spectrum, there are differences regarding network size, multiplexity, directionality of relationships, and degree of connectedness; these findings are correlated with the ability of schizophrenics with minimal residual deficits to become important members of the hotel community; (3) small, nonmultiplex networks with a low degree of connectedness are correlated with more frequent rehospitalizations.

SØRENSEN, Aage B. (Wisconsin-Madison) 1978. "The Organizational Differentiation of Students in Schools." (Paper prepared for the National Invitational Conference on School Organization and Effects, San Diego, January).

This paper focusses on the consequences for student opportunities and performances of grouping students in classrooms, grades, tracks, etc. The organizational differentiation of students is shown to define a structure of flows in educational systems that structure educational opportunities, create different learning and social environments and present a set of signals about the competencies and futures of students. A number of substantive hypotheses regarding the effect of grouping practices on student outcomes are presented and methodological implications of the analysis are discussed.

SØRENSEN, Aage B. (Wisconsin-Madison) and Nancy Brandon TUMA (Stanford) 1978. "Labour Market Structures and Job Mobility." (Paper presented at the IX World Congress of Sociology, Uppsala, August).

In this paper we argue that there are fundamental differences among labor markets in the mechanisms that create the observed associations between socioeconomic attainment and the characteristics of individuals, and that these differences result from the nature of the employment relationship in different labor markets. In open-employment relationships, which predominate in secondary labor markets, employees are exposed to competition from other workers and marginal productivity/human capital theory applies. In closed-employment relationships, which characterize primary labor markets, employees are protected from competition, and change in attainment takes place when employees obtain access to vacant jobs better than their current job. Evidence for different types of employment relationships in different labor markets is obtained from an analysis of job shifts using life history data on white men aged 30-39 in 1969. This analysis focuses on the transition rates to better and worse jobs as a function of personal resources, current job rewards, and the type of employment relationship.

STERN, Robert N. 1979. "The Development of An Interorganizational Control Network: The Case of Intercollegiate Athletics." *Administrative Science Quarterly* 24 (June): 242-66.

The National Collegiate Athletic Association (NCAA) was transformed from a loose voluntary confederation of universities into the dominant control agent over intercollegiate athletics during the period from 1906, when it was organized, to 1952, when member schools granted it regulatory power. Network analysis provides concepts and tools to explain this transformation. However, current practice in network analysis relies heavily on the use of structural measures of network characteristics and much less on examination of the historical development of a network or of the interaction processes that link network structure and interorganizational activity. This study examines the historical transformation of the network of organizations participating in intercollegiate athletics by focusing on (1) four determinants of network structure - administration, coupling, multiplexity, and new resources - and (2) the processes that link structure to organizational interests. The explanations provided by structural network analysis are incomplete without consideration of network process. Examination of process and history reveals contradictions within the network, resistance to change by political interest groups, and the interactions among network structures.

TAYLOR, Ronald R. (Connecticut) 1979. "Black Ethnicity and the Persistence of Ethnogenesis." *American Journal of Sociology* 84.

Some scholars assume a radical discontinuity between the experiences of blacks in the United States and the experiences of immigrant ethnic groups in American cities. There is a tendency to see the situation of blacks in racial rather than in ethnic terms and to emphasize the conditions of racial oppression and exploitation as exclusive sources of black sociocultural characteristics. This emphasis obscures the important role of migration, urbanization, and intergroup conflict in promoting a distinctive black ethnicity. Indeed, a review of the urban history of black populations in northern cities suggests that the phenomenon of black ethnogenesis was inspired by essentially the same structural conditions as the development of ethnic identities and communities among white ethnic populations in American cities. (Ed.: The author proposes the utility of a network approach to studying black communities.)

THOMAS, John S. 1978. "Kinship and Wealth in a Maya Community." *Human Organization* 37 (Spring): 24-8.

Several social scientists have postulated that a high degree of kinship involvement is inimical to the accumulation of wealth. Others have claimed the opposite. This paper uses data from a Tojolabal Maya community in Chiapas, Mexico, to examine this controversy. Preliminary results suggest that households with relatively closer kin ties to other households in the community tend to be wealthier. These findings are considered support for the latter position. Kinship networks are analyzed and a measure of the relative degree of kinship involvement is proposed.

USEEM, Michael (Boston) 1979. "The Social Organization of the American Business Elite and Participation of Corporation Directors in the Governance of American Institutions." *American Sociological Review* 44 (August) 553-72.

Recent analyses suggest that the American business elite is differentiated along an "inner group" axis. At one end of the axis are those business people who are primary owners or top managers of several major corporations, collectively labeled the inner group, while at the other end are those who are connected

with only a single major corporation. It is reasoned that, by virtue of their multiple corporate connections and the resulting transcendence of parochial corporate interests, inner group members would be more often involved in the governance of other institutions than would be other members of the business elite. Institutional governance includes the occupancy of top administrative posts and governing and advisory board positions of three types of institutions; non-profit organizations, such as economic development and cultural organizations; local, state, and federal agencies; and major business policy associations. Drawing on a set of 2,003 directors of the nation's largest 797 corporations in 1969, and on director biographical information, acquired from several sources, this study found that inner group members are substantially more likely, compared with other members of the business elite, to be involved directly in the governance of a range of institutions. Moreover, available evidence also indicates that the higher participation rate of inner group members is at least partly a result of their capacity to mobilize greater corporate resources and their involvement in a common, transcorporate social network. The evidence presented tentatively supports the thesis that the American business elite is differentiated along an inner group axis, at least with respect to the selection of business people to assist in the governance of other institutions. The inner group may be an important source of political leadership capable of promoting the more general interests of the entire capitalist class.

VELEZ - I. Carlos G. 1978. "Amigos Politicos o Amigos Sociales: The Politics of Putting Someone in Your Pocket - Strategies of Power Among Brokers in Central Urbanizing Mexico." Human Organization 37 (Winter) 368-77.

This work analyzes the manner in which a variety of "brokers" with varying political statuses intersect in the same dispute in an urban locality in central Mexico. The analysis concentrates on the unfolding of political processes when various actors seek to fulfill brokers' roles in competition, conflict, and cooperation within the same "ethnodrama." The paper describes the urban environment, past political relationships, and cultural forms as the backdrop for understanding the unfolding of brokering activities. It also utilizes a situational dramatic form in order to detail the transactions, negotiations, claims, cultural forms, and outcomes for all participants. The analysis, the data, and the method of exposition all provide insights into the way in which political processes in one "brokering" context cause opposing actions in other contexts that seriously affect the first context. Finally, we see that class and power differential is proportional to the level of interest and the amount of brokering that power holders and urban elites focus on local disputes.

WARREN, Donald L. (Oakland) 1978. "Explorations in Neighborhood Differentiation." Sociological Quarterly 19 (Spring): 310-331.

The cyclical interest in local units of the urban community has failed to provide cumulative knowledge about the varieties, functions and ethnic distribution of types of neighborhoods. Research in Detroit, involving 16 black and 12 white neighborhoods, provides sufficient quantitative data to formulate multi-variate distinctions of neighborhood type and function. Among the most important findings was the extent to which residents of given types of neighborhoods used informal and formal services. The total utilization of neighbor and formal agency services was also tied to neighborhood type. The present research suggests a more comprehensive typology for describing the character of local neighborhoods and for devising strategies of intervention where the prime unit is a local neighborhood.

WEBSTER, Murray, Jr. (South Carolina) and Le Roy F. SMITH (SUNY, Buffalo) 1978. "Justice and Revolutionary Coalitions: A Test of Two Theories." American Journal of Sociology 84 (Sept.): 267-92.

Perceived injustice in dividing a group award is identified as an important cause of revolutionary coalition formation. Two theories of justice processes, "the exchange theory" and the "balance theory," are described and applied to experimental studies of coalitions. In these cases, three specific predictions may be made: (1) coalition attempts will be more frequent in unfair cases than in fair ones, (2) members of a revolutionary coalition will attempt to restore equity under specified conditions, and (3) the precise response to inequity depends on which theory of justice is used to define "fairness." A coalition experiment was conducted to test the predictions. Data confirm predictions (1) and (2); with regard to (3) they provide better confirmation for the balance prediction than for the exchange prediction.

Wright, Erik Olin (Toronto) 1979. "The Community Question: The Intimate Networks of East Yorkers." *American Journal of Sociology* 84 (March): 1201-31.

The Community Question has set the agenda for much of sociology. It is the question of how large-scale social systemic divisions of labor affect the organization and content of primary ties. Network analysis is proposed as a useful approach to the Community Question, because, by focusing on linkages, it avoids the a priori confinement of analysis to solidary groupings and territorial units. Three contentions about the Question are evaluated: arguments that Community is Lost, Saved, or Liberated. Data are presented about the structure and use of the "intimate" networks of 845 adult residents of East York, Toronto. Intimate networks are found to be prevalent, composed of both kin and nonkin, nonlocal, asymmetric, and of sparse density. Help in dealing with both emergencies and everyday matters is available from almost all intimate networks, but from only a minority of intimate ties. The data provide broad support for the Liberated argument, in conjunction with some portions of the Saved argument.

Three papers by:

WRIGHT, Erik Olin (Windsconsin-Madison)

"Proletarianization in Advanced Capitalist Societies: An Empirical Intervention Into the Debate Between Marxist and Postindustrial Theorists over the Transformations of the Labor Process." (Unpublished paper).

The paper offers some provisional empirical material on the nature of the transformations in the class structure of the United States between 1960 and 1970. Particular attention is paid to the debate between Marxist and postindustrial theory over the problem of "proletarianization" -- that is, the loss of autonomy and control by workers within the labor process. Using the conception of class structure developed by Wright, estimates were made of the class structure in the United States in 1960 and 1970. The changes in this class structure were then decomposed into two main components: an industry-shift effect due to the movement of the labor force across industrial sectors with differing class compositions, and a class-composition-shift effect due to the changes in the class structure within industrial sectors. Contrary to the expectations of postindustrial theory, it is demonstrated that there is a strong proletarianization process within the class-composition-shift effect. This proletarianization process is hidden from view because of the strength of the counteracting industry-shift effect (that is, the movement of people from relatively highly proletarianized sectors into less proletarianized sectors). The paper concludes with a discussion of the likely transformations in the class structure in the future. The prediction is made that the industry-shift effect will decline in the years to come and thus a net process of proletarianization should begin to be felt in the society at large.

1978. "The Implications of the Debates on the Labour Theory of Value for Social Research." Paper presented at the Conference on the Labour Theory of Value and Capitalist Crisis, London, November.

The preliminary task of this paper is to translate each of the positions in the debates on the labour theory of value into a common conceptual terrain, so that it will be possible to assess their empirical implications in terms of a common framework. Such an act of translation cannot be "innocent," to use a favorite expression of Louis Althusser, but to a greater or lesser extent must presuppose one of the theoretical stances in the debate. In this essay, the evaluation and elaboration of each of the positions will be from the vantage point of the Marxist labour theory of value itself.

I present a brief exposition of three perspectives on the determination of profits: a "causal-agnostic" account as developed in the work of Anthony Cutler, Barry Hindess, Paul Hirst, and Athar Hussain (1977); the "Sraffian" account as elaborated in the work of Ian Steedman (1977); and a reconstructed version of the traditional Marxist account based on the labour theory of value. In each case I present a substantive model of determination of profits rather than try to elaborate all of the technical details of the theoretical position. Following this exposition, I consider the implications of each model for the kinds of questions one would ask in an empirical study.

"Varieties of Marxist Conceptions of Class Structure." (Unpublished paper).

This paper explores one central aspect of current Marxist efforts of developing a more precise and systematic understanding of the concept of class: the different ways in which Marxists have conceptualized the pivotal role of the "middle classes" in advanced capitalist society.

There are three features that distinguish Marxist definitions of class from the varieties of non-Marxist definitions currently in use: (1) classes are seen in terms of their social relations to other classes rather than in gradational terms such as "upper," "lower," or "middle"; (2) classes are analyzed primarily in terms of the social rather than the technical organization of economic relations; (3) class relations are defined by the social relations of production rather than by those of exchange.

Within this broad common ground Marxist theorists have developed four different general strategies for dealing with the pivotal role of the middle class. Each is discussed in turn. The first is a simple polarization view that sees three classes in capitalist society--a huge working class, a small petty bourgeoisie of independent self-employed producers, and a tiny capitalist class. The second group of theorists argues that many categories of wage earners (largely white-collar, technical and professional, and various groups of managers) should in fact be considered a segment of the petty bourgeoisie rather than the working class. Another group, while removing these wage earners from the working class, claims that their interests are different enough from those of the petty bourgeoisie for them to constitute a new class in its own right-- the "Professional and Managerial Class." Finally, there are those--including the author--who believe that not all positions within the production process fall unambiguously into a single class location: the middle classes must, then, be seen as occupying contradictory locations within class relations, sharing values and attributes with different classes. Application of these four different theories of class structure to data from employment surveys produces very different estimates of the size of and nature of class divisions within the United States.

ZASLAVSKY, Victor (*Memorial, Newfoundland*) and Robert J. BRYM (*Toronto*) 1978. "The Functions of Elections in the USSR." *Soviet Studies* 30 (July): 362-71.

Data gathered from 44 recent Soviet émigrés (14 of whom -- including the senior author -- had been election organizers in the USSR) demonstrate that elections do not, as is frequently claimed, serve to legitimize and thereby buttress the operation of the regime. Only about 75% of electors vote; and the electorate recognizes as well as the Western observer that elections in the USSR are not elections at all. Why then do elections take place? Because they serve the interests of various non-ruling groups (e.g. by providing a path for upward social mobility) and ruling cadres (e.g. by serving certain social control functions). It is concluded that elections 'buttress the regime -- not by legitimizing it, but by promoting the population to show that the illegitimacy of its "democratic" practice has been accepted and that no action to undermine it will be forthcoming'.

Continued on page 79

NEWS FROM CANADA.....

Moose brains edible if kept properly cooled

Q My husband shot a moose last month and is insisting we waste none of it, including the brain! Is it edible? He tells me the Indians eat it regularly.
Mrs. F. Foster, Toronto

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PAPERS FROM THE E.C.P.R. WORKSHOP ON INTERORGANIZATIONAL NETWORKS BETWEEN LARGE CORPORATIONS AND GOVERNMENT, DIRECTED BY ROBERT MOKKEN AND FRANS N. STOKMAN. BRUSSELS, APRIL 1979.

ALLEN, Michael Patrick (Washington State and Paris I) "Recent Research on Corporate Networks in the United States and Canada: Unresolved Methodological Problems and New Theoretical Issues."

This paper attempts to present a preliminary assessment, in very general terms, of the principal methodological difficulties and theoretical ambiguities encountered by social scientists in examining the networks of relationships among large business corporations in the United States and Canada. It must be noted, at the outset, that this discussion does not attempt to summarize the general findings of these studies nor does it attempt to evaluate critically the adequacy of any particular study. Instead, it seeks to identify some of the common problems confronted, albeit often unwittingly, by different researchers engaged in conceptually related analyses of empirically similar networks of corporations. Although this discussion does not contain any explicit references to similar studies of corporate networks conducted by European researchers, it is anticipated that many of these problems are relevant within a European context. In general, the discussion begins with essentially methodological problems and proceeds to more theoretical issues.

BEQUART-LECLERCQ, J. (Lille II, France) "Reseaux Relationnels: Etude Comparative sur les Maires du Wisconsin."

A study of the networks of the mayors of Wisconsin (U.S.A.) towns, comparing them to previously studied networks of mayors of French towns. Information was gathered through extensive interviews with 54 mayors and analysis of administrative records. (English abstract prepared by editor.)

DAMGAARD, Erik and Kjell A. ELIASSEN (Aarhus, Denmark) "Law-Making Networks in Denmark."

The dependent variables of the study describe characteristics of the law-making networks in terms of actor composition and structure of participation. They were selected not only because it is of intrinsic importance to map such law-making networks, but also because the structure of involvement of different actor groups affects the possibilities for overall policy coordination in the political system.

The data analysed refer to participation by different groups of actors in the formulation, deliberation, and implementation of Government bills passed by the Danish parliament in the two sessions of 1973/73 and 1973/74. Information on the participation of "external" actors has been collected from public documents concerning four steps in the legislative process: commission stage, administrative preparation stage, parliamentary committee stage, and administrative implementation stage. "External" involvement refers to participation by organizations, institutions, corporations, and individuals in contradistinction to "internal" participation by parliament and the ministerial departments and agencies responsible for the laws in question.

The main result of the "explanation" exercise is that, if administrative, local government, and labor market actors' participation is added to the level of segmentation, further support is gained for the idea of a number of relatively closed law-making networks. There appear to be rather few possibilities for other organizations, corporations, and individuals to participate at the administrative preparation and implementation stages. In principle, such actors can of course intervene at the legislative committee stage, but, as we have seen, the level of segmentation is even higher at that stage, although individuals and corporations also do participate more frequently. However, when they participate at that stage, it is mainly within their own area of law-making.

EGGEN, A. Th. J. (Amsterdam) and P. NEIJENS (Free University of Amsterdam) "Intercorporate Networks in the Dutch Oil Industry: Interlocking Directorates at Different Levels."

In this paper we intend to prove in a case study that besides a network connecting the top levels of corporations, there is also a "separate" network of operational units. We assume that the internal allocation of tasks in a corporation is reflected by the external structure: executives belonging to the top levels establish lines of communication on their own level and persons holding functions in the operational units entertain interlocking directorate relations for the benefit of the external organization of production and distribution. The data for our study were supplied by corporations operating in the Dutch oil industry.

On the ground of theoretical considerations regarding the two decision structures encountered within a corporation, we arrived at the assumption that two "separate" networks of corporations are to be distinguished: a capital control network and a production control network. In the former case, the network established for the benefit of the external organization of capital control, the lines are established by executives belonging to the top levels of the corporations. In the latter case, the network established for the benefit of the external organization of production and distribution, the executives belonging to the non-operational units take care of the interlocking directorate relations.

We demonstrated the existence of two predominantly separate networks in the Dutch oil industry. We compared the position of the actors in the Dutch oil industry in either network in order to find out whether there is a difference in the structure of the external organization of capital control and that of production and distribution. The analysis proved that foreign oil companies especially established more lines in the production control network than in the capital control network. Most of the foreign concerns are in a position that they have no top management in the Netherlands. So the external environment of these concerns also is located abroad. This is the reason why no interlocking directorates exist between the "tops" of these concerns and the Dutch corporations. The external environment of the operational units is the market. This implies that interlocking directorate relations between the operating companies of these foreign concerns in the Netherlands and Dutch corporations do exist.

The meeting graphs of the actors in the Dutch oil industry, based on the two networks, yielded remarkable differences in structure. In the meeting graph based on the capital control network, the three principal Dutch storage and transport companies, the principal petrochemical concern and only two oil companies are (completely) interconnected. The other meeting graph is a network grouped around the American oil concern EXXON. There are also many lines interconnecting the oil companies.

What can we conclude from the findings here described? In the first place we have demonstrated that, besides a network of top levels of corporations, there is a second network in which operational units play a role. The networks differ in significance. The lines running inside the networks represent information and co-ordination lines for the benefit of different levels of decision-making. It depends on the problems we wish to solve, what data we choose to collect and what analyses we wish to make. The division into separate levels within a corporation becomes even more acceptable if we only consider the results of the analyses of the external structure of the concerns in the Dutch mineral oil industry. The networks encountered show remarkable differences.

FENNEMA, M., W. KLEYN, in collaboration with P. de JONG and H. SCHIJF. *"Interlocking Directorates at the International Level: 1970-1976."*

Our study of interlocking directorates is distinct from most other studies in this field in three aspects. In the first place, we emphasize the structural characteristics of the network of interlocking directorates, whereas in many studies attention has been restricted to the characteristics of individual corporations such as frequency of interlocks per firms, type of directors on the boards etc. Secondly, although the number of studies on interlocking directorates is growing, all of them have been restricted to the national framework. In contrast, we analyse the international structure by studying the network of interlocking directorates between firms of 12 advanced capitalist countries. Thirdly, we present a longitudinal analysis, based on data for 1970 and 1976. This enables us to investigate the impact of the economic world crisis, which broke out in this period, upon the network of interlocking directorates.

LINTONEN, Raimo (Helsinki) *"Conditions and Consequences of Interorganizational Relations: A Summary and Discussion."*

"This paper makes an attempt to summarize research results and theorizing on interorganizational relations. Most attention is given to literature on organizations and administration where the term "interorganizational relations" (IOR) has mainly been used. The presentation moves on a fairly general level, although associations and interassociational relations are defined as the ultimate but more or less implicit reference system. The paper first tries to characterize the object and orientations of the IOR research and evaluate some related approaches. It then proceeds to identify and discuss five classes of conditions of IOR; thereafter the consequences of IOR are analyzed. The last chapter contains brief discussions on some additional problems in the study of IOR."

MOKKEN, Robert J. (Netherlands Central Bureau of Statistics, The Hague) and Frans N. STOKMAN (Groningen) *"Traces of Power. V: Information and Cooptation. Comparative Analysis of 2 Intercompany Networks in the Netherlands."*

In this paper two different comparative analyses of networks are performed between the largest Dutch companies and financial institutions: a longitudinal analysis of the networks of interlocking directorates at the level of their main working companies (the so-called information network) over the years 1969, 1972

and 1976; and a comparative analysis of the network of interlocking directorates in 1972 at two different levels: that of the main working companies (the 1972 information network) and that of the ultimate financial control (the 1972 cooptation network).

REISSNER, Gerhard (München) *"Implications of Legal Regulations for the Study of Interlocking Directorates and Financial Participations: I. Implications of Legal Regulations for Personal Interlocks."*

When preparing our research design for a study on personal and financial interlocks between enterprises in Austria and the Federal Republic of Germany, we discovered that even among the most important firms in both countries every legal type which is permitted by the respective law is represented. Because of legal restrictions, some links to other enterprises of a certain kind are not allowed, e.g. the holding of certain positions in one enterprise is declared incompatible with certain positions in other enterprises. On the other hand, some links from outside the enterprise are legally required. Decision processes within enterprises vary quite a lot from legal type to legal type. The legal regulations concerning the formal positions of a person who links two enterprises determines, among other things, the amount of information and influence which is facilitated by this link. Therefore, we examine every relevant legal position within enterprises of the various types in order to find out their contributions to information and influence process. Finally, a classification of the executive organs and of the control organs is proposed, and the position of the organs within the information process in regard to their position of influence is discussed.

RUSTERHOLF, Peter (Zürich) *"Power Structures in the Swiss Economic System."*

The first part of this paper takes up the aspects of distribution and redistribution of resources. There are two questions to be dealt with in this context: What kind of resources are in what way associated with power in the economic system? (The answer to this question should enable us to define the dimensions for the description of power structures and lead us to the second question): How will the structures of power change along these dimensions?

The second part of the paper will deal with some aspects of organization and control of power. First we will ask how power in the economic system is organized. The direction and extent of the structural changes are the basis of the second question: How is the organization of power connected with these changes?

SCHIJF, Huibert (Sociology, Amsterdam) *"Networks of Interlocking Directorates at the Turn of the 20th Century in the Netherlands."*

In this paper I show the first results of my research on networks of interlocking directorates in the years 1886, 1894, 1902 and 1910 in the Netherlands - a period wherein the industrialization in the Netherlands finally took off. Moreover, I show how much of the network is due to a small number of top functionaries, here defined, quite arbitrarily, as functionaries with four or more functions. These top functionaries carried between fifty and seventy per cent of the interlocks. The most central corporations keep their positions by taking only those interlocks into account. I discuss earlier studies of the same period in the United States, Great Britain and the Netherlands. I describe the research design and the results of the analyses.

van POUCKE (Gent) *"The Interorganizational Structure of the Belgian-Luxemburg Steel Sector: Longitudinal Network Analysis of the System of Interlocking Directorates."*

The longitudinal analysis of the post-war system of interlocking directorates in the Belgian-Luxemburg steel sector pointed out that the majority of the corporations were interconnected. Organizers of the network were the large Belgian holding companies. The density of the system of interlocks, however, showed considerable variability. This variability is shown to be determined by changes in the external environment of the firms. A certain and stable economic and political environment was accompanied by a decrease in the amount of interlocks, an uncertain and turbulent environment by an increase. This result bears out that the system of interlocking directorates has a conjunctural as well as a structural aspect. The stable part of the structure was formed by the system of strong ties, indicators of control relations. The system of weak ties, the reciprocity-relations, proved to be variable, thus pointing to a capability of the central organizations (the holding companies) of quickly reacting, in order to cope with change in the environment.

VESSIÈRE, Michel (Université catholique de Louvain) "Les Intermédiaires Financiers du Secteur Public en Belgique: Une Analyse de Réseau."

Le texte a montré les similitudes et les dissemblances entre deux réseaux de liens personnels: celui que la loi institue en obligeant certains organismes publics de crédit à être représentés dans d'autres organismes similaires et celui que l'on a effectivement observé. On peut se demander à présent si les écarts entre les deux réseaux ne sont pas explicables par un certain nombre de facteurs qui pèsent sur la composition des conseils d'administration de ces organismes. En effet, la loi prévoit qu'y soient représentés outre les intermédiaires financiers publics, les partenaires sociaux, l'Etat et le secteur privé.

La confrontation de ces différents acteurs détermine bien évidemment le mode de fonctionnement du système du crédit public, perpétuellement en quête d'équilibres: pondération entre les organismes publics, équilibre entre le secteur privé et l'Etat, équilibre entre le patronat et les syndicats. Outre ces équilibres officiels, il en existe d'autres que la loi ignore et qui sont le fait des partis politiques. Ce n'est un secret pour personne qu'en Belgique les nominations répondent à un subtil dosage, les partis obtenant une part proportionnelle à leur représentation au sein du gouvernement. Bien entendu ces diverses contraintes n'impliquent pas ipso facto un surcroît de liens personnels. Encore faut-il que les mêmes individus soient mandatés par l'un des acteurs dans plus d'une institution à la fois.

von der OHE, Werner D. (München) "Interorganizational Networks and Innovation: An Exploration of their Theoretical Scope Conditions."

Three general research approaches common to the field of Interorganizational Sociology are distinguished. These approaches - the threat-avoidance, task-accomplishment, and system-change and survival approaches - imply quite different starting points and strategies for tracing interorganizational network links. Although these are broad approaches and not theories per se, each contains certain key concepts which may be thought of as scope conditions i.e., conditions under which a given theory will or will not apply. It is argued that a specification of these scope conditions (in combination, of course, with an appropriate theory) would be a first step toward lifting interorganizational network analysis from a descriptive to an explanatory level.

The three research approaches are illustrated with examples dealing with corporate-government networks around issues of technological innovation. Finally, the notion of aggregate level (level of analysis) is explicated. Each of the three research approaches may be used on any of several levels of analysis. Again, the specification of the aggregate level may be an important theoretical scope condition. Implicit in the entire paper is a call for the development of interorganizational network studies that, while following the tradition of empirical precision, do not forego the aim of building explanatory theories.

WELLMAN, Barry (Toronto and NIAS) "Network Analysis: Notes on its Development, Explanatory Goals and some Key Formulations."

Network (or structural) analysis is characterized by a focus on the patterns or forms of social relationships. The development of the paradigm is traced as the confluence of three intellectual streams: a social network organizing perspective to data analysis, mathematical modelling of networks, and structural analyses of social change. A distinctive network analytic approach to the formulation of sociological questions, the gathering of data, and the analysis of social phenomena is proposed.

Network analysis contends that the emergent structural properties of networks strongly affect social processes, over and beyond the effects of normative prescriptions, individual attributes, and dyadic relationships. Some of its basic formulations are that (a) social relationships tend to be mutual but not symmetric, differing in content and intensity; (b) the structuring of social relationships inevitably creates non-random networks --hence network clusters, boundaries and cross-linkages arise; (c) class-linkages can connect clusters as well as individuals, and all of the ties within a cluster can be treated as 'structurally equivalent' for some purposes; (d) asymmetric relationships and complex networks imply differential structural access to scarce resources; differential access to scarce resources within complex networks creates conditions for collaborative and competitive activities to maintain and secure these resources.

ZIJLSTRA, Gerrit Jan "The Organization of Organizations: Interlocking Directorates and Their Analysis."

"In this article we try to give some insight in the significance of interlocking directorates as a means of communication between--and also within--organizations." (The first part of the paper discusses)

"why do organizations interlock?" (It also points out that "if we differentiate these communication relations after the subject of the communication then many different networks may be defined and most organizations are included in several networks as a result of their many-sided activities.) This differentiation in types of positions enables us to distinguish three types of lines: the directed line or arc, the undirected line and the reciprocal line. In the second part of the article the network of directed lines will be treated: both conceptually and in its possibilities for the analysis of ID's. Especially the meaning of distances will be analyzed. In the last part of the article the relevance of this distinction of lines will be demonstrated by way of analyzing some network structures".

PAPERS FROM "HELPING NETWORKS AND THE WELFARE STATE--A SYMPOSIUM"
Faculty of Social Work, University of Toronto, Massey College, May 13-15, 1980.

Contact: Ben Zion Shapiro, Symposium Chairperson, Faculty of Social Work

BAKER, Maureen (Post-Doctoral Fellow, Faculty of Social Work, University of Toronto).
"Support Networks and Marriage Breakdown"

As divorce rates soar in most western industrialized countries, more information is needed concerning how people cope with the experience of separation and divorce. This paper discusses the author's ongoing research based on personal interviews, which attempts to answer the following questions: to whom do people turn when their marriages are breaking up, and what effect does the nature of their support network have on their adjustment to their new marital status? Do people's need for certain types of support vary with the stage in the breakdown process? We are hypothesizing that the visibility of support networks varies with the stage of breakdown, the sex and social class of the person. Although the research is still in process, it should be completed by May 1980.

BRETTON, Margot (Assistant Professor of Social Work, University of Toronto).
"Fostering Basic Helping Networks: Report on a Child Abuse Demonstration Project". A section of this paper was presented at the First Annual Symposium on Social Work with Groups, Cleveland, November - December, 1979.

Abusive families constitute a specific target population for the helping professions, and agencies entrusted with the welfare of children constantly seek to develop the most appropriate intervention strategy to help abusive parents and abused children. To be effective in the long run, this strategy must be aimed both at the rehabilitation of abusive families and at the prevention of further abuse. In this report, one aspect of a child welfare agency's efforts to develop such strategy will be looked at.

First, there will be an explanation of the rationale for the use of the small group approach as a necessary form of intervention both for rehabilitation and prevention purposes. Secondly, there will be a description of the group of mothers which was established as part of the Demonstration Project, and then a tracing of its evolution from inception as a multiple professional/para professional-led group to a volunteer-led group.

Finally, there will be a brief report on some research questions and findings which arose out of the project and which have implications for social work practice.

GOTTLIEB, Benjamin (Associate Professor, Psychology, University of Guelph).
"Social Networks and Social Support in the Design of Preventive Interventions".

Recently, researchers from a number of social science disciplines have turned their attention to the study of forces in the natural social environment which contribute to the maintenance and the promotion of people's health. Interest in this topic has been determined by a host of factors, some unique to a particular discipline, but most reflecting shared concerns about the need to develop a more ecologically sound understanding of human coping and adaptation. This sort of knowledge, which is grounded upon studies of spontaneous social support and observations of social structures, which serve health-protective and service-delivery functions, promises to better inform planned social interventions in the community.

This state-of-the-art paper presents an overview of current research in each of three areas of inquiry on the topic of informal support networks. It spells out the conceptual underpinnings of work in each area and highlights its preventive potential. In addition, the paper spotlights examples of planned interventions conceived on the basis of research in each of these areas. These interventions, which have taken the form of demonstration projects and experimental studies, are noteworthy not only because of the new direction they set for preventive programming in mental health, but also because

of their implications for expanding the roles and skills of helping professionals. The three areas of research and action on social support systems include: (1) the study of social networks; (2) the study of natural helping networks; and (3) the study of mutual help groups. The paper gives most attention to the social network area. Here, the review focuses on the stress-moderating role of confiding relationships and of support from kith and kin, and discusses the mental health needs which can be met via contacts with "community gate-keepers" in the network. Contemporary research on natural helping networks is reviewed with special attention to programmes in which professionals are collaborating with these natural forms of service delivery. In the area of mutual help groups, the paper briefly summarizes current research trends and concentrates on recent data (collected by the author) drawn from a study of approximately 100 self-help group members. These data shed light on questions regarding the degree of involvement which members of self-help groups maintain with professional involvement self-help groups. The paper concludes by sounding several issues intended to promote discussion among readers and which concern future directions for action-research on the mobilization of social support.

IRVING, Howard (Associate Professor, Faculty of Social Work, University of Toronto).
"A Study of Conciliation Counselling in the Family Court of Toronto: Implications for Socio-Legal Practice".

NOTE: Much of the information reported in this paper is from a research project entitled "A Comparative Analysis of Two Family Court Services: An Exploratory Study of Conciliation Counselling", Howard Irving, Peter Bohm, Grant Macdonald, Michael Benjamin. Toronto: Welfare Grants Directorate, Department of National Health and Welfare, and the Ontario Ministry of the Attorney General. Demonstration Project No. 25555-1-85.

Recent increases in the rates of separation and divorce have been accompanied by rising dissatisfaction with the adversarial nature of the Court system. The result has been a search for alternative methods of dealing with married couples in distress. This study focused on one such alternative--conciliation counselling.

This paper will focus on conflict resolution theory and its application for family court services. Two empirical studies on conciliation counselling will be presented. One study comprised the outcome of effectiveness of two counselling services attached to the Family Court of Toronto, the conciliation service and the traditional intake service. The second study looks closely at conciliation counselling, its method and process.

The results of both studies will be discussed in light of implications for social work in the area of dispute resolution.

LANG, Norma (Associate Professor, Faculty of Social Work, University of Toronto).
"An Exploratory Study of the Skills and Processes Employed in the Construction of Interpersonal Relationships: Basis for the Establishment of Natural Supportive and Helping Networks".

LIGHTMAN, Ernie (Associate Professor, Faculty of Social Work, University of Toronto).
"Social Policy and Social Networks: Some Theoretical and Empirical Questions".

This study explores the concept of "helping networks", particularly seeking relevance for a social policy analysis. It identifies certain strengths of the approach for social work/social welfare, but suggests the theoretical compatibility of the two may be very limited.

The study also attempts a limited empirical test of the utility of network analysis, using previously collected data on voluntary blood donation in Metropolitan Toronto. It concludes that (1) social policy must centrally deal with issues of motivations and values, and (2) the important motivations for blood donation are personal or locational, and not "network-relevant". The overall value of network analysis from a social policy perspective must be questioned.

McINTYRE, Eilene (Assistant Professor) and Penny LAWLER (Faculty of Social Work, University of Toronto).
"Preliminary Study of Child Care Networks in a High Risk Locality".

The objectives of the study were: (1) to detect and describe the kind of child care networks that exist between parents and caregivers in a high-risk community; (2) to determine the range of child care needs that are, or might be met through the resources of such a network; and (3) to identify the kind and combination of child care links that discriminate between adequate and inadequate support as perceived by parents.

WEYSMITH, Sheila (Assistant Professor, Faculty of Social Work, University of Toronto).
 "Social Functions Beyond Age Sixty-Five".

The theoretical argument stems from the premise that networks form around social roles. Each role comprises a number of social functions. The elderly in Canadian society undergo role loss. The process was seen until recently as intrinsic to aging. This theory with its concept of inevitability has been challenged. However, atrophy of roles has remained a dominant feature of aging. This paper will not be examining support networks, *per se*, but rather the social functions which are the basic components of roles. The question posed is "Do social functions atrophy with age? If not, are they transferred to new roles? Are old roles expanded? Are new social functions undertaken? If they atrophy, then the social networks of the elderly must be impoverished.

TODRES, Rubin (Associate Professor, Faculty of Social Work, University of Toronto).
 "Self Help Groups: Analysis of Organization Characteristics".

NOTE: An earlier version of this paper was presented at the Annual Meeting of the Orthopsychiatric Association, April, 1980, Toronto, Canada.

This paper highlights findings from an exploratory study of fifty-nine self-help groups in the Metropolitan Toronto area. Of particular interest in the study was an investigation of organization characteristics of self-help groups such as: (a) Background and goals; (b) Meeting format; (c) Decision-making processes; (d) Leadership; (e) The nature of the helping process, and (f) Information and dissemination.

In addition, analysis of these dimensions of self-help groups was undertaken using an analytic framework which characterizes different kinds of self-help groups as either (a) Chronic, (b) Indirect, or (c) Life-Transitional.

The findings revealed that there is similarity and consistency among self-help groups and that there appears to be some validity to the notion of generic self-help.

VACHON, M.L.S. (Psychologist, Department of Psychiatry, Clarke Institute of Psychiatry, Toronto, Canada).
 "The Importance of Social Relationships and Social Support in Widowhood".

A two-year longitudinal study of 162 Toronto widows aged 22 to 69 is reported.

Bereavement was found to lead to a change in relationships with significant others and a corresponding perceived lack of social support. These variables were associated with an increased level of distress. The formation of new relationships was associated with a lower level of distress. The social networks of widows were shown to have three major functions during the bereavement period: (1) facilitating the assumption of a traditional widow role; (2) helping in the formation of a new identity (3) rejecting the widow thereby leading her into an isolated life or else providing her with the incentive to develop a new social network. A widow-to-widow programme was found to facilitate the development of new relationships and activities which appeared to accelerate the women's adjustment to their new identity.

Finally, a model was developed which can be tested with further research.

BENDER, Eugene (Professor, Faculty of Social Welfare, University of Calgary).
 "The Self-Help Connection: Citizen Participation and Emotional Activism in the Emerging Welfare State".

The nature of social development in advanced industrial societies including North America has in recent times produced a general social movement known as Self-Help. A common and useful orientation to self-help views it as a "third sector" combining interdependence with, and independence from, governmental policies, regulations, programmes and services. Within the last decade, numerous angles of vision interpreting self-help have found their way into scholarly and popular literature. Surprisingly few commentators have placed their discussions within a welfare state context, nor assessed, on theoretical and practical grounds, the direction of self-help in the welfare state as distinct from its configurations in the social service state.

Therefore, in a conference such as this, it behooves us to enter into a dialogue about the complexities of self-help in emerging welfare states, while attempting to link our analyses with the historical thrust of social development (of which self-help is an important component) as a general structural and dynamic feature of societal evolution.

This paper is an attempt then to assess:

1. The Welfare State as ideology; Self-Help as ideology; their alleged compatibility and congruence;
2. Our past and current perspectives and interactional patterns with Self-Help groups and their members;
3. The nature of citizen participation within Self-Help groups as well as the groups' participation in the larger political policy-making process.

The paper concludes by posing several broad research questions involving citizen participation and "emotional activism".

*ERICKSON, Gerald (Chairman, Department of Social Work, York University).
"Personal Networks, Mental Illness and Social Work Practice: Framework for a Single-Subject Approach".
NOTE: Based on unpublished D.Phil. dissertation, University of York (U.K.), Department of Social Administration and Social Work.*

The personal network is being increasingly perceived as a locale of community care, (Support System) and as a convenient unit of diagnosis and treatment. This paper presents a framework for appraising certain structured features of personal networks that permits an appraisal of available and effectiveness.

Personal networks will be characterized as having extended, available, and effective levels. The effective level, if seen in temporal sequence during the early course of mental illness, involves distinct (if partially overlapping) "action sets", conceptualized here as early, crisis, and treatment action sets. A general correspondence with preventative, crisis, and rehabilitative treatment activities will be noted. A number of research findings will be set forth to illustrate variations among dimensions and sets in individual networks. A single-subject approach to research design and practice is emphasized as being needed in order to arrive at a more adequate understanding of norms and deviations from norms during the identification and treatment of mental illness.

*TUCKER, David (Senior Research Associate, Faculty of Social Work, University of Toronto).
"An Exploration Study of the Development of Co-operative Interorganizational Social Service Networks".*

This research is intended to be the first step in examining the complex question of how and with what success governments implement the policy goal of improving co-operative relations between human service organizations. A post-factum, exploratory, and descriptive study of the child abuse programme in Ontario is reported. The specific focus involves identification and classification of activity in light of current knowledge on C.I.O.R. and child abuse.

ABSTRACTS continued on page 87

SELECTED PAPERS FROM THE 74th ANNUAL MEETING OF THE AMERICAN SOCIOLOGICAL ASSOCIATION, BOSTON, AUGUST 1979. (FROM "PROCEEDINGS").

ADAMS, Christopher R., Thomas E. DRABEK, Thomas S. KILIJANFK and Harriet L. TAMMINGA (Denver). "Exploring an Emergent Multiorganizational Network."

This is a summary of the birth, four-day life and death of an emergent network of the coordinated voluntary efforts of local, state and federal organizations attempting to find a lost hiker. The structural properties, such as the resource, normative, interpersonal, and performance structures, are mapped out for this network as a whole. Of equal importance is the tracing over time of the ongoing network processes of mobilization, communication, conflict, decision-making, control, coordination, and effectiveness. In addition, certain unique emergent properties of this interorganizational network, such as a collective commitment to find the lost hiker, are examined.

ARKIN, William (San Jose State) and Lynne R. DOBROFSKY (Mills College) "Intimacy: Brothers and Sisters."

Preliminary findings from on-going research on intimacy finds that the men we talked with had not escaped the gender role socialization patterns of the male world which reward competition, stress self-reliance, and place a premium on loyalty so that even as members of the same family, they remained competitive with each other. As between the "brother" role, defined as a close and loving one, and the "male" role which proscribes such intermale warmth, the latter predominated. The emphasis of the male role on self-reliance led brothers to define closeness as sharing common experiences and as loyalty rather than as intimacy and close friendship. The brothers' world, like the world of un-related men, is primarily a competitive one- modified by birth order and age differences- held together by a kin bonding which provides for a cooperative structure similar to that observed in corporations and the military where individuals compete with each other for advancement and recognition yet cooperate out of loyalty to the organization. Only crisis in the family of origin could remove the barriers to closeness between and among brothers.

Close relationships among siblings appears to be dependent upon a sister or a sister-surrogate. In the role of sister, wife, mother, or girlfriend, women were the ones who keep brother informed of the intimate aspects of each other's lives. This finding, that communication is mostly carried on through women corroborates Adams' similar results. The degree to which the men could develop intimate and meaningful relationships with women appear also to be dependent upon having a female sibling in the household. In fact, sisters of the men we talked with rather than their mothers seem, as peers, to be the facilitators of male awareness and sensitivity to the female world. Sisters are often sought out for emotional and even economic aid, especially during times of crisis.

The role of the sister seems to have important potential ramifications in therapy, counselling, and family theory. Should we expect the hazard of greater marital dissatisfaction in families where the male is an only child or was only brother? The fact that brother-sister relationships follow so closely the prescribed masculine and feminine gender role attributes leads one to wonder if these kinship patterns are the point at which primary gender role socialization begins or the result of gender role socialization?

BURT, Ronald S., (California, Berkeley and SUNY Albany) "Cooptive Corporate Actor Networks: A Reconsideration of Interlocking Directorates Involving American Manufacturing."

The representation of establishments in sectors of the economy on a corporate board of directors via ownership, direct interlocking with other firms, and indirect interlocking with other firms through financial institutions is analyzed as the firm's cooptive network. Analysis of such a network is demonstrated to replicate basic findings on interlocking directorates that have been obtained using more traditional methodology, but to extend those findings in a substantively meaningful way. Network range (defined as the diversity of establishments represented on a corporate board; many establishments from many sectors) is greatest for large, capital intensive firms controlled by diffuse interest groups. The three types of cooptive relations to sectors are used as complements rather than alternatives. Sectors represented via one type of relation tend to be represented via the other two types. More than just eliminating competition within the sectors in which it owns establishments, however, a firm tends to coordinate cooptive relations linking it with sectors in which it does not own establishments. This coordination of cooptive relations, network multiplexity, is also greatest for large, capital intensive firms controlled by diffuse interest groups. Conclusions are given regarding subsequent research on corporate directorates as cooptive devices.

BUTLER, Suellen (West Virginia Northern Community College) and James K. SKIPPER, JR. (Virginia Polytechnic Institute and State University) "Working for Tips: An Examination of Trust and Reciprocity in the Restaurant Organization."

This study reports on the operation of trust and reciprocity in a secondary relationship of the restaurant organization. Working for tips rather than contract wages, the waitress is required to trust the customer and depend on the rule of reciprocity for her wages. Each restaurant customer is extended credit or trust during the service interaction. The restaurant worker develops a disposition or attitude towards this act of credit. The question for investigation is which conditions, structural or interactional exert the greatest influence on the credit attitude expressed by the waitress? The table service staff of eight restaurants serve as the sample.

When both models are tested, only the structural conditions exert a significant influence on the credit attitude. Findings suggest that acts of trust and reciprocity are influenced more by the climate or orientation of the employing organization than by conditions of work interaction.

CHASE-DUNN, Christopher (John Hopkins) "The World Division of Labor and the Development of City Systems."

This is a research proposal to test propositions which relate the development of national urban systems to a country's position in the world division of labor. Earlier research has demonstrated that economic growth and income inequality are affected by relative position in the larger world-economy. Dependency theory and the world-system perspective imply that a country's infrastructure and spatial organization should also be affected. The research proposed here will measure position in the world-economy and spatial organization of cities over time, and analyze these data in three ways. Panel analysis comparing nations between 1950 and 1975 will enable us to test competing causal models. Longitudinal analysis of individual nations over much longer periods will enable us to gain insights into the processes which mediate the causal relationships found. And pooled time series analysis will enable us to test propositions specifying longer time lags.

The proposed research is an attempt to take the world-system perspective beyond its present status as a fruitful paradigm for interpreting history toward a causal understanding of the processes by which nations and the larger world-economy develop.

ECKSTEIN, Susan (Boston) "Long Live Wallerstein's World Economy Theory?: Lessons from Cuba."

According to "world system theory," as put forth by Wallerstein, countries which nationalize ownership of resources, declare themselves socialist, and propagate socialist ideologies, organize production within their territorial domain to maximize profit from market trade because they continue to be integrated into the capitalist world economy. This article assesses the validity of this thesis by means of a detailed account of historical developments in a single country that has undergone a socialist transformation: Cuba. World system theory does help account for the country's continued dependence on trade, but internal class forces restrict the Castro regime's ability to maximize trade for profit.

GALASKIEWICZ, Joseph and Barbara RAUSCHENBACH, (Minnesota) "Patterns of Inter-Institutional Exchange: An Examination of Linkages Between Cultural and Business Organizations in a Metropolitan Community."

This paper examines the linkages between thirty-eight cultural organizations and thirty-two business organizations in the Minneapolis-St. Paul area. From resource dependency theory we derive several hypotheses. These hypotheses are based on the argument that organizations enter into interorganizational relationships so as to secure resources that they need. Three types of resources are discussed -- money and information transfers from business firms to cultural organizations and transfers of power from the cultural organization to the business firm.

Our findings give limited support to resource dependency theory. Using multivariate contingency table analysis with the relations between our organizations as the units of analysis, we find that there is a positive association between a corporation's presence on a cultural organization's board and transfers of money and information to that cultural organization. We found, however, that the relative uncertainty of a cultural organization's resource environment and its dependency on the private sector for funding have little effect on the exchange between cultural and business organizations. In conclusion, we present possible alternative strategies for analysis.

GALASKIEWICZ, Joseph (Minnesota, Minneapolis) and Stanley S. WASSERMAN (Minnesota, St. Paul) "A Dynamic Study of a Corporate Network."

Recent studies of corporate board interlocks have frequently overlooked two important problems. First, the structural properties of the entire interlock network are often ignored; and second, changes in the structure of networks over time are rarely studied. This paper suggests a strategy for solving these problems using discrete time Markov chains.

Two dimensions of network integration and two dimensions of network hierarchy are described and reconceptualized in terms of stochastic models developed by Wasserman (1978 and 1979). If, as the literature suggests, there is increased development of regional board networks, then in a metropolitan interlock network (Minneapolis-St. Paul), there should be an increased tendency for board linkages to be reciprocated, for symmetrical linkages to be stable, for firms that are dependent on the metro area for board members to become more dependent, and for firms that are popular as board members to become more popular.

Data on the boards of twenty-seven firms in the Minneapolis-St. Paul metro area for the years 1969 through 1977 are analyzed, and Markov chains, with structural parameters, are used to model the dyads, indegrees, and outdegrees of the corporate network. These parameters are estimated and evaluated, and conclusions are drawn about the integration and hierarchy of the network.

GITLIN, Todd, (California, Berkeley) "Modernism and the Social Structure of Artist-Audience Relations."

Artistic modernism is usually discussed in formal terms as a series of shifts in point of view, presentation of consciousness and time, abstraction, etc., whether in literature, art, or music. In this paper, I give an account of artistic modernism which emphasizes the shifting structural relations between audiences and artists in the nineteenth and twentieth centuries. The rise of an impersonal market for art tends to generate forms of artistic inaccessibility and obscurity in capitalist society. There is a complex dialectic relation connecting the social position of artists, the ideology with which they justify their practice, and the nature of the artistic work. Following Cesar Grana, I argue that in the 19th century artists and writers developed an antagonistic relation with the bourgeois public on which they were now dependent for economic sustenance and success. Artists generated two major strategies to cope with this antagonism: (1) popular forms; (2) increasing inaccessibility. Inaccessibility had the advantage of enabling writers to differentiate themselves from the public whose taste they scorned, and from the commodity process of distribution, esteem, and influence. At the same time, artists evolved the ideal of the "imperial ego," echoing the rise of the bourgeois entrepreneur, and, over against it, the ideal of the artist as martyr, which also bore interesting resemblances to the despised bourgeois. In the end, the modernist anti-commodity strategy was defeated by the rise of new publics in the later 20th century: the university community, and the upper-middle-class market in abstract art. I discuss the career of inaccessibility in modernist art with special reference to the rise of the poetry of Ezra Pound, T.S. Eliot, and William Carlos Williams.

GOETSCH, Gerald G. (California, Los Angeles) "Models of the Distribution of Acts in Small Discussion Groups: Including the Distribution of Acts Addressed to the Group as a Whole."

Bales and a number of subsequent researchers have observed a regular, hierarchal ordering of the distribution of acts in small discussion groups. This phenomena has suggested that the frequency with which one both initiates and is the recipient of acts yields important information on group structure. Moreover, sociometric data on such dimensions as leadership and likeability have been related to participation rates and have suggested that perhaps certain levels of participation and sociometry go hand in hand. These findings have lead certain researchers to consider attempts to describe or predict the distribution of acts in small discussion groups by formal means as more or less tractable.

Authors of mathematical models which describe or predict the frequency of acts in small discussion groups have moved from attempts to model the total distribution of acts initiated by individuals to a concern for the complete distribution of acts, those acts addressed from one particular member to another and from one particular member to the group as a whole.

Herein we first review the variant of each model which describes or predicts the frequency of acts addressed from one member to another and from one member to the group as a whole. We then follow by systematically assessing the models on a number of formal and analytic grounds which leads to the comparative merits of each.

GOETTING, Ann (Western Kentucky) *"The Normative Integration of Former-Spouse/Current-Spouse Relationships."*

Data from a sample of 180 divorced and remarried men and women suggest a lack of normative integration of two relationships established by remarriage after divorce. The relationships are the former spouse-current spouse relationships, and constitute the following: (1) the former wife-current wife relationship, which consists of the two women who at different points in time have been married to the same man; and (2) the former husband-current husband relationship, which consists of the two men who at different points in time have been married to the same woman. Whole men and women tended to reach or not reach the consensus criterion on the same issues, they were significantly different in the degree of acceptance of former spouse-current spouse interaction. A comparison of expectations for men and women in comparable situations showed no differential standards by gender. This study lends support to the speculation of Paul Bohannon and others that former spouse-current spouse relationships are not clearly defined, and that as a result divorced and remarried persons must interact within relationships created by divorce without benefit of social support.

GRANOVETTER, Mark (SUNY, Stony Brook) *"Toward a Sociological Theory of Income Differences."*

Why people receive different incomes has recently been of increasing interest to social scientists. Despite much empirical work our theoretical understanding remains unsatisfactory. Separate theories in sociology and economics now address income differences but each in too narrow a way, and with little integration across theoretical traditions. Status attainment theory in sociology and human capital theory in economics consider almost exclusively effects of workers' characteristics and decisions. Institutional labor economists focus on the effects of job characteristics, neglecting workers and matching processes. Theories of job-search in sociology and economics and economic ideas about "signalling" focus heavily on labor market information but neglect workers' and jobs' characteristics. It is proposed to attempt some integration of these diverse ideas. Also necessary for greater theoretical sophistication is the linkage of sociological arguments to those of neoclassical economics. This requires a more detailed examination of neoclassical theory than is usual in a sociological investigation. The aim is a sociological theory of wage differentials which takes economic arguments seriously but places them in a broader framework. To the extent this is achieved, the resulting synthesis will yield useful ideas for new empirical research and for reinterpretation of existing results.

HECHTER, Michael and William BRUSTEIN, (Washington) *"Regional Modes of Production and Patterns of State Formation in Western Europe."*

The rise of the modern territorial state in early modern western Europe was a spatially skewed process. An endogenous model of the uneven pattern of 16th century state formation is presented. It holds that the geographical distribution of the first modern state structures was largely determined by preexisting regional differences of social and economic organization, differences emanating from the 12th century if not earlier. Three distinct regional modes of production are outlined for 12th century western Europe. These are the Sedentary Pastoral, Petty-Commodity and Feudal modes of production respectively. The optimal preconditions for the initial formation of modern states were to be found only in those regions that were dominated by the Feudal mode of production. However, the utility of this endogenous model sharply declines following the establishment of the European State system in the mid-17th century. At this later historical juncture, geopolitical and international economic determinants of state-building come into their own.

KEMPER, Theodore D. (St. John's) *"Types of Non-Compliance and Their Conversion."*

Efforts to obtain compliance occur frequently in social relationships. Relationships are defined here in terms of two central dimensions -- power and status, as defined in Kemper's "A Social Interactional Theory of Emotions." When compliance is refused, this may be for four reasons related to the costs and benefits of compliance (see below). Depending on the type of non-compliance, there are optimal strategies available to convert the non-compliance to its opposite. These are linked to the power and status conditions of the relationship (see below) and can be used according to the benefits and costs of compliance to the actor who desires it. The idea of perturbations is introduced to explain the case of counter-rational non-compliance and the use of non-optimal conversion strategies.

Benefits	Costs	Type of Non-Compliance	Conversion Strategy
Low	Low	Inertia	Incentive
Low	High	Opposition	Power
High	Low	Counter-rationality	Status Claim
High	High	Resistance-conflict	Bargain-exchange

KEMPER, Theodore D. (St. John's) and Robert J. MYERS (Baruch College, CUNY) "Similarity and Difference in Age, Sex, Race, Religion and Education Between Subordinates and Supervisors: Simultaneous Effects on Subordinates' Perceptions of the Relationship."

We examine here by multiple regression certain effects of similarity and difference in four ascriptive characteristics (age, sex, race, and religion) and in education between 309 subordinates and their supervisors from a diverse set of organizations. The effects we examined were subordinates' perceptions of their supervisors' relational behavior toward them (mainly power behavior and consideration) and two emotions subordinates may experience in the work setting (fear and anger-depression). We tested the hypothesis that similarity between subordinates and supervisors on the ascriptive characteristics of sex, race, and religion would promote more satisfactory relationships and emotions; that age similarity would be related curvilinearly to these; and that education of supervisor would be related positively to satisfactory social relations and emotions. These hypotheses were supported in varying degrees, but the more important finding was that supervisors' characteristics explain more variance than the similarity-difference measures, and further, that adding the similarity-difference measures to supervisors' characteristics explains very little or no additional variance. We discuss some methodological, regional, and historical reasons for the results.

KOERIN, Beverly (Randolph-Macon College) "CB: Electronic Community in Mass Society?"

The widespread use of Citizens Band Radios in the last several years is a phenomenon which may be a reflection of the effects of urbanization on social interaction. The popularity of CB radio and the development of informal groups and formal associations of CBers may reflect (1) the continued importance of primary groups in an urban society, (2) the quest for community in an urban society, or (3) the anonymity of a mass society and the adoption of the latest fad product of mass culture.

Each of these aspects of CBing are considered from the theoretical perspective of urbanism and mass society. A content analysis of monitored CB exchanges and CB magazines and newsletters suggests that, for some CBers, the involvement of family and friends and the value of mutual aid are important aspects of their participation. However, for most, CB interaction is characterized by anonymous, transitory exchanges between strangers.

KILLJANEK, Thomas S., Thomas E. DRABEK, Christopher R. ADAMS and Harriet L. TAMMINGA (Denver) "The Emergence of a Post-Disaster Communication Network."

On the evening of June 17, 1978, the showboat Whippoorwill was struck by a tornado. Completely overturning the boat, this unusual event left sixteen dead and fourteen injured, making it the thirteenth deadliest tornado in Kansas history.

Using data collected on a purposive sample of the twenty organizations most involved in the search and rescue (SAR) activities following the disaster, the blockmodeling technique of inferring network structure was applied in an effort to identify the emergence of an interorganizational communication network among these organizations. The results revealed a five-block partition of the network for the initial period of activity and a four-block partition for the remaining SAR response which took place over a three-day period.

An interpretation of the findings demonstrated that the derived blockmodels are a plausible representation of the structure of the emergent interorganizational communication network following the disaster. Each of the blockmodels revealed a hierarchy of blocks wherein the various organizations occupied more central or peripheral positions in the communication network. Such differentiation appears to be based on two underlying dimensions: 1) the role of the organization in the SAR response; and 2) the physical location of the organization, i.e., local or non-local, although this is confounded to some extent by the inclusion of "one-man" organizations in the network. In addition, a comparison of the pre- and post-disaster communications networks indicates a basic similarity between them except for a significant increase in the densities of linkages, both between and within blocks, in the post-disaster network. Finally, evidence is presented which suggests that the communication structure is related to other properties of the interorganizational field, such as decision-making.

LASLETT, Barbara (Southern California) "Production, Reproduction and Social Change: A Theory of the Family in History."

This paper presents a theory of history by looking at the relationships between institutions responsible for production and reproduction. It assumes that the social organization of production has causal priority over, but does not determine, the social organization of reproduction. The analysis focuses primarily on changes in the family associated with the development of capitalism in the western historical

experience. A discussion of the interrelated effects of wage labor, competition, class conflict, uncertainty and the contradictions inherent in the system of production with these characteristics is presented. Evidence is taken primarily from the American case and two examples -- one from the history of parent education and the other from trade unionism -- are used to illustrate the dynamic processes implied by the formulation.

LEINHARDT, Gaea (Pittsburgh), Samuel LEINHARDT (Carnegie-Mellon) and Stanley S. WASSERMAN (Minnesota, St. Paul) "An Evaluative Contrast of two Courses in Applied Statistics and Data Analysis."

A general procedure for evaluating traditional format, college and graduate level courses is presented in the context of a study contrasting an introductory statistics course with an introductory course in data analysis. The latter course, titled Quantitative Methods for Public Management, consists of nontraditional components including Exploratory Data Analysis, and presents statistical ideas in a nontraditional sequence, i.e., regression as model fitting precedes probability, and makes use of contemporary pedagogic strategies including introduction of ideas in approximate subject matter hierarchies and examination based on mastery learning principles. The evaluative procedure involved a randomized assignment of students to the alternative courses and statistical analysis using relevant covariates such as incoming quantitative aptitude. Results indicated that the experimental nontraditional course was advantageous in that students taking it systematically scored higher in other courses in the program. The use of the procedure in other contexts is discussed and its limitations traced out.

LIN, Nan and Walter M. ENSEL (SUNY, Albany) and John C. VAUGHN (National League for Nursing, New York) "Social Ties and Occupational Achievement."

This paper reports a study from a research program designed to examine the effects of social resources on the status attainment process. Social resources is defined as the wealth, status, power, as well as social ties of those persons who are directly or indirectly linked to the individual. We propose that access to and use of social resources through one's network provide the essential transition between family background and education on the one hand and the socioeconomic status achievement on the other. The study focuses on the social ties individuals used in seeking first and current jobs. By identifying the occupational status of the social tie used, assessment became possible as to the relative contributions of family background (e.g., father's occupational status), education, and social resources to the explained variation of achieved occupational statuses. Data from a representative sample of males, 20-64, who were then or had been in the civilian labor force in a tri-city area of Northeast United States confirmed the important and independent effect of social resources on occupational achievement. Implications for a potential paradigmatic shift toward a focus on the use and manipulation of resources from one's social network are discussed.

LINCOLN, James R. (Indiana) and Gerald ZEITZ (SUNY, Stony Brook) "Organizational Properties from Aggregate Data: Separating Individual and Structural Effects."

The use of aggregate data obtained from membership surveys in organizations to estimate properties of organizational structure has a long history in organizational research. In this paper, we take the view that aggregate measures may be useful and valid means of tapping organizational characteristics, but their use does require the analyst to confront certain problems which for the most part have been ignored in past work. Those problems pertain to whether relationships among aggregate measures stem from individual-level or organizational-level causal processes. Our view is that claims for support of theories pitched at the organization level require demonstration of the existence of "structural" or "contextual" effects if organizational properties are measured with aggregated members' traits. Our paper reviews these issues, proposes certain techniques for purging aggregate variable relationships of their individual-level components, and presents some new findings from a survey of social service agencies.

LOPEZ, David E. (California, Los Angeles) "Simmel on Women."

George Simmel had a theory of sex roles that is an elegant application of his general sociological theory and anticipates contemporary feminist approaches to sex roles. He argues that the physical domination of women by men is elaborated on conceptual and ideological as well as institutional levels, such that historically women have been defined only in terms of their relation to men and judged by two contradictory standards which, like most "objective" cultures, are male-oriented, not neutral. He recommends that the feminist movement of his day go beyond striving for equity, which is really only participation on male terms, to the creation of a distinctively female culture. He concludes that only when women cease to define themselves in relation to men will they attain social and cultural autonomy.

and Peter (Reading, Tennessee), Michael SCHWARTZ (SUNY, Stony Brook) and Beth MINTZ (Vermont)
 "Centrality analysis: A Methodology for Social Networks."

This paper presents a way of analysing network relations based on the metaphor of networks as channels through which units send and receive centrality. To conduct a centrality analysis one starts with a matrix of associations among the units of analysis. (These associations are subject to some restrictions, described in the text.) Given a measure of association, the centrality of a unit is then proportional to the sum of its associations with every other unit, weighted by the latter's centrality. Thus, the centrality of a unit depends on the number of units with which it is linked, the amount of association between it and each other units, and the centrality of the units with which it is linked. In matrix notation the equation for centrality scores is given by $C=RC$, where C is an $N \times 1$ vector of centrality scores and R an $N \times N$ matrix of associations. Any relational variable or characteristic with respect to which it makes sense to find centrality (e.g., communicates with, influences, interlocks with) may be used as the basis for a centrality analysis.

Using the appropriate powers of the association matrix, one can determine how much centrality each unit in a network gets from every other unit, including itself, in $1, 2, 3, \dots, N$ steps. To find the centrality that unit i receives from unit j in N steps, one raises the R matrix to the N th power and post-multiplies it by C . The C_i 's of the vector, $CN = RNC$, give the amount of centrality that unit C_i receives from all other units in N steps and the contribution from the ij th cells gives the amount of centrality that i receives from j in N steps. The partitioning of centrality facilitates the construction of measures of network characteristics appropriate to researchers' theoretical constructs.

The presentation in the paper is divided into five parts: first, a discussion of various measures of association; second, a discussion of the computation and interpretation of centrality scores; third, we present the conceptual and computational foundations of centrality analysis; fourth, we illustrate the approach with applications from our work on corporate interlocks; and finally, we conclude with a discussion of other possible applications and the directions in which this methodology might be developed in the future.

MARSDEN, Peter V. (North Carolina, Chapel Hill) "Introducing Influence Processes into a System of Collective Decisions."

This paper modifies the model of collective decision-making processes proposed by Coleman in "The Mathematics of Collective Action" (1973) by introducing a process in which the interests expressed by actors may be influenced by those of other actors. After incorporating this individual level process within the framework of Coleman's model, its effects at the system level are explored by comparing results generated by the modified model to those produced by the model that does not include an influence process. Analysis of artificial data indicates that the nature and magnitude of system level effects are contingent on (1) the pattern of interest differentiation in the influence network; and (2) the degree of centralization of the influence network. Depending on these features, the effects of the influence process on collective decision-making may be (1) a decline in the system level of resource mobilization; (2) an increase in the level of apparent consensus on collective decisions; and/or (3) a bias in collective decisions toward the interests of the actors centrally located in the influence network.

McNALL, Scott G. (Kansas) "The Political Economy of the Multinational Corporation: The Case of Greece."

This paper deals with the general problems of where multinational corporations (MNCs) locate and why. It also deals with the issue of whether or not they locate primarily for cheap labor or markets. It is assumed that the current impact of MNCs is dependent on the social structures that evolved in response to the penetration of capital prior to World War II. For purposes of analysis, a distinction is made between a merchant and an industrial capitalist stage. Early penetration of merchant capital contributed to regionalism (economic, political, and ethnic). A number of factors interacted to produce a weak state system, weak labor organizations, and an economic system geared to the production of consumption items rather than industrial goods.

One of the effects of the domination of the MNC (representative of industrial capital) is seen by examining the entry of Greece into the European Economic Community (EEC). Entry into the Common Market benefits only very specific industries. These industries are typically MNCs controlled by non-Greek interests. It is suggested, then, that entry into the EEC will cast Greek workers into a permanent role as service class, and/or a surplus labour population for the EEC.

MIZUUCHI, Ark N. (SUNY, Stony Brook) and David BUNTING (Eastern Washington) "*The Structure of the American Intercorporate Network: 1904-1919.*"

The "diffusion of capital" thesis described by Dahrendorf, Bell, and others suggests that the separation of ownership from control in large corporations was part of a process which led to the disintegration of intercorporate unity in the United States. The present study is an attempt to test this argument by looking at the structure of intercorporate relations from the turn of the century to the present. This report summarizes evidence from 1904 to 1919. Using interlocking directorates as a data source, we perform a network analysis of 167 large corporations for the years 1904, 1912, and 1919. Four hypotheses are developed to examine the diffusion thesis. Only two of these are supported by our data, and for one of these the support is questionable. For the years analysed here, there is little evidence of a decline in intercorporate cohesion.

MOCH, Michael K. (Illinois, Urbana) "*The Relational Structure of Formal Organizations: Employee Location in the Work Group and Clique Structure and Satisfaction with Interpersonal Relationships.*"

Recent structural analyses of formal organizations have tended to view structure in terms of organizational level scores on such dimensions as formalization, centralization, standardization, and specialization. This paper recasts structure in relational terms and identifies several structural determinants of employee responses (i.e., social satisfaction). As expected, employee position in work groups and in communication and friendship cliques is differentially associated with particularistic (race and sex) and universalistic (education and seniority) characteristics. Relationships are also found between the heterogeneity of employees' work groups and communication cliques and social satisfaction. The degree of overlap between different types of relationships is also associated with social satisfaction. It is concluded that the relational perspective on organization structure provides an important but overlooked tool for understanding the effect of contextual factors on employee attitudes at work.

MURRAY, Stephen O. (Toronto) and Peter M. HARDI (Pitzer College) "*The Second Face of Power in Micro Perspective.*"

In the debate over power at the community level, structuralists maintain that the outcome of observable decision-making does not matter. Since only outcomes acceptable to those already dominant are raised and the dominance itself is not challenged, the circumscribed policy conflict which is observable is a charade by which pluralist spectators are "taken in". Setting the agenda is the real locus of power in the structuralist view.

Although the experimental literature on power follows the pluralists in observing decision-making and in ignoring the setting of agenda, structuralist reinterpretation of it is possible. Experimental studies of small groups show that subjects have a will to create meaning, and will take decisions they are asked to reach very seriously, even though these decisions are so trivial that experimenters do not bother to report the outcomes.

In addition to exemplifying the willing concentration on trivial decision-making, research on small groups demonstrates the ease with which legitimacy (here, that of science) can be manipulated. Whatever differences in influence exist within the groups observed pale before the power of those controlling resources. There is no need to impose solutions to problems that do not matter. The small groups laboratory, therefore, is a microcosm of the exercise of the power in a way quite different from the usual claims.

NOVAK, David R. (Washington & Lee) "*Ethnicity in South Boston: Emergent National Origin.*"

In this paper, we explore the nature of ethnicity in a white working class community, South Boston (Massachusetts). In the course of this examination, we touch upon the following issues: 1. the relationship between ethnicity in earlier times and its manifestation today; 2. the conditions under which ethnicity becomes salient; 3. the nature of ethnicity in a native-born (American) population; 4. the relationship between ethnic and community networks; and 5. the importance of class in generating ethnic neighborhoods. What we find is that the various nationality groups in "Southie" (Irish, Lithuanian, Polish, and Italian)

have come to form an emergent ethnic group. That is, these groups seem to be coalescing and forming a South Boston ethnic group in which national origin is defined in terms of the ethnic community itself, not some "foreign" mother country. Although the values of community members are primarily working class in nature, the "Southie" identity is a more acceptable locus around which to organize and pursue class-based interests. The emergence of this ethnic group is due to the following: 1. physical (Southie is a peninsula) and social isolation from Boston proper; 2. urban industrial production with minimal transportation which generated a common lifestyle, class position, and value system along with living together which, in turn, fostered involvement in local community institutions, and 3. the structural features of the housing which promoted informal interaction. With extensive intermarriage across nationality lines and the declining importance of the Catholic church, identification and organization have developed around and resulted in a focus on "Southie". In addition to its "national anthem," other "nationality" symbols such as a community flag have begun to appear. The current salience of the Southie identity is most likely due to the precarious socio-economic position of its inhabitants during these especially difficult economic times along with a shift in government policy from equality of opportunity (protecting individual rights) to equality of results (stressing group treatment), a shift which creates a need for people to struggle as a collectivity.

OLSON, Sheldon Ekland (Texas, Austin) *"Deviance and Social Control: The Importance of Social Networks."*

This paper brings together in one theoretical framework a wide range of perspectives generally considered either separate or antagonistic. This is accomplished through the idea of the social bond. Given the conceptual centrality of the social bond, characteristics of social bonds which are important in determining the strength, pattern and character of social relationships are outlined. The stages of inter- and intra-network mobility, as they relate to the question of career deviance, are then examined. Finally, the utility of applying the notion of social networks to studies of the mobilization, structure and impact of legal social control is explored. In the end the aim is to present a framework to carry us beyond what at times appears to be a theoretical/empirical impasse in the deviance-social control literature.

RICHARDSON, Chad (Pm American) and Joe R. FEAGIN (Texas, Austin) *"The Legalization of Illegal Immigrants."*

Because of the illegal status of undocumented immigrants, they often live without rights or recourse to law in the United States. Many seek to legalize their status, but are generally overwhelmed by the highly complex nature of immigration law and by the complicated maze of bureaucratic agencies and procedures required to complete the legalization process. As a result, illegal immigrants are again potential victims of abuse or exploitation at the hands of various officials or functionaries in the legalization network. This paper analyzes the network of agencies and practitioners who assist undocumented Mexican immigrants in their attempts, once inside the U.S., to legalize their status. Particular attention is focused on two system components: 1) the assisting "experts" who, often, for a very high fee, render advice and represent aliens in legal matters, and 2) the various governmental agencies responsible for processing petitions and determining the fate of aliens. In addition, other more peripheral network components are discussed and their relation to the process is analyzed. Finally, the implications of the organizational network relations are explored in terms of their effect on the treatment of aliens in and by the system.

ROGERS, David L. (Colorado State) and Meridean L. MAAS (Iowa State) *"Indicators of Organizational Power: A Comparative Analysis Involving Public and Private Organizations."*

This paper examines four aspects of organizational power. Positional power, reputation for power, resource power, and power through exchange are examined and discussed. The purposes of the paper are to explore the concept of organizational power, to critically assess selected approaches to its measurement and to suggest ways for improving conceptualization and measurement. Data were collected through interviews with top-level administrators in 150 organizations. Results of convergent and discriminant validity provide support for the multi-dimensional nature of power. Some support also was provided for a power paradigm in which organizational resources give rise to control and control in turn gives rise to perceived influence.

SEEMAN, Melvin & Samuel J. SURACE (California, Los Angeles) *"The Experience of Migration: Settlement and Adjustment in Milan"*.

This paper explores the distinction between settlement and adjustment. The latter refers to urban migration that involves significant personal maladjustment, while settlement emphasized the importance of social networks and coping strategies in moderating the consequences of migration. Using a sample representing both rural and urban origins and differential length of residence in Milan, it is shown that contrary to assumptions involved in the "maladjustment" perspective) neither prior urban experience nor length

of exposure to urban life is associated with better adjustment. Various coping strategies are explored (e.g., pre-migration preparation, and social network help) as potential contributors to successful settlement. Finally, the "settler" (in contrast to the more maladjusted "urbanist") is shown to be more insulated from urban-oriented change in life style and ideology.

SKOCPOL, Theda (Harvard) "Political Response to Capitalist Crisis: Neo-Marxist Theories of the State and the Case of the New Deal."

The massive Depression of the 1930s stimulated political conflict and change in the United States: the Democratic Party triumphed electorally; and unprecedented plethora of federal agencies was created to respond to the economic crisis; labor militancy spread in the mass production industries; and the federal government intervened to legalize unions. Overall the U.S. national government was transformed from a mildly interventionist, business-dominated regime into an active "broker state," incorporating sectors of organized labor in the normal process of political bargaining. However, certain changes did not occur: no labor or socialist political party made significant national political gains; and state intervention failed to achieve its overriding objective of full economic recovery until the nation became involved in World War II.

In order to explain these political patterns for the United States during the Depression, we should begin with neo-Marxist theories of the capitalist state rather than with pluralist perspectives on American politics. Nevertheless, some neo-Marxist approaches are much more useful than others, and even the best need to be supplemented with new theoretical considerations and comparative-historical analyses.

Instrumentalist and structure-functionalist varieties of neo-Marxism are completely inadequate to explain the patterns of the New Deal. Direct political interventions by capitalists (e.g., as under the National Recovery Administration) did not bring economic recovery or ensure political tranquility. Nor did a "relatively autonomous" state function automatically to accomplish these tasks. More fruitful are neo-Marxist approaches that emphasize the combined effects of class struggles and independent interventions by "state managers." Such approaches illuminate the origins and effects of many of the welfare and labor measures of the New Deal.

Yet no existing neo-Marxist approach deals adequately with the failures of capitalist rationalization and the specific forms and limitations of political change during the New Deal. To explain these, one must incorporate variables referring to the political party and governmental administrative structures peculiar to the U.S. among capitalist industrial nations. The forms of these structures are capable of comparative-historical explanation and are not simply reducible to class relations or prior class struggles. Finally, too, U.S. politics need to be situated in the contexts of international economic and military relations. For a world-wide economic crisis created openings for domestic political reforms during the 1930s. And the coming of World War II dissolved the political stalemate of the late 1930s, overcame obstacles to full economic recovery through state spending, and restored national political integration on a pro-capitalist basis. Involvement in war allowed the U.S. polity, building upon certain New Deal reforms, to do for capitalism what it otherwise could not have done in the absence of much more basic structural change.

SKOCPOL, Theda and Margaret SOMERS (Harvard) "The Uses of Comparative History in Macrosocial Inquiry."

Comparative history has been used to investigate many macrosocial topics, but its methodology has not been adequately explored. Mistakenly, recent commentators have tried to collapse different kinds of comparative history into the single type whose logic resembles multivariate statistical analysis. Here, by contrast, three major types of comparative history are identified, and examples from recently published scholarship are used to illustrate the purposes, the modes of case selection, and the patterns of exposition distinctive to each major type.

Parallel comparative history applies a theory to a range of appropriate historical cases; examples include S.N. Eisenstadt's "Political Systems of Empires" and Jeffery Paige's "Agrarian Revolution".

Contrast-oriented comparative history refers to broad themes or questions and uses comparisons to bring out features unique to each historical case. Examples include Clifford Geertz's "Islam Observed", James Lang's "Conquest and Commerce", and Reinhard Bendix's "Nationbuilding and Citizenship" and "Kings or People".

Macro-analytic comparative history is the type that resembles statistical analysis. It approximates controlled comparisons in order to validate causal hypotheses at the macro level. Examples include Barrington Moore, Jr.'s "Social Origins of Dictatorship and Democracy", Frances Moulder's "Japan, China and the Modern World Economy", Theda Skocpol's "States and Social Revolutions", and articles by Robert Brenner and Gary Hamilton.

Possibilities for combining pairs of the major types of comparative history are explored - with reference to Perry Anderson's "Lineages of the Absolutist State" and the Tillys' "The Rebellious Century" as specific examples. Some combinations and modes of constructing combinations are held to be more logically consistent and practically feasible than others.

An assessment is made of the strengths and weaknesses of each major variant of comparative history. And, in conclusion, a perspective is offered on the complementary interrelation of the three types in the context of macrosocial inquiry as a whole.

SMITH, Martin Henry (Franklin and Marshall Colleges) "Interorganizational Linkages and Organization Response to Disaster: A Study of Church Congregations."

This study focuses on the relationship between interorganizational linkages and the response of church congregations to a disaster. It is hypothesized that churches involved in the greatest number of community disaster response activities will vary directly with the establishment of interorganizational relationships and with membership in a denomination characterized by a less formalized, less centralized more complex structure, greater resources, and norms encouraging the provision of resources to local congregations.

Closed ended questionnaires were returned by 83 (60%) of the church pastors in Greene County, Ohio following the 1974 tornado in Xenia. Denomination information was obtained from the Yearbook of American and Canadian Churches 1975. The hypotheses were tested by comparing the mean number of disaster activities performed by different categories of churches.

The findings indicate that interorganizational linkages are significantly related to congregation disaster response. Stronger disaster response is also found among congregations belonging to denominations with hierarchical and more complex structures, greater resources, and an outer-directed normative structure.

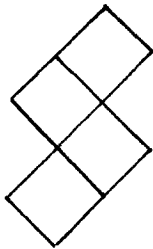
SPENNER, Kenneth I. and Luther B. OTTO (Center for the Study of Youth Development, Boys Town) "Emerging Issues in the Study of Careers."

The concept "careers" appears in various literatures and is currently receiving increased theoretical and empirical attention across disciplines. In this paper we advance the emerging dialogue on unresolved issues attending the study of careers. The issues involve conceptualization and measurement, dimensions and social organization of jobs and careers, structural and person level predictors of career phenomena, and life course dimensions and the age-time specificity of relationships. Building on earlier work by Spilerman, we introduce our conceptualization and measurement of career lines. We discuss the theoretical, methodological, and data requirements for further informing the understanding of career development.

TURNER, Jonathan H. and Edna BONACICH (California, Riverside) "Toward a Composite Theory of Middleman Minorities."

This paper seeks to combine the propositions from different perspectives on middleman minorities in an effort to demonstrate that, rather than representing contradictory theories, the current proposition can be combined in a complementary way to form a composite theory of middleman minorities. This composite theory develops nine propositions to account for the conditions promoting the (1) concentration of ethnic populations in middle-rank economic roles, (2) the development of patterns of intra-group solidarity, and (3) hostility from the non-ethnic population. Particular attention is devoted to understanding the complex interaction effects among these three features of middleman minorities. The construction of the composite theory is, of course, tentative and is intended to resolve some of the chronic controversies in the literature on middleman minorities and to provide explicit propositions that can be revised with further empirical investigation.

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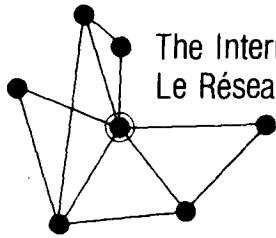
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