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Noah E. Friedkin
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A Structural Theory of Social Influence

This book addresses a phenomenon that has been much studied in anthropology, sociology, and administrative science – the social structural foundations of coordinated activity and consensus in complexly differentiated communities and organizations. Such foundations are important because social differentiation makes coordination and agreement especially hard to achieve and maintain. Noah Friedkin examines the process of social influence and how this process, when it is played out in a network of interpersonal influence, may result in interpersonal agreements among actors who are located in different parts of a complexly differentiated organization. This work builds on structural role analysis, which provides a description of the pattern of social differentiation in a population. Interpreting the revealed social structures has long been a problem. Friedkin proposes new steps for structural analysis to deal with this problem. To explain the coordination of social positions, the author seeks to develop a structural social psychology that attends to both social structure and process.

Noah E. Friedkin is Professor of Sociology at the University of California, Santa Barbara. The author of numerous articles, Friedkin has served on the editorial boards of the *American Journal of Sociology*, *American Sociological Review*, and *Social Psychology Quarterly*. His work has been supported by grants from the National Science Foundation.

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Preface

In this book I address a phenomenon that has been much studied in anthropology, sociology, and administrative science – the social structural foundations of coordinated activity and consensus in complexly differentiated communities and organizations. Such foundations are important because social differentiation makes coordination and agreement especially hard to achieve and maintain; Laumann and Knoke (1986) describe the problem in this way:

The structural differentiation of large-scale complex social systems has two fundamental implications for the integrative problems that such systems confront. First, structural differentiation is the basis of the objective differentiation of interests – i.e., claims for scarce goods, services, and facilities that component actors make on the larger social system, and for the differentiation of means (or relative power) by which they assert these claims with greater or lesser effect. Second, structural differentiation is also likely to lead to the differentiation of evaluative standards (values) that are used by various system elements to specify and establish the priorities among competing ends or goals that the system as a whole should collectively seek to achieve.

Emile Durkheim's (1933) treatise, *The Division of Labor in Society*, is the point of departure for this field of work. Durkheim's insight was that social differentiation does not necessarily lead to discordant activities and opinions, that there are different forms of social differentiation, and that one of the possible forms of social differentiation entails an integrative social structure – an organic solidarity – in which interpersonal discord is limited. Durkheim did not provide a clear definition of organic solidarity, and the problem with which he was so passionately engaged is still being researched.

It is useful to conceptualize Durkheim's problem in *Division of Labor* as a problem of social control that arises not only in the large-scale

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societies with which Durkheim was concerned, but also in smaller-scale civic and professional communities and formal organizations. Janowitz (1975) reminds us that in classical sociological studies the concept of social control refers to the occurrence and effectiveness of ongoing efforts in a group to formulate, agree upon, and implement collective courses of action. Janowitz argues that the “problem of social control” is not only to elucidate social control mechanisms, but also (taking the reduction of mechanisms based on coercion as a desirable goal) to discover conditions under which noncoercive mechanisms provide an effective basis of social control. Thus, the classical approach to the study of social control has emphasized voluntary mechanisms of coordination and control that are based on networks of interpersonal communication (social influence), legitimized decision-making procedures (social choice), and bargaining (markets).

My interest focuses on the process of social influence and how this process, when played out in a network of interpersonal influence, may result in interpersonal agreements among actors who are located in different parts of a complexly differentiated organization. In Durkheim’s terms, I am concerned with the social structure and processes that constitute organic solidarity. My work builds on structural role analysis (White, Boorman, and Breiger 1976; Laumann and Pappi 1976; Burt 1982), which provides a description of the pattern of social differentiation in a population. Interpretation of the revealed social structures has been a problem, and the new steps for structural analysis that I propose are addressed to this problem. These new steps include (a) a more elaborate description of social structures, which entails not only the social positions that actors occupy, but also the network of interpersonal influences among the positions, (b) the specification of a social influence process by which the predispositions (initial preferences and opinions) of actors in the various social positions may be modified, and (c) an analysis of the systemic implications of the influence process. In short, to explain the coordination of social positions, I pursue the development of a structural social psychology that attends to both social structure and process.

The merits of the proposed new steps can be assessed on at least three different levels. First, a critic might question how much, if any, social process we need to take into account to elucidate the structural bases of coordination and control. Second, a critic might grant the usefulness of employing a social process model to elucidate such bases, but reject the particular model that I have employed. Third, a critic might accept the social process model, but find flaws in my measures of the model’s constructs. Chapters 1–3 of this book address the importance of a process-

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oriented approach to social structure and describe a network theory of social influence. Chapters 4–7 deal with the measurement of the theoretical constructs and describe a structural approach to these constructs. Chapters 8–10 deal with the structure of influence systems in differentiated populations, and they address the consequences of such systems for the production of dominant social positions and agreements between actors in different social positions. Chapter 11 concludes the book with a discussion of Durkheim’s vision of a sociology that would help to mitigate anomy. My approach is formal. I work with a particular mathematical model of the opinion-formation process that has been under development by social psychologists and mathematicians since the late 1950s (French 1956; Harary 1959; DeGroot 1974; Friedkin 1986; Friedkin and Cook 1990; Friedkin and Johnsen 1990; Friedkin 1990b; Friedkin 1991; Friedkin and Johnsen 1997).

I will not be upset if the present work encourages a substantial refinement or rejection of my theory or methods so long as they are replaced by an alternative *equally comprehensive* formal scheme. Science operates under the assumption that the architect of reality is a mathematician whose works are elegant. Even if this assumption is incorrect, the process of constructing, rejecting, and reconstructing formal theories of events has an important heuristic value, for science also assumes that events are intelligible, and formal theories have a demonstrated utility in stimulating the accumulation of knowledge. Formal theories shift attention from discrete propositions to schema (entailing general viewpoints and assumptions) from which a large number of propositions are deduced. While providing plentiful matter for hypothesis testing, they transform such testing from an end to a means of evaluating approaches from which we might deduce substantial segments of reality. Although formal theories generally do not withstand disinterested scrutiny, they often make an enduring contribution to understanding as a by-product of the structured speculation and empirical work that occurs when attention is focused on them. The main aim of this book is the initiation of such structured speculation and empirical work on the interface of social structure and social psychological process.

My theoretical agenda is pursued in tandem with an empirical analysis of science faculties at The University of Chicago and Columbia University. I selected scientists in university settings for several reasons. Universities are modern manifestations of the type of medieval corporate organization that Durkheim believed must be restored throughout modern society in order to establish the coordinative structures of organic solidarity. At the same time, Durkheim illustrated his concept of anomy in an analysis of the scientific community. Hence, it seemed to me that the

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social structure of the professoriate in research universities would be a theoretically strategic focus for a study of the Durkheimian problem of social control.

The data for this book were collected in 1977–78, while I was a Research Associate in the Educational Finance and Productivity Center at The University of Chicago. The initial analysis of the social networks was not a pleasant experience. The networks were cumbersome and expensive to analyze because of their large size and because a theoretical focus on detailed structural features required the development of custom-written FORTRAN programs. I published several papers that drew on these data and then moved on to related inquiries, especially the development of the formal theory of social influence that enters into the present study. Although I had put the work on these science faculty networks aside, I felt that several of the findings I had obtained on the relationship between communication structure and interpersonal visibility were unusually beautiful and ought to be pursued (Friedkin 1982, 1983). Moreover, in light of developments in network theory that have occurred during the past several decades, I realized that my arguments and results could be usefully elaborated and that I might more forcefully make certain theoretical points. However, the initial experience of analyzing these data dampened my desire to pursue this project.

The circumstances that had impeded my work on these science faculties were dramatically altered several years ago. I had developed computer software – SNAPs – that facilitated the analysis of the type of detailed structural features of networks that were of especial interest to me; but, because this software was based on the GAUSS programming language, I could not address networks of more than ninety members. When this limitation in GAUSS was removed, I was in a position to analyze the science faculty networks with little difficulty, and I immediately began to consider and plan the present volume. Although the data are old, they are suited to my theoretical concerns. If I had not collected such data previously, I would want to collect them now.

I am indebted to my teachers at The University of Chicago: Charles Bidwell, who supported the data collection on which this book is based and my early interest in social networks; James Coleman, who gave me valuable advice and encouragement during the data-collection phase of this project; and Edward Laumann, whose research program on structural analysis was important in initiating and defining the line of my own work. I also am indebted to my colleagues in Santa Barbara, especially Dorwin Cartwright and Eugene Johnsen, with whom I have met, virtually every Monday afternoon for several hours since 1978, in a faculty seminar devoted to discussions of network phenomena. I have no doubt that these discussions have sustained my passion for the study of

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social networks. Finally, I thank my father, a biochemist, whose deep skepticism of social science and high expectations for his son have served to create a powerful pressure on me to pursue fundamental inquiries with the most rigorous methods at my disposal. I dedicate this book to my parents, my wife, and my children.