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# Numerical Taxonomy and Analysis of Sociological Theory: An Empirical Approach to Evaluating and Reformulating Sociological Theory

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**NUMERICAL TAXONOMY AND ANALYSIS OF SOCIOLOGICAL THEORY: AN  
EMPIRICAL APPROACH TO EVALUATING AND REFORMULATING  
SOCIOLOGICAL THEORY**

**by**

**Elizabeth A. Freidheim**

**A Dissertation Submitted to the Faculty of the Graduate School  
of Loyola University of Chicago in Partial Fulfillment  
of the Requirements for the Degree of  
Doctor of Philosophy**

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## LIFE

Elizabeth A. Freidheim graduated from Rosary College with a B.A. in sociology, June 1962 and from Loyola University of Chicago with a M.A. in history, February, 1968. She has presented papers at several professional conventions and written a book on Sociological Theory in Research Practice to be published by Schenkman Press, Winter 1976-77. She has worked professionally as a probation officer for the Juvenile Court of Cook County and as a sociology teacher at several schools. Dr. Freidheim is currently employed at Mundelein College.

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## CHAPTER 1

### CLASSIFICATION AND ANALYSIS OF SOCIOLOGICAL THEORY

Like any science, sociology must somehow effect a marriage between explanation and evidence. However, since sociology has not outlined a single vision of the world, we have no one way to perform the ceremony. Here I am proposing a standardized typological format for examining the various relationships we now permit between our theoretical ideas about some social event and our strategies for supporting these ideas. The format includes a series of typologies--individual theoretical works classified according to research approaches, subject matter, and other variables--along with a procedure for evaluating the system. With the classification I have examined several hypotheses about both internal relationships between components of a theory-research combination and the effects of outside, non-theoretical forces. Finally, I have indicated some implications for theoretical reformulations, resolution of controversies, and other possibilities suggested by the classification system.

Clearly no one variable dimension would be sufficient for inspecting theory-research relationships and assessing their importance in theory building. For example, we could rate sociological theories according to the degree of concern they display for interpreting subjective elements--ranging from theories that do not even allude to the existence of norms, values, and other social-mental constructs to theories that explicitly consider these constructs as cause and effect in social life but still remain "positive" only

because they precede interpretive analysis with some description of objective behavior. We could develop a scale of subjectivity by simply counting the number of subjective components in each theory. A typology with such a scale based on increasing concern with subjective elements could prove very discriminating, assuming that each new concern adds to the sum of all the others; to illustrate, that a theory incorporating values also considers norms, that a theory including socialization also includes norms and values, that each incorporation includes all previous ones. Often, however, reality does not arrange itself so neatly. A theory might include a number of subjective elements without respect to order. Counting the number of variables in this manner might produce a scale of increasing subjectivity which groups Parsons and Marx in one category simply because both observed a relationship between values and structures. Most sociologists would not accept such a classification. Furthermore, given an interest in theory-research connections, we might want to ask questions outside the scope of such one-dimensional typologies: Do interpretive sociologists examine cultural values as part of a sequence in social change or a construction in stable reality? Do they prefer to arrange their evidence to build an inductive theory or to substantiate deductive models? Or--a more troubling question--Does the whole interpretive-positivistic framework relate to other facets of their work at all? Thus, the simple interpretive-positivistic classification may prove so broad, so inclusive, so heterogeneous that it does not really tell us anything.

On the other hand, detailed classifications often lead directly to conceptual overload thus undermining any rationale for a typology. As Bailey (1972; 1973a; 1973b) noted about the mini-max dilemma in

typology construction: in order to be truly useful, a concept should have a minimum number of types and each type should have a maximum amount of homogeneity. Perhaps 192 types of theory exist in "reality" or could be coaxed from a computer. But it is easier for us to understand two or three.

As the first step toward choosing a proper course, we must consider how a typology may be used in further analysis (Weber, 1905:164-88; 1918:141). Distinguishing between rational, traditional and charismatic legitimacy, for example, enables us to explore different kinds of behavior among those who exercise authority. Further, these types help us to investigate the link between patterns of legitimacy and other social features like religious perspectives or levels of economic development. It would be impossible to adequately understand patterns of authority if we either examined authority as a unitary concept or looked at each authority figure individually. In the first instance, authority could relate to all other group variables indiscriminately since some kind of authority exists in all stable groups. In the second situation, it is likely that authority figures would each display a unique set of concomitant variables. Clearly we need typologies to dispel the conceptual confusion.

Applying Weber's basic principle to theoretical typologies, I suggest there are two general kinds of analysis that can be performed:

1. An examination of formal elements within a theory system --for example, the links between inductive arguments and systems models;
2. An exploration of outside forces affecting theory construction--an ideology, the introduction of a new tool, other possible influences.

In sum, I am presenting a system that can contribute to teaching,

theoretical reformulation, and exploration in the sociology of knowledge. The typology should identify clusters of similar works thus providing a map of the theoretical terrain simple enough for beginners, detailed enough to interest those of us more familiar with the territory. Analysis of the internal properties of each type should suggest missing ideas, new conceptual combinations, extended arguments. Inquiry about the social background of various thinkers should tell us whether similar backgrounds inspire similar ideas. Such analysis, however, requires many variables, far too many for a single-dimension typology. It also requires a fairly mechanical, standardized technique for assigning theorists to categories based on these variables and for reducing the categories to a mini-max classification. Toward this end, I have developed a classification system--not a simple typology--designed to deal successively with limited sets of variables and limited number of theorists selected according to whatever questions one may choose to address about the various relationships between explanation and evidence.

I will begin my classification system in this chapter by enumerating other approaches to theory-typology construction. Chapters II and III outline the mechanisms of my approach, first the rationale for choosing specific trait variables, next some specific hypotheses argued from the sociology of sociology, finally some technical problems of systematics based on numerical taxonomy. The next two chapters detail types of sociological theory described by numerical taxonomy. In Chapter IV I use the system to look for Kuhn paradigms in sociology and, in Chapter V, I explore theory reformulation possibilities for

stratification, religious asceticism, and other topics that happened to appear in the works used here. Chapter VI examines the ties between theory types and social influences both in specific tests for hypothetical influences and in reformulations of works by members of "opposed" social groups. In the final chapter, I speculate briefly about the future utility of numerical taxonomy in theory construction.

#### Trends in Theory Classification

To date, typologists have devised classifications rather than classification systems and used artistic judgment rather than a more mechanical approach both for the creation of the taxonomy itself and for the assignment of theorists to various categories. Their work naturally reflects the changing orientation of the field: when Sorokin wrote Contemporary Sociological Theories in 1928, he classified Emile Durkheim as a sociologistic theorist; recently Turner (1974) discussed Durkheim as a forerunner of modern functionalism. But, historical differences aside, typologists also illustrate long-term theoretical interests by using similar kinds of categories for their classifications.

Without trying to outline a typology of typologies, I would suggest that a classifier's personal definition of theory, however vague, shapes his categories. Many define theory as some sort of formal construct, perhaps a set of propositions logically derived from some basic axioms. Of course, sociologists have not agreed on what these formal properties might be (Ward, 1973), but many look for some underlying logic, some model of science, some perspective or view of the world, distinguishing the types of theory. Others define theory as

a way to describe the "guts of the phenomenon" (Stinchcombe, 1968:15) and may prefer to classify theory according to its content rather than its formal properties. These typologists would be more apt to group theories about community or power phenomena than theories who use a positivistic approach. But, with either conceptualization, classifiers often look outside of sociology itself for explanations of why theorists chose a particular model of science or subject matter at a particular time.

Sorokin (1928), an example from the first group, identified key variables for various "schools:" mechanistic sociology used the concepts of physics, chemistry, and mechanics; biological-social demography described social life as the effect of population increase or decline. Martindale (1960) traced the philosophical roots of positive organicism, formal (Kantian) sociology, and other branches with a distinctive set of intellectual origins. Timasheff (1967) used similar basic reasoning but changed his classification variables from political ideology (social Darwinism) to national background (Russian subjectivism) to scientific strategy (analysis) to independent variable (psychological sociology). More recently Turner (1974) named four key perspectives or "paradigms" (without ever defining his use of the term) along with one alternative perspective. In a systematic rigorous fashion, he then examined the common assumptions and strategies of functionalism, conflict theory, interactionism, exchange theory, and ethnomethodology. Nisbet (1966) illustrates the "guts" orientation. In The Sociological Tradition, he identified five key nineteenth-century concerns (community, authority status, sacredness, alienation) and discussed how interest in these topics has informed sociology to this day. Using logic and research

practice rather than tradition to define the crucial subject matter, Boskoff (1969; 1972) listed generic concerns explored by sociology, problems like group formation, deviation, control, and change.

Traditional classifiers have also looked beyond the subject matter and formal properties of sociology to the historical forces shaping the intellectual life of an era. In other words, the sociology of sociology is not a creation of the 1970s (Curtis, 1972). Barnes (1948), for example, named both the industrial revolution and scientific reformation as instrumental causes of early sociology. In his own work (1948) and in the three volumes he co-authored with Becker (1938; 1961), he identified political ideologies, economic reverses, national traditions, and other variables that could encourage different formations of sociological theory. Reviewing the American scene, Hinkle and Hinkle (1954) described three eras. Before World War I, sociologists shared a societal belief in progress, melioristic intervention, and the powers of positive science. After the war, a less optimistic America produced sociologists who examined irrational forces behind human behavior, oppressive structures in urban society, and the disruptive forces of technological change. After the Second World War, sociologists, like other Americans, stressed utilitarian values: they wanted their science to be "useful."

Two movements within sociology seem particularly important for theory classification during the 1970s. First, the growing interest in philosophy of science. Comte and Spencer built their theoretical castles on the foundation of an organic analogy. If society was like an organism, then . . . . If social groups developed as species do, we could expect . . . . During the 1960s Kaplan (1964), Brown (1964), and



others articulated a much more technical model for social science based on philosophical views of natural science along with examples already set in social studies. They outlined the logical structure of science, the links between concepts and measures, the assumptions behind mathematical tools, the need for different analytic strategies. In accord with these interests, sociologists like Blalock (1961; 1969), Gibbs (1972), Reynolds (1971), Stinchcombe (1968), Zetterberg (1954; 1965), and others have written books specifically instructing students in the art of theory construction with logic, with calculus, with linear graphs, with other technical tools. The way we explain a phenomenon is becoming as important as what we explain.

Second, sociologists have become increasingly concerned with identifying the particular social structures that affect theory development just as they have become ever more interested in the technical details of the theory itself. This concern grew from early efforts in the sociology of knowledge. Comte's typology of societal consensus, Durkheim's formulation of how social organization creates collective consciousness, Marx's hypotheses about the relationships between class and ideology all foreshadow the modern interest in links between social structure and scientific thought. Weber, who spent his lifework detailing the growth, correlates, and implications of rationalization in Western thought, focused on rational science in "The meaning of 'ethical neutrality' in sociology and economics" (1917). Weber feared, even detested, certain aspects of rationalization. On the other hand, he believed his hope for civilization should not affect his use of data or his interpretation of empirical reality. This is the thrust of Weber's famous plea for value-free sociology; not that values asso-

ciated with our position in society have nothing to do with our choice of a problem, but rather that we must separate our dreams from reality, our preferences from the facts, our political commitments from the identification of truth. To this day, sociologists continue to debate whether science should be--or can be--"value free," often, however, without properly considering what Weber meant by the term in the first place.

Moral issues aside, sociologists have also studied the empirical problem of identifying where and how the social situation affects the scientific enterprise. Merton (1938) pioneered such empirical work when he documented the ways religious-cultural values encouraged the growth of science among seventeenth-century English Puritans. More recently, especially since the late 1950s, sociologists have examined their own science, frequently by using the Marxist perspective and showing the ways scientific concepts reflect the interests of dominant societal groups. In his survey of the sociology of sociology, Curtis (1972) reviewed four key trends: first, a long tradition of intellectual histories such as those of Barnes (1948) detailing the impact of historical events on scientific thought; second, the studies of Becker and Barnes (1938; 1961) and others who contrast intellectual trends in different countries; then, a new but growing body of research about the work styles, political preferences, publishing records, and sundry other peculiarities of American sociologists; and finally, inquiry into the specific areas where non-scientific values seem most likely to affect the research process.

Thomas S. Kuhn has provided a natural framework for a combined interest in philosophy of science and sociology of sociology. In The Structure of Scientific Revolutions (1962; 1970) he explored the nature

of paradigms (which he defined roughly as general frameworks delimiting a subject matter, explanatory outline, and methodological strategy appropriate for some science). He then described why a discipline may abandon one paradigm for another. Contrary to our traditional view, this shift is less gradual evolution than abrupt revolution. The success of a challenger depends partly on its ability to attract numerous prestigious adherents. Thus, Kuhn defined science as a political activity dependent on the social structure of its practitioners.

How do these developments affect theory typologies? To begin, instead of simply categorizing theories according to a basic framework which they exhibit or from which they developed, typologists now use the analytic properties of theory (enumerated by the work in technical theory construction) as variables for developing categories.

Walter Wallace provides two examples of this new trend. First, consider the loosely defined typology of "positivistic" and "interpretive" theories already mentioned. I choose these types because they highlight problems that have informed sociology from the beginning (Wagner, 1963). However, additional variables could sharpen the typology considerably by increasing homogeneity within categories at the cost of a slight increase in the number of types. Wallace (1969) expanded this typology by distinguishing motor behavior from dispositional states, independent variables from dependent variables, social causes from non-social ones. All sociological theories, he noted, explain social behavior. But some, the subjective theories, stress dispositional behavior--motives, aspirations, sentiments, meanings. Others, the objective theories, stress motor behavior--writing, speaking, fighting, eating. This distinction separates Parsons, who pointed to

economic values as one of the defining features of a society, from Marx, who identified class consciousness as an observable effect of economic behavior and a prelude to further action. To this division Wallace added the differences between sociological subject matter (as defined above) and several categories of variables theorists use to account for this subject. The added dimensions distinguish Marx, who argued that economic situations affect behavior, from Cooley, who showed how symbolic-meaningful exchange with others shapes a "looking-glass self" which later serves as a social conscience for the individual's economic (and other) action. With this framework Wallace sketched a ten-cell table. His use of the logical structure of the theory itself transformed a simple exercise in cataloging into an analytical tool: besides exposing real differences between theories, Wallace could point to an empty cell (the study of physiological effects), a logical possibility not yet developed in sociology.

More recently, Wallace (1971) has developed a model depicting various stages--or in Kuhn's terms, the various components of a paradigm (1971:24n11)--for theory construction and testing. He recommends that we list possible strategies appropriate to each stage, classify theorists within each according to their methodologies, and then compare the different groups that form for different stages. We could compare the data-gathering stage with the research-design stage to ask if there is a tendency for participant observation researchers to favor "grounded" or "emergent" theory building (Glaser and Strauss; Huber). Or we could look for variables outside the theory-research sequence, for example, the influence of "schools" on various approaches. Wallace advocates typologies explicitly developed to

examine such hypotheses about sociological theory, although he has not applied the idea in his own research.

New trends in the sociology of sociology also affect the ways we think about theory and, therefore, the ways we classify it. In The Coming Crisis of Western Sociology, Gouldner (1970) hypothesizes that the political nature of knowledge defines basic categories of theory. Scientific knowledge, he argues, is possessed by the dominant groups in society and formed in response to their needs. According to Gouldner, a functional-systems framework developed within American sociology to provide the rationale for a stable political regime while Marxist analysis developed to support changing regimes of Eastern Europe. He predicts a growing crisis for academic functionalism created by the growing American welfare state. We can resolve this crisis by incorporating Marxist change ideas into stable-system theories. Meanwhile the Marxist-orientated sociology of political change prominent in Soviet-Bloc countries will experience a similar crisis as non-revolutionary governments require a new ideology of stability.

In A Sociology of Sociology, Friedrichs (1970) revised the paradigm idea to make the social scientist's image of himself the essential paradigm-defining subject matter of sociology. Social scientists, he reasoned, chose a "prophetic" mission or a "priestly" one. This mission, in turn, forms the framework for their methodology, special subject concerns, theoretical models, and other features of their paradigm. Although we may not believe in the specific doctrines of this "theology of sociology" (Collins, 1974), we must seriously consider its central tenet positing the existence of non-rational motives behind the rational enterprise of science.

Instead of ideology, Mullins (1973) examined the social structure of sociology for its relationship to theory formations. In Theories and Theory Groups in Contemporary Sociology, he divided the field into symbolic interactionists, ethnomethodologists, and other groups of theorists who cite common sources, who share a professional social circle (as colleagues or students), or who are considered similar by themselves and by others. Then he traced the structures of friendship, colleague relationships, and sponsorship to argue that these social forms affect the eventual success or failure of a theoretical framework. Without a spreading network of practitioners, a framework dies.

The paradigm conception reappears in a very recent work by George Ritzer (1975). After reviewing Kuhn's various formulations, Ritzer defined paradigm as "a fundamental image of the subject matter" which forms the "broadest unit of consensus within a science" defining "what should be studied, what questions should be asked, how they should be asked, and what rules should be followed in interpreting the answers obtained" (1975:7). He then identified three basic sociological paradigms, or broad units of consensus, clustered around social facts, social definitions, and social behavior. The social factists study structure and institutions, usually with questionnaire and interview data. Social definitionists often use participant observation to examine the evaluation process conducted by individuals in the social world. The social behavioralists favor experiments to probe individual behavior forming around a reward-cost motivation structure. After defining his paradigms, Ritzer criticized each in detail, making two key points: first, no one of the paradigms adequately explains all of the phenomena we include within sociology even though some of its

practitioners may think it does; second, some practitioners within each paradigm seem peculiarly blind to the merits of contributions from another camp. Hence, social factists may denigrate the "soft" methodology of participant observation and definitionists retaliate with remarks about the "incomplete" nature of hard data (Ritzer, 1975:132-37). Fortunately, other thinkers--most notably Marx, Durkheim, Weber and Parsons--bridge the paradigms. According to Ritzer, these giants who straddle different camps may also suggest the ways that sociology could, possibly, form a single scientific framework.

Both Wallace and Ritzer raise some problems I address with the classification of theorists in this study. Both authors highlight important variables ranging from basic definitions of subject matter to basic research strategies. Both group theories by their internal properties rather than philosophical-intellectual origins. Ritzer actually named three groups each of which contained a distinctive definition of subject matter with a corresponding constellation of theoretical and methodological ideas. Wallace, on the other hand, listed important elements of theory along with questions one might ask about how these elements vary between different groups of theorists. Although Wallace considered the qualities comprising a paradigm, he did not attempt to demonstrate that such frameworks actually exist in sociology. Thus, Ritzer identified groups and then isolated the bridge theorists who might provide clues for a common framework while Wallace assumed these groups might be constantly changing as sociological thought formed and reformed around various possible frameworks. Both men focused on the relationship between theory and research. Both also specified extra-theoretical forces, items unrelated to the truth or

validity of a theory, that nevertheless shape the explanations we construct and the evidence we choose to support these propositions.

### New Possibilities for Theory Classification and Analysis

I have constructed a new typological system along the lines suggested by Wallace, a system to compare how authors who group together in reference to one dimension may or may not group together on another.

To do this I have classified theorists on six separate dimensions (with four to eight variables each); 1) the abstract subject focus of sociology; 2) abstract methodological strategies; 3) groups used as units and objects of analysis; 4) group processes analyzed; 5) principle data-gathering techniques; and 6) observational categories. Examining the typology as a whole and comparing the similarities and differences between the six dimensions considered separately, I can discuss if there are indeed fairly cohesive paradigms (as Ritzer claims) or if sociology is still in a much more fluid state (as Wallace implies). This procedure also locates the mavericks--although the typology alone cannot tell us whether they are paradigm bridgers who transcend traditional boundaries or simple eclectics who have not developed a coherent thought system. To make that distinction, I have examined a few specific analytical problems as approached by mavericks and by mainliners.

Obviously one's choice of theorists (or more specifically theoretical works) constitutes another important set of variables. The classification begins with twenty-five works that appear to represent a cross-section of sociological thought to date. Some are classics commonly accepted within the discipline; some are typical examples of



trends we often cite as major directions in the field. With this initial group I have established a basic set of types locating both typical and atypical theorists. Later I can select additional groups of theorists who--according to the ideas of various other classifiers--should belong to different types, for example, "priests" to compare with "prophets" (Friedrichs) and "causal analysts" to compare with "structuralists" (Mullins), and stratification theorists to compare with community researchers (Nisbet). But even with my initial group of twenty-five, I can discuss theoretical contrasts and continuities among theorists in terms of the trait variables used to identify types of theory.

In sum, I am using a classification system to determine whether philosophy-of-science variables can define clusters of theorists, whether these clusters hold constant or shift with different theoretical dimensions, and whether extra-theoretical forces (political ideology, structural group, substantive interest) affect these clusters.

## CHAPTER II

### VARIABLES FOR A THEORY CLASSIFICATION SYSTEM

Before examining the nature and significance of classifications in sociological theory, we face the critical tasks of choosing variables for the classifications themselves and determining what groups of theorists we should attempt to classify. Bailey (1973a; 1975) emphasized the importance of variable selection--an aspect of typology building which is still far more art than science. Nevertheless, in efforts to routinize the process, typologists have developed two approaches. Working from the data, Hadden and Borgatta (1965) could profile different kinds of American cities with a factor analysis of their structural properties. Udy (1958), in contrast, used the ideal traits of Weber's bureaucracy to discover related characteristics and to distinguish different kinds of bureaucracy that adhered more closely to one cluster of traits than to another. Both approaches have proved fruitful, but each has its limitations. The "data up" strategy presupposes a large supply of likely variables--a collection at least roughly approximating a "known universe" of variables from which we may select a sample (D. L. Wallace, 1968). And the "theory down" approach presupposes a well articulated theory in the area.

Since we have not developed a listing for theoretical constructs or an ideal type of the ideal theory, this typology will use a modified version of the "theory down" approach by borrowing ideas about what various authors think--theoretically speaking--a theoretical construct

must be. To begin, if science requires both methods and observation, rule of procedure and events to observe (Wallace, 1971:13-24), then the typology should include ideas about the scientific strategy and subject matter of sociology. If we assume that extraneous factors--especially social-structural forces--affect the growth of all social knowledge including sociology, then the classification should also draw from the sociology of sociology literature for variables.

In the next few sections, I will review some key issues in the philosophy of science which a theory typology should include and then outline some current ideas in the sociology of sociology to suggest how the typology could--in a limited degree--test these ideas.

Traits of Sociological Theory: Implications from  
the Philosophy of Science

During the nineteenth-century, both philosophers and sociologists debated the nature of sociology as a subject matter and as a research strategy, speculating whether such a discipline was intellectually legitimate, what its boundaries might be, how it could utilize scientific procedures. In an effort to avoid resurrecting the dead controversies of the past or pursuing the academic fads of the present, I chose some perennial issues that have bedeviled sociology from the nineteenth-century to this day, issues like the nineteenth-century debate about the advantages of "cultural" versus "positivistic" social science that recurs today in the work of ethnomethodologists and the rigorously "objective" technicians. Perhaps such issues live only in recurrent speculations about theory and in controversies among technical methodologists rather than in the work of research theorists. This is an important empirical question. As Rex (1961:1-3) noted, the philosophy of science should be

a descriptive discipline as well as a normative one; if procedures do not work in research, they should not be part of the philosophically respectable principles. For the purpose of establishing classifications in the first place, however, I assume the philosophy-of-science categories do describe practices widely used in sociology. Later, the presence or absence of empty cells in the data matrix can settle this empirical question. To supplement the philosophical categories for "cultural" science and other abstract ideas, I have also included some variables describing the actual practices of sociologists in more concrete detail. So this section will review several sets of variables: first, abstract ideas about the basic subject matter of sociology and abstract ideas about basic methodological strategies; then some more concrete qualities, namely, the principle social groups, key processes within these groups, techniques for observing these processes, and the principle observational dimensions used in this observation.

Dimension One: The Abstract  
Subject Focus of Sociology

From its inception sociology has entertained controversy about its subject matter. Although they all agreed that sociology studied groups in society, nineteenth-century theorists disagreed, often bitterly, about the exact subject area of the new science, sometimes quarreling with all the grace of rival gang members eyeing two blocks of disputed "turf." These debates were not merely verbal squabbles. First, these disputes weighed the differences between natural sciences and cultural (unnatural?) ones. Second, they delineated sociology in its relationships with other social or cultural sciences. In both instances, they reflected the desire of sociologists to create a "real" science, a science that somehow adhered to the idea standards used by

Newton two centuries before. For my classifications, I have chosen four perennial issues that describe different directions in sociology: the "interpretive" versus "positivistic" approach; the use of sociological explanations versus psychological ones; the view of the total social system versus relationships within the system; and the distinction between equilibrium and time dimensions. Each of these issues centers on a chronic tension in the field; in empirical work a researcher must often favor one position over the other even if he believes both are theoretically correct. Further, each of these issues has inspired controversial haggling like the old arguments about whether the "real" sociology must be quantitative or qualitative. But here we will consider them simply as tensions that have informed our discipline from its beginning.

#### Interpretive and Positivistic Conceptions of Social Life

Helmut Wagner (1963) has identified the division between positivistic sociologists who stress objective, detached observation and interpretive sociologists who emphasize Verstehen or some other "understanding" as the principle enduring division within the field. This distinction began when nineteenth-century historians questioned whether a scientific approach could hope to capture the essential geist of a social milieu. This doubt really probed the very nature of science. Is science a set of techniques designed to record, measure, and explain only those objects that we can reach directly through our senses? Or is it an approach to knowledge based on the interpretation of the meanings in such data? If science is such a set of techniques, then we are confined to studies that record and measure very concrete objects like the

composition of water and the frequency of church attendance. If it is an approach to knowledge, we are challenged by the difficulty of applying this approach to intangibles like the nature and meaning of religious beliefs. There is a third resolution to this controversy. If science must be strictly positivistic and if social behavior is incomprehensible without subjective interpretations, then there can be no science of society.

Naturally, sociologists fought this third view--either by making their research as objective and "scientific" as possible or by reconceptualizing scientific techniques to fit the peculiar data of social science. However, even while they argued one side of the issue, early sociologists often practiced more moderately. Comte proclaimed sociology to be the queen of the positive sciences but he also used this science to document (or attempt to document) the growth of a social-mental construct called "consensus." Following Comte's dictums, Durkheim studied "things" called "social facts" but often explained these facts with interpretive understanding. For example, Durkheim used a Verstehen process in Suicide to describe the different rates among divorced men and women in terms of what marriage must mean to members of each sex given the biases of contemporary society. A woman liberated from an oppressive marriage, he explained, would be far less inclined to suicide than a man removed from his source of stability (Abel, 1970:102-06). Weber, in contrast, more fully accepted the challenge of cultural science and developed special research strategies to tease out the unspoken, half-understood meanings inherent in human behavior. Nonetheless, he typically began his studies not with mental constructs of individual

people nor with cultural beliefs but with the objective activity defining the social structure.

Modern versions of this interpretive-positivistic tension persist throughout sociology. However, we can understand their implications best by reviewing the extremes. The extreme positivists can depict a world determined by functional or causal forces. The group creates these forces and man simply responds, perhaps by committing anomic suicide or by choosing an ethnocentric circle of friends. In this perspective, the identification of subjective states can become an exercise in tautology: marginal man "feels marginal." Subjective sociologists can reverse this conceptualization to highlight personal input, existential drift, the process of experience. They often ignore group structure--revealing a subject's reaction toward a half-seen social world. They can tell us that people learn to adjust to total institutions without carefully distinguishing those inmates who enter by choice and those who enter at gunpoint. The extreme subjectivists ignore the "outside" world altogether and describe society as the product of an individual mind. In contrast, some objective technical experts avoid focusing on any subject matter by specializing in methodology. Their causal models, typologies, linear graphs, and other tools are sometimes constructed and refined without explicit reference to the data they are designed to describe or explain. In effect the tool can become the subject.

#### Social and Psychological Levels for Explanatory Variables

Once they legitimized the concept of social science with a special subject matter to be explained, sociologists had to identify explanatory categories. Should they explain one group phenomenon in

terms of another or should they look for component behavior, for the actions of individual persons in social situations? According to Durkheim, the appropriate level of analysis must be social: he chose to study "phenomena which would not exist if this society did not exist and which are what they are only because this society is constituted the way it is" (1900:363). Tarde, in contrast, looked for repetitious behavior, specifically, inter-mental communication within groups of people leading to imitation of accepted practices and eventually creating language, law, family structures, and all the other social forms in society (1904:137-39). Neither denied the joint importance of both the group and the individual. Rather they argued different positions on this one basic assumption: Durkheim examined how individual behavior is informed by man's associations within groups and Tarde explored how individual behavior creates the group.

The problem, then, resolves not around whether individual-psychological forces actually motivate real behavior but whether these variables should be used to explain social forms. When they use psychological explanations, sociologists generally follow one of two approaches: naming the kinds of people active in a situation or describing the activity in terms of individually motivated interaction.

The first approach often leads round a circle. As Durkheim (1897:59-62) noted long ago, if we explain suicidal behavior by saying "these people have a suicidal monomania," we have explained nothing. This, in essence, was Pareto's fault when he compared the crafty, innovative "foxes," who excelled in revolutionary times, with the brave, loyal, but plodding "lions," who could consolidate an empire but not create one. If the elites did not manage to retain their rule during



rapidly changing situations, then clearly they were "lions" in a situation that required "foxes." Similarly, the "foxes" could not hope to perform the painstaking tasks required for maintaining a stable regime; in such situations, "lions" would gain control of the administration.

The other reductionist strategy cannot be dismissed so easily. Homans has combined reductionism with behavioralism for explaining social groups--and ultimately social institutions--as networks of activity performed by individual humans who seek rewards and pay the costs. Logically, we must agree with Homans' main strategy (Webster, 1973). Just as thermodynamics can be reduced to statistical mechanics, so we may be able to reduce group behavior to reward-cost principles. Empirically, however, we may question whether this activity is worthwhile. Clearly, the "rewards" and "costs" vary with size, history, and other special group aspects. Discovering additional propositions to link individual reward-cost action with group properties may cost so much of our time that we will not value the reward of additional understanding. Consider, for example, how a national leader (a king like Henry II of England) might effect a major judicial reform. Homans suggests that Henry II must have borrowed heavily from his "social capital" when he deployed his own circuit judges to outlying baronial courts. Why else would the nobles allow the king to assume their power? Henry must have traded his social capital with individual nobles in exchange for conformity to his newly established norms (1974:365-66).

This may be true. But whatever the personal exchange Henry may have effected between himself and each individual noble, he drew his basic capital from one source: he had won the war and he obviously had the ability to impose his peace on the country. In short, Henry could

make non-conformity prohibitively expensive. If we wish to explore why each noble decided to obey, we could resurrect local chronicles, court judges, and other records to examine the exchange between Leicester and Henry. However, if we wish to explore the perquisites of power or the prerequisites of judicial reform, we might find it more efficient to count how often and under what circumstances a man like Henry gets his way.

Holistic-Synthetic  
Conceptualizations  
and Relational-  
Analytic Ones

Like the two issues already reviewed, the choice between describing a social whole and separating it into parts, began in the nineteenth-century efforts to legitimize a science of society and continues, with a modern emphasis, in today's sociology.

At first many sociologists hoped to use state-of-the-system as an explanatory variable. Comte and Spencer borrowed biological concepts to study a social "organism." Both hoped to explain social relations in terms of societal needs during a particular evolutionary stage much as we can explain heart action in terms of its contribution supporting higher forms of life. However, whole-to-part analysis breaks down several related areas. To begin, the Weltansicht of a large whole like society probably does not explain the values that inform daily practice in some local region, unless we can assume that the same ideals exist everywhere regardless of the local economy, regardless of the vicissitudes of local history, local political customs, and all those other forces that may encourage regional differences. Furthermore, we cannot avoid circular reasoning if we insist on understanding the parts solely

in terms of the whole. If, for example, we use Cooley's definition of primary group as a collection of people who engage in intimate face-to-face contact and then hypothesize that intimate contact creates the primary group, we are really taking two parts of a definition and analyzing them as if they were separate entities. If, by definition, we declare the whole to be a single piece understandable only as a whole, we have no way of comparing the relative importance of variables or conditions which limit variables within this whole. We cannot judge, for instance, whether intimate emotional feelings depend more on how often people see each other or how many interests they have in common. Finally, when we choose large, complex wholes like the ones Comte studied, we must select from a limited number of cases. Biologists can look at thousands of one-celled animals, but Comte could only observe one Western Europe. How could he judge which societal traits were important, which merely accidental?

In order to avoid these problems many sociologists analyzed part of a social situation (much as an astronomer would isolate planetary motion from all the other facets of the universe). These analytic sociologists recognized group coherence, a cohesive force. So, instead of examining the entire situation at once, these sociologists looked at the patterns of cohesion, that is, at social interaction as a cause, a process, or a result linked to other features in the social setting. However, this analysis can abstract too much and focus on action far removed from a specific situation. When Park studied patterns of neighborhood change, he was actually observing neighborhood change in Chicago during the 1920s. Later research on population shifts in other cities and other eras revealed how time and place affected this pattern

far more than Park had originally thought.

Modern sociologists have often defined their subject matter both in terms of the system as a whole and the relationships within it. They have learned to escape tautological circles by either tracing the causal paths of specific relationships or by tying the system activities to extra-system forces. Furthermore, they have studied a variety of systems, not just society but primary groups, communities and formal organizations. Buckley (1967:38) called the modern system concept "organized complexity --defined as a collection of entities interconnected by a complex network of relations." Rex (1961:50-59) placed individual relations within such systems; the system provides "sustaining activities" to support interpersonal behavior. Our daily relationships depend on expectations, norms: we pay our taxes; we do our jobs; we love our children in large part because we act within a network of institutional structures for government, economy, family. In a different system, with different sustaining activities, we would act differently.

Thus, "system" and "relationship" have become two complementary ways to conceptualize the subject matter of our research, not two independent objects for study. We can concentrate on the "sustaining" mechanisms or on the relationships made possible because of this whole.

One final point needs consideration. The holistic focus implies --but does not necessitate--certain corollaries. If we view the entire group, we tend to look for balanced relationships, for equilibrium. Thus we examine cooperation and define conflict as pathology or system disturbance. Similarly we concentrate on stability and define change as "growth" or rearrangement in the balanced system. Marx, however, studied total systems in rapid change powered by conflict. He identified the

economic institutions alternately as forces to maintain equilibrium through exploitation of lower-class groups and as forces for revolution when these groups inevitably rebel.

The Study of Equilibrium  
and Development

At root, change is the subject matter of sociology. The discipline began when social thinkers tried to formulate an intellectual response to the problems of the Industrial and French Revolutions (Nisbet, 1966). None of them could deny the fact of sweeping societal change. Comte traced the evolving patterns of intellectuality in a society shifting from theological to metaphysical to positivistic modes of consensus. Spender described increasing complexity in a developing organism--or was it a changing species?--producing ever more sophisticated forms of coordination. Marx detailed economic pressures erupting in political upheaval. In a later generation Park studied changes--and patterns of similarity--brought to a community by immigration. But somehow, while observing the small-scale recurrent changes of invasion and succession within each neighborhood, he lost sight of the changes that transformed the community as a whole.

Herein lies the problem of research into social change: change must be studied as the "take off" from some equilibrium (Blalock, 1969:76-77). Consequently, sociologists often concentrate on the equilibrium itself or assume equilibrium while looking at one, limited facet of internal change. For example, Durkheim explored the correlates of mechanical and organic society in depth: two end points, one might call them ideal types of stability, flanking industrial modernization. And Park watched Jews, Poles, Italians, Irishmen invading Chicago neighborhoods without docu-

menting the expanding job market, massive population growth, and other changes that made the situation of the 1920s immigrant from Europe quite dissimilar to the plight of today's arrival from the south, the reservation, or the islands.

Blalock (1969:106-26) suggests that the difficulties of developmental studies are less conceptual than empirical. Although we all recognize the fact of change and the technical sophisticates among us can even apply calculus, time-series analysis, or other mathematical tools to models of change, we cannot measure the changing situations themselves, at least not as accurately as Blalock's techniques would require. Discussing the study of development in anthropology, Nadel (1957:125-52) recommended longitudinal studies lasting over a generation. Only with long-term views can we separate the "changes" that are mere recurrent patterns in an equilibrium from the trends that actually rearrange the social structure. Hauser et al. (1975) demonstrate the yield we could expect from a developmentally oriented study of short-term process in modern society. They assessed American social mobility studies in the light of United States history. Sociologists who simply concentrate on the patterns of father-son mobility find great change, a generation of sons climbing the stratification ladder. However, when Hauser and associates evaluated the occupations of each generation in terms of what occupations meant in the social system of the day, they found much less "mobility" than appears when we assume an equilibrium of stratification lasting during the entire father-son process. Thus, the problem is not deciding if we want equilibrium or developmental studies but rather discovering how to combine the two for a proper assessment of social change.

The various issues considered here do not revolve around whether we should choose a subjective over an objective subject matter or prefer an equilibrium to a developmental viewpoint. They center, instead, on whether we can study social life as we wish. Polemics aside--sociologists seem to be making a series of compromises: some deciding that subjective states cannot be measured, leaving us to explore objective behavior; others naming subjective states as the true subject matter of sociology to be explored no matter how crude our measurements.

Dimension Two: The Abstract Methodological  
Strategies of Sociology

No matter how intangible or obvious the subject matter, whatever the group or its problems, in some way the sociological enterprise must tell us about the empirical world (Popper, 1958:40-41). For this empirical validation sociologists use a combined research strategy of find the social patterns that do occur and looking for those that do not.

Verifying the existence of an empirical phenomenon can mean discovering if it occurs anywhere. For example, Sumner asserted that almost any behavior, no matter how bizarre, will be sanctioned by some society, somewhere. Because the discovery of approved wife-swapping in eastern Utopia proves the existence of this practice as accepted behavior, Sumner could support his claim about bizarre norms by describing the sexual customs, dietary habits, kinship patterns, and other types of behavior routinely practiced in various societies. Thus, one illustrative example of any approved custom or type of customs sufficed to prove its existence and support Sumner's hypothesis. However, we often want to verify a universal condition instead of a single example. For these

statements, when we are not in a position to survey the entire universe of possibilities, falsification (Popper, 1959:68-70, 112-13) often proves the better strategy. To verify the hypothesis "Wife-swapping is beyond the universal pale," we would need to search all groups for the absence of such approved behavior; to falsify, we need only find one contrary example.

In actual practice (with problems considerably more complex) the two approaches shade into each other; we verify the existence of a theoretically important relationship; we falsify alternative explanations; we try to falsify a critical point (Kaplan, 1964:35-39; Zerrerberg, 1965:104-11). Durkheim's Suicide provides the classic example. First, we traced a relationship between suicide and various "solidarity" measures. Then he falsified climate, nationality and other alternatives. Finally, he chose a special group, the urban, educated Jews, who according to his solidarity hypothesis should have enjoyed low suicide rates but according to other measures should not. In short, he risked falsifying a central tenet in his theory. When his solidarity predictions proved true, this attempt at falsification provided strong support for his ideas (Madge, 1962). However, even if his ideas had failed this test, Durkheim would probably have sought additional ones. In sociology, with complex relationships and weak measures (especially of "interpretive" concepts), we cannot rely on either verification or falsification in a single test (Rex, 1961:18-22).

Clearly, then, our research strategy requires a subtle combination of logic and fact-gathering--with no universal consensus on the one right way. Nonetheless, methods, or rules of procedure, have become a measure for judging scientific conclusions (Wallace, 1971:13-16). In this classi-



fication, I will consider four recurring polarities that define the abstract nature of this procedure: analytic-inductive versus formal-deductive approaches; categoric and propositional explanations; sampling from the average case or the universal example; prediction versus understanding.

#### Analytic-Inductive and Formal-Deductive Strategies

Should science describe networks of relationships or should it list key principles along with deduced propositions? This question weighing inductive and deductive reasoning has puzzled sociologists from the earliest days of our discipline. Following Bacon's precepts many nineteenth-century sociologists hoped to build scientific principles on a base of numerous simple empirical generalizations (Rex, 1961:10). Spencer and Sumner, for example, built huge data collections (anticipating the Human Relations Area Files) to serve as sources for sociological theory. Others preached a doctrine of positivism: observation without philosophical preconceptions. Induction, however, is not an inference from data into the unknown. The scientist has some preconceptions about his planned research ranging from a general preference for some subject material to a tight-knit deductive system with very explicit predictions about what the empirical world will reveal. And, if the nineteenth-century heritage prescribed scientific induction, it also provided several overarching frameworks for analysis. Some frameworks specified the outline of the empirical world: "Society is like a large organism . . ." Coupled with the injunction to work inductively, this reasoning led to such contradictory conceptualizations as "positive organicism" (Martindale, 1960:52-53). Other frame-

works stressed the form of scientific statement: "Scientific generalizations should follow from basic principles." As we shall see shortly, this reasoning also leads to its own variety of distortion.

But for the moment consider induction. In crude form, induction piles facts into an unordered collection of two-variable propositions or factor clusters (Reynolds, 1971:140-44). Properly executed it constructs concatenated theory (Kaplan, 1964:298-99) describing a configuration or pattern of relationships, presenting explanation through our comprehension of these patterns (Kaplan, 1964:332-35; Hansen, 1958:4-30). When Park observed intergroup relations in the city, he argued from migration patterns and life style to a series of propositions about invasion, succession and other process stages within "natural" areas. He began with a pattern of behavior--actually a pattern suggested by his ideas about biological-social processes; no theory is totally inductive--then he used the observed pattern to describe natural areas and their changes within the city. As Park's work illustrates, induction always requires a non-logical act, a creative leap from the familiar data into . . . error? Glaser and Straus (1967:1-18) advocate "grounded theory," theory both generated and refined through contact with data during the course of research. Huber (1973), in contrast, argues that "emergent theory" is peculiarly vulnerable to bias introduced during research by both the worker and the people being observed.

Hence the continual search for a complimentary deductive framework--borrowed from biology, systems theory, classical logic, statistics; with concepts ranging from organic analogies to Boolean sets. The goal is always explanation. Inductive analysis presents a pattern for our understanding. Deductive reasoning lists key principles,

derives propositions, and demonstrates how these propositions describe empirical life (including the patterns that originated the theory in the first place). In effect, it organizes our thought by specifying the form of our statements instead of the shape of the empirical world. When Simmel described the role of the poor, the patterns of conflict, and the interaction of the stranger, he outlined logical possibilities and then combined experience with historical examples to illustrate patterns: "Looking at the poor in a society which believes in equal justice, we find . . . Looking at the poor in a society which believes in charity to gain spiritual merit for the benefactor, we find . . ."

Simmel deduced propositions from a rigorous listing of possible events. Sociologists have long employed more sophisticated tools of logic, mathematics, and other deductive methods with success. Durkheim's use of statistics, for example, enabled him to analyze deductive propositions about mortality in various areas (even though he did not run tests for significance as we would do with such data). Our problem is simply to avoid becoming so beguiled by these tools that we mistake the structure of thought for the structure of data. Combining statistics with classical logic, we might say:

There is a one-hundred per cent probability that all men will die;  
Socrates is a man;

Therefore, there is a one-hundred per cent probability that Socrates will die, making a true, if trivial, statement. But what if we change the second line to "God is a man"? This raises many, many issues about the existence and nature of something called "God," about the information value of formal propositions, about the relationship between formal correctness and substantive validity, even though we could com-

plete the syllogism with a logically correct conclusion: "There is a one-hundred per cent probability that God will die."

In sum, models, formal reasoning, and other deductive tools can guide the logic of our thought, but cannot replace inductive "social theories" phrased in "ordinary language" (Movahedi and Ogles, 1973).

#### Typical Sampling and Sampling from Universal Conditions

Whether we proceed inductively or deductively, we must sample data from the universe of possibilities choosing either data "average" for its universe or data that fits some universal condition. The real problem is a choice between generalization and abstraction. As Willer (1967:97-115) notes, a survey of cows, even a cross-cultural survey, will yield a generalization that the "average" cow in this area, at this time has 3.999 legs. To explore the nature of cows, or religious beliefs, or economic structures, we could do better by developing an idea of group traits under certain universal conditions and then examining some occasions when the conditions hold true. In other words, he argues, we are not looking for a generalized description of life at a time and in a place but for a set of abstract universal conditions. We do not want to describe the path of an American billiard ball but to learn how billiard balls and rockets both behave as objects moved by a particular types of force (Willer, 1973:23). To research such universal problems we should list our abstract conditions and select samples that fit, first verifying if our idea has any validity, then falsifying the conditions outside of its scope (1967:97-115).

Despite its limitations, the typical-sampling strategy seems very attractive. Working in a science without a single unifying theory -- often without theoretical agreement on a specific limited subject matter--

we need to build from data, view the possibilities, and later, construct ideas based on those. Durkheim argued for this strategy when he suggested normal cases as a basis for all further comparisons with deviance, social change and other non-average events (Rex, 1961:8-10). This strategy identifies some particular situation as the normal one. But on what criteria? Durkheim never satisfactorily answered that question. Instead he developed theories about "normal" types of society, "normal" levels of deviance, "normal" forms of law, "normal" modes of religious expression. Although Durkheim's theory recognized changes in the normal mode, his research practice, with some exceptions like his analysis of suicide, measured the average at some point in time and assessed social change as an abnormal deviation.

Weber and Simmel, in contrast, began with theoretical outlines of the special conditions under which an event might occur. In Simmel's ideal-type flirtation, for instance, a couple interacts with ritualized patterns of mutual flattery, coy shyness, and other amorous tricks best played by those who do not have serious intentions. Simmel was not primarily interested in flirtation, nineteenth-century manners, or even social interaction at parties. He wanted to examine interaction between two people in situations when the form took precedence over content; flirtation, aimless party chitchat, courtly rituals, all provided sample illustrations of interaction under this condition.

The arguments for such abstractions over generalizations grow from the physics model of science: if we could only list the proper variables and control them, we could predict behavior (Rex, 1961:15-22). Sociologists like Lundberg, who favored the positivistic approach to subject matter assessed the problem in terms of measurement. When we learn to

measure economic pressure as well as the physicists measure wind velocity, we can make predictions about economic man (Lundberg, 1939: 140). However, sociology is not physics. It is not just the complexity of our subject matter and the problems of measuring such complexity that vitiate a Lundberg-style analysis. We must also account for the non-material forces within our subject. The subjective-interpretive sociologists like Weber could approach the problem by substituting ideal types (of subjective-human orientations) for a list of purely objective universal conditions.

But even with ideal types, sociology has not developed the systematic theory needed to list universal conditions before we completely adopt Willer's analysis by abstraction to replace the more widely used analysis by generalization.

#### Analysis with Type Concepts and Directly Propositional Analysis

Scientific analysis must account for relationships between variables. However, the variables themselves often cluster within larger theoretical concepts, often concepts so broad we really cannot assess their relationship to other social features without subdividing the concept into type-combinations of variables. Or we may build types by combining variables; for example, in a two-by-two table "type A" could possess the first variable but not the second; "type B" could represent both variables in interaction; and so on (Stinchcombe, 1968: 38-47). Either way the type provides a parsimonious summary of variables (Wallace, 1971:101-06).

Such types prove useful in a variety of ways. First, by providing a handy label--saying "vertebrate" is easier than saying "a

member of the group of animals with segmented spinal columns or with a more primitive form of backbone;" discussing "bureaucracy" is easier than listing the hierarchy of control, written rules, and other variables associated with this type of authority. Beyond that, types become the variables in hypotheses. For example, we may analyze the importance of bureaucracy in contemporary life without separating each feature and considering it individually. Or we may use categoric analysis to bring ourselves to the conceptual middle-ground between all authority figures and a particular one--like Nixon; knowing he exercised rational-legal authority (and knowing the characteristics of that type) helps us explain why he retained his ability to command long after his personal credibility had collapsed.

Early use of subdivision classification demonstrates some of the problems inherent in this methodology. When Linnaeus outlined the biological world, he began with a finite universe of identifiable objects. True, some species had not been discovered yet and even today such life forms as the virus puzzle the classification experts. Nonetheless, deciding whether the object in hand could be called a "bird" is considerably easier than determining if the behavior on the front lawn is a "social fact" or if a particular collection of people and customs constitutes a society (Rex, 1961:4-15). Furthermore, biological categories do not vary as much as social ones in their most interesting features. Once we have identified a cat, we can expect it to have the blood composition and musculature characteristic of cats. But interpersonal behavior--the human trait that truly interests sociologists--varies widely. Knowledge of the type provides an overview, perhaps a set of probabilities, but not knowledge of individual cases (Blalock,

1969:143-147). Comte misconceived this relationship between the individual and the type when he tried to explain everyday life in terms of evolutionary stages. Proper understanding of the advanced theological stage, Comte might have told us, will illuminate most of the characteristic behavior in a fourteenth-century French village. However, as Blalock would argue, the Weltansicht of an entire continent probably does not explain the values that inform daily practice in some local region, unless we can assume that the same ideals exist everywhere regardless of the local economy, regardless of the vicissitudes of local history, the local political customs, all those specific group features that encourage regional differences. Comte recognized this but hoped to investigate the whole thoroughly enough to delineate the parts. Durkheim, who understood the problem more fully than Comte, eventually defined his types as very mixed bags indeed. For example, in the Division of Labor he used repressive and restitutive law for indices of mechanical and organic solidarity in his types of society. By the time he wrote Elementary Forms of the Religious Life, he had identified national loyalties as a necessary source of continued repressive law and mechanical feelings even in the most organic society.

Thus types provide a measure for a specific case against the typical one, or for explaining a particular situation in terms of the typical pattern, but they do not yield predictions about the detailed specifics of any individual or subgroup fitting within a type.

The variable-combination types also serve best as guides to possibilities rather than empirical predictors. One can always take two (or more) variables, list their possible combinations, and label the results a typology. But, without theory, these typologies tell us



little. In fact, some of the most informative ones were not developed empirically. Merton's "anomie" scheme, for one, maps out some possible ways people respond when society provides unequal access to treasured goals and appropriate means. On the other hand, he never calculated how many people will choose innovation over ritualism; he never truly explained why. Nonetheless, this typology has inspired research on the causes of delinquency (the "why" may be function of neighborhood opportunities) and provided one theoretical rationale for the War on Poverty (which attempted to restructure opportunities). Parsons also built a suggestive typology with his pattern variables. In theoretical combination, the five pairs would produce thirty-two "types." In empirical reality a few type cells appear important while the others remain empty; the affectively neutral person tends to stress universalistic standards rendering the neutral-particularistic combination unlikely, and so on.

In conclusion, categoric analysis is just a special case of propositional analysis. We simply begin by building types for a parsimonious summary of several variables and only then do we state propositions about the relationship of variables within the type or the relationship of the type-as-a-variable to other outside features (see Basu and Kenyon, 1972, for a slightly different view of "causality versus typology" analysis).

#### Prediction and Explanation

We often think of prediction as a natural goal of science. With scientific procedures we should review past and present patterns in order to predict future ones. But as Dubin (1969:9-25) explained, prediction often requires empirical variables precisely defined to calcu-

late specific empirical results; in contrast, explanation uses theoretical constructs to elicit broad understanding about why events occur. If a settled, well-kept community wants to plan school buildings, shopping malls, and similar practical matters for the next twenty years, it can hire a demographer to estimate population changes likely with such givens as housing stock, migration patterns and birth rates. A community with large old houses peopled by elderly couples can anticipate an influx of young families whose children will overflow the schools, whose teenagers will overtax the police department, whose housewives will ignore the store's fine linen section and ask for toddler's clothes instead. Given these variables we can anticipate these results . . . But, this predictive knowledge does not explain middle-class attitudes toward education, the causes of juvenile delinquency, or patterns of consumption. On the other hand, understanding does not necessarily yield predictions. When Homans said "liking increases with the frequency of interaction," he explained a phenomenon that occurs on the job, during courtship, in the army unit. He identified the broad relationship between two single variables in understandable terms. But as we add complicating variables, his predictions prove untrue. The partners in a marriage gone bad interact more than they did in the early days of courtship; hostile racial groups often confirm their prejudices and increase hatred when they encounter each other during riots, street incidents, and even on such neutral settings as the job. Clearly we need other variables--like friendliness or equal-status contact--to predict an actual situation. Even though Homans' basic statement alone provides some understanding of the interaction.

Sociologists are still trying to combine prediction with under-

standing. Axiomatic theorists, among others, often combine prediction and process statements. Consider two of Zetterberg's statements about authority (discussed in Dubin's Theory Building, 1969:23-25). First, people in central positions, that is, people who interact more, get better knowledge. Second, people with better knowledge can more easily issue directives and, therefore, obtain authority. Dubin points out a critical distinction between Zetterberg's two statements. The first simply predicts a relationship between centrality and knowledge; the second predicts a relationship between knowledge and authority mediated by a knowledgeable person's ability to issue orders. This explanatory comment would be much more difficult to test than the predictive ones. In other words, Zetterberg's axiomatic theory lists easily testable predictive statements and empirically elusive explanatory ones. Starting with data instead of theory, other theory builders are trying to find predictive variables (like the social-policy indicators used in my population example) that can be the operational definitions of explanatory constructs (Fox, 1974:1-5).

In spite of these efforts, however, we must often choose between research that illuminates the mechanisms of social life and research that calculates the results. Since, at present, we must combine the two approaches via separate projects, we must continue to perform research doing one or the other very well.

The four abstract methodological polarities considered here mark strategy extremes. Few sociologists would plead for one position at the complete cost of the other. However, some would argue that certain approaches better suit different stages in scientific development, perhaps that deductive theory suits a mature science after it has

exhausted the possibilities of inductive reasoning. In my own opinion, such speculations re-echo the quantitative/qualitative debates of a few decades ago. Modern quantitative descriptions, statistical testing, and mathematical models do require more technical sophistication than the simplest of qualitative descriptions used by many early sociologists. However, qualitative researchers have also become more sophisticated--only now, instead of investigating all of social life, they prefer to concentrate on problems most suited to qualitative techniques.

Furthermore, whatever their preferences on the abstract subject matter and methodology issues, all sociologists study "social impact . . . the ways in which the behavior and perceptions of persons are developed, changed, confirmed, or controlled by the demonstrable influence of other persons" (Boskoff, 1972:251-52). Often we use different words--we may study the "functions" of the political machine--but the basic conceptualization is causal. If the machine functions to provide upward mobility for disreputable, disadvantaged ethnic groups, then, in some sense, the machine causes mobility to occur. We may also phrase our theories with the non-causal language of logic or mathematics. But, the chief axioms assume causal relations and the probability statements estimate the likelihood that a cause will operate in a given situation (Wallace, 1971:91-101).

Defining this term, however, is a difficult matter. Gibbs (1972: 20-27) briefly reviewed just the sociological literature on causality and decided we would better spend our energy trying to study the relationship than define it. Indeed, even Blalock (1961) in Causal Inferences in Nonexperimental Research did not define the term. Working inductively, he observed correlations between forms of objective

behavior and assumed the existence of a "cause" or "causal" sequence linking the actions. In other words, whatever the ontological reality of cause, we look for correlations between two (or more) variables with the measuring techniques of science. Then after discovering such correlations, we apply the rules of logic to determine if our idea of "cause" seems to be operating in the situation (Hirshi and Selvin, 1967:114-41). For example, if certain ethnic groups dominate the upper reaches of the political machine, we may call "proper" group membership a necessary cause of success.

Thus, our search for the causes and effects of "social impact" is circumscribed by the techniques and reasoning of science. In a later section, I will review a few methodological specifics of data gathering and observation. But first, a brief section on the places where causal impact may be observed and the particular causal problems that most interest sociologists.

#### Dimension Three: Groups Used as Sites of Analysis

Reviewing some concrete aspects of subject matter--if sociology examines the "social impact" of persons over each other, where does the impact occur and what form does it take? Social life must be empirically grounded, that is, it must occur within a group or aggregate of interacting, interdependent people ranging from the dyad to the society. Once these groups have been identified, crucial theoretical elements may be abstracted for analysis. Group structure delimits the types of values people seek. Participation in a group creates the basis and the potential for achieving goals, and each social group carries unique consequences for its members in their pursuit of values.

Thinking of the total society as a system with sustaining activities,

we can identify generic groups. Parsons (1959:17-21) located such groups when he analyzed society to find the organizational levels that sustained social life by filling system needs (as he had defined these needs in his AGIL scheme). The primary-technical level performs all functions but stresses adaptive ones. The managerial level coordinates primary units, thus serving pattern-maintenance and integrative functions. The societal level takes major responsibility for goal-attainment. Between society and the two lower levels lies the integrative institutional structure which legitimizes and coordinates the managerial level. Shifting from organizational levels to groups, we can easily identify the primary group, formal organizations, and society itself. But what is the group-equivalent of the institutional structure? I would suggest the community. In primitive times society was coterminous with community. Even today, the major institutional forms grow and operate within a community. It is here, in his community that the average man "integrates" with society.

We can find empirical support for this theoretical speculation in actual research projects and in analysis of research work. For example, in his pioneering work on social disorganization. W. I. Thomas identified the familial primary group, the ethnic-immigrant community, and ethnic organizations as the institutionalized groups supporting--or failing to support--societal culture (1927:57-86). When Janowitz (1965:73-74) discussed social mobility, he identified it as one aspect of societal change which "at a minimum" also affects "primary groups, community structures, and large-scale or bureaucratic organization." Thorough analysis, he concluded, must include all four groups. Recently Boskoff (1972:254-55) reviewed the major trends in sociology and listed the same four groups as those that recur throughout social research. He also indicated that

theorists concentrating on the various group levels tend to emphasize different problems and to observe them with different variables.

We can conclude, therefore, that whatever the social activity under consideration, we search these groups for variables either using the group as a source of independent variables (a unit of analysis) or as a source of dependent variables (an object of analysis): (1) the primary group; (2) the complex or large-scale organization; (3) the community; (4) the total society.

In other words, I am suggesting, sociological ideas vary with the group under consideration. Furthermore, the theorist who uses the same group as both the unit and the object of analysis will produce quite different theories from those of a thinker who examines the relationships between different groups.

#### Dimension Four: Group Process-Problems Analyzed

Regardless of the particular groups under consideration, most theorists recognize a core of key group processes, or from another point of view, key theoretical problems to be explained (Boskoff, 1972:252-61):

1. Group formation--the establishment of boundaries with norms and goals;
2. Differentiation--of specialized skills and values distributed in the group;
3. Socialization--for the transmission of different patterns;
4. Deviation--either applauded or deplored, in part of the result of inadequate socialization;
5. Coordination--to repress some deviation, to sustain some patterns;
6. Stratification--systems of rewards and opportunities segregating different segments of the population;
7. Innovation--technical, valuational, associational;
8. Social change--the collective result of innovation.

Each of these problems works through social processes within a social structure: socialization requires the process of internalization often

enacted within peer groups; coordination requires power exercised in some authority system like bureaucracy. Further, the problems link together. Inadequate socialization helps foster deviation which requires coordination expressed in a stratification system that, in turn, invites innovation . . .

Dimension Five: Principle  
Data-Gathering Techniques

In his analysis, Ritzer (1975) listed four general data-gathering techniques: comparative/historical studies; interviews; questionnaires; observations; and experiments. Modifying this schema slight, I would begin with direct studies of institutional structures--accounts of economic practices, for example, but not attitudes toward laissez faire; or analyses of crime rates in relation to other institutional features but not accounts of how the criminal perceives moral reality. Thus, we use four basic data-gathering approaches: we examine information about institutional structures; we assess the thoughts and characteristics of people (as these are recorded in interviews, questionnaires, and other individual documents); we observe the behavior that occurs during normal interaction; and we manipulate group situations (often in artificial groups) to determine the impact of various preconditions on activity within the group. Each of these techniques works more efficiently toward different research goals. When Weber traced the economic consequences of the Protestant Ethic, he did not conduct a national survey asking people how they applied Sunday sermon principles to the market place. He observed the patterns and results of capitalistic practices, looked for the causal principles, counted whether Protestants also tended to be capitalists. But, Ritzer notes, many sociologists interested in similar problems about structure



collect data about individuals and many researchers interested in individual perceptions collect data about behavior. In other words, sociologists with certain overall perspectives tend to prefer certain data-gathering approaches--but not necessarily the most appropriate ones (Ritzer, 1975:67-80). The approaches: (1) direct studies of institutional structures; (2) interviews/questionnaires; (3) observations; (4) experiments.

#### Dimension Six: Observational Categories

Given the subject matter and general strategies of our discipline, how do we find data and decide what data properties to observe? I am not asking about the specialized tools--path analysis, latent structure analysis, and the like. These will vary with growing technical proficiency in the profession. Instead, I am concerned about the type of methods; the problem is not whether an astronomer uses the most powerful telescopic equipment to measure light waves from distant stars but whether he tries to observe the age and distance of the stars at all.

To study the social processes occurring within the between groups, we must select a set of observable criteria, conditions that indicate the events and states of social relationships. These conditions may be specified in terms of the following observational categories:

1. Material environment (available materials, limiting climatic conditions);
2. Spatial location (ecological patterns, social distance);
3. Population base (demographic variables as preconditions);
4. Structural characteristics (technology level, age distribution, social mobility, power distribution, and other features of the group that directly affect routine patterns of interaction);
5. Social characteristics (class, ethnicity, religious identification, other background traits of individuals or groups);
6. Cultural products (symbols, inventions, laws, beliefs).

In sum, the typology will build on six variable dimensions: 1) the

abstract subject focus of sociology; 2) abstract methodological strategies; 3) groups used as units and objects of analysis; 4) the group processes analyzed; 5) principle data-gathering techniques; and 6) observational categories. Using these six sets of variables, I will classify and contrast a number of major theoretical works in sociology comparing them across the entire sample of variables and making selected comparisons between different dimensions. With these comparisons, I hope to answer a series of questions such as: Do the people who share the subject-matter frameworks also share a research strategy? Are either related to the choice of group processes explained or variables observed? Do types of techniques correlate with the problems studied?

#### Traits of Sociological Theory: Research Hypotheses

To begin, the issues I have discussed include a few basic assumptions and lead to some elementary hypotheses about the nature and distribution of sociological paradigms:

Assumption.--Science is selective; each theorist chooses from aspects of the available subject matter and methodology for a particular research project.

Hypothesis Ia.--Theory-research works can be classified according to their subject matter and methodology.

Hypothesis Ib.--Natural classes or paradigms will remain fairly constant even when separate dimensions of the typology are considered independently.

Alternative.--Since the variables have not been weighed, the most important dimensions (items that involve a theorist's overall perspective) have no more impact on the classification than the minor variables. If the different dimensions yield different classifications, this problem must be explored.

In a limited sense, I am asking: Do paradigms exist in sociology? Kuhn himself doubted this. When Masterman (1970:74) analyzed Kuhn's ideas, she remarked about "trivial," "narrow" frameworks that characterized sociology. However, some theory analysts already mentioned have divided the discipline into important cognitive categories. To review: Wagner (1963) contrasted the "interpretive" and "positivistic" sociologists (along with the "non-scientific" or "evaluative" theories). Expanding this idea, Ritzer (1975) identified three paradigm groups--the positivistic social factists, interpretive social definitionists, and the positivistic social behavioralists. Other sociologists have independently chosen similar type perspectives. Abel's social realists, humanists and nominalists correspond roughly to Ritzer's factists, definitionists, and behavioralists (Abel, 1970:29-41; Ritzer, 1975:197-200). So do the theorists who prefer one of Boskoff's (1975:254) three "explanatory variables:" structured opportunities, motivations and perceptions, and social reinforcements. In other words, although Boskoff and Abel simply used one dimension for classification, their three groups would be almost co-terminous with Ritzer's paradigms. Perhaps they have located real divisions within the field.

Assumption.--Sociology is characterized by certain general perspectives, particularly the preference for explaining social life in terms of structural, definitional or behavioral variables.

Hypothesis Ic.-- The classification will conform to the three-fold typology suggested by Ritzer, Boskoff and Abel.

Alternative.--If these hypotheses, particularly Ib and Ic, cannot be supported by the classification system, I must examine the possibility that sociology does not contain paradigms (Reynolds, 1971:21-43).

These hypotheses imply important additional considerations. If theorists who discuss certain problems tend to use a few basic strategies and a few key variables, could they improve their theories by incorporating additional ones? Kuhn's basic argument denies this possibility: in his opinion, a scientist is usually locked into a paradigm, unable to even glimpse the world beyond. In contrast, Phillips (1975) suggests that paradigms are not "incommensural." A scientist can escape into a broader framework and still retain his memory of the first along with his ability to use its better facets. Indeed, a later paradigm may incorporate the earlier one as Einstein's physics included the special case of Newtonian physics. Ritzer (1975:212-19) actually named four "paradigm bridgers"--Marx, Durkheim, Weber and Parsons--theorists who worked beyond any single type combining the factist-behavioralist-definitional perspectives. The classification system may locate other bridgers or highlight the specific component missing from a particular type of analysis. Consider the bridger Marx. In much of his analysis, he neglects ecological variables. If he had incorporated these into his hypotheses about how groups form collective awareness, he probably would have analyzed interaction within a community as a possible source of group consciousness. Community consciousness, in turn, could have rivaled class consciousness as a possible source of political action. Following this line of analysis, Marx might have anticipated nationalism along with class rebellion. Nationalists of the world arise . . .

Assumption.-- Theorists who combine dimensions in "unconventional" ways may be paradigm bridgers.

Assumption.--Theoretical-methodological dimensions are normally combined in a few "conventional" ways.

Assumption.--Theorists who combine contrasting abstract subject focuses or contrasting strategy approaches may be paradigm bridgers.

Hypothesis II.--The classification system can identify theorists who bridge two or more categories by combining traits from each in a single theoretical work.

In sum, the classification should demonstrate the existence of cognitive groups--possible paradigm groups--and provide clues about the missing items in certain perspectives. In later discussions of the classification system, I will use these clues to suggest some possibilities for theoretical reformulations combining different aspects of the various perspectives.

### Influences on Sociological Theory: Implications

#### from the Sociology of Sociology

The sociology of sociology is but one variant on the sociology of knowledge, or as some prefer to call it, the sociology of culture (Crane, 1972:129-42). This discipline builds from one key postulate: truth is a dependent variable (Boskoff, 1972:172-97). The independent variable, however, ranges from abstract ideational configurations to pure self interest. Sorokin (1947) identified dominant cultural themes and traced their effects in art, science, religion and other forms of thought. For Marx (1844:106-19) and Mannheim (1936:270-71) social organizations were the key independent variables. Marx explained that political ideology represents the interests of the dominant class. Therefore, we might expect, American ideology stresses rugged individualism, self-sufficiency, and other virtues convenient for capitalists who do not want their taxes spent on shiftless unfortunates. Mannheim explained how our position in society, even something as subtle as the historical experience we lived

through at an impressionable moment of our lives, shapes our outlook. Hence, American depression children value "materialism" more than children of the affluent 1960s. Against this background, we can easily understand Weber's interest in value-free sociology and the Hinkle's discussion of the development of sociology as a response to World War, the Depression, and other historical events.

However, science provides a special kind of truth, a truth based on rational procedures designed to measure reality objectively. Even if values affect what we study and how we use the information later, must they also redirect the process of our search for this objective, rational truth? Within contemporary sociology, one group--the radical-critical theorists--has been especially concerned about the ties between our extra-scientific allegiances and our scientific perspectives.

The radical-criticals launch their methodological critique from the basic assumption that the social order can (and probably should) be changed. Sociology should study "the root relationships of the historically conditioned--and therefore changeable--social order" (Horowitz, 1971:12); it should criticize society beginning "with the adumbration our historical secularities" (Birnbaum, 1971). This pervading interest in "life as it could be" instead of simply "life as it is" has led the radicals to certain methodological stances; they criticize interpretive sociologists for stressing individual reactions without revealing the structural conditions that provoke such reaction. They castigate the systems analysts for providing ahistorical descriptions of current functions, functions that appear to be universal necessities. They condemn the methodological pioneers for specializing in irrelevance, for contributing more to our knowledge of formal thought than to our knowledge of the social problems we should think about.

They have not, however, provided a methodological tradition of their own. T. R. Young (1971) suggests that a "conflict theory" requires a "conflict methodology," that is, a politically informed sociology must discover more than respondents are willing to tell. People often reveal their true position only when threatened or tricked by an aggressive interview, a devious maneuver, torture, legal action, or some other device that strips away usual excuses. He is quite correct: being nice to respondents does not always elicit the full truth. On the other hand, there is no reason why any efficient methodology (including this one) cannot be used for both radical and non-radical purposes. Some of the "conflict" techniques suggested by Young have long served to gather information for various established governments. A good marketing survey on the effects of advertising can tell the marketing expert how to sell his product and the consumer-affairs advocate how to promote sales resistance (Becker and Horowitz, 1972). For radicals, then, the real problem is not how we get information but how we use it. Nonetheless, they do demonstrate that our values may incline us toward certain methodological positions.

#### Science: A Social Product

Assuming for the moment that the scientific process does respond to social pressures, we may speculate about the structural mechanisms involved. To begin, Znaniecki has described the "man of knowledge;" a social person acting within a circle of other people--fellow scientists, publishers, lay audiences, government agencies--who evaluate him in terms of his performances as a scientist (1965:220-39). Roger Bacon may have labored in an isolated tower, monastic not ivory, preparing manuscripts that would not be appreciated for centuries. But most scientists prefer more intimate interaction with their social circle and seek guidance from other members

about both the style and procedure of their science. The lone innovator who roams freely in search of the unexpected often becomes a tragicomic figure. His ideas do not "fit," however brilliant they may be; he does not solve the problems that are troubling other circle members (1940:55-69, 164-99).

Although he began with Weber's ideas rather than Znaniecki's, Merton provides several examples of research illustrating the power of the social circle. Reviewing historical data, he documented the ties between Puritanism and the growth of seventeenth-century English science (1938). The Puritan value stress on rational approaches, empirical studies, and utilitarianism could naturally foster a flowering of the "hard" sciences. If so, Merton reasoned further, then a disproportionate number of Puritan sectarians should have pursued physical-science studies and entered scientific groups like the Royal Society. And indeed they did. More recently, Merton has documented other ties between social values and scientific institutions. There is, even within the scientific community, a firm tendency to accept traditional authority: hence the Matthew effect--those who have, get--famous men get more credit for the same work than their lesser known fellows (1968). Finally, examining another value held within scientific circles, Merton (and Harriet Zuckerman) have observed how age and the traditions of authority associated with age affect a scientist's reputation among his peers. In areas with a well-developed theory, the scientific community will quickly recognize and acknowledge the contributions of a newcomer. In contrast, recognition in less codified fields (like sociology) is accorded to the mature judgment of older scientists (1972).

Merton's work suggests another problem: the existence of more than



one relevant social circle--at a minimum three possibilities including the scientist's particular subfield; the discipline as a whole; and the overall cultural community. How can these circles variously shape the process and procedures of science? Certainly a social circle of like-minded astronomers describing the heavens with Newtonian principles will share formulas, techniques, discoveries. But what if half of them subscribe to Einstein's principles instead? In Kuhn's terms, the discipline is undergoing a revolution with two competing paradigms struggling for control. If these two groups of scientists use different assumptions to find different truths, we may wonder if they also belong to different social circles. In sum, do paradigm affiliations depend on independent social networks? The next question, of course, is whether a discipline's internal networks affect its response to the wider community. Simmel hypothesized that people in routine, business-as-usual occupations reflect their position in society whereas those in turbulent, problematic occupations tend to concentrate on professional problems instead (1908b:185-88). If this is true, we could expect the history of a scientific discipline to reveal a continuous cycle alternating between times of internal quarrels and periods when everyone seems to be asking: "What does astronomy do for mankind?" Others--Marx, Veblen, Mannheim, to name a few--have suggested that occupational groups tend to form a peculiar ideology regardless of their internal condition. Finally, assuming that the outer circle does, somehow, affect a scientist's values and ideology, we come to another important question--Do these ideologies also shape the methods we use for finding scientific "truth?"

### Social Circles in Sociology

In trying to develop a typology of sociological theory, I have

assumed the existence of identifiable cognitive types within the field. Whether these groups present opposing truths or variations on a universal theme is another issue. But, if theory types do exist, then we may examine them as dependent variables subject to pressures from the social circle.

Researchers have already identified several possible social divisions which could be termed circles. Crane found "invisible colleges" among rural sociologists (and mathematicians)--not interest groups who formed ideologies but rather social circles united in a common network transmitting the shared ideas generated by a few productive individuals (1972: 43). Members of a "college" cite each other's papers, recruit new students, form a cognitive circle (1972:129-42). Crane (1967) also located a "gatekeeper" mechanism: even with anonymous reviewing, a disproportionate number of authors in a magazine issue share a university affiliation and background in common with the editors. Whatever the reason for this phenomenon, it indicates some sense of cognitive purity.

Therefore, we can assume at least a limited commonality among different groups in sociology, with scientists trying to perform for an admiring circle of like-minded colleagues. But do circle members share a paradigm? Mullins alone addresses this question. Unfortunately he answers it by fiat, giving only his word, for example, that his own group, the structuralists, differ significantly from the "standard American sociology; faith of our fathers, living still . . ." (Truzzi, 1975). However, as Mullins (1973:12, 14ft.3) himself explains, sociologists who can barely distinguish the major points separating distant camps perceive subtle nuances within their own--just as the college teacher can recognize a full professor and an instructor but often cannot explain the difference

between a mechanic and a machinist's helper. Indeed, theoretical groups may be composed of people who only think that they have a special way to think alike (Mullins, 1968). In short, we do not know whether Mullins' structural groups also share cognitive paradigms or whether they just share a rather limited core of more minor ideas. (See Reynolds, et al., 1970 for a concrete example of a circle with a limited core of subparadigm ideas.) As one way of investigating this kind of possibility, I suggest looking for correspondence between various circles and cognitive types identified in the theory taxonomy.

Assumption.--Paradigms, if they exist in sociology, delimit subject focus, explanatory principles and methodological strategy.

Assumption.--Inner social circles exist in substantive areas like "rural sociology."

Assumption.--Inner social circles form around core ideas like "structuralism."

Hypothesis IIIa.--The members of particular substantive circles in sociology will produce works that are similar to the works of fellow circle members.

Hypothesis IIIb.--The members of a social circle formed around core ideas will produce works that are similar to the works of fellow circle members.

Assumption.--Inner social circles are composed of people sharing a communication network.

Assumption.--Personal-communication networks create a more cohesive circle than networks bound simply by more formal communication in journals and other official platforms.

Hypothesis IIIc.--People trained both in the same tradition and at

the same school will be more likely to produce similar works than theorists who simply share the same substantive interests.

Alternative.--Even if different paradigms exist, they may not be limited to circle membership. Furthermore, the ideas I have chosen to define categories may be so general that they will be adopted by all cognitive circles.

The people who share similar ideas are not the only members of the scientific community engaging in communication. When discussing the functions and dysfunctions of paradigms, Ritzer (1975:202-03) referred to some famous quarrels--Mead's attack on behavioralism, Homans' critique of social factism, and so on. In his view, such controversies (which he details elsewhere in the book) demonstrate our unreasonable tendency to view the limits of our own paradigm as the limits of scientific truth. However, Ritzer first defined his paradigms in terms of explanatory variables, methodology, and the like; then he reviewed controversies about these particular issues. Naturally, opponents fired the verbal shots from different battlements. Merton (1959b), in contrast, reviewed a series of "conflicts" in sociology that centered on a shifting variety of topical issues and involved a changing army of participants. In this situation quarrels would not identify members of opposing paradigm groups. A classification of famous fighting pairs could evaluate these two views of conflict by showing if the combattants tend to come from similar or different groups.

Assumption.--Quarrels grow from paradigm perspectives, not just from specific issues.

Hypothesis IIIId.--Opponents in famous substantive or methodological controversies will tend to belong to different classification categories.

Implication.-- If Hypothesis IIIId proves true we should explore the paradigm implications of controversial issues. These may reveal the points from which we should reformulate theory in the direction of one paradigm.

Throughout the discussion so far, I have assumed static paradigms--one mind set in the cognitive circle. However, those who prefer to think that change marks the history of the discipline may wonder whether this change affects the cognitive orientation of circle groups. Deutsch (1971) identified seven "major advances" in sociology between 1900 and 1965, each of which has inspired innumerable elaborations. As community studies, ecosystem theory, bureaucracy analysis, and other advances become common in the discipline expanding groups of researchers--similar to Crane's rural sociologists--would form to pursue each interest. A similar process must occur when new tools enter the cultural-cognitive network--first an inventor, then a small group of pioneers, finally a large coterie of scientists examining the small details and perhaps a new inventor looking at the insolvable problems (Wallace, 1971:104-05). As these groups form and grow, what happens to their cognitive composition? For small groups, Simmel predicted a doctrinal unity followed by a diffuse spread of ideas as the group compromised doctrine point by point in order to convert new disciples (1908a:94-95). With his structural sequence (of normal, network, cluster, and speciality-discipline stages), Mullins (1973) describes the same process--first a small group of innovators and pioneers, then numerous disciples exploring the outer ramifications of "breakthrough" ideas. So, we may predict that the researchers who explored "community" or "symbolic interaction" during the 1920s and 1930s shared more common ideas than their counterparts today. Furthermore, the research strategy of a pioneering substantive group would stress exploratory approaches over theory-testing ones.

Assumption.--The inner circle changes over time.

Assumption.--Circle changes are related to the cognitive composition of the group ideas.

Hypothesis IVa.--In the early stages of a specialty, theoretical-research works tend to be more similar to each other than they are in later stages.

Hypothesis IVb.--When a new tool is introduced to a discipline, its initial users will tend to be very similar to each other.

Implication.--The data may reveal that certain cognitive constellations tend to mark early and late stages of a specialty. If this is true, then perhaps we should plan to vary our theory-building procedure with the stage instead of seeking a comprehensive procedure to handle a substantive area or the entire discipline as a unit (Merton, 1959).

Following Sorokin's (1947) thesis, we can expect the cultural community--the outer circle--will also exert its influence on science. Certainly that was the thrust of Merton's (1938) argument when he studied the Puritan cultural community with its stress on utility and then examined utilitarian values in the writings of Puritan scientists. Sociology is not immune to such influences. The twin horrors of lower-class misery beginning with the Industrial Revolution and lower-class rebellion beginning with the French Revolution combined with the hope that science could extinguish the fires (or at least teach us to bank them) formed the cultural constellation behind sociology. (See Bramson, 1961; Durkheim, 1890; Nisbet, 1966:21-44.) The tools developed in other sciences also shaped the direction sociology would take--a flirtation with biological analogies, a serious pursuit of statistical analysis, a continuing interest in causality. (See, for example, Douglas, 1971).

Drawing from Marxian ideas, the radical-critical sociologists identify dominant-group ideology as one of the more pervasive cultural influences over sociology, the substance if not the methodology as well (Becker and Horowitz, 1972). Although the classification system does not offer any way to test the relationship between culture itself and the corner of it called sociology, the system can evaluate works written by people with different political perspectives (using Friedrich's "prophets" and "priests") to see if these perspectives also affect cognitive perspectives.

Assumption.--Political ideology shapes other cognitive perspectives.

Assumption.--Sociologists tend to assume "conservative" or "radical" stances toward society.

Assumption.-- The "prophetic" stance is basically "radical" and the "priestly" stance basically "conservative."

Hypothesis V.--"Priestly" and "prophetic" sociologists will form two cognitive groups producing two different types of sociological works.

#### Sociology of Sociology: In Conclusion

In sum, we know that cognitive social circles exist within scientific disciplines. These circles form around networks of communication; they do not necessarily presuppose physical interaction or common self-interest but, instead represent a tradition of shared perspectives spread through scholarly communication. The fundamental question here is whether these perspectives are broad enough, deep enough, pervasive enough, and inclusive enough to be called paradigms.

Once we have identified such circle paradigms--or satisfied ourselves that they do not exist--we may explore the implications of social cognitive circles for the whole discipline. If circle networks spread ideas within paradigms, then these networks also raise communication

barriers between paradigms. This implies that separate camps within the discipline systematically eliminate a set of key ideas from their theory-building repertoire. Other-paradigm perspectives become heresies to argue against (Ritzer, 1975:201-08). On the other hand, if circles form around substantive interests (Crane, 1972) or single-theoretical ideas (Mullins, 1973) that do not happen to belong in single paradigms, then we can assume each circle contains the entire repertoire of theory-building tools. Policy implications--for example, the staffing of graduate schools--would also change depending on the relationships between circles and paradigms and how we assess the functional value of this relationship.



## CHAPTER III

### NUMERICAL TAXONOMY APPLIED TO THEORY CLASSIFICATION

Typology construction in sociology ranges from the clustering of innumerable variables on the basis of some common factor or latent structure to the listing of important theoretical considerations that should mark a type if it conforms to a particular possibility. These typologies define concepts as groups of items. Ideally, we try to build types so that groups of clearly related items cluster within each type and the types themselves relate to some outside feature. This process streamlines theory building by enabling us to conceptualize items in groups rather than one by one by one (Stinchcombe, 1968:38-47). In empirical practice, typologies must handle two kinds of items: characteristics or traits and individuals who exhibit these characteristics. We have already reviewed how variable traits become part of a typology. Either they are chosen from a large pool of empirical variables or they are selected for relevance in some theoretical framework. Beginning with the list of empirical variables, for example, we can profile cities according to their relationship to various factors or we can identify "egoistic" suicide occurring in a social situation. Using the directly theoretical approach, we can contrast a real bureaucracy with an ideal one or examine the effect of certain pattern-variable combinations on middle-class child rearing.

These examples all exhibit a common strategy. They build from variables collected in a concept system to a discussion of how individuals possessing a particular constellation of traits would behave (McKinney, 1966:35-67). Theory classifications reverse this approach

by beginning with a collection of similar theorists and proceeding to a discussion of what traits create this similarity. Thus variants of Q-methodology have inherent attractiveness for theory classifiers (Sneath and Sokal, 1973:114-16, 256-59; Kerlinger, 1973:582-600). We normally assume that individual theoretical works possess an internal coherence, that they form an articulated system not just a random collection of conceptual parts. In analyzing such coherent systems, we cannot simply note, among other things, whether theorists who stress values often neglect ecological variables. We want to identify a theorist like Marx, whose work could be enriched in certain aspects by the incorporation of ecological variables. Thus, for analyzing types of theory we must begin by identifying clusters of theoretical works instead of clusters of theoretical traits.

Other social scientists have begun experimenting with various modern biological techniques to identify human groups. Wilkins and Smith (1964) borrowed a simple method for grouping delinquent boys through a series of dichotomous splits, first in the original group and then in some of the successive groups. Driver (1967) reviewed various more sophisticated classification approaches in bioanthropology, linguistics, archeology and ethnology. In each of these fields, anthropologists face the classical biological clustering problem: grouping very similar individuals on the basis of numerous related traits. In political science, Alker (1969) complained that many promising approaches, including the ones I will try here, have not been adapted to the study of similar political behavior exhibited by people who share similar background characteristics. Finally, in his recent review of sociological clustering methods, Bailey (1975) referred to the possible, but largely

untested, utility of biological clustering techniques in sociology.

For this reason, in my attempt to develop a numerical classification for theory, I have chosen to use an approach developed in biology instead of the clustering techniques traditional in sociology. Biologists have long been concerned with the problems of grouping similar individuals both for identification and comparison of organic groups and for study of their evolutionary development (Sokal, 1966). Ignoring the problems of evolution in theory, I will simply use phenetic (or "resemblance") classification to group "camps" of theorists much as biologists group mutated forms of bacteria. But even with these simple resemblance groups, I can also look for the evolutionary effects of outside influences (like ideological preferences) much as a biologist observes whether sunlight or fertilizer change the traits within plant groups.

Both social science and biology have long used skilled, intuitive scholars to define groups like species or civilizations and assign individual animals or societies to the various types. Numerical taxonomy provides a routinized mechanical method for achieving the same results with greater speed and more accuracy. It groups units (like bacteria) into taxa (or species) on the basis of numerous variable-character states. In other words, numerical taxonomy provides a system for listing a large number of variables, coding individuals according to each character trait, identifying groups of similar individuals, and, an important addition, providing the mechanical routine for identifying additional individuals as members of some established group (Sneath and Sokal, 1973:3-4). This procedure has important advantages over the old "creative" way: it integrates information about many characteristics, more than we could handle in conventional classification; it provides a

coding procedure for unskilled, routine workers; and it forces us to really define variable traits in explicit coding terms (Sneath and Sokal, 1973:11). So if the classification system does no more, it can at least inspire more rigorous thinking about theoretical characteristics and a more comprehensive appreciation of the patterns these characteristics tend to exhibit in various research works.

To adapt the numerical taxonomy approach for this classification, I propose a five-point strategy:

- 1) definition of key variables;
- 2) definition of taxonomic groups;
- 3) evaluation of the resulting classifications;
- 4) investigation of how theory groups relate to outside influences;
- 5) evaluation of all classification results in terms of theory reformulation.

The first four points actually could apply to any numerical taxonomy although they need some modification for application in sociology. The last step, however, requires an addition to usual procedure. Normally biologists want to identify flora and fauna, not restructure them-- although it is possible, at least theoretically, to combine these traits in new ways and create new animals (Sokal, 1966)--or new modes of theory. For us, such rearrangements have great practical importance because theory transmutations can be effected in "real" life. So I will explore such possibilities; only instead of using the computer to rearrange traits in all possible combinations, I have chosen to examine the data matrix personally and discuss some of the rearrangements and combinations that appear fruitful for sociology.

### Taxonomy Construction

In numerical taxonomy, workers assign individuals to types according to their position in a resemblance matrix comparing each individual with every other on the basis of similarity (or dissimilarity) in character traits. Thus, the resulting types describe groups of individuals who share a certain range of similarity. High similarity does not mean, however, that all group members share any one particular trait much less a single defining characteristic (Sneath and Sokal, 1973:21). Instead of grouping "ethnomethodologists" or "Kantian formalists" and then discussing other traits within each group, numerical taxonomists consider a collection of characteristics simultaneously as if all had equal weight or influence in defining the type. If we discover a few important traits that actually do identify works as members of a particular class, then we can use those traits alone in later classifications. Alternatively, we may discover that numerical taxonomy defines groups we already recognize, groups defined on the basis of Kantian epistemology, organic analogies, or other variables not used here. In this event, the numerical types may prove useful for describing the additional theoretical components associated with major approaches. Do "formal" sociologists work inductively or deductively? Do they concentrate on interpersonal relations or social structure?

Numerical taxonomy contains no magic formulas for answering such questions. Good classification rests on the selection of appropriate variables, the construction of an appropriate similarity matrix, and the development of a classification from the matrix. This section will outline the techniques essential for all three and the following sections will review strategies for the evaluation of taxonomic results,

particularly as this evaluation also helps us to assess the various hypotheses suggested earlier.

### Variables

Numerical taxonomy uses two kinds of variables--in technical terms, operational taxonomic units (OTU's) and character traits; in our terms, theoretical works and variables describing theory. Both sets of variables should be selected to "represent" the population we are trying to describe. However, numerical taxonomy does not assume random sampling or selection of either.

In selecting individuals to classify, taxonomists try to find a range of possibilities, not a selection weighted according to their actual frequency in the population (Sneath and Sokal, 1973:68-71). A random sample of birds in Illinois would contain hundreds of starlings but might miss red-winged blackbirds altogether. A good classification should evaluate one example of each. Obviously, then, selection of OTU's begins with some foreknowledge of the results. Although taxonomists have not agreed on theoretical rules for maintaining prescience without prejudice, the rules worked out in practice seem to include: selecting individuals varied enough to provide a range of possibilities while at the same time using a group large enough for any planned statistical evaluation but small enough for ease in computation. Once a classification is established more individuals can be added one by one. Indeed, a classification's ability to incorporate new individuals is one sign of its value or validity.

For the initial classification I have chosen twenty-five theoretical works ranging from one by Comte (a "positive organicist") to one by Blalock (a "new causal theorist"). These works (listed in

Appendix A) represent many strands of theoretical thinking often identified by other theory classifiers. Some strands ("new causal modeling," for example) obviously are very much alive today; others appear dead or dormant with mere remnants extant in current thinking. Or perhaps the work of men like Comte is more alive than we think. Certainly an evaluation of the similarity between his approach and recent theoretical fashion would be one way of assessing whether Comte and similar early theorists pioneered the paths we still travel or explored unfruitful fields. So, I have included works representing a wide range of theoretical perspectives without deciding in advance which historical ideas are most important today.

The traits or characters form the other set of variables for the original data matrix (Sneath and Sokal, 1973:71-75). Each trait must be a sensible, tangible object, something we can measure directly from observation of the OTU's (Sneath and Sokal, 1973:17-18). Beyond that we must consider the criteria for choosing traits, the proper number for an adequate measure of types, and the coding best suited for both the traits and their placement in a similarity matrix (Sneath and Sokal, 1973:103-13). First traits, like OTU's, represent a spread of possibilities, a selection from areas we have already defined as important. Traits should also vary from individual to individual--for classification purposes it is senseless to measure either mammals or fish by whether or not they breathe with lungs. But we might use lungs as a trait for evaluating all animals. Traits may be related--given the nature of classification systems, they often are--but one trait should not be the necessary or logical consequent of another. If two traits must occur together, why measure both? Deciding how many traits to use is another important con-

sideration. Early taxonomists, looking for a number large enough for use in possible statistical testing, preferred sixty or more. More recent workers set a much lower limit based on practical criteria: we should use enough traits that the addition of one more would not affect the resulting classifications. Thirty seems large enough (Sneath and Sokal, 1973:162-65). Numerical taxonomy also solves the coding selection problem in a practical manner. Without parametric estimates of the character variables, there is no inherent advantage in ordinal and interval measures. In fact, even when such measures represent the data accurately (which is not true in this instance), nominal-level codings are generally very close to the results of more sophisticated, more costly, more time-consuming approaches (Sneath and Sokal, 1973:147).

I have already discussed the trait or character variables--subject-matter perspectives, observational categories, and the like--at length. (See list in Appendix B.) They form a nominal set of independent and partially related traits, naturally coded as present (1) or absent (0). With the abstract variables, I have coded each end of the polarity as two separate items. For example, a theorist might or might not define social subject matter in subjective terms; he might or might not define it in objective terms. A theorist could be both interpretive and positivistic but no theorist can be neither. (For coding details see Appendix D.) Thus, although the traits are not necessary or logical consequents of each other, many are related and the coding procedure must measure this relationship. This coding also creates sixteen variables out of eight polarities. Added to the other traits, they bring the traits to forty-two, an acceptable number.



Types

After coding the traits, we can assemble a data matrix of the theoretical works by character traits ( $t \times n$ ). The next step is measuring the similarity (or dissimilarity) between OTU's and translating these results into a similarity matrix ( $t \times t$ ) which, in turn, can be analyzed to define the types. The basic rule that applies to coding also operates here: keep it simple. Complex procedures generally yield results quite similar to those of simple techniques unless there is some problem in the data requiring special handling (Sneath and Sokal, 1973:147). So, with this rule in mind, I have chosen the simple matching coefficient, modified elementary cluster analysis, and factor analysis for constructing the classification system.

If positive and negative matches are equally important--if it is just as important that two theorists both have or both do not have a particular trait--then the simple matching coefficient ( $S_{sm}$ ) measures dichotomy similarity very well (Sneath and Sokal, 1973:132-33)

$$S_{sm} = \frac{m}{m + u}$$

when  $m$  represents a positive or negative agreement between two individuals (both coded 1 or both 0) and  $u$  represents a difference between them on any given trait. After computing the similarity for each work compared to itself ( $S_{sm} = 1.00$ ) and compared to every other work ( $S_{sm} \leq 1.00$ ), we can present the results in a similarity matrix ( $t \times t$ ) showing the relationship of each work compared to every other work.

In addition to being a straight-forward measure,  $S_{sm}$  also approximates a binomial distribution if more than twenty traits have been used. Actually the binomial distribution overestimates the variance of  $S_{sm}$  by ten to twenty per cent, thus forming a conservative estimate of confi-

dence limits for any given coefficient and providing a conservative way to estimate the significance of difference between any two coefficients. This relationship between  $S_{sm}$  and the binomial distribution allows limited statistical testing of classifications based on  $S_{sm}$  (Sneath and Sokal, 1973:132-33).

Before testing, however, we must first define the class groups by clustering the coefficients into high similarity groups. For this classification, I have modified elementary cluster analysis because it too is a simple, straight-forward approach for this particular data. ECA consists of two basic steps: choosing a series of similarity levels and identifying successive clusters of OTU's that share various levels of similarity (Sokal and Sneath, 1963:179-80). Beginning with the highest similarity coefficients, we could isolate several small clusters of closely related theory works from assorted, less related works. By lowering the required similarity level, we incorporate the unattached units into some group but, with this particular procedure, we may very well incorporate some of them into two or more groups at the same time.

This dual-membership phenomenon violates the basic rule of typology construction requiring exclusive categories. However, in many situations, real data also violate this rule (Sneath and Sokal, 1973:207-08). Some classification techniques would definitively incorporate the low-similarity items into some group, perhaps by defining a large, loosely related class that includes both of the smaller groups along with the units lying between them (Bailey, 1975). But, for our purposes, it would be better to think of two types and a possible paradigm bridge belonging to both. Thus, elementary cluster analysis provides one way to evaluate an hypothesis about the theory-classification system:

Hyp II--Paradigm bridgers can be identified by the classification system.

The only real disadvantage of using this technique here, if we can call it a disadvantage, is the necessity of defining cut-off points and rules for dealing with low-similarity OTU's before actual analysis in order to reduce bias and routinize the procedure for reliability.

### Taxonomy Evaluation

How do we recognize a "good" classification system? This question troubles all numerical taxonomists because there are no clear answers (Sneath and Sokal, 1973:63-67). Numerical procedures will always define some types. The question asks whether the types describe data and whether the classifications system (and its procedures) are simple enough to be practical. The simplicity problem is one reason, among several, I chose the simple matching coefficient and elementary cluster analysis for this classification. Sociologists need a system for examining new works (and possibly new character traits) quickly and easily, not a complex procedure that defines classes of fossils "for all time." The other problem--whether the types exist in data as well as in the system--cannot be handled so readily. Nonetheless, we can estimate the validity of a taxonomy in two ways: by examining the classification statistically and by assessing the classification's usefulness in further analysis (Sneath and Sokal, 1973:275-77). In the statistical examination, we can define confidence intervals for similarity coefficients, and describe the "fit" between the classification and the data. For the other assessment, we must replace mathematical procedure with insight to judge whether theorists seem to belong in their types and whether the types themselves, along with the original data matrix, suggest new ways to evaluate or reformulate theory.

### Significance Testing

Strictly speaking we cannot test the significance of all relationships in a classification. Nor would we want to do this. The focal point of evaluation must be the classification as a whole rather than any particular relationship within it. Indeed, in this taxonomy the outer members of one group may be quite similar to the outer members of a neighboring group or actually belong to both. Furthermore, the whole system marks small divisions between the works of thinkers who are, we assume, basically orientated toward explaining similar problems with similar techniques. Sampling procedures also vitiate many forms of statistical analysis. In R techniques, we draw a random sample of independent individuals from a common population and measure their possession of certain traits. In Q techniques, we do not have a corresponding population of character traits from which to draw this sample. In other words, sampling is not random and character variables are, by definition, a diverse lot, even worse, correlated with each other in ways that violate any assumption of independence (Sokal and Sneath, 1963:153-54).

Nevertheless, we can perform some limited statistical tests to use as a rough estimate of the overall importance of relationships in the matrix (Sokal and Sneath, 1963:313-15; Sneath and Sokal, 1973:163-68). Since the distribution of the simple matching coefficient ( $S_{sm}$ ) approximates a binomial distribution, we can compute the standard error of  $S_{sm}$  and estimate confidence limits for any particular coefficient.

$SE_s = \sqrt{\frac{S(1-S)}{n}}$  when  $S = S_{sm}$  and  $n =$  the number of character variables. Given this property of  $S_{sm}$  we can look for differences between strategic coefficients. Most differences will not be significant. But, since a matrix with no significant differences would not be worth examin-

ing, we should at least consider whether the most characteristic work in one group differs significantly from the most characteristic work in another (Sneath and Sokal, 1973:284-87). One strategy for such a test would be establishing confidence intervals for high similarity within the first group and then demonstrating that the similarity between two key works falls outside of these limits. Another would be computing the mean coefficient of similarity within groups and comparing these means to the mean similarity of the group as a whole. Either procedure gives us some purchase on the first hypothesis:

Hyp Ia--Theoretical-research works fall into natural categories defined according to their subject matter and methodology--by demonstrating whether or not the system yields some significant relationships between classes.

For assessing the hypothesis predicting specific type categories:

Hyp Ic--The classification will conform to the three-fold typology suggested by Ritzer, Boskoff and Able, we could begin by looking for a three-class division and then comparing the members of these classes with the distribution that Ritzer et al. would predict. However, in order to use Chi-square with such a small number of variables, we must also collapse the Chi-square table into two cells, "works that fall into the predicted category" and "works that do not fall into the predicted category."

In other words, by examining significant relationships, we can test two basic hypotheses about any classification systems (Sneath and Sokal, 1973:284-87):

Hyp--The procedure will yield a classification of natural groups;

Hyp--A given subset of individual OTU's will fall into a given type or class.

However, significance testing must be used with caution. Sampling, as we already know, is a chancy, somewhat arbitrary procedure in numerical taxonomy. Improper sampling of either character variables or OTU's increases the variance of the similarity coefficients by some unknown amount, thus increasing our chance of making a Type I error and finding statistically significant relationships that do not exist (Sneath and Sokal, 1973:162-68). At best, significance tests serve as one way to evaluate a classification. Furthermore, even the most "significant" set of classes is only valuable because it provides a useful guide to real data.

### Best Fit

The other mathematical strategy for evaluating numerical taxonomy--looking for "best fit"--investigates another basic hypothesis:

Hyp--This classification adequately describes the original data. Of course, we must also ask: What "original" data--the data summarized in the similarity matrix (containing all the sampling errors introduced by non-random procedures) or the "real" data someplace "out there?"

If we trust the similarity matrix to reflect reality and if we use variance minimizing techniques to find exclusive clusters, we might compute a cophenetic correlation coefficient ( $r_{cs}$ ) between the unsorted coefficients in the similarity matrix and the similarity coefficient levels indicated by the classification system (Sneath and Sokal, 1973: 278-79; Sokal and Sneath, 1963:312-23). Taxonomists do not know exactly how high  $r_{cs}$  should be although the usual range for workable classification systems seems to be from .60 to .95. This coefficient can also be used to decide which of several exclusive cluster techniques provides the best description of a given similarity matrix. We can also

evaluate the hypothesis about relationships among trait variables:

Hyp Ib--The classification results (or "natural categories") will remain constant when separate dimensions of the typology are considered separately.

For example, we could classify the works using only abstract traits and then compare these results with those of the original typology.

Another possible measure of best fit is the ability of a classification to incorporate new OTU's (Sneath and Sokal, 1973:289-90). Faced with a small handful of new units, a skillful taxonomist could simply assign them to a class where they fit or decide that the system is not complete enough to include the strangers. But, to introduce any large number of new theoretical works, we should either recompute the system or develop a standard key for coding and assigning--that is, identifying--newcomers (Sneath and Sokal, 1973:394-400).

In addition, the identification process provides a second way to explore the "bridger" hypothesis. If certain trait variables prove "most characteristic" of a class, bridgers may be defined as theoretical works that belong to the class but score in uncharacteristic ways, at least on the key variables. Furthermore, if Ritzer's thesis is correct, the abstract character variables are the ones most apt to define the bridgers. Although most class members may score positive on some of these traits and negative on others, the bridgers would be more likely to score positive on both, to use contrasting abstract perspectives simultaneously in their works.

#### Evaluating Additional Hypotheses

Once they have constructed a classification system, taxonomists can easily use it to assess the relationship between classes and "out-

side" (environmental) variables (Sneath and Sokal, 1973:373-76). The basic three-step procedure includes:

- 1) choosing a group of OTU's that have some "outside" quality;
- 2) if these units have not already been classified, recomputing the system or identifying these units as members of some existing type;
- 3) using a statistical test (like Chi-square) to confirm or deny a significant relationship between membership in a class and possession of the "outside" variable.

For our purposes, the most problematic step would be the first, choosing the proper theoretical works to test each of the remaining hypotheses:

Hyp IIIa--The members of particular substantive circles in sociology will produce works that are similar to the works of fellow circle members.

Hyp IIIb--The members of a social circle formed around core ideas will produce works that are similar to the works of fellow circle members.

Hyp IIIc--People trained both in the same tradition and at the same school will be more likely to produce similar works than theorists who simply share the same substantive interests.

Hyp IIId--Opponents in famous controversies will tend to belong to different classification categories.

Hyp IVa--In the early stages of a specialty, theoretical-research works will tend to be more similar to each other than they are in later stages.

Hyp IVb--When a new tool is introduced to a discipline, its initial users will tend to be very similar to each other.

Hyp V--"Priestly" and "prophetic" sociologists will form two cogni-



five groups producing two different types of sociological work.

In some instances, for example, when comparing "priests" with "prophets," we could work from an available list. For other hypotheses, we must develop a rationale for deciding what constitutes a "famous controversy" or "substantive circle." In other words, there is no common pool of possibilities from which to draw a random sample, so researchers must follow the usual numerical-taxonomy procedure of judicious selection.

Once past this difficulty we could identify the theoretical works as members of some class, setting up a two-cell table with predicted frequencies of similarities based on our hypothetical ideas. Then, with Chi-square, we could simply compare observed frequencies of similarity with predicted ones. In some instances the differences will exist, but not at a "significant" level. However, since the binomial distribution for large numbers of cases approximates the normal distribution, we could supplement the other evaluations, perhaps with t tests to contrast within-class mean similarities with mean similarities to "outside" works or with the mean similarity of the entire sample.

This research--with twenty-five works--cannot use all of the mathematical techniques described above. However, the analysis can describe how these works exhibit (or fail to exhibit) hypothesized relationships. Do Sumner, Durkheim, and Weber develop similar ideas when discussing "religious asceticism?" Does Parsons the Priest differ radically from Marx the Prophet? In the final analysis, whether we use twenty-five works or a thousand, these are the kinds of questions we want to answer.

#### Classification Utility: The Ultimate Evaluation

Thus, we may argue, a classification system can only be termed "good" because it is useful. If the taxonomy makes theory easier to understand,

easier to explain, easier to reconstruct, then it is useful. If the taxonomy tells us something about the relationship between a theorist's ideas and the social-ideological parameters of his life, then it is useful. So, as I proceed through the various sections of the classification construction and evaluation, I will suggest how we can use this particular system for more than just describing the shape and significance of similarity between Parsons and Park and Pareto.

## CHAPTER IV

### THEORY CLUSTERS DEFINED: LOOKING FOR PARADIGMS

Theorists differ, in perspective, techniques, and major conclusions. Given such differences, any well-constructed clustering procedure will produce "types" of theoretical works. In other words, we can simply apply numerical taxonomy and "interpret" the results whatever they might be. For a more informed interpretation, however, we need some standards of evaluation or some rationale for anticipating possible cluster forms.

The literature on Kuhn paradigms can provide this theoretical justification if we conceptualize clusters as groups of works sharing a paradigm and define theoretical paradigms as common cores of similar thought. We can also understand the similarity core within a cluster as a network of binary similarity relationships, that is, a network of numerous relations connecting members of a cluster while few relations spread between the cluster members and outside works. Thus all works in a field are connected to each other with some degree of similarity. "Clusters" indicate the strongly connected works (Sokal, 1974:1121).

Before examining the actual theory-clusters, I will explicate this line of reasoning in brief detail: first the conception of a paradigm and its implication for the kind of data used here; then the conception of types as clusters of binary relationships between objects.

#### Kuhn Paradigms Redefined

Kuhn, himself, defined paradigm several different ways ranging from a total scientific vision to an exemplar for research (Kuhn, 1970:

175; Masterman, 1970). He also noted that the existence of some paradigm within a discipline is signaled by close communication, often in journal articles, between specialists whose technical conceptions are incomprehensible to the average layman. Like beginning students, lay people must depend on textbooks written especially for their understanding if they want to comprehend basics in a paradigm field (Kuhn, 1970: 10-22). According to some critics, sociology reached this level of incomprehensibility some time ago, first through jargon and then through technical methodological sophistication. I am not certain, however, that this is the style of "incomprehensibility" Kuhn had in mind. Although the average reader may not understand the mathematical underpinnings of path analysis, he can grasp substantive arguments about stratification, attitude change, or some other phenomenon based on the statistical manipulations. Perhaps, judging by this standard, we may argue that sociology has not yet developed enough sophistication for distinctive world views or even exemplar research. Sociology obviously has not produced simple frameworks outlining social interaction in a few elegant laws. However we define paradigms, they will not contain the distinctive hypotheses and arguments characteristic of Newton's physical paradigm and Einstein's replacement.

If paradigms are more limited visions and if these exist in sociology, how can we distinguish one from another? Can we truly identify Homans as a "social behavioralist" distinct from "social factists" or should we place both groups together in a paradigm of "positivism?" In other words, how can we decide if sociology has paradigms and what they might be? First we must abandon the Newton-Einstein model of an ideal paradigm and think instead of minimum requirements. Masterman (1970:79-89) argues that

limited paradigms could be defined as thought typology systems with "inexact matching;" in mathematical terms, clusters or "clumps" of thought sharing a core of similarity. Such paradigms contain the incipient elements of "crisis" because clusters with inexact matching must contain unmatched--perhaps contradictory--ideas outside their common similarity core. Revolutions can occur with a shift of the core as certain fringe ideas become "absurd" and others begin to explain the absurdity.

Viewed in these terms the paradigm becomes a limited construct and the typical revolution far less unsettling than the conversion from Newton's physics to Einstein's. Indeed, normal scientists may travel the distance between paradigms during a career or even during a research project. These limited paradigms need not define "incommensurable" world views (Phillips, 1975).

Individual scientists may be blind to certain positions, even positions held by people with whom they share many points of similarity. Thus, incommensurability or paradigm-blindness may involve only certain tenets within a framework, not the entire scientific view. (As a side issue, we may note that if paradigms were completely incommensurable, then Kuhn, standing in his particular paradigm of the history of science would not be able to describe previous kinds of historical insights.)

Applied to sociology, these ideas suggest lines of interpretation. Sociology is a few hundred years younger than physics and focused on a far less predictable subject matter. This science has not had the time to experience discipline-shattering revolutions and, given the natural unpredictability of social life, it would be difficult to document the clear superiority of a new paradigm even if a revolutionary contender did

appear. Kuhn (1970:144-59) has argued that political support insures the success of a new paradigm. Mullins (1973) among others, has suggested how this political support may build through networks of disciples and colleagues. However, neither questioned the inherent scientific attractiveness of competing paradigms (Urry, 1973). If creative working scientists believed intellectual change to be no more than a trip between political groups, then many would probably abandon the pursuit for some less demanding form of futility. But, if science does depend--to some extent--on our ability to perceive truth about data, then scientists themselves probably react to the data-paradigm relationship in their discipline. Those working in fields where data seems more closely tied to paradigms, will probably form more distinct separate paradigm groups--each pointing to the data that verified its versions of truth. Scientists working in a field like sociology usually cannot demonstrate their "truths" so clearly. So, we may suspect, sociological paradigms cover limited areas, in Masterman's terms, clusters of theoretical works containing small cores of total similarity and much wider areas of partial agreement. Elements from these partial agreements may, in turn, form the total-similarity core of an adjacent group.

#### Clusters: The Paradigm Described Mathematically

To translate the paradigm idea into mathematical clusters, we must look for "natural" groups within sociology. These natural groups, if they exist, reflect modal densities of underlying variables (Cattell, 1968:99-100). This conception contrasts with the principles of dichotomy, continuum, or "school" identity that form the basis of most typologies in sociological theory. Not only does the cluster summarize the impact of a

far greater number of variables, but it also defines areas of density; that is, it places the theoretical works in a geometric space, looks for densely occupied areas, and defines types in terms of that density. These dense areas are natural groups. Ideally, we would find two or more dense clusters separated by great empty spaces (Needham, 1965)--perhaps Ritzer's three paradigm groups with each social behavioralist being totally different from each factist and each definitionist, as if Homans completely opposed Talcott Parsons, as if Parsons were unable to even comprehend Goffman or Cooley. In the real world, and particularly in the real world of sociological theory, natural groups interbreed producing semi-similar hybrids. So, instead of neat monothetic clusters in which all works share the same traits in common, we may expect polythetic clusters in which works share many traits but few, if any, traits are shared by all (Bailey, 1973b). Furthermore, two works from different groups might, nonetheless, share many common characteristics. In factor analysis, these polythetic groups would form around impure factors; although one underlying factor would appear most prominent in one group, it could be important for all (Fruchter, 1954:1-17).

The natural groups--pure or impure--form through binary relationships between works. Each group is a network of similarity relationships uniting two works at a time (Bisher and Drews, 1970:48-75). In a fully connected network, each work would be related to every other just as, in a close circle of friends, each friend has a friendship relationship with every other group member (Beauchamp, 1970:17-55; Marshall, 1971). The total similarity matrix describes such a fully connected network; each theorist related to every other although the degree of relationship varies widely. If the various groups within this matrix represent strong

paradigms, almost incommensurable with each other, then the natural groups should be fully connected on a high degree of similarity. Lower-level similarity relationships should connect theorists from different groups. On the other hand, if sociological theories are hybrid statements, theoretical works will form loosely connected groups with many high similarity levels running between groups. Some theoretical works may be central (connected to many other works) in several groups; some may be peripheral to all groups.

Normal clustering procedures can obscure these complex relationships. Average linkage and total linkage algorithms force each object into a single group even if the object properly belongs to more. If clusters are loosely related with many high-similarity connections between groups, single linkage methods will quickly group all works into one large, string-shaped cluster. In other words, the usual variance minimizing procedures force each work into a single group. If pure, sharply delineated groups actually exist, this poses no problem; any standard technique will serve to identify dense clusters with large spaces between. For theory groups, however, we must anticipate overlapping clusters and use approaches that reveal this spread. Factor analysis, comparing the relative association between works and some common properties, provides clues for interpreting theory groups in terms of these properties, whatever they might be. Smallest space analysis seems a potentially good combination technique for measuring distance between theorists: it clusters similar items into a small geometric area representing their common property (McFarland and Brown, 1973). However, since we cannot anticipate either the dimensions of the clustering or the nature of the underlying common elements, the techniques that assess



these phenomenon directly are more appropriate for now.

Thus, the problem of delineating theory groups requires a combined strategy: one clustering technique to identify the groups indicating possible overlap between them; a second technique to trace the path of connections between works while also measuring the density within groups, and factor analysis to provide a parsimonious summary of commonality within groups as well as a rough measure of the common dimensions of the total sample.

But what criteria can we use to judge the validity of this strategy? Since any data can be clustered and since we do not have a well-articulated underlying mathematical model for clustering, we must rely on other standards. Factor analysis presents additional difficulties by assuming a linear relationship between factor variables, a problematic assumption when the variables are idiosyncratic theorists rather than continuous attitudinal scores (Fleiss and Zubin, 1969). Therefore, without external standards describing a proper tree, we must judge its fruits; at the least, we expect the theory typology to display parsimony and a "good fit" to data (Baggaley, 1964:91-96), two standards we will consider later.

### The Theory-Work Clusters Identified

To begin, both clustering and factor analysis depend on the basic similarity between theory works as defined in Chapter III. Looking at the original data matrix (Table 1), we can see that virtually all trait variables affect the classification: no traits appear always present (1) or always absent (0). Table 3, summarizing the similarity distribution among theoretical works, indicates that the trait variables do, indeed, distinguish between them. However, this table obviously does not describe a closely related band of beetles. Similarities between pairs range from

TABLE 1

## THE ORIGINAL-DATA MATRIX COMPARING WORKS BY TRAIT VARIABLES

Works*	Trait Variables																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Blak	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	1	0	0	0	0	0	0	1	1
Comt	0	1	1	0	1	0	0	1	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1
Cool	1	1	1	0	1	0	0	1	1	0	1	0	0	1	0	1	1	0	0	0	0	0	1	1
Dk12	1	1	1	0	1	1	1	0	1	0	0	1	1	1	0	1	0	0	0	0	0	0	1	1
Dk97	1	1	1	0	0	1	1	0	0	1	1	0	0	1	1	1	1	0	0	0	0	0	1	1
Goff	1	0	1	0	0	1	1	0	1	0	0	1	0	1	0	1	0	1	1	0	0	0	1	0
Ho74	0	1	0	1	0	1	1	0	0	1	1	0	0	1	0	1	1	1	0	0	0	0	0	0
Ho50	0	1	0	1	1	1	1	0	1	0	1	1	0	1	0	1	1	1	1	1	1	1	0	0
Lund	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	0	0	0	0	1	0
Marx	1	1	1	0	1	1	0	1	1	0	0	1	0	1	0	1	0	0	0	0	0	0	1	1
Mr48	1	1	1	0	0	1	1	0	1	1	1	1	0	1	0	1	0	1	0	1	0	1	1	1
Mr36	1	1	1	0	0	1	1	0	0	1	0	1	1	1	0	1	0	0	0	0	0	0	1	1
Pare	0	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	0	0	0	0	0	0	1	1
Pk36	0	1	1	0	0	1	1	0	1	0	1	0	0	1	0	1	0	0	0	0	0	1	1	0
Pk28	1	1	1	0	0	1	1	0	1	0	0	1	0	1	0	1	0	0	0	0	0	1	0	1
Pr71	0	1	1	0	1	0	0	1	1	0	0	1	0	1	0	1	0	0	0	1	0	0	1	1
Pr53	1	1	1	0	1	0	1	0	1	1	1	0	1	0	1	0	0	1	0	1	0	0	1	1
Pr37	0	1	1	0	1	0	1	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	1	0
Schu	1	0	1	0	1	0	1	0	1	0	0	1	1	1	0	1	1	1	0	0	0	0	0	0
SimC	0	1	1	0	0	1	1	0	1	0	0	1	0	1	1	0	0	1	0	1	0	0	0	1
SimP	0	1	1	0	0	1	1	0	1	0	0	1	1	1	1	1	0	0	0	0	0	0	1	1
Sumn	0	1	0	1	0	1	1	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	1	1
Tard	1	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1	0	0	0	0	0	0	1	1
We22	0	1	1	0	1	1	1	1	1	0	0	1	1	1	0	1	0	0	0	0	0	1	1	0
We45	1	1	1	0	1	1	0	1	1	1	0	1	1	0	1	1	0	0	0	0	0	1	1	0

Coser's "two-method" ideal types--regression-stratification and ethnomethodology

re-st	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	1	1
ethno	1	0	0	0	0	1	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0

\*See Appendix C for list of abbreviations.

TABLE 1--(cont)

Works*	Trait Variables																	
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Blak	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	0	1	0
Comt	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	1	0	0
Cool	0	1	0	0	1	1	0	1	1	0	0	0	1	0	0	1	0	0
Dk12	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	1	0	1
Dk97	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	1	1	0
Goff	1	1	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	1
Ho74	1	1	0	0	1	0	0	0	1	1	1	1	0	0	0	1	0	0
Ho50	1	1	0	0	1	0	0	0	0	1	1	0	0	0	0	1	0	0
Lund	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Marx	0	0	0	0	1	1	0	1	1	0	0	0	1	1	0	1	1	1
Mr48	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	1	0	1
Mr36	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	1	1
Pare	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	1	1	1
Pk36	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	0	0	1
Pk28	0	1	0	1	0	0	0	1	1	0	0	0	1	1	1	1	0	1
Pr71	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	1	0	1
Pr53	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	1	0	1
Pr37	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
Schu	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1
SimC	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0
SimP	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1
Sumn	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	1
Tard	1	0	0	0	0	0	1	1	1	0	0	0	1	1	0	0	1	1
We22	0	1	0	0	1	1	0	1	1	0	0	0	0	1	0	1	1	1
We45	0	1	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	1
Coser's "two-method" ideal-types--regression-stratification and ethnomethodology																		
re-st	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0
ethno	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1

\*See Appendix C for list of abbreviations.

.40 ( $\pm$  .15 at the .05 level) to .88 ( $\pm$  .10 at the .05 level) with a mean of .637. Table 2, describing the similarity of each work with every other work, hints at further complication of this data. The mean similarity for specific works ranges from .502 to .686. Some works, like Simmel's "Poor" and Durkheim's Elementary Forms, appear closely related to most others; at the opposite extreme, Homans's work seems marginal to the rest.

TABLE 3  
FREQUENCY DISTRIBUTION OF WORKS BY SIMILARITY LEVELS

Level	Frequency	Total Similarity Score	
.88	1	.88	
.86	1	.86	
.83	4	3.32	
.81	5	4.05	
.79	9	7.11	
.76	15	11.40	
.74	20	14.80	
.71	19	13.49	
.69	29	20.01	
.67	28	18.76	
.64	33	21.12	
.62	24	14.88	
.60	22	13.20	
.57	28	15.96	
.55	17	9.35	
.52	14	7.28	
.50	10	5.00	
.48	9	4.32	
.45	7	3.15	
.43	1	.43	
.40	4	1.60	
Total	300	190.97	Mean = .637

Figure 1 identifies the pairs with the highest similarity relationships (.71 to .88, a range which includes 63 pairs on 21 per cent of all possible pairs). As we would expect from the mean similarities, the

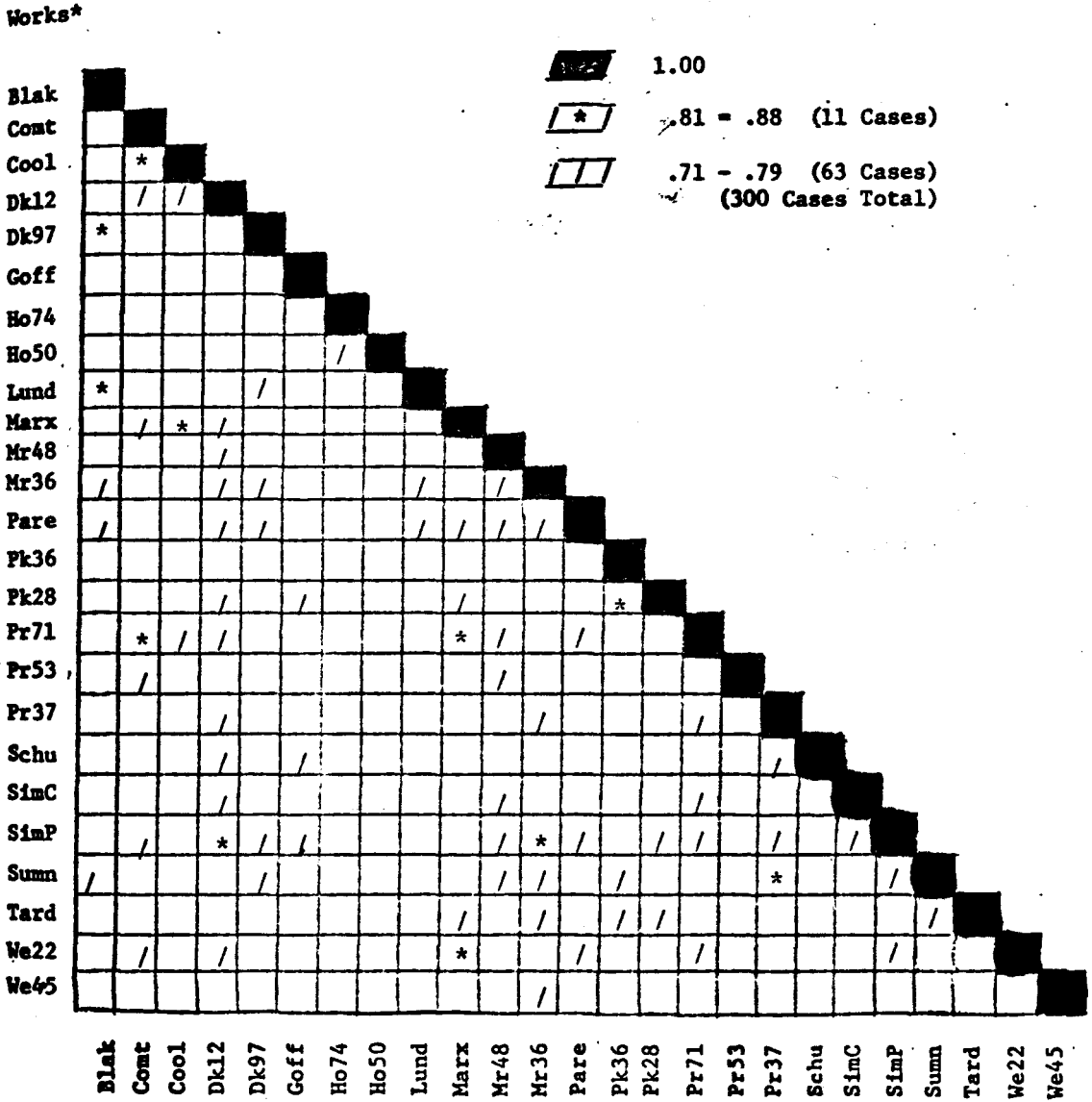


Figure 1.--High Similarities Among the Works Based on the Total Set of Trait Variables

\*See Appendix C for list of abbreviations.

the number of high similarities varies sharply between works. Like a sociometric star, Simmel's "Poor" links highly with thirteen other works, but Homans in The Human Group (a social isolate?) links highly only with Homans in Social Behavior.

But do these linkages define theory groups? Elementary matrix analysis (Sokal and Sneath, 1963:178-80) provides a preliminary answer to this question by identifying some clusters. It is the existence of these clusters, not their size, that we must consider. Since the theoretical works were chosen to represent a spread of possibilities rather than a "random sample" of likely events, an isolated work or two may represent an unknown quantity of similar items existing in the literature. With this in mind, consider Figure 2. I arranged this matrix by placing the most related pairs (.81 and above) close to the diagonal and surrounding them with the next related pairs. Assuming the classification contains several groups of works highly related to each other and loosely related to other groups, assuming this ideal situation, the final matrix should have highly related pairs lined in several clusters along the diagonal and minimally related pairs in the left-angle corner. Although the data does not conform to this ideal, Figure 2 does reveal some patterns:

- 1) Marx, Comte, Cooley, Parsons 1971, and Weber 1922; 2) Pareto, Simmel "Poor," and Durkheim 1912 (all strongly related to Cluster 1) along with Sumner, Parsons 1937, Merton 1936, Merton 1948, and Simmel "Conflict:"
- 3) Durkheim 1897, Blalock, and Lundberg (who link strongly with Pareto, Sumner, and Merton 1936 of Cluster 2); 4) Tarde, Park 1928, and Park 1936 (each of whom has idiosyncratic links with Clusters 2 and 3); 5) Schutz (related to Parsons 1937 and Durkheim 1912 from Cluster 2) and Goffman (tied to Simmel "Poor" from Cluster 3 and Park 1928 from Cluster 4);

Works\*

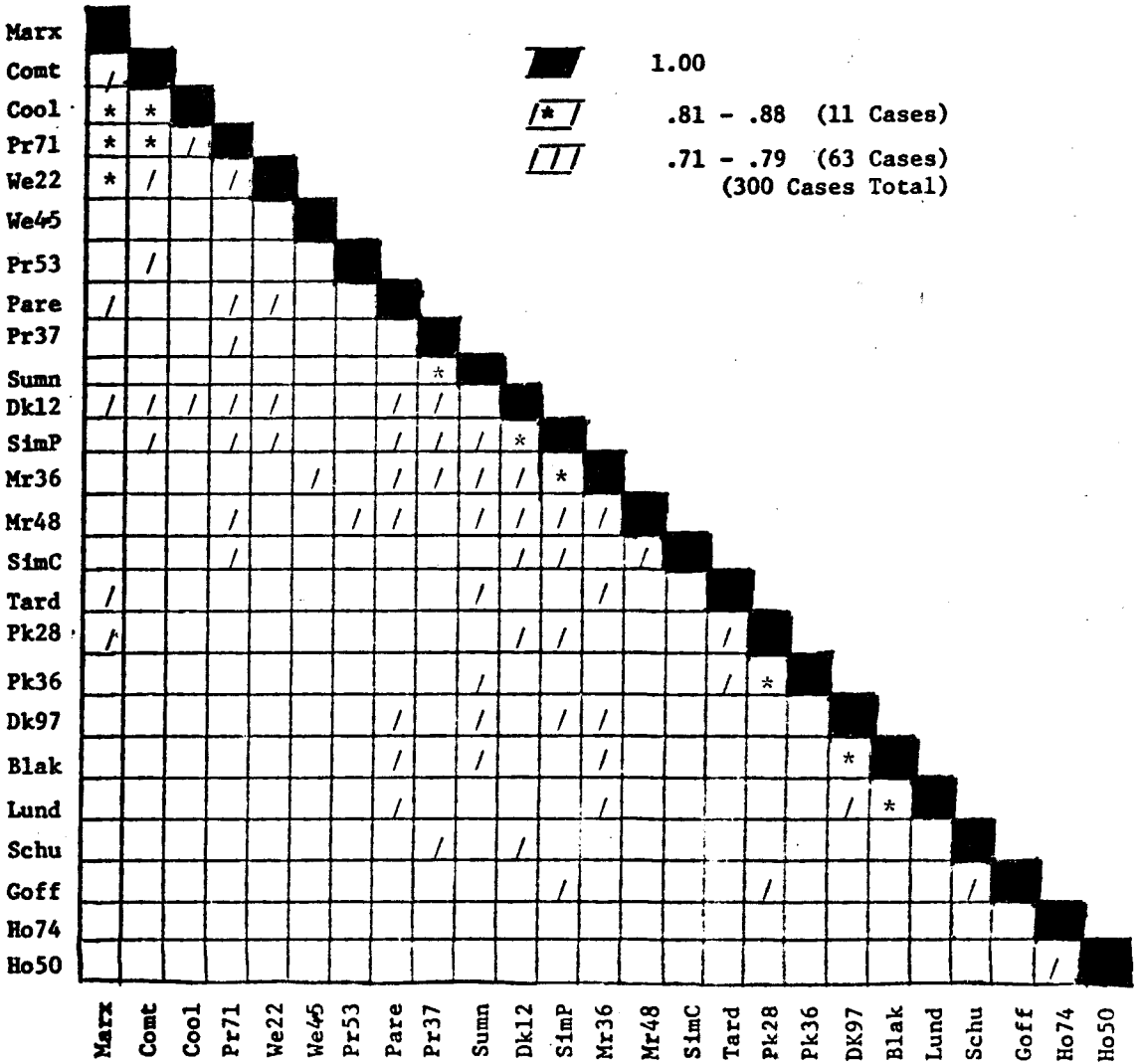


Figure 2.--High Similarities Among the Works Based on the Total Set of Trait Variables and Arranged with High-Similarity Pairs Close Together

\*See Appendix C for list of abbreviations.

6) Homans, who related highly only to himself; and, finally, 7) two outliers, Weber 1904-05 (related only to Merton 1936 from Cluster 2) and Parsons 1953 (related to Comte from Cluster 1 and Merton 1948 from Cluster 2).

Using Ritzer's (1975) terms we could identify social definitionists, social behavioralists, and several varieties of social factists. But such labels would be premature since we still must account for within-group differences and other anomalies. Why, for example, do Weber 1904-05 and Parsons 1953 appear so marginal? Neither is highly related or highly unrelated to any cluster even though most critics would consider both part of the sociological establishment rather than the artifacts of some esoteric cult. Conversely, why are Durkheim 1912, Simmel "Poor," and Pareto tied to so many other theorists? None of these works is normally cited as one of the exemplars of sociological analysis. Clearly a complete analysis of the material requires two approaches: a more rigorous exploration of clusters in the similarity matrix supplemented by an investigation of the original-data matrix for clues about how or why some works do not fit a pattern.

This more rigorous exploration may include comparisons between the original similarity matrix and matrices for selected trait variables. Figures 3 and 4 (showing the top 22 per cent of relationships for the abstract dimensions) place Durkheim 1912, Parsons 1953, and Weber 1904-05 in approximately the same atypical positions they occupied before. Pareto, on contrast, relates minimally to some of the same theorists he resembled closely in the total trait matrix. And both Homans works relate highly to several others. However, the dimension matrix can only provide clues about specific relationships. With six-



Works\*

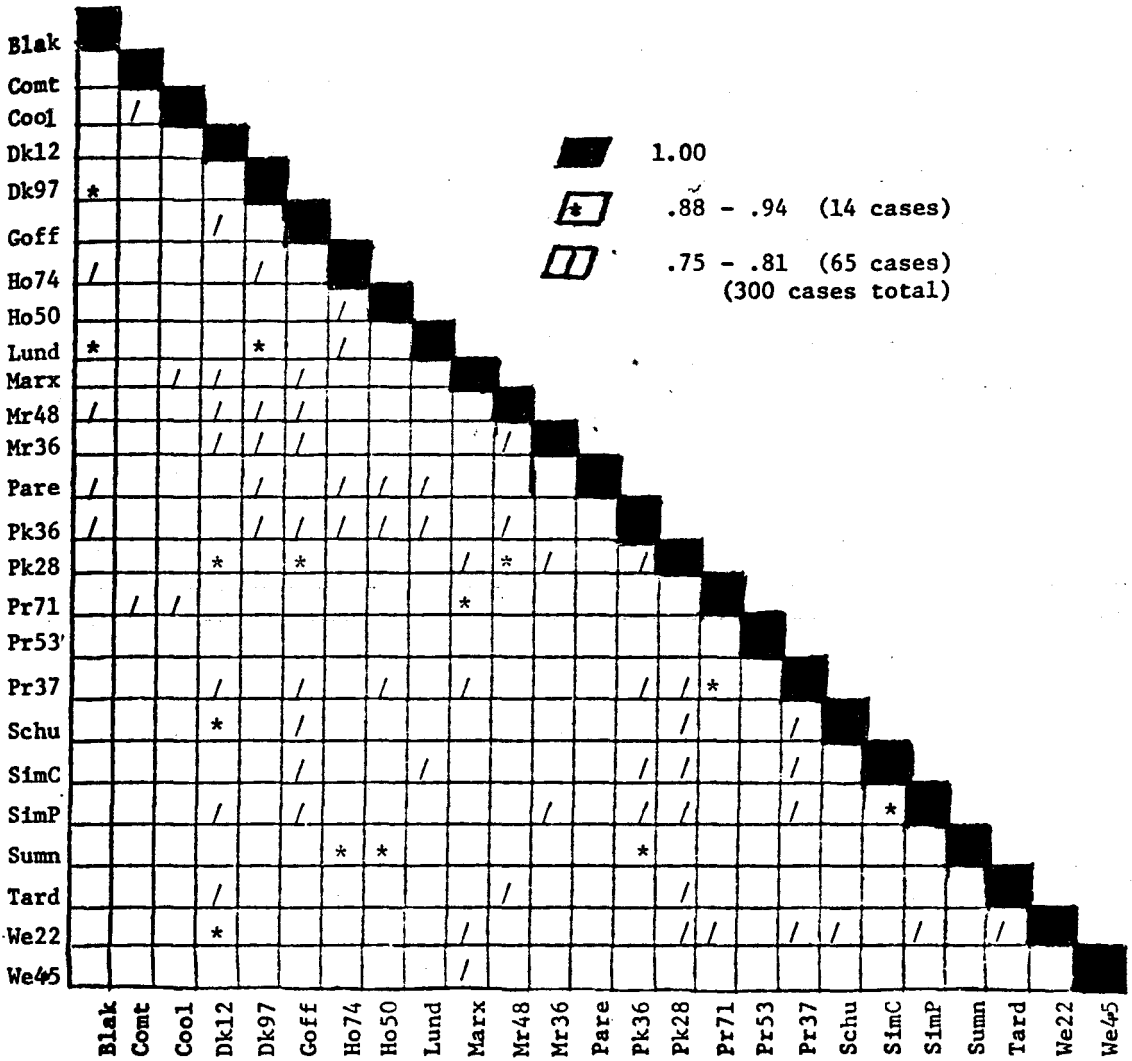


Figure 3--High Similarities Among the Works Based on the First Sixteen Trait Variables

\*See Appendix C for list of abbreviations.

Works\*

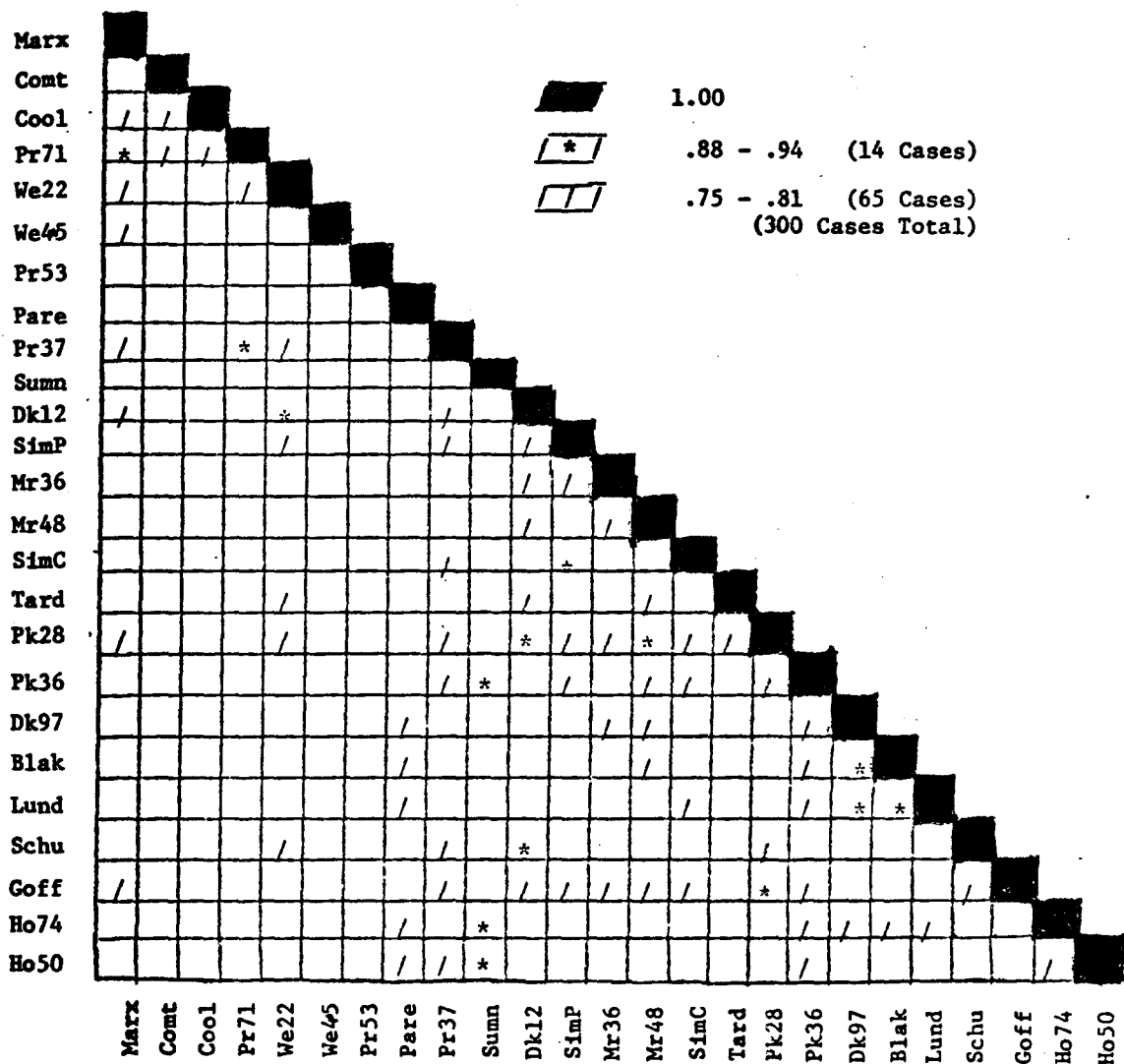


Figure 4.--High Similarities Among the Works Based on the First Sixteen Trait Variables (Arranged to Correspond with the Final Total-Trait Arrangement in Figure 2)

\*See Appendix C for list of abbreviations.

teen traits computed for Table 4, each similarity coefficient has a very wide confidence interval (between  $\pm .13$  and  $\pm .24$ ) indicating we can only interpret extremes with any confidence of a real difference. But we can draw some conclusions about relationships between abstract traits as a whole and the total set of similarities. The cophenetic correlation coefficient (a Pearson's  $r$  comparing the relative similarity level of work-pairs in Table 2 with those in Table 4) is only .388, hardly a sign that abstract orientations preclude or require some total package of sociological thought. If paradigms must be total perspectives, we will not find them with the traits used here.

For a second clustering technique, I have modified the single linkage approach. Normally with this approach, a single link can unit two otherwise different clusters: once a single linkage occurs, all members of each group are "related." But we already know three theorists, Durkheim 1912 and Pareto and Simmel "Poor," who between them are related to everyone else except Homans. Therefore, to reveal paths of relationships rather than just links between clusters, I defined permissible linkages in terms of a group nucleus of works and linkages with less highly related works joining the group. In other words, I began by identifying seven exclusive groups of highly related works. For each, I added works related to it on the next highest level of similarity. With this new nucleus I then proceeded down another similarity level until reaching .71 (the cut-off used in the elementary analysis procedure). Tables 5 through 11 name these highly related works and show the degree of relationship for each cluster. The first Cluster (Table 5) starting with Durkheim 1912 and Simmel "Poor" contains twenty-three works. Homans, in contrast, does not begin to relate to other works until level .69 (Table 11). For each work, I recorded its total and mean

TABLE 4

## SIMILARITY MATRIX COMPARING WORKS\* FOR THE FIRST SIXTEEN TRAIT VARIABLES

	Blak	Cont	Cool	Dk12	Dk97	Coff	Ho74	Ho50	Lund	Matx	Mr48	Mr36	Pare	Pk36	Pk28	Pr71	Pr53	Pr37	Schu	Sinc	Simp	Sunn	Tard	Wa22	Wa46
Blak	1.00																								
Cont	.44	1.00																							
Cool	.50	.81	1.00																						
Dk12	.50	.56	.63	1.00																					
Dk97	.54	.38	.56	.56	1.00																				
Coff	.56	.38	.56	.81	.63	1.00																			
Ho74	.81	.38	.44	.44	.75	.50	1.00																		
Ho50	.56	.50	.56	.69	.50	.63	.75	1.00																	
Lund	.94	.38	.44	.44	.88	.50	.75	.50	1.00																
Matx	.44	.63	.81	.81	.50	.75	.38	.63	.38	1.00															
Mr48	.75	.44	.63	.75	.81	.81	.69	.69	.69	.69	1.00														
Mr36	.69	.38	.44	.81	.75	.75	.63	.50	.63	.63	.81	1.00													
Pare	.81	.38	.44	.56	.75	.50	.75	.75	.75	.50	.69	.63	1.00												
Pk36	.81	.63	.69	.69	.75	.75	.75	.75	.63	.81	.63	.63	.63	1.00											
Pk28	.63	.44	.63	.88	.69	.94	.56	.69	.56	.81	.88	.81	.56	.81	1.00										
Pr71	.44	.75	.81	.69	.38	.63	.38	.63	.38	.88	.56	.50	.50	.63	.69	1.00									
Pr53	.56	.63	.56	.56	.63	.38	.38	.38	.63	.38	.56	.50	.50	.50	.44	.38	1.00								
Pr37	.56	.63	.69	.81	.50	.75	.50	.75	.50	.75	.69	.63	.63	.75	.81	.63	.50	1.00							
Schu	.38	.56	.63	.88	.44	.81	.31	.56	.31	.69	.63	.69	.44	.56	.75	.69	.56	.81	1.00						
Sinc	.69	.38	.44	.69	.63	.75	.50	.63	.75	.63	.69	.63	.63	.75	.81	.63	.50	.75	.56	1.00					
Simp	.69	.50	.44	.81	.63	.75	.50	.63	.63	.63	.69	.75	.63	.75	.81	.63	.50	.75	.69	.88	1.00				
Sunn	.69	.50	.56	.56	.63	.63	.88	.88	.63	.50	.69	.50	.63	.88	.69	.50	.38	.63	.44	.63	.63	1.00			
Tard	.50	.56	.63	.75	.56	.69	.56	.69	.44	.69	.75	.69	.56	.69	.75	.56	.44	.56	.63	.56	.69	.69	1.00		
Wa22	.50	.69	.63	.88	.44	.69	.44	.69	.44	.81	.63	.69	.56	.69	.75	.81	.44	.81	.75	.69	.81	.56	.75	1.00	
Wa46	.44	.63	.56	.69	.50	.50	.25	.38	.38	.75	.56	.63	.50	.38	.56	.63	.63	.50	.56	.50	.63	.25	.56	.69	1.00

\*See Appendix C for list of abbreviations.

TABLE 5

CLUSTER ONE BASED ON HIGH-SIMILARITY CONNECTIONS  
BETWEEN WORKS

Entrance Similarity	Works*	Total Connections	Total Similarity	Average Similarity	
.88	SimP	13	9.92	.76	
	Dk12	13	9.85	.76	
.81	Mr36	12	9.05	.75	
.79	Pare	9	6.64	.74	
	We22	5	3.74	.75	
	Pk28	4	3.00	.75	
	SimC	4	2.95	.74	
	Mr48	8	5.82	.73	
	Sumn	7	5.16	.74	
	Pr71	5	3.66	.73	
	Pr37	4	3.00	.75	
	Dk97	4	2.92	.73	
	Marx	3	2.21	.74	
.74	Comt	4	2.90	.73	
	Tard	3	2.19	.73	
	Blak	2	1.48	.74	
	Goff	2	1.45	.73	
	Lund	2	1.45	.73	
	Schu	2	1.45	.73	
	Pk36	1	.74	.74	
	We45	1	.74	.74	
.71	Cool	1	.71	.71	
	Pk53	1	.71	.71	
Total	23	110	81.74	.743	Connections Ratio** .217

\*See Appendix C for list of abbreviations.

\*\*See page 107 for explanation.

TABLE 6

CLUSTER TWO BASED ON HIGH-SIMILARITY CONNECTIONS  
BETWEEN WORKS

Entrance Similarity	Works*	Total Connections	Total Similarity	Average Similarity	
.83	Pr71	10	7.64	.76	
	Marx	8	6.18	.72	
	Comt	7	5.27	.75	
	We22	6	6.18	.72	
	Cool	4	3.11	.78	
.79	Dk12	9	6.66	.74	
	Mr48	8	5.85	.73	
	Pr37	3	2.27	.76	
.76	SimP	6	4.34	.73	
	Tard	5	3.66	.73	
	Pk28	3	2.21	.74	
.74	Pare	4	2.90	.72	
	SimC	3	2.16	.72	
	Goff	2	1.45	.72	
	Mr36	2	1.45	.72	
	Schu	2	1.45	.72	
	Sumn	2	1.45	.72	
.71	Pr53	2	1.42	.71	
	Pk36	1	.71	.71	
	Dk97	1	.71	.71	
Total	20	88	65.56	.743	Connections Ratio** .232

\*See Appendix C for list of abbreviations.

\*\*See page 107 for explanation.

TABLE 7

CLUSTER THREE BASED ON HIGH-SIMILARITY CONNECTIONS  
BETWEEN WORKS

Entrance Similarity	Works*	Total Connections	Total Similarity	Average Similarity	
.81	Sumn	8	5.97	.75	
	Pr37	6	4.60	.76	
.79	Pr71	5	3.69	.74	
.76	Mr36	8	5.93	.74	
	SimP	7	5.10	.73	
.74	Blak	2	1.48	.74	
	Tard	2	1.48	.74	
	Pare	2	1.45	.73	
	Dk12	1	.74	.74	
	Lund	1	.74	.74	
	Pk36	1	.74	.74	
	Schu	1	.74	.74	
	We22	1	.74	.74	
	We45	1	.74	.74	
.71	Mr48	3	2.13	.71	
	Dk97	2	1.42	.71	
	Comt	1	.71	.71	
	Goff	1	.71	.71	
	SimC	1	.71	.71	
Total	19	54	39.82	.737	Connections Ratio** .158

\*See Appendix C for list of abbreviations.

\*\*See page 107 for explanation.

TABLE 8

CLUSTER FOUR BASED ON HIGH-SIMILARITY CONNECTIONS  
BETWEEN WORKS

Entrance Similarity	Works*	Total Connections	Total Similarity	Average Similarity	
.83	Pk28	6	4.59	.76	
	Pk36	3	2.28	.76	
.79	SimP	6	4.37	.73	
.76	Dk12	7	5.11	.73	
	Marx	3	2.21	.74	
.74	Comt	3	2.19	.73	
	Goff	2	1.45	.73	
	Mr48	2	1.45	.73	
	Pr71	1	.74	.74	
	Pr37	1	.74	.74	
	Sumn	1	.74	.74	
	Tard	2	1.42	.71	
	Cool	1	.71	.71	
	Dk97	1	.71	.71	
	Pare	1	.71	.71	
	Schu	1	.71	.71	
	SimC	1	.71	.71	
					Connections Ratio** .154
<b>Total</b>	<b>17</b>	<b>42</b>	<b>30.84</b>	<b>.734</b>	

\*See Appendix C for list of abbreviations.

\*\*See page 107 for explanations.



TABLE 9

CLUSTER FIVE BASED ON HIGH-SIMILARITY CONNECTIONS  
BETWEEN WORKS

Entrance Similarity	Works *	Total Connections	Total Similarity	Average Similarity	
.86	Blak	5	3.93	.77	
	Lund	4	3.10	.78	
.83	Dk97	6	4.54	.76	
.76	Pare	8	5.85	.73	
	Mr36	7	5.17	.74	
.74	Mr48	2	1.45	.73	
	Sumn	2	1.45	.73	
	Tard	1	.74	.74	
	We22	1	.74	.74	
	We45	1	.74	.74	
.71	Marx	1	.71	.71	
	Pr71	1	.71	.71	
	SimP	1	.71	.71	
<b>Total</b>	<b>13</b>	<b>40</b>	<b>29.84</b>	<b>.746</b>	<b>Connections Ratio** .256</b>

\*See Appendix C for list of abbreviations.

\*\*See page 107 for explanation.

TABLE 10  
 CLUSTER SIX BASED ON HIGH-SIMILARITY CONNECTIONS  
 BETWEEN WORKS

Entrance Similarity	Works*	Total Connections	Total Similarity	Average Similarity	
.79	Goff	3	2.24	.75	
	Schu	3	2.24	.75	
.74	Pk28	1	.74	.74	
	Pr37	1	.74	.74	
.71	Dk12	1	.71	.71	Connections Ratios** .333
	SimP	1	.71	.71	
Total	6	10	7.38	.738	

\*See Appendix C for list of abbreviations.

\*\*See page 107 for explanation.

TABLE 11  
 CLUSTER SEVEN BASED ON HIGH-SIMILARITY CONNECTIONS  
 BETWEEN WORKS

Entrance Similarity	Works*	Total Connections	Total Similarity	Average Similarity	
.76	Ho74	3	2.12	.70	
	Ho50	1	.76	.76	
.69***	Lund	1	.69	.69	Connections Ratio**
.67	Dk97	1	.67	.67	
Total**					

\*See Appendix C for list of abbreviations.

\*\*Not computed for this cluster because the two Homans works have high similarity only with each other.

\*\*\*Highest similarity level for any new connection with either Homans work.

similarity within the cluster along with the number of connections or links it holds with other members of the group. Finally, I computed a "connections ratio" between the actual number of pair connections and the possible total. This possible total is

$$\frac{n(n-1)}{2} \text{ where } n = \text{number of works in the cluster.}$$

Table 12 reveals that this procedure both identifies clusters and measures their underlying density. The mean similarity for each group (except the Homans cluster which was not big enough to be tested) differs significantly (t test, .01 level) from the total similarity mean. However, the number of connections within each group (except the Homans cluster) is significantly lower (Chi-square, .01 level) than we would expect in a dense, highly interrelated group. Sociology, we may argue tentatively, contains perspectives instead of paradigms. Most works link highly with many others although the paths of linkage shift depending on which works we use for a starting nucleus. Only Homans--the social behavioralist in the matrix--stands alone. But Goffman and Schutz, two social definitists, also relate atypically. Their cluster (Table 10) contains only four other members: Durkheim 1912 and Simmel "Poor," who relate highly to almost everybody, and the more definitional work of Park in "Marginal man" and Parsons in The Structure of Social Action.

Factor analysis shifts our perspective from the location of groups in space to the identification of underlying common properties. Tables 13 and 14 list the theoretical works in order according to factors they relate to most strongly and their rank of relationship within that factor. Both equimax and oblique rotations expose three common properties and tend to assign works to similar positions within each factor

TABLE 12

MEANS AND CONNECTIONS IN SEVEN CLUSTERS OF WORKS WITH HIGH-SIMILARITY AND FOR THE TOTAL SET OF SIMILARITIES

Cluster	Mean*	Connections Ratio	Connections**	
			Possible	Present
1	.743	.217	253	55
2	.743	.232	190	44
3	.737	.158	171	27
4	.734	.154	136	21
5	.746	.256	78	20
6	.738	.333	15	5
7***	. . .	. . .	. . .	. . .
Total	.637	1.000		

\*All cluster means are significantly different from the total population mean beyond the .01 level with the t test.

\*\*All present connections are significantly different from the possible total beyond the .01 level with the Chi-Square test.

\*\*\*Mean and ratio are not included for Cluster Seven because the Homans works cluster only with each other at a high level of similarity. grouping. However, both rotations also delimit a very "impure" structure with many theory works highly correlated to each factor. The geometric representation of the equimax rotation (Figures 5 through 7) illustrates this visually; instead of lining along the factor axes, the works cluster mid-way between. Since the factors are highly inter-related, an oblique rotation yields a better description. Even with oblique rotation, however, we cannot sharply discriminate between groups. For example, Homans--the marginal Homans--loads .52461 on Factor 1, .73000 on Factor 2, and .68271 on Factor 3. But this rotation offers one further advantage by separating the structure matrix of correlation coefficients associating works with factors from the pattern

TABLE 13

## FACTOR MATRIX COMPARING WORKS TO FACTORS

(EQUIMAX ROTATION)

Works*	Factor 1	Factor 2	Factor 3
Marx	0.83472	0.25534	0.30864
Pr71	0.76027	0.30518	0.35733
We22	0.69611	0.26710	0.44366
Comt	0.69315	0.42334	0.26853
Cool	0.66314	0.37627	0.30345
Dk12	0.63797	0.33292	0.54621
Tard	0.62241	0.36099	0.36766
Pk28	0.61022	0.27875	0.51114
We45	0.59758	0.38551	0.28052
Mr48	0.55671	0.46960	0.42388
SimP	0.55605	0.46765	0.53549
Pk36	0.51588	0.40041	0.43691
Blak	0.37137	0.81987	0.20596
Lund	0.15999	0.80599	0.41151
Dk97	0.34184	0.76314	0.29791
Sumn	0.41477	0.60922	0.42775
Ho74	0.08721	0.60022	0.55022
Pare	0.53530	0.59997	0.33311
Mr36	0.47504	0.57379	0.41240
Pr53	0.45766	0.53776	0.30675
√Coff	0.29135	0.23448	0.80822
Schu	0.34949	0.22235	0.73681
Ho50	0.14249	0.37162	0.64771
Pr37	0.47169	0.44881	0.53858
SimC	0.38860	0.48021	0.52461

\*See Appendix C for list of abbreviations.

TABLE 14

OBLIQUE ROTATION STRUCTURE MATRIX (CORRELATION  
COEFFICIENTS) RELATING WORKS TO FACTORS

Works*	Factor 1	Factor 2	Factor 3
Marx	0.91578	0.47886	0.48083
Pr71	0.89267	0.52506	0.52824
Dk12	0.87739	0.57864	0.69797
We22	0.85923	0.49999	0.59264
SimP	0.85708	0.68799	0.70719
Comt	0.84701	0.60080	0.46078
Pk28	0.81937	0.51292	0.64740
Cool	0.81787	0.55994	0.47877
Mr48	0.81370	0.66036	0.60055
Pare	0.80994	0.75562	0.54087
Tard	0.80383	0.55493	0.53078
Mr36	0.78149	0.74067	0.60189
Pr37	0.78094	0.65527	0.69315
Pk36	0.75826	0.59076	0.59070
We45	0.75778	0.55039	0.44916
SimC	0.71843	0.66580	0.67475
Pr53	0.71084	0.67533	0.48936
Lund	0.60904	0.90143	0.60877
Blak	0.70776	0.89940	0.44611
Dk97	0.69812	0.86462	0.51666
Sumn	0.75124	0.76703	0.61600
Ho74	0.52461	0.73000	0.68271
Goff	0.65623	0.49044	0.87480
Schu	0.67126	0.47085	0.81202
Ho50	0.52126	0.54988	0.73076

\*See Appendix C for list of abbreviations.

HORIZONTAL FACTOR 1

VERTICAL FACTOR 2

*1-Blak	10-Marx	19-Schu
2-Comt	11-Mr48	20-SimC
3-Cool	12-Mr36	21-SimP
4-Dk12	13-Pare	22-Sumn
5-Dk97	14-Pk36	23-Tard
6-Goff	15-Pk28	24-We22
7-Ho74	16-Pr71	25-We45
8-Ho50	17-Pr53	
0-Lund	18-Pr37	

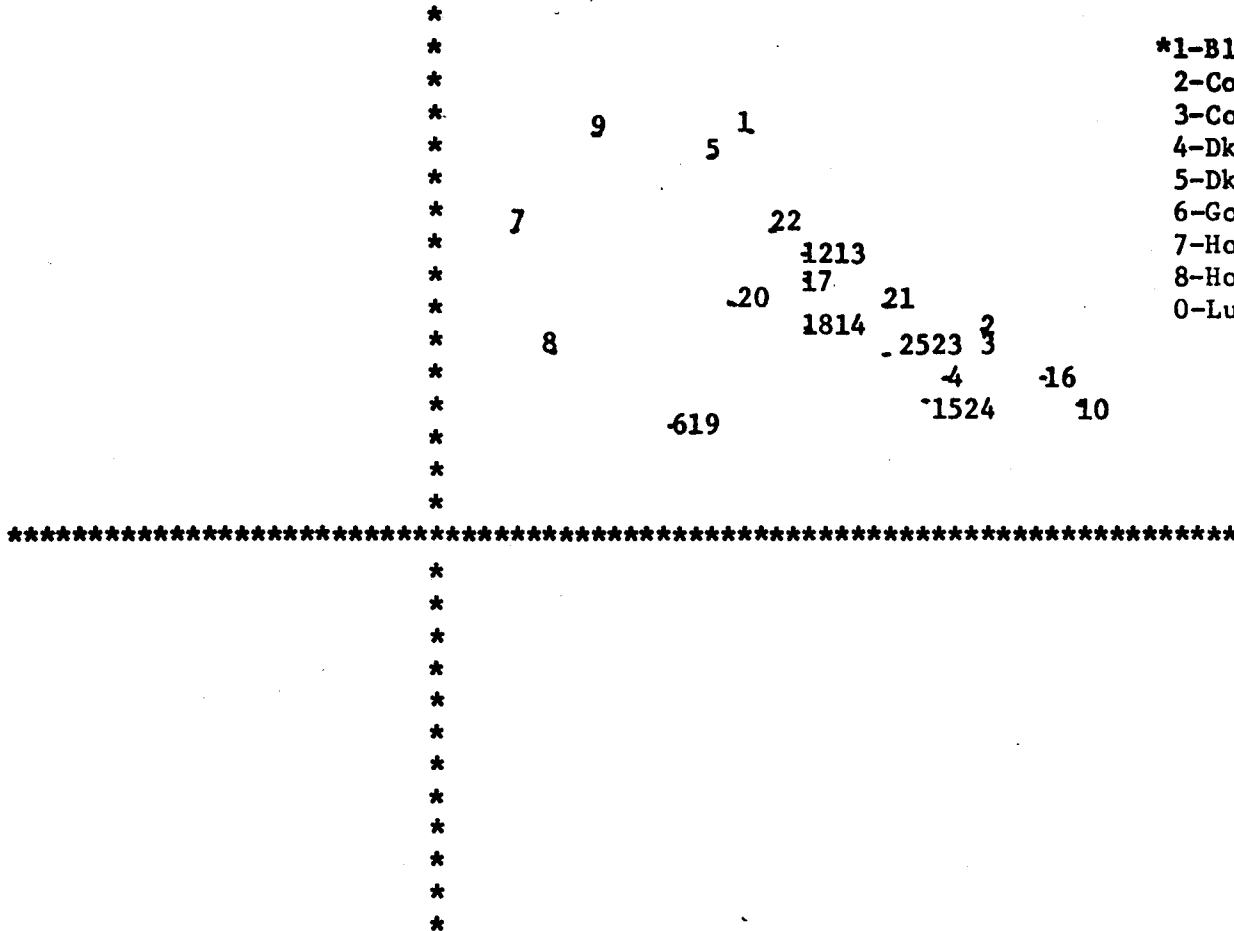


Figure 5.--Graphic Presentation of Factors One and Two after Equimax Rotation

\*See Appendix C for list of abbreviations.







matrix of regression weights predicting work position from factors (Kim, 1975). Table 15, based on oblique regression weights, presents the most discriminating picture of difference between factors. In rank order: Factor 1 contains Marx, Parsons 1971, Weber 1922, Comte, Cooley, Tarde, Durkheim, 1912, Park 1928, Weber 1904-05, Merton 1948, Simmel "poor," Park 1936, Pareto, Parsons 1937, Parsons 1953, Merton 1936, and Simmel "Conflict;" Factor 2, Lundberg, Blalock, Durkheim 1897, Homans 1974, and Sumner; Factor 3, Goffman, Schutz, and Homans 1950. Only one work, Simmel "Conflict," continues to share all three common properties almost equally.

This factor analysis adds a dimension to the Ritzer typology. He named key independent variables: social-group reality, social perspectives, and stimulus reaction. Factor 1 points to a structural property that presupposes some degree of group "reality"--at least Ritzer would identify most of the works as "factist" writings. Factor 3--with the phenomenologist Schutz and the symbolic actionist Goffman--must identify a perspective or definitional property. However, Factor 2 contains Lundberg and Homans 1974 (who also associate with the definitional property) as well as three works with factist leanings. With the possible exception of Sumner (the most ambiguously placed of the five works here) all of these works grew from a conscious effort to explicate some methodology. The methodologies themselves differ, but the stress on working out a sociological approach inspired the research for each work. Even Sumner wanted to develop a special methodology although he lacked the sophistication of the other four authors. No behavioralist factor appears in this analysis. But we must remember that Homans's cluster marks him as an atypical theorist; perhaps with different traits or more behaviorist

TABLE 15  
 OBLIQUE ROTATION PATTERN MATRIX (REGRESSION WEIGHTS)  
 FOR PREDICTING WORKS FROM FACTORS

Works*	Factor 1	Factor 2	Factor 3
Marx	1.04965	-0.13942	-0.07767
Pr71	0.92735	-0.05639	0.00107
We22	0.83340	-0.09289	0.14021
Comt	0.82146	0.13708	-0.10067
Cool	0.78595	0.08585	-0.03499
Tard	0.72189	0.07130	0.06221
Dk12	0.72147	-0.01009	0.27077
Pk28	0.70097	-0.05511	0.25523
We45	0.69572	0.13194	-0.03436
Mr48	0.59707	0.21978	0.13177
SimP	0.57887	0.19247	0.26311
Pk36	0.55421	0.15164	0.18202
Pare	0.55207	0.40772	0.00411
Pr37	0.46574	0.20723	0.30940
Pr53	0.46284	0.37364	0.02328
Mr36	0.46190	0.38545	0.13041
SimC	0.34561	0.28606	0.32316
Lund	-0.02769	0.80942	0.21647
Blak	0.29483	0.77684	-0.12299
DK97	0.25223	0.70081	0.01150
Ho74	-0.10364	0.56211	0.46084
Sumn	0.36783	0.45217	0.16718
Goff	0.22183	-0.03128	0.75768
Schu	0.31654	-0.05616	0.65073
Ho50	0.00969	0.23844	0.60450

\*See Appendix C for list of abbreviations.

works, we would have identified one more factor.

Coser's (1975) ASA presidential address provides a partial test of the methodology-factor interpretation. He outlined two methodological extremes, technical positivism as it occurs in some regression analysis and subjective interpretation as it appears in some ethnomethodology. (See bottom of Table 1 for trait coding of typical works in each extreme.) Coser's ideal-type regression analyst relates highly to most works in the method factor: Lundberg .90, Blalock .95, Durkheim 1897 .83, Homans 1974 .60 and Sumner .74. However, Coser's ideal-type ethnomethodologist relates about equally to the subjective subject-matter theorists and the methodologists: Goffman .67, Schutz .69, Homans 1950 .57, Lundberg .69, Blalock .69, Durkheim 1897 .68, Homans 1974 .71, and Sumner .76. Perhaps, for theorists working out a new methodology, method becomes at least as important as subject matter in determining their work traits.

In sum, the factors represent two dimensions: a stress on methodology per se and a stress on subject matter. Among those who stress subject matter, most emphasize structure and a few prefer exploring cultural-social perceptions. These factors seem sensible. They represent traditions known in the field and add some nuance to the Able-Boscoff-Ritzer perspective discussed earlier. Furthermore, cluster analysis identifies the same key works that stand most prominently in each factor. The structuralists Marx, Parsons 1971, Weber 1922, Comte, and Cooley formed the nucleus group in Cluster 2 (Table 6); the methodologists Lundberg, Blalock, and Durkheim 1897 group in Cluster 5 (Table 9); and the definitionist Goffman links with Schutz in Cluster 6 (Table 10).

Other clusters, however, identified similar groups of works related to more than one factor. For example, Durkheim 1912 and Simmel "Poor" of

Cluster 1 (Table 5) both belong in the structural factor but share definitional leanings. Sumner and Parsons 1937 of Cluster 5 (Table 9) display mixed factor properties; Sumner is a methodologist with factist leanings and Parsons 1937 is a structuralist with definitional persuasions. The disparity between factor analysis and clustering results occurs for two reasons. First, factor analysis measures the complete set of relationships between all paired works, but the clustering procedure used here only examines the top fifth of the relationships. Second, as we suspected from the beginning, the relationships are multidimensional based on shifting similarity cores, possibly with a unique core for each set of pairs. Although the clustering techniques used here confirm this suspicion, they cannot describe such multidimensional relationships in a two-dimensional framework.

In terms of Baggaley's criteria, the disparity between clustering results and factor analysis raises a dilemma. If we build a typology with clusters, we can describe the results of complex trait distributions in confusing detail. If we begin with factor analysis, we achieve comprehensible parsimony without some important nuances. For the moment, I will choose parsimony at the expense of "good fit." Figure 8 portrays my view of theory types locating the ten unambiguously identified works (and suggesting a location for six others) in a two-dimensional space. Later I can use these typical works to define the standards for measuring others (Bailey, 1973a).

This later measure will have to assess the relationship between common properties and the trait variables upon which they have been built. Tables 16 to 18 list the work by trait codings for each factor; Table 19 gives the number and percentage for each trait occurring in the

SUBJECT-MATTER DIMENSION

Structural Patterns of  
Group Reality as The  
Key Independent Variable

Cultural Meanings or Social-  
Personal Perceptions as The  
Key Independent Variable

Marx

Parsons 1971

Weber 1922

Comte

Cooley

Durkheim 1912

Simmel Conflict

Weber 1904-05

Schutz

Goffman

Homans 1950

Sumner

Homans 1974

Blalock Durkheim 1897 Lundberg

METHODOLOGY DIMENSION

Fig.8--Initial Typology of Ten Unambiguously Classified Works\* (underlined)  
and Suggested Placements for Six Others.

\*The Underlined works fell into the same groups regardless of the method used for grouping. The other works fell into ambiguous positions and are placed here primarily according to their factor loadings. However, the true placement of ambiguously located works would depend on many dimensions and could not be visually portrayed on a two-dimensional space.

TABLE 16

## THE ORIGINAL-DATA MATRIX COMPARING WORKS BY TRAIT VARIABLES FOR FACTOR ONE

Works*	Trait Variables																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Marx	1	1	1	0	1	1	0	1	1	0	0	1	0	1	0	1	0	0	0	0	0	0	1	1
Pr71	0	1	1	0	1	0	0	1	1	0	0	1	0	1	0	1	0	0	0	1	0	0	1	1
We22	0	1	1	0	1	1	1	1	1	0	0	1	1	1	0	1	0	0	0	0	0	1	1	0
Comt	0	1	1	0	1	0	0	1	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1
Cool	1	1	1	0	1	0	0	1	1	0	1	0	0	1	0	1	1	0	0	0	0	0	1	1
Tard	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1	0	0	0	0	0	0	1	1
Dk12	1	1	1	0	1	1	1	0	1	0	0	1	1	1	0	1	0	0	0	0	0	0	1	1
Pk28	1	1	1	0	0	1	1	0	1	0	0	1	0	1	0	1	0	0	0	0	1	0	1	1
We45	1	1	1	0	1	1	0	1	1	1	0	1	1	0	1	1	0	0	0	0	1	1	0	1
Mr48	1	1	1	0	0	1	1	0	1	1	1	1	0	1	0	1	0	1	0	1	0	1	1	1
SimP	0	1	1	0	0	1	1	0	1	0	0	1	1	1	1	1	0	0	0	0	0	0	1	1
Pk36	0	1	1	0	0	1	1	0	1	0	1	0	0	1	0	1	0	0	0	0	1	1	1	0
Pare	0	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	0	0	0	0	0	0	1	1
Pr37	0	1	1	0	1	0	1	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	1	0
Pr53	1	1	1	0	1	0	1	0	1	1	1	0	1	0	1	0	0	1	0	1	0	0	1	1
Mr36	1	1	1	0	0	1	1	0	0	1	0	1	1	1	0	1	0	0	0	0	0	0	1	1
SimC	0	1	1	0	0	1	1	0	1	0	0	1	0	1	1	0	0	1	0	1	0	0	0	1

\*See Appendix C for list of abbreviations.

TABLE 16--(Cont)

Works*	Trait Variables																	
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Marx	0	0	0	0	1	1	0	1	1	0	0	0	1	1	0	1	1	1
Pr71	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	1	0	1
We22	0	1	0	0	1	1	0	1	1	0	0	0	0	1	0	1	1	1
Comt	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	1	0	0
Cool	0	1	0	0	1	1	0	1	1	0	0	0	1	0	0	1	0	0
Tard	1	0	0	0	0	0	1	1	1	0	0	0	1	1	0	0	1	1
Dk12	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	1	0	1
Pk28	0	1	0	1	0	0	0	1	1	0	0	0	1	1	1	1	0	1
We45	0	1	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	1
Mr48	0	0	0	0	1	0	1	1	1	0	0	0	0	0	0	1	0	1
SimP	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1
Pk36	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	0	0	1
Pare	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	1	1	1
Pr37	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
Pr53	0	0	0	0	1	1	0	0	1	1	0	0	0	0	0	1	0	1
Mr36	0	1	0	0	0	0	1	0	1	1	0	0	0	0	0	0	1	1
SimC	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0

\*See Appendix C for list of abbreviations.





TABLE 18

THE ORIGINAL-DATA MATRIX COMPARING WORKS BY TRAIT VARIABLES FOR FACTOR THREE

Works*	Trait Variables																								
	1	2	3	4	5	6	7	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Goff	1	0	1	0	0	1	1	0		1	0	0	1	0	1	0	1	0	1	1	0	0	0	1	0
Schu	1	0	1	0	1	0	1	0		1	0	0	1	1	1	0	1	1	1	0	0	0	0	0	0
Ho50	0	1	0	1	1	1	1	0		1	0	1	1	0	1	0	1	1	1	1	1	1	1	0	0
					25	26	27	28	29	30	31	32		33	34	35	36		37	38	39	40	41	42	
Goff					1	1	0	1	0	0	0	0		0	0	1	0		0	1	0	1	0	1	
Schu					0	1	0	0	0	0	0	0		0	0	1	0		0	1	0	0	0	1	
Ho50					1	1	0	0	1	0	0	0		0	1	1	0		0	0	0	1	0	0	

\*See Appendix C for list of abbreviations.

TABLE 19

FREQUENCY AND PERCENTAGE OF EACH TRAIT VARIABLE AS IT OCCURS AMONG THE TOTAL SET  
OF WORKS AND AMONG WORKS IN EACH FACTOR

Work Groups	Trait Variables															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Total</u>																
Frequency	12	23	22	5	12	19	20	7	19	9	13	16	9	22	8	22
Percentage	(48)	( 92)	( 88)	(20)	(48)	(76)	( 80)	(28)	( 76)	(36)	( 52)	( 64)	(36)	( 88)	(32)	( 88)
<u>Factor 1</u>																
Frequency	9	17	17	2	10	12	12	7	15	5	7	13	8	14	5	15
Percentage	(53)	(100)	(100)	(12)	(59)	(71)	( 71)	(41)	( 88)	(29)	( 41)	( 76)	(47)	( 82)	(29)	( 88)
<u>Factor 2</u>																
Frequency	1	5	3	2	0	1	1	0	1	4	5	0	0	5	3	4
Percentage	(20)	(100)	( 60)	(40)	(00)	(20)	( 20)	(00)	( 20)	(80)	(100)	( 00)	(00)	(100)	(60)	( 80)
<u>Factor 3</u>																
Frequency	2	1	2	1	2	2	3	0	3	0	1	3	1	3	0	3
Percentage	(67)	( 33)	( 67)	(33)	(67)	(67)	(100)	(00)	(100)	(00)	( 33)	(100)	(33)	(100)	(00)	(100)
	17	18	19	20	21	22	23	24								
<u>Total</u>																
Frequency	5	8	2	5	4	5	20	17								
Percentage	(20)	( 32)	(76)	(20)	(16)	(20)	( 92)	(68)								
<u>Factor 1</u>																
Frequency	1	3	0	4	3	4	15	14								
Percentage	(06)	( 18)	(00)	(24)	(18)	(24)	( 88)	(82)								
<u>Factor 2</u>																
Frequency	2	2	0	0	0	0	4	3								
Percentage	(40)	( 40)	(00)	(00)	(00)	(00)	( 80)	(60)								
<u>Factor 3</u>																
Frequency	2	3	2	1	1	1	1	0								
Percentage	(67)	(100)	(67)	(33)	(33)	(33)	( 33)	(00)								

TABLE 19 (cont)

Trait Variables												
Work Groups	25	26	27	28	29	30	31	32	33	34	35	36
<u>Total</u>												
Frequency	5	13	1	3	12	5	7	12	10	10	4	1
Percentage	(20)	(52)	(04)	(12)	(48)	(20)	(28)	(48)	(40)	(40)	(16)	(04)
<u>Factor 1</u>												
Frequency	2	8	1	1	10	4	6	11	16	4	0	0
Percentage	(12)	(47)	(06)	(06)	(59)	(24)	(35)	(65)	(64)	(24)	(00)	(00)
<u>Factor 2</u>												
Frequency	1	2	0	1	1	1	1	1	3	5	1	1
Percentage	(20)	(40)	(00)	(20)	(20)	(20)	(20)	(20)	(60)	(100)	(20)	(20)
<u>Factor 3</u>												
Frequency	2	3	0	1	1	0	0	0	0	1	3	0
Percentage	(67)	(100)	(00)	(33)	(33)	(00)	(00)	(00)	(00)	(33)	(100)	(00)
		37	38	39	40	41	42					
<u>Total</u>												
Frequency		5	7	2	17	9	17					
Percentage		(20)	(28)	(08)	(68)	(36)	(68)					
<u>Factor 1</u>												
Frequency		5	5	2	13	6	14					
Percentage		(29)	(29)	(12)	(76)	(35)	(82)					
<u>Factor 2</u>												
Frequency		0	0	0	2	3	1					
Percentage		(00)	(00)	(00)	(40)	(60)	(20)					
<u>Factor 3</u>												
Frequency		0	2	0	2	0	2					
Percentage		(00)	(67)	(00)	(67)	(00)	(67)					

total set and within each factor. Statistical comparisons of the trait distribution between factors will not help us here because the factor membership is too small for rigorous comparisons and, as we anticipated, the common core of similar traits shifts within each factor group. Nonetheless, we will return to the trait variables later for clues about reformulating theory. In this indirect way we can assess the importance of a few traits for theorists working in the structural, definitional, or methodological traditions.

#### Paradigm Hypotheses Evaluated

Whatever its usefulness for classifying works, numerical taxonomy procedure can answer some of our questions about paradigms. In my initial discussion of sociological theory I hypothesized the following: paradigms exist, hold constant across trait dimensions, and conform to Ritzer's typology. I also hypothesized that "bridgers" span the paradigms. Later, I defined paradigms as tightly connected clusters. By this definition sociology may have three paradigm frameworks with a few sociologists exploring one paradigm thoroughly and numerous eclectics borrowing random pieces from each. Or perhaps sociology has different perspectives--not firmly drawn paradigms but tendencies toward key modes of analysis. By searching the literature for appropriate examples, we could find sociological works to cluster in tightly connected groups within the structural, definitional, and methodological "paradigms." However, most works used here are well-known, highly regarded research monographs. Most belong to the "living body" of sociological thought. If these works do not cluster into tight-knit paradigm groups, then, we may conclude, sociology itself contains paradigm tendencies rather than incommensurable frameworks. Or as an alternative hypothesis, we might

speculate that sociology contains one master paradigm and that we are all imprisoned within, unable to envision any real competing framework. If this is true, we have lived in our prison since Comte began building it in the 1820's. Comte's work of 1820 remains a central plank of the factist framework along with some works by Marx, Weber, Parsons, and Cooley. Thus even if we are locked in a master paradigm, it appears to have tendencies that could develop separately.

The clustering of the paradigm tendencies or types suggests a shifting similarity core of trait variables. The similarity matrix based on all traits does not conform to the similarity matrix based on abstract traits alone. Many works load highly on two or three factors. Simmel's "Poor" shares high similarity with thirteen works; Weber's Protestant Ethic with only one--even though the Protestant Ethic is far better known, far more frequently cited. The types themselves begin with three non-exclusive dimensions of structure--definition--method and expand into an uncharted area of overlapping cluster memberships. To conclude, the typology modified Ritzer's types into a more complex framework representing partially related underlying dimensions.

When travelling such marshy, unmapped terrain we may erect bridges where we choose. Bridgers could be the fifteen ambiguously placed works. Or the works with the largest number of high-similarity scores. But neither definition encompasses Ritzer's useful concept of works spanning the distances between so-called "incommensurable" positions. This typology simply does not define irreconcilable extremes. Perhaps bridgers could be identified in terms of individual traits used in their analysis. Those theorists who consciously reconcile opposing theoretical components (measured by the trait variables) are "bridgers." In other words, although

the typology itself does not name bridger theorists, we may discover some later while analyzing specific works.

A Cautionary Note: Limits of Numerical  
Taxonomy in Theory Classification

Regardless of whatever refinements we may make on this classification, two features limit its usefulness. First, as in any clustering of empirical variables, each group is a time-bound sample, not a set of universal, abstract categories applicable to all other items in a defined universe (Dunnell, 1971). Second, since the groups reflect over-all similarity rather than similarity on particular items, we cannot define the properties of an individual work simply by identifying it as a member of some cluster (Bailey, 1972).

Both of these problems present a greater challenge to sociologists than to the biologists who pioneered numerical taxonomy in systematics. Biological clustering usually starts with higher over-all similarity values--after all, biologists generally cluster highly related organisms not the whole range of life. Many important biological groups can also be defined by reproduction: either members are capable of reproducing identical organisms or are evolving toward that capacity. Theorists, in contrast, combine intellectual species much more freely producing all manner of hybrids. According to recent discussions about scientific paradigms, these hybrid ideas could form the basis for unified explanations of physical motion or evolutionary development or human interaction (Kuhn, 1970; Ritzer, 1975). In other words, biologists identify minor, highly related, relatively stable groups within the whole range of life. For them, a semi-permanent catalogue of fossils can prove very useful. With this catalogue, they can explore both the nature of a species and

the evolutionary sequences of species change (Mayr, 1942). Theory classifiers, who must map shifting, ill-defined divisions within a smaller range of rapidly changing phenomena, cannot hope for a useful semi-permanent catalogue.

What, then, can we ask of numerical taxonomy? As I have suggested earlier, classification may highlight clues for theory reformulation and identify the cognitive similarities in various groups who are related by political ideology, friendship, or some other non-scientific criteria. Eventually it may also yield some ahistorical types that can catalogue the theorists of the future. If each similarity group shares a small core of common traits, these shared variables might be used to redefine types of theory, ultimately, we may hope, exclusive-exhaustive ideal types. If . . . Then we will have travelled full circle--back to theory classification based on a small handful of variables. But with an important difference: the new classification will have its origins tested against a more varied empirical reality.



## CHAPTER V

### THEORETICAL REFORMULATION: USING THE TYPOLOGY

Locating natural groups of sociological theorists can be an intriguing exercise in computer ingenuity, but to cross-breed these groups, we must examine some animals at closer hand. I will do this by dissecting a few work pairs to inspect their similarity core of trait variables.

I am assuming that sociological theory should address some empirical research problems of social life. In other words, the most important component of a theory is not its form, but its substance: form is the tool, exploration of substance the finished product. If this is so, we should search for ways to explain a topic rather than arguments for defending a paradigm-framework (Singleman, 1972a; 1972b). In "Notes on problem-finding in sociology" Merton recommended theory questions "so formulated that the answers to them will confirm, amplify, or variously revise some part of what is currently taken as knowledge in the field" (1959a:x). Such questions inform all the works in this theory typology. In this chapter, I will examine works that explore a similar substantive topic from a different type or paradigm perspective. Do they ask similar questions? Do they argue for similar explanations?

For this examination, I have chosen two substantive issues: the group process of stratification and a cultural product, namely religious asceticism. Both issues form the subject matter of three or more works in this typology. Further--although this outcome exceeded my expectations--the works fall in strategic type positions. Marx, Blalock, and Goffman, each the top theorist in a different factor group, probe for

the causes and consequences of that pervasive, ubiquitous human condition called inequality. Durkheim 1912, Weber 1904-05, and Sumner detail the nature of religious asceticism. The first two works belong to the same structural factor; however, Durkheim relates highly (.71 or more) to 13 other works, Weber to only 1. None relate highly to each other, yet all address the same limited subject topic. We may wonder if they share a critical core of common trait variables or if they used very different traits to produce strikingly different explanations.

There are also less substantive kinds of subject matter in sociology. Schutz, Simmel "Poor," and Park "Marginal man" use the analytic construct of social role. Stratification is a group process in the typology (trait 30); religious asceticism is a cultural product (trait 42). The role, in contrast, exists only in the mind of the sociologist. This abstract term describes a concept of social behavior, that is, a category to be used by theorists and researchers viewing social activity. Tarde, Homans, and Pareto raise a different subject matter issue when they reduce group problems and products to the effects of individual psychological desires (trait 4); doing this, they define sociological subjects as the results of personal motivations. After examining the stratification and religion works in some detail, I will briefly suggest how subject material like the role or psychological motivations or even the choice of subject groups can also be reworked using ideas from the theory typology.

#### The Traits: Components of Reformulation

Reformulation depends on the trait variables (listed in Appendix B). Fortunately, we can hold some faith in this list of forty-two. In Chapter II, I developed a rationale for my choices, defending them in

exhaustive, or at least exhausting, detail. In Chapter IV, I built a theory typology based on these traits. Each had some impact; none were always present (1) or always absent (0) among the total set of works.

On the other hand, coding errors could bias any description based on these variables. As Sokal (1974) documents, the beauty of a trait-- indeed its existence within a taxonomy--varies with the eye of the beholder. Although we can easily decide if Goffman did or did not use participant observation in research, we have no standards telling us if a theorist has used a positive approach or a cultural-science one or both. Clearly Lundberg falls in the first category (0) and Schutz in the second. But how do we categorize Marx or Park in "Marginal man" or Simmel's discussion of "The poor"? I have tried to answer this question in Appendix D by listing all traits along with a basic coding rationale, a few examples of coding decisions, and some citations to literature that discusses the operational definition of particular traits more thoroughly. Someone else would judge a few works differently. Nonetheless, with 42 trait variables, the typology can remain stable against the minor assaults of human coding error.

In this chapter I will use the traits--errors and all--to explore reformulation possibilities suggested by the core of similar traits and the dispersal of dissimilar ones in works on a single topic.

The search for commonality between different theorists has an old tradition. Talcott Parsons launched a career with this search; many people still consider The Structure of Social Action (1937) his most durable contribution. Parsons examined the works of Weber, Durkheim, and others to trace the growth of a unified "social action framework"

based on shared agreements about social norms and individual choice. However, this hypothesis about commonality in Weber and Durkheim is still being disputed; for example, Pope et al. (1975) challenged Parsons's doctrines by citing different passages from the same scriptures. One suspects, if we performed detailed exegesis on the work of any sophisticated theorist, we would find wide ranging ideas. The minor points casually mentioned by Durkheim could very well include ideas central to Weber's thought. Of course, both Parsons (1976) and Pope claim to interpret the most crucial message of Weber and Durkheim. We need not arbitrate that dispute here; I have avoided the problem by concentrating on one single work at a time, one particular subject at a time.

Besides areas of agreement, we should discover weak portions of a theory, missing components of thought (Siebler, 1973). The trait variables give one check list of components. Using this standard, I will outline how a theory could change if a writer incorporated new traits. However, the 42 trait variables do not form an exhaustive catalogue of possibilities. Exercises in theory reformulation may eventually yield an additional set of important traits.

#### Theory Reformulation: Two Examples

To reframe theoretical views about some topic, one must consider the feature of a particular theory along with the additions or deletions that would make the construct more attractive. Although, I will use the 42 trait variables as sources of ideas for such rearrangements, these traits are not a checklist of "things to see." They form a group of interrelated variables, some critical to a particular theory, some quite unimportant. Therefore, I will choose among them selectively as they seem

important for a type of theoretical perspective, for a general topic, and for a specific work.

Stratification (trait 30) is a major societal process effecting a distribution of goods and services through a population (Eisenstadt, 1971:233-35). The stratification process determines who gets what by doing what to whom. Power, inequality, or their correlates seem to be key concerns of any stratification theory. In other words, to study this topic we can look at the relationships that effect an unequal distribution of social goods or we can examine the pattern of this unequal distribution (Coser, 1975). We may wonder if different types of theorists tend to favor one or the other of these conceptions in stratification. Marx, Blalock, and Goffman each consider stratification from a different type perspective; Marx as a structuralist (Factor 1), Blalock as a methodologist (Factor 2), and Goffman as a definitionist (Factor 3). As we shall see, the typology category does inspire different views of stratification.

Marx, like many factists, defined society in terms of "reciprocal action" (1846b:670). He believed that physical-environmental resources (trait 37) combined with a society's technological level (42) and population density (39) to produce certain levels of interaction and, most important, divisions of labor. New divisions of labor lead, in turn, to new economic practices and new ideas (42) (1846a:6-16). In this developmental process (8), Marx included coordination (29) and social change (32) among the background features for the stratification structure. His research reflects this thinking: he examined institutional arrangements (33) exploring how change of production spurred new political forms, how religious thought reflected economic ideology, how the coordination

machinery of the state tended to serve some economic groups better than others.

In "The eighteenth Brumaire of Louis Bonaparte," Marx detailed revolutionary changes in the French government between 1848 and the triumph of Napoleon III by 1851. Doing this he asked why people support a government against their own class interests. To answer his question he examined the role of various groups supporting Bonaparte's new populist dictatorship. That bulwark of reactionary rule, the peasantry, is a social category, not an interacting group. With the French Revolution peasants had become landowners, a status later confirmed by Napoleon III in his effort to secure peasant support. The peasants had not really become country plutocrats, however, their small plots could not support a family, let alone an elegant lifestyle. They had simply exchanged their old feudal obligation to a noble landlord for new capitalistic debts to mortgage holders and tax collectors. Living in the isolation of their farms, separated by bad roads, poor communication, and illiteracy, they could not form associations to learn of their common plight or to work for their common interests. Therefore a populist dictatorship like Bonaparte's--pandering to their love of land and false sense of ownership--could win their support.

Blalock shifts focus from a concern for explaining the inequality between social groups to the need for designing research that tests specific hypotheses (10) about social inequality. He commends causal models: carefully explicated statements about the causal links between variables, measures for each variable (2) and predictions (15) of how the presence of one measured variable will affect the presence of another (1969:1-10). Blalock usually defines these variables as indi-

vidual characteristics (41) to be measured through a questionnaire or interview (34). Basically he hypothesizes that certain kinds of people tend to act out certain kinds of behavior: people with incomes over \$100,000 tend to vote Republican; people who are downwardly mobile tend to support the political right. In theory Blalock could also measure groups; he could weigh the percentage of individuals with "middle" incomes against the degree of democracy in different countries (40). In practice, however, such measures of group properties like "democracy" often elude the researcher bent on interval-level precision (1974). Since Blalock prefers explicating a methodology to probing a subject matter, he concentrates on the problems of measurement error rather than the inequality perpetrated by an "unmeasurable" social system.

For example, in his article on "Status inconsistency, social mobility, status integration and structural effects," Blalock presented current theories describing the effects of social status and mobility on prejudice. Here he explicitly considered the difficulties of work with certain types of complex theories, ones in which the dependent variables are caused by interaction between two or more variables. Available research suggests that prejudice varies with occupational status, often with blue-collar workers and their children exhibiting more prejudice than higher-status workers and their families. Further, the occupationally mobile children may appear more prejudiced as they join blue-collar ranks or less prejudiced as they enter white-collar work. Finally, the difference between old and new status multiplied by some magnitude of change effect may produce a level of prejudice in addition to the level produced by present status plus childhood status. In research terms Blalock wonders how we can empirically separate the

effects of childhood socialization in a previous status, life style in the present one, and changes between them, particularly if the change sometimes produces more prejudice and sometimes less depending on its direction. We can measure old status, present status, and the prejudice level associated with each. We can also verify whether downwardly mobile workers display more prejudice than stable ones and upwardly mobile workers display less. However, isolating the degree of "change effect" is another matter, especially if we suspect there is also a change in attitude associated with maturation. Often in research situations there is no way to measure such a factor independently of other variables. In these instances we are left with the choice of reconceptualizing the theory into one we can test or, at least, recognizing the untestable provisions in very complex theories.

Goffman, the third stratification theorist, also concentrates on a methodology, but one designed to tap a specific subject matter. His "dramaturgical framework" reviews individual performances on the stage of life (1959:1-10). The performances occur on a small, confined set (38) where individuals perform defined roles (40) and act to create the image they deem appropriate for their part (42). During a long-run performance, individuals may create groups (18,25), develop new roles (26), deviate from assigned parts (28). We can understand this action by watching the individuals (35) go through a routine of impression management that signals their part to other players including the sociologists in the audience. In "The nature of deference and demeanor," Goffman observed the ritual exchanges between superiors and subordinates in a mental hospital. He watched how patients and staff members signal to each other in the effort to create the proper impressions, to maintain



appropriate social distance. The doctor might suddenly stop a patient in the hall for conversation; patients should not presume to be so familiar and could be repulsed with a frown, a hasty answer, or some other sign that they had violated proper distance by failing to recognize the doctor's superior front. Patients, on the other hand, had license to "act crazy," to violate convention. A patient could avoid intrusions on his privacy by spitting at someone who spoke to him; an orderly would be fired for such behavior. Thus the cultural norms (42) --the accepted dramaturgical fronts--of the people in a situation support its superior-subordinate structure (40).

The three type frameworks presented here encompass very different views of stratification--one portrays the sweep of history, another confines action to a single building; one asks why stratification conditions arise, a second details some effects of stratification in a given population, a third illustrates how people act in different status positions. It is not surprising, then, to find these works share only 15 traits (three-way similarity level .36) in common. If we add Parsons' 1953 article on "A revised analytic approach to the theory of social stratification," the overall similarity level drops to .19 (based on 8 common traits). Adding Homans' articles about status levels and conformity to norms would reduce the common core still further. Marx, Blalock, and Goffman each share more common traits with the key members of their factor type than they do with outside stratification theorists (Tables 16 to 18).

Reviewing these works, we may argue there is no one way to study stratification, no master framework. However, although we may choose from among several vantage points, the choice of framework and its

related traits does affect the study.

First, the basic difference between a structural orientation (Factor 1) and a definitional one (Factor 3) encompasses a far deeper division than the simple trait distinction between theorists with a positive (trait 2) or cultural-meaning (trait 1) approach to sociological subject matter. Marx used both approaches yet heads the list of structural theorists. Blalock, who used a strictly positivistic approach relates weakly to the structural factor and heads the methodological one (Factor 2). Among the endemic quarrels in sociology is the dispute about whether we can build theories for stratification and other power-linked societal processes without incorporating both positive and cultural meaning variables. Those who argue for both usually attach structural approaches like functionalism for their failure to analyse how cultural meanings, especially the ideologies of powerful interest groups, shape social life (for example, see Rex, 1961:60-77; 115-55). However, Parsons 1953 (among others) presents a functional theory explicating commonly held cultural ideas and tracing their impact on stratification: our common societal values define valuable activity, and we reward those who perform such valuable service with money, prestige, and the good life. Thus, using a combined positive-cultural meaning approach, as Marx did, Parsons draws opposite conclusions about the causes and functions of class structures. Goffman, in contrast, uses a strictly cultural approach and heads the definitional factor. Yet somehow one senses that his patients have created their own world, placed themselves in a subordinate status, and secured this lowly position by presenting a subordinate front to the other performers on the stage. Blalock, the positivistic methodologist, sees people reacting to a status position:

upwardly mobiles feel more kindly toward unfortunates than do downwardly mobiles, at least they say so on questionnaires. Both Goffman and Blalock share a common perspective that describes individual people reacting within their social position. How or why people reached these positions is the issue unraised by either theorist. Both Goffman and Blalock study the distribution of stratification traits rather than the relationships that effect this distribution: the impression management of people who "act crazy" but not the forces used to define mental illness; the attitudes of nouveau riche but not the differences in routes of social mobility for people who rode an expanding-class escalator with numerous companions and those who climbed a stalled economic system one position at a time.

The problem, then, is whether a structural issue can be explained with data about individuals. Blalock recommends random sampling (11) and questionnaire data (34) to measure both the extent and direction of class based attitudes. Using a deductive (10) framework, built on probability as well as the substantive ideas of the moment, he predicted (15) correlations between class membership and attitudes. In effect, he measured the consequences of class consciousness (or lack of class consciousness) among Americans striving toward the Great American Dream. Coleman (1975) suggests we can build information about these kinds of individual judgments into theories of how "corporate actors" behave. In this instance, the corporate-actor downslider would repeal the first amendment and revive the New Deal. Coleman argues from three basic assumptions: "corporate actors" possess the sum total of individual thought; individuals and groups do act on their beliefs; and--the critical assumption here--beliefs reflect self-interest. He even hopes for "nor-

native evaluations of society by the degree to which they satisfy the preferences of their members" (1975:93). But what happens to a corporate actor with a split personality? Does his weaker self get sent to the ovens? Does society itself condemn the weaker corporate actors? Do corporate actors ever acquiesce in their own condemnation?

These questions return us to the problem of reconciling Blalock's methodological individualism with Marx's theory about the role of individuals in the stratification process. Unlike Coleman, Marx did not assume that our perceptions of self-interest reflect our real situation. Instead he predicted a series of events: increasing interaction among exploited miners, seamstresses, and chimney sweeps followed by the rise of a true class consciousness and the consequent revolt of these victims. Meanwhile, manufacturers, government bureaucrats, and other well-placed fortunates controlled the various propaganda sources, convincing the poor to "be humble, obey the law, wait for heaven later." Thus Marx outlined an historical sequence affecting attitudinal change. Further, he traced the origin of this sequence to a set of economic conditions--the breakdown of French peasant economy--which should have an increasing impact on each generational cohort. After the revolution, grandfather owned enough farmland to sustain a family. Two grandsons cannot support their families on the same land; three grandsons have migrated to the city and become revolution-minded proletarians. In other words, Marx described a functional sequence on the brink of developmental change (8). The old revolution had won peasant support which was later reinforced by government propaganda; however, increasing economic pressure combined with increasing opportunities for the dispossessed farmers to congregate in urban slums, would generate true--revolutionary--class consciousness

among the lower-class corporate actors and this consciousness would create the pressure for a new revolution. With Marx's explanation, a set of predictions really, about institutional structure (33) and related cultural products (42), we could design a class-consciousness questionnaire (34). Then, with random sampling (11) and a miracle of retroactive time, we could perform a longitudinal study of rising pro-revolution attitudes. Or, we could sample strategic groups (12,40), test their attitudes (42), and combine this information with census projections (39) to predict future attitude change. (See Stinchcombe, 1968:101-30 for other examples of this approach.)

Goffman's individualistic approach would lead us to other kinds of reformulation. He too probes the nature of class consciousness, specifically the conscious perceptions of subordinate and superior. Like Marx, he directly examines the structural limits (40) of his particular stage and links these structures to universal conditions (12): all "inferiors" will become conscious of their condition if interaction structures are present; all subordinates will develop "humble" fronts if superiors seem to demand these. However, where Marx and Blalock had studied societal (23,14) change, Goffman observes (35) the limited stage of primary groups (18) within one complex organization (19). Can we combine Goffman's ideas about interaction fronts with Marx's theory of class consciousness? We cannot simply use Goffman the way we used Blalock, as a test of Marx. Blalock designed a methodology to test theory; Goffman, in contrast, developed a framework for generating it. He moves his framework into the field and observes the action (35). Goffman happens to be a master observer who has detected interaction similarities between the convent novice and the prisoner of war, between

the socially stigmatized prostitute and the physically handicapped paraplegic. However, a framework like his finds its meaning only in the talent of the observer. Less skillful researchers, eyeballing the scenery without the guidance of a plot outline, tend to acquire the ideology of individual actors without appreciating the entire set (Huber). How ironic! If we study impression management and interaction fronts, we must assume that our subjects are also presenting a front to us. Thus we may be led by our own methodology into a world of perception unbounded by structural limits.

But, thinking about this problem for a moment, we can imagine how very useful a front must be. Information is power; knowledge of their fears and desires enables others to control us, through manipulation if nothing else (Stinchcombe, 1968:163-73). Both exploited and exploiter would have good reason to present a false interaction front. Perhaps we could develop several ideal types (13): the god-like noble, the humble peasant, the crafty entrepreneur. How would these people interact in a typical encounter? We could assume each type of person acts rationally to hide critical information from the others. Then the pre-industrial peasant, the older black man, the traditional housewife, should all present a front that displays servility and masks hostility. To test our idea we can observe the action, measuring real players against typical ones. Using types for comparison we can also observe action in different structural situations. Do rural, southern blacks present "humble" fronts more consistently than their urban, northern cousins? Even more critical: do fronts promote or retard class consciousness? In Rainwater's (1970) study of a housing project, residents would not unite for common causes because each refused to associate with "disreputable" fellow residents.

Suttles' (1968) participant observation of a lower-class Chicago community caught many residents in the act of presenting their fronts to "disreputable" members of other groups--with dress, street demeanor, and other signals, they told each other "I'm a safe associate" or "Don't tread on me." Alinsky's (1971) work in community organization typically began when residents acted as if they were powerful (perhaps in an exercise set up for this purpose by Alinsky himself). A powerful act would become power itself when lower-class people came to see themselves as powerful actors with powerful fronts. In sum, Goffmanesque players occupy far larger stages than the ward of a mental hospital. Investigating their fronts could detail some of the mechanisms behind the growth of class consciousness and suggest techniques for raising (or suppressing) this consciousness in modern groups.

In conclusion, Marx remains the most general stratification theorist of the three considered here. Marx outlines a societal process and the distribution of its effects. Blalock, the methodologist, suggests ways to test some predictions from Marx's theory. Goffman, the inductive definitionist, raises new questions about how class-based ideas come into being.

Religious asceticism is a cultural product (42), a particular set of beliefs about spiritual good and related processes shared by some groups. Weber 1904-05, Durkheim 1912, and Sumner, three authors who were not writing in response to each other, still share remarkable agreement on the nature of religious self-sacrifice for spiritual ends. Nonetheless, these authors are not highly similar to each other in overall trait distributions. Even though Durkheim and Weber both belong in the structural factor (Factor 1) and Sumner is a methodologist

(Factor 2) with structural-factist tendencies, their overall similarity is only .43 (based on 18 common traits). I will examine their diverse theoretical approaches to this common problem beginning with the group processes they observed (trait dimension 5) and the observational variables they used (dimension 6). Then I will review their separate methodological traditions (dimensions 1 and 2) to discern how a combined methodology could generate new hypotheses about religious asceticism.

In The Protestant Ethic and the Spirit of Capitalism Weber detailed the beliefs of radical protestant sectarians (trait 41), the Protestant people most anxious to lead "new" lives, to oppose all popish ideas and life styles. These intensely practical people condemned waste-of-time as the ultimate sin. Excessive sleep, non-useful sex, profligate spending, all distracted men from the pursuit of God's calling to useful work in the world. Furthermore, man is only God's trustee; the fruits of a successful calling belong to God, not to the vineyard worker. Thus, Protestant asceticism both denied sectarians the right to enjoy success by wasting time or money on "useless" activity and, at the same time, urged them to work harder than ever at their calling, which happened to be trade. The result: a new kind of businessman (26) on the cutting edge of the culture (31). Their dynamic inner-worldly asceticism permeated and transformed modern life (32): the severe English Poor Relief Legislation, for example, reflected the moral order of people who called beggary a sin; and now adults in industrial societies live in the Iron Cage of work even though their religion no longer defines work as God's calling.

In The Elementary Forms of Religious Life, Durkheim delineated a more restricted subject matter, the positive and negative rituals of



primitive peoples. Ascetic rituals or negative rites separate sacred areas from profane ones, teaching (27) profane humans how to perform sacred acts. In other words, negative ascetic practices distinguish among people (26), helping to coordinate (29) sacred-profane areas of social life by assigning the roles and rites appropriate to each (40). The world does not contain inherently sacred or profane objects. We ourselves define who is our God or what is our totem. Since these distinctions are socially defined rather than inherent, we naturally blur them in our own minds and need some social mechanisms to remind ourselves that different kinds of objects exist in the world. These social mechanisms, various practices like fasting or flagellation are, therefore, not the fruits of more positive spiritual impulses, but the sources of such spirituality. Without suffering induced by ascetic rites, there would be no proper sense of a distinct sacred duty to a god or to society.

In Folkways Sumner surveyed numerous, diverse groups looking for ways that people endure pain in the name of religion. He called asceticism "an abberation," an innovative (31) response to man's ancient fear of spiritual forces. Even in modern life, such "abberant" responses as voluntary poverty and perpetual virginity exist in testimony to the persistent belief that powerful gods are pleased by man's suffering. Naturally, Sumner concluded, the ascetic impulse lures men from harmonious personal balance toward extremes. We must not be surprised to find those who refrain from sex judging the sexual activities of others; those who seek pain for themselves permitting torture for others. . . .

Turning to the methodology behind these three views, we find increasing levels of sophistication. Sumner worked with the simplest framework, far too simple in fact. For Folkways he viewed "anthropo-

logical data" by simply imposing an inductive (9) "evolutionary perspective" (1910:2244-47) in order to "trace the evolution of society from its germ up to its present highest forms" (ca 1900:425). One suspects his "evolutionary perspective" encouraged a chronic case of temperocentrism. Durkheim, of course, looked for social facts or "phenomena which would not exist if this society did not exist and which are what they are only because this society is constituted the way it is" (1900:363). Phrased differently, he studied "all the beliefs and the modes of conduct instituted by the collectivity" (1901:lvi). Sumner explained that a psychologically based (4) fear of the spiritual world leads men to propitiate the gods through culturally defined rites; Durkheim that men acting in their society (3) name a god and then build ascetic practices to encourage more positive forms of worship. Both theorists defined asceticism as an evolving cultural meaning, but only Durkheim attempted to probe that meaning (1) in his research. Weber introduced a different methodological perspective; instead of searching for the ultimate origin of religious impulse, he designed a methodology explicitly for examination of such cultural forms once they exist. His sociology studies causal chains of social action by exploring how and why people voluntarily act in response to other people. He assumed, of course, that cultural values define the reasons behind voluntary social action. Weber investigated these cultural reasons with a technique of analytic understanding, or Verstehen (2) (1922:4-26); he defined an ideal type (13) describing the extreme or characteristic values of some social-action orientation and then interpreted a specific situation in terms of its correspondence to the ideal type (1904:62-112). After defining a type of social-cultural meaning, he could hypothesize the causal sequences

of special situations (12) where his types, or some empirical forms approximating his types, would occur in the empirical world. In this instance, he described a causal sequence of negative-ascetic practices strengthening the spiritual power of certain Protestant sects thereby igniting a powerful economic motive which he called the "spirit of capitalism."

When combining the ideas of these three theorists, we can begin with solid agreement on basic definitions. All three described negative or ascetic practices--personal denial ranging from self-torture that prevents the very pleasure of feeling good to sexual abstinence that precludes the pleasure of feeling very good. All believed ascetic practices would inspire more positive forms--worship ranging from a mystical escape in other-worldly ecstasy to a grimly degermined conquest of this world. All observed how people who practice asceticism expect others to practice it as well. However, Weber and Sumner differed from Durkheim on one important point. Durkheim stressed the usefulness of rites to define a line of practice separating the sacred world from the profane one. Sumner and Weber suggested that ascetic practices could, depending on one's view of religion, lead one to unite the sacred and profane worlds instead of separating them. In other words, they described different types of religious impulse. Although all religious meanings begin in man's effort to deal with some other-worldly force, some direct that spiritual force into a redirection of mundane life.

Chart 1

## TYPES OF SPIRITUAL PRACTICE

Direction of Spiritual Impulse	Negative (Ascetic)	Positive (Non-ascetic)	Social Consequences
Other-worldly	Private Fast Rituals (Durkheim)	Initiation into Priestly Rites (Durkheim)	Separation of Sacred and profane (Durkheim)
Mixed	Sexual Abstinence (Sumner; Weber)	Medieval Monasticism (Sumner)	Christian Attitude toward Sexual "Sin" (Sumner)
Inner-worldly	Abstinence From "Idle" Time (Weber)	Calvinistic "Calling" (Weber)	English Poor Relief Legislation (Weber)

Viewed in this typology, the line between the sacred and profane blurs further. Durkheim described "elementary forms" of religious ritual in a mystery-laden primitive world; Sumner and Weber detailed ascetic practice in a much more secularized society. If Durkheim is correct in claiming we define god and the sacred in the image of our own group, then a small, ethnocentric primitive tribe could define itself as a sacred people and its own natural environment as a powerful sacred force: "we are the people and this land is made for us by our gods." Modern man, well inoculated by anthropology and natural science, is more apt to deny all sacredness, to call the world world a profane machine. Modern man also lives in a world of heterogeneous belief, sometimes even heterogeneous belief under the cover of a common religion. Whatever his view of the sacred, he experiences it as a minority view. I would hypothesize that the long term trend toward modern secularization has changed the universal social conditions (12) underlying the sacred impulse. If primitive asceticism marked a distinction between sacred and profane in a predominantly

sacred milieu, modern asceticism illuminates small corners of sacredness in an overwhelmingly profane world. So naturally, modern asceticism must inspire men to act in the world rather than withdraw from it. (For an interpretation of the development of Roman Catholic religious orders that assumes this hypothesis, see Gannon and Traub, 1969.

To research these sweeping ideas, I would begin by defining universal societal conditions (12) in terms of the first three observational traits. The societies with high technical and material resources (37), high urbanization (38), and low mortality rates (39) would probably differ religiously from those with little science and technology, low urbanization, and high mortality. Then, borrowing from Weber's type-building strategy (13), I would look for societies that approach extremes of primitive and modern development, or perhaps two extremes and a midpoint: for example, selected primitive tribes, medieval Europe, and the modern United States. In these societies, I would expect religious asceticism to find different expression, especially in its social consequences: more mysticism in the sacred societies, more overt social-control action in the secular ones. The position of a group within the society may also be critical. We might assume the trend toward secularization is also a trend toward increasing human control over physical and social matters. If this is true, we might further expect different kinds of people (41) with different positions and feelings of power to have different religious impulses. Among those who actually practice a religion, lower-class slum dwellers might score higher on an "other-worldly religion" questionnaire than middle-class suburbanites (Roof, 1976:197-97). Or a society with a colonial power structure (40) might inspire more sectarian religious movements than a more egalitarian society (Smelser,

1962:338-52). Finally, going beyond religion per se, we might look for religious ideas in other institutions, like law: Is law more likely to enforce the negative proscriptions of asceticism or the positive prescriptions of worship? Given the ascetic's zeal to impose his self-denial on others, I would expect religious-inspired law to say "do not" more often than "do." Gusfield's explanatory history of the temperance crusade provides one illustration of this zealous desire to eradicate sin committed by others (Gusfield, 1963).

These research hypotheses will not astound anyone familiar with current thought in the sociology of religion. However, the theoretical framework, building from the theory typology, constructs a common structure around the hypotheses by indicating societal conditions that accompany certain forms of religious asceticism and stating these conditions in a way that frees them from specific groups and specific time periods. (For more details on this approach, see Freese, 1972a, 1972b; Willer and Willer, 1972.) If the theory typology helps us articulate more such common theoretical frameworks, it will have served us well.

#### Theory Reformulation: Approaches From the Theory Taxonomy

So far I have used two substantive problems, the group process of stratification and the cultural product called religious asceticism, to serve as examples for reformulating the ideas of several theorists into a more unified common framework. In each example, I tried to expand the original theories either by generating new propositions about a subject or by suggesting new testing strategies or both. Doing this, I developed some general ad hoc rules. First, I briefly defined where the subject matter at hand fit among the trait variables and what it meant as a sociological issue. Second, I reviewed the methodological and subject

matter assumptions posited by each author, relating these assumptions (along with their associated trait variables) to the work itself. For less familiar theories, I would reason backwards from the works to the assumptions: Does the author seem to be developing a deductive mathematical model (10) or interpreting social action (1)? Does he stress social causes (3) or psychological ones (4)? Actually this procedure serves well even with familiar authors. For example, Durkheim's positivistic rules formulated in the 1980's do not detail the more interpretive methodology of Elementary Forms. Third, I examined the trait distributions for the chosen works. Did the common traits seem vital to analysis or peripheral? The stress on social-level causes (3) common to all stratification theorists seems inherent to any analysis of how social structures rank people within societal groups. On the other hand, we could easily study stratification effects in the community (22) even though none of the theorists in our sample chose to do so. Finally, with these ideas about subject matter, author's orientation, and some particular works firmly in mind, I began "playing" with the theories. In these examples, I supplemented my own game rules with theory-building ideas from Stinchcombe (1968), Freese (1972) and the Willers (1972). In this final section, I will present other reformulation problems for those who would like to play on their own; first some comments on social roles, and then two subject matters I introduced in Chapter II, namely reductionism and the use of social groups as sites of analysis.

Role is a crucial component of group differentiation (26). However, roles are not real objects but analytic constructs far more abstract than a group process like stratification or a group product like religious asceticism. The term "role" denotes a network of rights and duties

associated with some position or functional performance in society.

Always a social level variable (3), the role explains individual behavior by tying it to some position in the surrounding structure (40). Whatever their psychological motives may add to the situation, priests and prostitutes act a part as they perceive it is prescribed by society. When we begin to analyze these roles, we find separate components: prescribed roles (what society expects); subjective roles (what we think society expects); and enacted roles (what we do in conformance with expectations) (Deutsch and Krauss, 1965:175-77). In effect each role is really three. So we may wonder about the course of role play in those situations, most likely changing ones, when societal expectations and personal actions do not coincide. Unfortunately, we cannot investigate this question easily because the problem of measuring role components independently or linking changing social definitions to changing role behavior still troubles role theorists (Komarovsky, 1973).

The three role works in our typology--Park's "Marginal man," Simmel's "Poor," and Schutz's "Homecomer"--may provide clues for solving some parts of this methodological puzzle. All three describe changing situations which disturbed some set of role expectations. Park argued that during times when cultural groups first intermingle, societal expectations must create a "marginal" world for the mulatto, the immigrant, and the various other people who live between the two cultures. Park names these marginal role players as the bellwethers of our cultural future, the people whose marginal status forces them to enact new roles. Simmel described individuals who could not initiate role innovations but must simply react to expectations imposed by others. By definition, the "poor" are those who ask for help but cannot contribute to society in return. For this reason



they cannot bargain over role definitions but must accept their defined positions--as unfortunates who can justly claim a fair share of social goods, as objects of charity performed for the benefit of the donor, as the source of potential menace who must be given welfare so they will not steal, as whatever society chooses to call them. In role analysis, both Park and Simmel discussed how society can create a role (2); Park also indicated that an individual may subjectively redefine his role, particularly if he hears conflicting definitions from society (1). Schutz directly examined the subjective roles we build for ourselves and for others by constructing "personal types," in this example ideal-type constructs of people creating false expectations for other members of their primary group. He described a homecomer newly returned from World War II. The family expected a John Wayne hero who would nonetheless be content to settle into his old life. Instead the homecomer was a young man anxious to make a different life or too anxious for any life except a long slide into alcoholism.

In our efforts to reformulate role theory, we could begin as these theorists did by defining some peculiar, changing societal condition (12) and constructing a typical-hypothetical role expectation (13) that could grow from these conditions. Like Simmel and Park we could stress cultural expectations as they can be inferred from social structure (2,40) or like Schutz we could construct subjective expectations held by individuals judging others (1,41). Either way we will have outlined a role component independently of the way some individual plays the game yet tied to changes in the social structure. To complete the analysis, we should continue beyond such definitions to examine the role-in-action. The real question is when and why the expected-prescribed roles differ from the subjective

and enacted ones. When does the immigrant decide to become a "real" citizen with a rightful claim on participation in the society? When does the homecomer simply tell his family "it must be my way?" When do the poor welfare recipients begin to demand their "just" rights? When, in other words, do role players achieve class consciousness and begin to redefine and reenact their roles (Komarovsky, 1973:659)?

Reductionism (4), the use of psychological level variables to explain sociological data, has raised perennial controversy since sociologists first tried to claim a real, independent, scientific field. Few would seriously deny the importance of psychological variables; the problem is whether we can, or should, use them to explain group-linked behavior.

Looking at the five reductionist works in the typology (Homans 1974, Homans 1950, Pareto, Sumner and Tarde) we can find rather different uses of this technique. Pareto and Tarde studied institutional structures of society (33); later, to explain these structures, they simply named the psychological motives behind the institutionalized behavior. Tautology--the people who rule like "lions" have lionine psychological motives; the people who imitate an exciting new fad have a desire for novel activity. Sumner used similar reasoning when he attributed religious activities like asceticism to a motive like "fear of ghosts" which leads men to religion. Homans moved closer to the people with the psychological motives through his use of secondary sources based on interview/questionnaire data (34), participant observation (35), and experiment (36). He could even have looked directly for information about psychological predispositions if he had inquired about these in his subjects' background characteristics (41) or cultural values (42). However, unlike the other reductionists, he ignored these observational variables and concentrated

on the structural character of groups (40). Therefore, his reductionism rests on very abstract ground. All people desire goods; all pay limited costs to get these goods; a person's position in a group restricts his access to goods. But Homans never defines these goods. He does not ask why men in different groups value skill at diplomacy over prowess on the battlefield (42) or whether the peasant loves war as much as the noble (41).

In sum, examining reductionism in terms of trait variables reveals different kinds of reductionism with different substantive consequences and different problems for theory reformulation. If reductionism ends in tautology, we must construct independent measures of lionine impulses, novel desires, or what have you. If reductionism has erased all group qualities and if we wish to make generalizations about social life, we must start by "bringing the group back in" to analysis.

Groups have long been a focus of sociological interest. Studies of community (21,22), small or primary groups (17,18) and complex organizations (19,20) fill the literature even though they are not well represented in this typology. But I have a suspicion, mentioned in Chapter II, that studies using one kind of group as a source of independent variables (a unit of analysis) and another as a source of dependent variables (an object of analysis) differ in important ways from studies focusing on only one kind of group.

Looking at other trait variables we can see how this effect must vary with the kinds of groups. Studies focusing exclusively on small groups or complex organizations often describe the internal mechanisms of an artificial setting. For example, when Homans linked status level with deviance, he defined "status" in terms of the experimental (36) subject

group; some members were told that others had rated them "high" or "low" (40). Homans later examined status and deviance in real groups with people who brought their status with them from society itself. Since most of us respond to our own personal status background (41) as well as the structural character of a small group (40), a telling study of personal status effects must eventually consider both. Furthermore, even the naturally formed groups respond to pressures from other groups. We can see this, among other places, recorded in the history of community-power literature. It began with traditional, in-depth studies of a single community, almost self-contained if we believe the sociological descriptions. More recently this field has progressed to regression analyses of environmental variables affecting a list of communities examined only for the specific regression variables (Clark, 1975). Actually the variables examined may remain the same--population distribution, ethnic composition, material resources--but in one form of analysis, the variables may rest in the unique holistic fabric of a single community (5,21); in the other form, variables become separate, weighted qualities of society (6,23) that happen to converge in a particular place, bringing particular effects. In studies with society as the object of analysis (24), we usually reverse the direction of the variables and look for effects generated by internal groups. In other words, we can conceptualize society as a single, holistic group (5) or the site of various analytically distinct institutional structures (6) which can act through various communities, complex organizations, or primary groups. Cooley's study of class ideology illustrates the holistic approach. He explained how capitalistic ideology permeated the minds of all members of society; although the rich controlled the media (and, we presume, promoted their own ideas), all citizens shared the dream of social mobility

through hard work and even the lower-classes worked to transform their dream into reality. Marx, with his more analytic conception, did not assume such happy agreement among people placed in different institutional structures of society or such a fortunate correspondence between dreams and more substantial reality.

Perhaps, the most important distinction to make in this discussion of groups is whether a sociologist studies the group itself as a subject matter or whether he examines a particular problem like power or coordination or stratification. If we simply want to study a group per se, we may be justified in viewing it as a holistic entity, source of both independent and dependent variables. But for studies of group process, we need a more analytic approach, connecting separate parts of a group or tying the group to outside influence.

In conclusion, trait variables do provide clues for theory reformulation. These variables also reveal an intimate relationship between substance and method. The choice of observational variables or data-gathering techniques first appears to be a methodological decision. But a preference for questionnaire data (34) may lead one to use social background characteristics (41) like a respondent's social class. This choice, in turn, may lead one to study the distribution of stratified goods rather than the relationships creating that distribution. Finally, the variables prove there is no one pre-packaged way to approach a substantive topic. With at least three works for each topic, we find rather small cores of similar traits. The highest overall similarity for any of the topic group considered was .55 (based on 23 shared traits) for the three social role works, well below the pair-by-pair mean similarity of .637. Clearly, we must conclude, theory building can follow many forms; it is

unlikely that any one paradigm tendency delimits the analytic possibilities for any one sociological topic.

## CHAPTER VI

### INFLUENCES ON SOCIOLOGICAL THEORY: CREATING THE CLUSTERS

In Chapter VI I will examine the proposition that "truth" is a dependent variable: even "rational" scientific truth may be affected by such non-rational, non-scientific considerations as the group membership (or social circle) of the scientist. We have solid evidence arguing for the existence of potentially effective groups; for example, Crane's (1970) identification of "invisible colleges" and Mullins' (1973) mapping of "theory groups." Both Crane and Mullins exposed ties of interests uniting clusters of social researchers and theorists. Allegiances formed through sponsorship or collegueship reappeared as authors advocated similar perspectives, worked on similar problems, cited a common pool of sources. But--this is the question I raised earlier--do these social-circle groups share the common gestalt of a single paradigm?

With the evidence from the theory typology, we must answer "no" because the paradigm types are so loosely clustered few theorists belong unambiguously to any one type (see Figure 8). I even labeled these types "paradigm tendencies" rather than paradigms. I also located clusters of theorists centered around a similarity core of trait variables, but found within each cluster that two works could be highly related to a third yet share very little similarity to each other: as if one sociologist loved sports, one classical music, a third both field hockey and opera. Thus, even membership in the same cluster does not insure high similarity between a specific pair of theorists. With this peculiar structure of similarity between theoretical works, we cannot

expect a simple correspondence between social circles of theorists and paradigm types of theoretical thought. Nonetheless our taxonomy procedure can answer some questions about whether social allegiances influence thought, whether scientific politics affects science, whether belonging to a group means thinking in orthodox ways. In this chapter, I will consider the sociology-of-sociology hypotheses presented in Chapter II. We need not sort the thinkers into paradigm groups to test these hypotheses. Instead, assuming that works on a tether circle together, we can look for the ties of high similarity between works written by members of the same scientific circles.

The final hypothesis links theoretical ideas to groups of theorists who share basic outlooks about the proper function of sociology in society. For this problem, I will use a different strategy. Since I did not deliberately choose policy researchers, radicals, or other practice-orientated theorists, I do not have a good selection of them in the typology. However, the typology does contain one outstanding radical, Marx, who advocated science-for-action but shares highest degrees of similarity with the much more conservative Parsons 1971, with Cooley the ever-optimistic democrat, with the consensus theorist Comte, and with Weber 1922 the cautious academic. Something besides their sense of sociological mission must have united these theorists. To delimit their common views, I will perform another exercise in theoretical reformulation via the trait variables. Although relatively few traits separate these thinkers, the odd traits may well be the crucial ones.

#### Social Circles in Sociology Revisited

The various hypotheses linking paradigm views with group membership rest on two basic assumptions, one drawn from the philosophy of science,



one from the sociology of sociology. I originally assumed that exclusive-exhaustive paradigms exist. But the evidence of Chapters IV and V firmly contradicts this. In Chapter IV only ten out of 25 works could be unambiguously placed in a type category and even these had non-zero factor loadings for other types (see Tables 13-15). In Chapter V, I demonstrated how a few key traits, rather than an entire paradigm complex, account for the necessary ties among theorists working on some common sociological topic. The second assumption has proved less problematic. I claimed that scientific sociological circles exist and in Chapter II supported my assertion with research evidence from the literature on "invisible colleges," "theory groups," and other colleague circles.

If the typology had defined unambiguous type categories, we could test hypotheses relating circle groups to paradigms with a simple procedure, straightforward even if time-consuming. We could select theorists from various social circles, code a selection of their works, classify these works with the variable weights from multi-discriminant analysis (see Table 20) and, finally, test the statistical probability that circle membership would coincide with type memberships the way they do. (For an explanation of how to identify new works with discriminant analysis, see Sneath and Sokal, 1973:400-08; for a mathematical exposition of multi-discriminant analysis, see Cooley and Cohnes, 1971 and Van de Geer, 1971; for computer procedures, Klecka, 1975.) Of course, we cannot pursue this strategy here, partly because unambiguous paradigms do not exist--at least not in this research--and partly because our initial group of 25 works does not justify this kind of statistical testing. Fortunately we have other options. The typology rests on similarities defined by the simple matching coefficient. In Chapter III, I detailed the virtues of

TABLE 20

## DISCRIMINANT FUNCTION COEFFICIENTS FOR PREDICTING GROUP-TYPE MEMBERSHIP FROM SELECTED TRAIT VARIABLES

	Function 1		Function 2	
	Standardized <sup>a</sup>	Unstandardized <sup>b</sup>	Standardized <sup>a</sup>	Unstandardized <sup>b</sup>
Var 1 <sup>c</sup>	0.04632	0.09085	5.08970	9.98171
Var 2	0.54873	1.98178	0.67718	2.44568
Var 3	0.20652	0.62267	-4.44383	-13.39863
Var 4	0.50160	1.22866	0.03700	0.09063
Var 5	0.13125	0.25741	0.89525	1.75573
Var 6	-0.53405	-1.22519	-6.21680	-14.26231
Var 7	-0.41257	-1.01058	-1.68483	- 4.12697
Var 8	-0.51989	-1.13449	-1.96213	- 4.28172
Var 9	-0.41171	-0.94453	-10.36690	-23.78328
Var 10	-0.33651	-0.68690	-10.79249	-22.03008
Var 11	-0.95230	-1.86762	- 1.91163	- 3.74901
Var 12	-0.35916	-0.73313	0.26018	0.53109
Var 13	-0.06076	-0.12402	- 0.07378	- 0.15059
Var 14	-0.04118	-0.12418	- 0.05062	- 0.15263
Var 15	0.16579	0.34822	5.58668	11.73438
Var 16	0.02670	0.08050	2.82919	8.53030
Var 17	-0.03704	-0.09073	- 4.07428	- 9.97990
Var 18	0.63738	1.33877	6.17277	12.96540
Var 19	-0.84220	-3.04168	- 3.82290	-13.80666
Var 20	-0.46313	-1.13444	- 1.74623	- 4.27737
Var 21	0.04991	0.13340	0.59982	1.60308
Var 22	1.01394	2.48364	7.63197	18.69444
Var 23	0.93022	2.27855	4.08282	10.00082
Var 24	0.59903	1.25822	2.11054	4.43301
Var 25	0.82912	2.03093	3.95757	9.69403
Constant		-3.90851		40.16757

TABLE 20--(Cont)

	Function 1		Function 2	
	Standardized <sup>a</sup>	Unstandardized <sup>b</sup>	Standardized <sup>a</sup>	Unstandardized <sup>b</sup>
<b>Centriods</b>				
Type 1		0.51603		0.43073
Type 2		-0.23687		- 1.94538
Type 3		-2.52940		0.80122
<b>Relative Percentage of Discriminatory Power</b>				
	98.42		1.58	
<b>Significance of Explanatory Function</b>				
d.f.	50		24	
Chi-square level	219.183 Beyond.01		88.946 Beyond.01	

<sup>a</sup>Standardized coefficients can be interpreted like beta weights in regression analysis.

<sup>b</sup>Unstandardized weights multiplied by the variable scores (1 and 2 instead of the initial coding of 0 and 1) and added to the function constant provide a total score for any particular work. This score, compared to the Type centroid, is the basis for classifying new works being added to the typology.

<sup>c</sup>See Appendix B for list of traits. Other trait variables were dropped by the computer during analysis because they caused singularity in the within-groups covariance matrix and, therefore, could not be used for computations. However, with a different set of works, they may prove important.

this tool: it falls into a conservative binomial distribution, giving us a basis for statistical comparisons of similarity pairs; it is also a Q technique to cluster theorists from a sample of traits, giving us an N of 42 traits instead of 25 theorists. Thus, for an initial exploration of our hypotheses, we need only define an interesting group and compare its mean similarity with overall population means (see Appendix E for formulas).

Our original hypotheses about social effects on theoretical works fell into three categories: four hypotheses about the composition of scientific social circles, two about patterns of change in the circles, one about societal influences on the circles:

Hypothesis IIIa.--The members of particular substantive circles in sociology will produce works that are similar to the works of fellow circle members.

Hypothesis IIIb.--The members of a social circle formed around core ideas will produce works that are similar to the works of fellow circle members.

Hypothesis IIIc.--People trained both in the same tradition and at the same school will be more likely to produce similar works than theorists who simply share the same substantive interests.

Hypothesis IIId.--Opponents in famous controversies will tend to belong to different classification categories.

Hypothesis IVa.--In the early stages of a specialty, theoretical-research works will tend to be more similar to each other than they are in later stages.

Hypothesis IVb.--When a new tool is introduced to a discipline, its initial users will tend to be very similar to each other.

Hypothesis V.--"Priestly" and "prophetic" sociologists will form two cognitive groups producing two different types of sociological work.

Later we will return to the last hypothesis, but first consider the evidence on Hypotheses IIIa through VIb along with some implications carried by that evidence.

Hypotheses IIIa and IIIb.--In Chapter V, I analyzed the networks of similarity among students of stratification and religious asceticism, advocates of role analysis and reductionism. Now we can examine the same theorists as those who share a "substantive circle" or a circle formed around "core ideas." In each instance, we would expect the mean similarity for the group to be significantly higher than the overall mean of .637. Instead we find very different patterns (see Tables 21 through 24). The stratification mean falls near the average when we consider all stratification theorists in the typology (.621) and significantly below the average for the three analyzed earlier, Blalock-Goffman-Marx (.533). Although we should expect a low mean for Blalock-Goffman-Marx (since we already analyzed them as theorists who approach the same problem from different types perspectives), we could expect the total stratification mean to reflect the substantive similarity much more than it does. Asceticism analysts and reductionists also share near-normal similarity cores (means .636 and .614). Only the role theorists fall into the predicted pattern of a significantly high mean (.70).

Even with this high-similarity group, however, the total core of trait variables shared by all three theorists is quite low (22 or .55 three-way similarity). In other words, the findings on these hypotheses linking substance to similarity reinforce our earlier discovery about the relationship between paradigms and substantive issues. Regardless of

TABLE 21

## SIMILARITIES FOR PAIRS OF STRATIFICATION THEORISTS\*

Blak-Cool	.62	Cool-We22	.69	Ho50-Marx	.40
Blak-Goff	.50	Cool-We45	.57	Ho50-Pare	.55
Blak-Ho74	.60	Goff-Ho75	.57	Ho50-Pr53	.48
Blak-Ho50	.45	Goff-Ho50	.62	Ho50-We22	.52
Blak-Marx	.50	Goff-Marx	.60	Ho50-We45	.45
Blak-Pare	.76	Goff-Pare	.55	Marx-Pare	.71
Blak-Pr53	.64	Goff-Pr53	.48	Marx-Pr53	.60
Blak-We22	.60	Goff-We22	.62	Marx-We22	.83
Blak-We45	.57	Goff-We45	.45	Marx-We45	.67
Cool-Goff	.50	Ho74-Ho50	.76	Pare-Pr53	.64
Cool-Ho74	.55	Ho74-Marx	.40	Pare-We22	.74
Cool-Ho50	.50	Ho74-Pare	.64	Pare-We45	.67
Cool-Marx	.81	Ho74-Pr53	.52	Pr53-We22	.57
Cool-Pare	.67	Ho74-We22	.48	Pr53-We45	.60
Cool-Pr53	.64	Ho74-We45	.40	We22-We45	.69

Overall Similarity Mean = .637

Stratification Mean = .621

d.f. = 41

t = 1.6, n.s.

Mean for Blalock-Goffman-Marx = .533

t = 10.4

Sig. at .01 level, one-tail test--opposite the predicted direction

\*See Appendix C for list of abbreviations.

TABLE 22

## SIMILARITIES FOR PAIRS OF RELIGIOUS-ASCETICISM THEORISTS\*

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DK12-Sumn	.69	Overall Similarity Mean = .637
DK12-We45	.67	
Sumn-We45	.55	Asceticism Mean = .636
		d.f. = 41
		t = .1, n.s.

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\*See Appendix C for list of abbreviations.

TABLE 23

## SIMILARITIES FOR PAIRS OF ROLE THEORISTS\*

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Pk28-Schu	.62	Overall Similarity Mean = .637
Pk28-SimP	.79	
Schu-SimP	.69	Role Theorist Mean = .70
		d.f. = 41
		t = 6.30
		Significant at .01 level, one tail test

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\*See Appendix C for list of abbreviations.

TABLE 24

## SIMILARITIES FOR PAIRS OF REDUCTIONIST THEORISTS\*

Ho74-Ho50	.76	Overall Similarity Mean =	.637
Ho74-Pare	.64		
Ho75-Sumn	.67	Reductionist Mean =	.614
Ho74-Tard	.45		
Ho50-Pare	.55	d.g. =	41
Ho50-Sumn	.57	t =	2.30, n.s.
Ho50-Tard	.40		
Pare-Sumn	.69		
Pare-Tard	.67		
Sumn-Tard	.74		

\*See Appendix C for list of abbreviations.

what may hold true for physics, in sociology substantive problems are not tied to the high-similarity core of paradigm views. But, we have not really addressed the initial problem of circle groups and similarity. The various writers considered here did not always belong to the same circle, at least not as circles have been defined by Crane and Mullins. Many of these theorists worked on the same substantive issues without acknowledging each other, sometimes without even knowing of each other. Therefore we must look further to investigate questions about circle membership and similarities in cognitive structure among members.

Hypothesis IIIc.--To properly test the "training" hypothesis, we also need more evidence than we have here; a cadre of theorists taught in the same tradition, graduated from the same school. Failing that, I have settled for Robert E. Park, a student of Georg Simmel, an imitator of Charles Horton Cooley (Braude, 1970; Coser, 1971:357-84). The comparison of Park with both of his forebearers and then Park with his teacher Simmel shows that training may have some impact; the means (.66 and .667)



both fall slightly above the average although only the second is significant (see Table 25).

TABLE 25

## SIMILARITIES FOR PARK AND HIS INTELLECTUAL FOREBEARERS\*

Pk36-Cool	.62	Overall Similarity Mean = .637
Pk36-SimC	.57	
Pk36-SimP	.69	Park-Simmel-Cooley Mean = .66
Pk28-Cool	.67	d.f. = 41
Pk28-SimC	.62	t = 2.30, n.s.
Pk28-SimP	.79	
		Mean for Park-Simmel alone = .667
		t = 3.0
		Significant at .05 level, one tail test

\*See Appendix C for list of abbreviations.

However, we cannot fashion a conclusion from one example particularly when the exemplar theorist consciously imitated his high-similarity coworkers. For establishing the ties between training and theory, we should examine cohorts of graduates from selected schools. Mullins (1973:294-315) has mapped the lines of influence between sponsor and protégé. But he further observed that the same intellectual parent may father very different offspring--as Parsons begat both Robert Bellah and Harold Garfinkel. Lodahl and Gordon (1973) observed teachers in more codified (paradigm-orientated) disciplines spending more time and thought, exerting more influence, on the direction of graduate students. These authors compared firm paradigm disciplines like chemistry and physics with the less structured discipline of sociology. We may wonder if this tendency exerts its influence within sociology: Do schools organized around more unified points of view produce more high-similarity graduates? Or do sociology departments simply

produce graduates who really learn on their own, and, no doubt, develop their own heresies in the process?

These are not trivial questions. In practical decisions we assume great unity within graduate schools and diversity between them. Harvard and Chicago do not, we assume produce interchangeable scholars. A mid-western school may deliberately seek a transfusion of "new blood" from the East Coast or from Berkeley. Stinchcombe (1975) compared such academic hiring procedures to primitive exchange rituals. Although all women have the same virtues (more or less), an Elk man must marry the "special" Beaver woman, else the whole exchange system would collapse and no Beaver men would consent to marry his Elk sisters and daughters. The evidence so far--on Park's moderate, deliberate similarity to his teacher Simmel; on the whole network of similarities--suggests that important differences between groups may be small and deliberately contrived. Perhaps Stinchcombe is right; in six months an Elk could learn to be a Beaver--in sociology the source of training is more important for political reasons than substantive ones.

Hypothesis IIIId.--Famous quarrels abound in sociology, as they do everywhere else I suppose. Ritzer (1975:201-08) argues that disputes often arise between paradigm perspectives and illustrates his claim with suitable example of theorists debating over methodological approaches. His examples include the Parsons (1963-Homans (1971) controversy over reductionism vs. functionalism (Ritzer, 1975:165-67). Although Parsons and Homans do not spend much time in mutual criticism, each consistently works in his own tradition, each consistently avoids the other's perspective. Excluding the unusual Structure of Social Action, I compared Parsons' work with Homans' and found a mean similarity of .487, well below the

average (see Table 26). The typology also contains Tarde and Durkheim,

TABLE 26

SIMILARITIES FOR PAIRS OF WORKS\* IN FAMOUS CONTROVERSIES (TWO  
REDUCTIONISM CONTROVERSIES)

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DK12-Tard	.67	Overall Similarity Mean = .637
DK97-Tard	.60	
Ho74-Pr71	.45	Controversy Mean = .537
Ho74-Pr53	.52	d.f. = 41
Ho50-Pr71	.50	t = 10.0
Ho50-Pr53	.48	Significant at the .01 level, one tail test
		Durkheim-Tarde Mean = .635
		t = .2, n.s.

---

two other theorists who consistently opposed each other on the issue of reductionism and sociological analysis, once carrying this opposition to public debate (Tarde, 1904). The mean similarity between their works, however, is almost exactly average at .635.

Once again, although we cannot draw firm conclusions from the limited examples here, they do suggest problems for further thought. The mere existence of a quarrel does not signal paradigm divisions in sociology. To assess a quarrel we must examine the trait variables involved. Even a series of disputes centered around the same narrow topic, in this instance reductionism, may actually carry several sets of meanings. In Chapter V, I used trait variables to distinguish the tautological labeling by Tarde from the behaviorist analysis of Homans. This seems a good approach for examining controversies. Ritzer correctly documented how arguments may arise from paradigm divisions. Nonetheless, our task, if we are interested in theoretical reformulation, is to determine the exact points of differ-

ence and the possible paths of reconciliation for theorists who oppose each other ever some specific method or technique.

Hypotheses IVa and IVb.--The next two hypotheses link cognitive similarity to patterns of change in the discipline. Neither issue can be properly solved with the material from our typology although the clusters do leave some clues. For example, if we consider specialists very broadly defined, we find contradictory tendencies. When nineteenth-century Marx analyzed stratification, he resembled the old-fashioned Cooley ( $.81 \pm .12$ ) and Pareto ( $.71 \pm .14$ ) far more than the modern Blalock ( $.50 \pm .15$ ) whereas Blalock does not share high similarity with fellow contemporaries Homans 1974 ( $.60 \pm .15$ ), Homans 1950 ( $.45 \pm .15$ ), or Goffman ( $.50 \pm .15$ ). It appears that the core of similarity does, indeed, decline as a speciality ages. On the other hand, when three near contemporaries--Weber 1904-05, Durkheim 1912, and Sumner--investigated religious asceticism, their mean similarity was only .635--compared to the overall mean of .637. The evidence on methodological tools is no more conclusive. Schutz based his ideal-type methodology directly on Weber's (Wagner, 1970); ethnomethodology, in turn, claims direct kinship with Schutz (Turner, 1974:321-31). But the group means for Verstehen sociology is only .55, well below the average (Table 27). In contrast, Blalock's path analysis of stratification relates very highly ( $.95 \pm .07$ ) to the "typical" work of its kind described by Coser (1975). Here the combination of tool plus substance may be the critical variable. When Clark (1975) described recent path analyses of the variables affecting urban policy outputs, he described a group of researchers whose work used the Blalock mathematical techniques on a different set of topics (coding for Coser and Clark works available on request). Clark's typical work relates Only  $.74 (\pm .13)$  to Coser's ideal type and  $.69 (\pm .14)$

TABLE 27

SIMILARITIES FOR PAIRS OF WORKS\* USING THE SAME  
SPECIAL METHODOLOGICAL TOOL

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Verstehen Methodology (as introduced by Weber)	Coser's "Typical" Ethnomethodologist-Schutz Coser's "Typical" Ethnomethodologist-Weber 04-05 Schutz-Weber 04-05	.69    .45 .52
<hr/>		
Path Analysis (as developed by Blalock)	Blalock-Clark's "Typical" Community-Power Work Blalock-Coser's "Typical" Stratification Work Clark-Coser	.95 .69 .74
Overall Similarity Mean = .637		
Methodology Mean = .67		
d.f. = 41		
t = 3.30		
Significant at the .05 level, one tail test		
Mean for Verstehen Group = .55		
t = 8.7		
Significant at the .01 level, one tail test-- opposite the predicted direction		
Mean for Path Analysis Group = .79		
t = 15.6		
Significant at the .01 level, one tail test		

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\*See pages 116, 172-73 for explanation of Clark-Coser works. See Appendix C for list of abbreviations.

to Blalock's article, scores above average but also well below the almost total similarity between Blalock and other regression analysis-stratification pieces.

Coser himself (1975:693-95) suggests it is the combination of methodology with substance that freezes a work style. In other words, when we begin to automatically combine substance and method, we may impose premature closure on our technique. Since--if the evidence of this study

comes near the truth--we have not found the approach ideally suited to any one topic, we need open options, multiple techniques. However, promiscuous leaping from fad to fad does not advance science either. In paradigm fields, a few creative pioneers lead into new territory, followed by dozens of imitators using the same kind of axe to clear the same kind of brush. Blalock (1970):114-15) would refer to the brush-clearing activity as "replication." Therefore, even if the use of similar tools does create a temporary high-similarity fad among social scientists, we need not discourage this flurry of imitation. Perhaps, after tool and topic have both been tested in numerous replications, it may then be time to travel new scientific directions, axe in hand, looking for a new kind of brush.

In conclusion, these hypotheses simply assert an overlap between members of a scientific social circle and theorists who belong to the same theoretical type sharing a high similarity core of trait variables. The results so far, ambiguous at best, indicate a possible relationship between thought similarities and such circle criteria as common training. We cannot be surprised by the low support for these hypotheses. As we have seen in Chapter IV, even the types themselves show relatively low cores of similarity shared by all members. In Chapter V, I demonstrated how a few critical variables distinguish one analytical approach from another; and these critical variables vary with the subject. Finally, the small number of works examined here, selected to present diverse trends in the field, may not provide the sample to demonstrate these points. Indeed, I am certain we could define "substantive circle" and other circle groups in such narrow terms that all members would share quite similar thoughts (see Crane, 1969:316-17 for sampling suggestions).

To pursue this point, however, we should concentrate on identifying causal direction: Do like-minded groups circle together? Or does the discipline train like-minded groups? These questions need not concern theory-builders who reconcile Goffman's study of self-fronts with Marx's ideas about class consciousness. But the issues involved do concern those interested in "normal science" research problems. If Kuhn (1970:23-51) is correct, if normal science activity requires scores of scientists researching the minor problems within a defined framework, then the discipline should consider how to acquire these normal scientists. On the other hand, if Crane (1972:22-40) is correct, if the need for concentrations of specialists and generalists varies with the growth stage of the specific sub-field, we must also assess the maturity of a speciality. At present, sociologists often assume concentrated training will produce needed workers for speciality areas (Quarentelli and Weller, 1974:66). But, given the loosely defined "immature" state of many specialities, the discipline may be better served by generalized training for people who will work several subfields. In any event, more thorough investigation of possible causal paths implied by these hypotheses might help us to assess the merits of such issues as specialized versus generalized training.

#### The Political Mission of the Scientific Circle

The final hypothesis links scientific thought to outside influences; in this instance, "priestly" or "prophetic" orientations, an ideological stance about the purpose of science and, we presume, other areas of life as well. I will not attempt to test this hypothesis in the usual way but instead, will approach the problem with trait-variable analysis. I have chosen this approach chiefly because the reformulation problems here prove far more interesting than the identification ones. First, however, we

must identify the basic difference between "prophets" and "priests."

When Friedrichs (1970) named these two types of sociologists, he was examining the discipline at its "primordial paradigmatic level" to uncover basic assumptions about the sociological role. He described prophets as iconoclasts who broke facets of the old order (1970:75) and priests as caretakers who preached a faith in truth from the past. A priest would project past order on the future; a prophet would use knowledge of the past to change the future (1970:106-09). Good distinctions--but who are the theorists? Marx must be a prophet; he broke with the industrial-capitalistic order by advocating a classless future. Nonetheless, after devoting many pages to Marx and the "Marxist analogue," Friedrichs found very few "fully prophetic" sections in Marx's work (1970:286). In truth this should not surprise us because few great thinkers can be comfortable fully married to an existing order or fully divorced from it.

After reading Friedrichs, I concluded that the prophet-priest distinction is a variant of the old conflict-consensus dichotomy. It distinguishes those who wonder about the source of disorder and explain it in terms of disagreement between interest groups from those who marvel at the existence of order and explain this in terms of a societal-wide consensus on basic values (Lenski, 1966:24-42). The conflict theorists, seeing one interest group suppress another, advocate insurrection; the consensus theorists, seeing a balance of agreement in society as a whole, praise the status quo (Warshay, 1975:26-29, 60-66). Friedrichs himself (1970:289-328) recognized the parallel: if prophecy and priestliness do not equal conflict and consensus orientations, surely they are similar.

However, I do not plan to code all 25 works from the typology on some conflict/consensus scale. As an alternative, I will examine the one truly



conflict theorist in this group along with his closest associates. Marx heads a theory cluster (Cluster 2, Table 6) immediately joined by Comte, Cooley, Parsons 1971, and Weber 1922--all clearly less prophetic, less iconoclastic than Marx. Yet all of these theorists share high similarity with each other and together head the structural factor (Factor 1, Table 15). If other prophetic ideas of conflict orientations required a separate paradigm, surely Marx would not be quite so highly related to Parsons 1971, to Comte . . . Even with five people in the group, they share 24 common traits (.57 five-way similarity).

These common traits argue against facile contrasts between conflict and consensus approaches. For example, is conflict an inherently radical-developmental approach? Radical-critical sociologists, we have been told, study root relationships or the historically conditioned origin of changeable structures (Birnbaum, 1971; Horowitz, 1971:12). But consensus researchers also explore "root relationships." All five of the writers in this group examined coordination (trait 29) with its implications of power; all stressed changing (32) modes of coordination, not short term change, but historical developmental sequences (8). In The System of Modern Societies, to take one example, Parsons outlined the shifting relationships between institutions when a society adapts to modern-commercial environments. Parsons argued that only a society with increasingly independent institutions could effect the adaptive shift from medieval to modern capacity. Ironically, as Lenski (1966) concluded in Power and Privilege, the radical expose of exploitation structures often depict elite abuse of power during a long-term status quo, while functional-consensus works like Parsons 1971 better expose the root relationship leading a functionally useful group to assume elite positions in the first place.

Similar paradoxes pervade many other comparisons between these two approaches. Consider how functionalism and other varieties of large-systems analysis are often interpreted in conservative terms: "a function must be served." All five theorists examined here began by viewing a total society with functions (23); all but Weber 1922 continued on that level (24). All examined institutional structures (33) within a holistic-systems framework (15). Given these traits, we could fashion each work into a functional-systems analysis. Even the piece by Marx. The "Eighteenth Brumaire" could be a description of how limited land reform promotes short-term political stability in a peasant economy.

Rex (1961:60-71, 136-55) identified another conflict-consensus paradox. Conflict approaches, he argued, must separate personal motive from systems function, something functional analysis does not always do. Indeed, all of the works here stress a positivistic approach to viewing the action from the "outside" (2) and all explain people's behavior in terms of societal structure (3) rather than individual motives (4). On the other hand, Marx the conflict theorist and Cooley the conservative both used interpretive analysis (1) to link people with ideas--Cooley for detailing how society-wide open class ideology functions to obviate the need for rebellion; Marx in predicting how group-based class consciousness forms to ferment revolution. These "personal motives" could also be assessed through a positivistic questionnaire/interview technique (34) if we asked about attitudes and labeled the answers "personal assessment of group interests." The crucial problem for conflict analysis, however, is determining where "group interest" really lies both in relation to function and compared to personal opinion.

In other words, although our five exemplar theorists do not form a

representative sample of conflict-consensus theorists, they do illustrate that theory traits cannot be exclusively assigned to one perspective. Given our interest in theory reformulation, a more fruitful approach would be looking for common requirements rather than distinguishing features of conflict-consensus analysis.

To begin, let us consider only problems of coordination (29) in a total society (23). Conflict in a permanent stalemate seems contradictory in such settings so we should use developmental analysis (8). Further, conflict occurs between two or more parties--at least it requires relational analysis (6) of different sectors in society; these relations could be observed with data about the structural characteristics of society (40) and the social background characteristics of individual people (41). This last trait seems vital. Conflict must occur between different kinds of people. If some groups exercise power (40), they may be performing a vital function for society; but if certain kinds of people (41) monopolize positions of power, then they have probably created a "conflict" situation. Marx in "Eighteenth Brumaire" and Weber in The City both examined what the power of "citizenship" might mean for distinct social groups. Both observed how urban masses formed a reservoir of revolutionary potential. Weber assessed the "bread and circus" policy of ancient Rome, economic and entertainment pallatives for the masses; Marx critiqued governmental reforms which appeared to relieve lower-class conditions while actually worsening them. Both men also highlighted an important facet of consensus. Agreement about societal values may occur for many reasons and have different implications among various groups. If we are to investigate the content of this consensus, any details besides the simple agreement signaled by absence of overt conflict we must examine it either as an interpreted

meaning in the context of specific group situations (1) or as a cultural product tied to some particular group (42). For theoretical reformulation, we should use these ideas to unite both conflict and consensus in one analysis--I suggest by defining consensus in terms of group power, consensus as a source or product of conflict, perhaps consensus "a trophy for the winners."

Collins (1975) has detailed a resolution between conflict and consensus in precisely these terms. He called consensus a "power resource," the creation of consensus a "power act" (1975:59). In his chapter on "State, economy, and ideology" he argued that even the most arbitrary dictatorship rests on a set of beliefs organized by the dictator (1975: 348-413). At a minimum, citizens share consensus that their personal self-interest will be best served by obedience to the established order. I suppose this could include the self-interest in not being shot. Certainly when we examine a societal group looking for the specifics of consensus, we find little practical agreement: everyone supports "justice" but differs over the particulars of a just decision (Mennell, 1974:116-40). Thus, the consensus actually supporting a social order may be no more than a widespread agreement that, for whatever reason, we personally will not subvert the present regime.

If we accept this perspective of conflict/consensus we need not wonder why prophets and priests gather in the same theory cluster. Instead, we should examine the mechanisms promoting consensus. Treat consensus like money or material or manpower or any other power resource. Look for the routes through which one group acquires control over the ideas of others and detail how this group then uses consensus to further its advantage.

This perspective eluded Comte during his search for the universal

sequence of common world views (1858:258-63). In "Brief estimate of modern history," he related the shift in European culture from the spiritual force of papal rule to the scientific capacity of industrial states presenting European history as the most advanced example of this relationship between kinds of societies and kinds of thought. In the end, however, Comte's explanation tells far more about the spreading effect of technology than about the outlines of consensus within an industrial society.

Marx the conflict theorist actually analyzed the problems of consensus in better detail. With his stress on groups defined by common economic situations (1846a:6-16) and on reciprocal action between members of these specific groups (1846b:670), he suggested that the scientific capacity may not have the same effect on each segment of society. Nonetheless, as Marx demonstrated in "Eighteenth Brumaire," subgroups do not necessarily formulate ideas to reflect their own self-interest in the given situation. Cooley identified a consensus mechanism that may explain this anomaly: social life, he said, is a social-mental process (1926:305-07), society a network of communication (1918:26-29). In his work "On the ascendancy of a capitalistic class," he reported communication networks spreading hope for the lowly through open-class ideology. As a vehicle for consensus, his communication network of mass media reinforced by primary group values has proved more important than reciprocal action. The history of Marxist movements demonstrates how effective leadership can communicate a message even to those far distant persons who have no opportunity for consciousness-raising interaction as Marx envisioned it.

But what is the necessary content of this leadership message? How much consensus is necessary before a group can act? Parsons outlined an "action framework"--ends, means and conditions, norms--culminating in a

"common value integration" of group created values directing us to choose the appropriate norms to suit the ends, means, and conditions (1937:727-35). Parsons had elaborated his action framework from Weber's theory of social action. Weber, however, simply defined social action as human activity orientated toward the responses of others (1922:22-26). Clearly we need some agreement among ourselves to rescue social action from a vacuum of meaninglessness; social action depends on others who react in expected, "appropriate" ways. But Weber required only a small core of consensus, just enough to make social life tolerably predictable, not so much that we can assume common agreement on a basic world view (Cohen, 1975). There is, in other words, a critical difference in the two social action approaches. Parsons searched for the emergent property of common value integration, even defining sociology as the study of this consensus property (1937:768). In his System of Modern Societies he described industrial society guided by universalistic standards, specific role obligations, and other adaptive values. Weber only expected enough mutual agreement to insure that we can depend on others to hold up their end as long as we hold up ours. Why these others are dependable is not the key issue. With this interpretation of consensus, Weber could expect a small elite to define societal values for the rest of us. For example, growing rationality in Western civilization meant growing rationality in institutional arrangements: religious practices that "please" god; bureaucratic hierarchies to execute army plans; careful reinvestment for promotion of capital growth (Bendix, 1960:64-69). But individual people could simply follow their leaders without themselves working toward the rational, deliberate manipulation of means for some end. In The City economic practices limited the possibility of consensus; ancient Roman nobles might buy

lower-class allegiance with social welfare, but the nobles did not expect the urban proletariat to formulate wise political decisions based on proper Roman values.

Thus, by seeing consensus and conflict as a single issue, we can find combination possibilities even with the small number of works considered here. The nature and content of consensus varies for different groups in society. Those with control over the communication network may influence consensus among others. Those with control over important institutional structures may encourage others to "go along" regardless of what they think . . .

This combined view of conflict-consensus returns us to the problem raised by Friedrichs in his comparison of prophets and priests--sociology for revolutionary praxis and sociology for understanding faith. But once we have turned consensus into a possible object or weapon of conflict, we destroy the basis for faith. Faith in what? if we cannot believe the established order. Cooley revealed how a society can spread some common belief, we presume belief in anything. Parsons, with radical insight, explained how certain beliefs may mobilize society, but not, we must conclude, for the necessary benefit of all consenting individuals. Although this bad news about consensus may encourage us to promote changes in the group, praxis offers no standards for the end point of that change. Marx once envisioned a society without unnecessary concentration of power, with minimal bureaucratic power in the hands of a few coordinators (Mouzelis, 1967:8-15). However, both history and sociology challenge Marx's narrow definition of "necessary" power. When power is mobilized and concentrated in certain ways, society produces more--more economic materials, more judicial decisions, more of all those goods that can increase day-to-day

freedom for subordinate groups. Furthermore, this power and the related privileges have shown a persistent tendency to concentrate in a few hands.

John Rawls (1971) would justify such inequality so long as it serves the interests of the "worst off" groups of society: thus, a centralized industrial society producing more surplus goods for everyone can be more just than an egalitarian society with few goods equally distributed to all. Reasonable enough, until we realize that social goods are often defined by private choices, the aggregate of which are impossible to control (Boudon, 1976). For example, the private decision of many couples to have "one more baby" can create a baby boom, precipitating a demand for more schools, more jobs, numerous other goods. Further the consensus about what is "good" changes--often in the direction of increasing demand for a higher level of good given to an ever larger percentage of the people. I mentioned Rawls and his Theory of Justice as a current, sophisticated attempt to bring prophetic ideals into the service of some end besides iconoclasm. Dealing with the problems raised by Rawls will be, I predict, a major new direction for sociology. If theorists like Collins forge the links between conflict and consensus principles, we must look for other social ends besides those defined by consensus--not to the perpetual image breaking of the prophets, nor the past-oriented order of the priests but to some other standard; perhaps defined by a theory of justice, we hope tested for its effects by sociological analysis.

This chapter on the sociology of sociology has traveled from simple tests for simple-minded comparisons between groups to an expedition into the nature and implications of the sociological mission. Although I cannot credit numerical taxonomy with all of the analysis here, it does provide a tool for comparisons between groups and--more important as we have



seen with the prophet-priest comparison--a tool for sorting through theoretical ideas. Using this simple tool, I found a common edge with Collins and his sophisticated analysis of the same conflict-consensus problem. In conclusion, numerical taxonomy can be a useful device for further exploration into the sociology of sociology: first because the typology based on numerical taxonomy enables us to identify cognitive similarity between theorists who may also be related on other criteria: second because the trait variables which form the basis for classification also form a checklist of properties we may consider in critical analysis.

## CHAPTER VII

### RETROSPECT ON THEORY PARADIGMS

To be truly useful in modern theoretical work, classifications of sociological thought should do more than simply divide theorists into schools. At present two additional goals seem important; 1) examining the formal elements within a theoretical system as a step toward reformulating theory; and 2) identifying the social-environmental influences that may affect theoretical development. Toward these ends, I have proposed a numerical classification system based on many variables instead of the traditional few usually employed for cataloguing theoretical works. I have detailed a rationale for choosing a particular approach, the mathematical techniques involved, a preliminary analysis of theory-classification data, and some suggestions for using this data in theoretical reformulation and explorations into the sociology of sociology.

How can we judge the results of such effort? An adequate taxonomy identifies "natural" groups of phenomena. A truly successful taxonomy also retrieves information easily and tests hypotheses (Sokal, 1974:185-86). In this project I tried to identify natural paradigms of sociological thought, to use the taxonomic traits for reformulating theory, and to test a few hypotheses about the kinds of theorists who would be most likely to cluster together in natural-paradigm groups. First I translated the Kuhn paradigm into mathematical terms. A paradigm of works sharing a common perspective for sociological reasoning is a dense monothetic cluster of works sharing a large core of similarly coded trait variables. Ideal we

could expect to find two or more of these dense "natural" clusters separated by great empty spaces of low similarity. To identify the groups and trace connections between them, I used three techniques: rearrangement of the similarity matrix to group like works together; construction of clusters based on similarity levels; and factor analysis of underlying similarity properties. All three tools located three major groups and consistently placed ten (of the twenty-five) works in a specific group. These unambiguous clusters seem to represent two major dimensions: a stress on methodology per se and a stress on subject matter. Among those who stress subject matter, most emphasize structure and a few prefer exploring cultural-social perceptions. These factors seem sensible. They represent long-standing traditions in the field and add some nuance to the recent typology suggested by Ritzer. Clustering, however, also identified four groups of theorists who stand midway between the three factors. This disparity between factor analysis and clustering results illustrates the multidimensional relationships between theoretical works; even in the most "similar" groups, the core of similar trait variables shifts from work to work leaving only a small number of traits held in common by all group members. Clearly no one paradigm perspective dominates a theory cluster let alone sociology itself.

Nonetheless, these core similarity traits become very important in reformulation exercises combining or expanding theoretical perspectives. For example, I compared Marx, Blalock, and Goffman. Each theorist is an outstanding exponent of a different type perspective; each wrote about stratification problems. By comparing their common traits and their distinguishing ones, I suggested how the three distinctly different perspectives could be worked into a common framework--Blalock's causal models of attitudinal change as a test of growing class consciousness among Marxian

cohorts, Goffman's work on the false self front as an explanation of how true and false class consciousness develop through interaction. In other reformulation exercises I compared works on religious asceticism, role theory, and reductionism. Each time using the trait variables for guidelines to the various possibilities of theoretical reformulation.

Many exercises in theory reformulation can prove useful quite independently of the typology classification. To examine a handful of works we need only their trait codings not the entire matrix of similarities. Thus, we can choose theorists who explore some entertaining topic and compare their various views on the common concern. Most sociologists have been trained in a few techniques, in one or two perspectives; but we research a topic rather than a perspective and develop subject-based theories rather than theories about technique. Theory reformulation with trait variables provides a quick insight into different perspectives on the same topic, an insight into the assumptions and orientation of a "different" theorist as well as the substantive findings that happen to relate to our work. A truly intelligent combination of different theoretical views must rest on this kind of insight (Sherman, 1974; Merton, 1975:43-52).

One of the key assumptions behind the sociology of sociology is that colleague circles--theory groups, invisible colleges, and the like--coincide with paradigm perspectives. So I have used the types as a limited test of this idea selecting works from the same social circle to see if they share the high similarity of many common traits. Most of the hypotheses proved false. Not a surprising finding given the loosely structured nature of trait similarity within paradigm groups. However, with a different set of trait variables, ones chosen to reflect the important issues for key groups we could probably find sharp cognitive

differences between circle groups. The variables used here measure abstract, universal categories in sociological theory. In biological terms, these traits are like the general categories separating one mammal from another. If we were working in biological systematics and wanted to distinguish between primates, we would refine the mammal traits to develop more specialized primate variables. For sociology systematics we could choose variables to reflect nuances in the "interpretive" property, for example, and provide a better base for statistical tests about specialized circles in interpretive sociology.

With a different set of traits, we could also examine links between sociology and other aspects of culture. Crane (1972:129-47) argues for a sociology of culture including science, artistic expression, and other intellectual phenomenon. Long ago Max Weber (1904-05:17-26) named a common element in Western civilization called rationality and numbered its effects in music, religion, architecture, business, science. With carefully chosen trait variables, we could cover the same cultural fields seeing indices of rationality or other cultural characteristics in more detail.

Even if we cannot test some hypotheses directly with the present typology, the trait variables prove useful in other approaches. One of my hypotheses predicted differences between sociologists who have prophetic or priestly political orientations. But when Marx, who is clearly a prophet, shares high similarity with such priestly thinkers as Comte, Cooley, Parsons, and Weber, we cannot argue that prophetic theories of conflict differ greatly from priestly theories of consensus. Instead, returning to the trait variables for clues about the nature of overall similarity and the source of critical differences between these theorists,

I argued toward the same conclusion that others have reached with a more laborious literary approach: the conflict-consensus perspective unites when we define consensus as an object of conflict.

As I have demonstrated, numerical taxonomy examines the nature of sociological thought in new ways. It generates a numerically based typology of cognitive paradigm tendencies based on methodology, social perceptions, and structural constraints. The trait variables form a checklist for theory reformulation exercises. Similarity relationships in the types can test hypotheses about the links between social circles and cognitive structures. In effect, the taxonomy approach forms a kind of paradigm, not a Kuhn paradigm of scientific gestalt but a Mertonian paradigm of procedures for codifying some theory perspective (Boudon, 1970; Merton 1967:69-72). Although I have not fully outlined this paradigm-for-paradigms, my theory reformulation suggests some lines of procedure: examining one subject from several points of view, as I did in the stratification example; searching for differences in the "same" perspective like the different kinds of reductionism; and finding common elements in such "divergent" perspectives as the conflict-consensus controversy. In each instance, I looked for assumptions behind an author's approach as well as the ideas in a specific work. This style for reformulation efforts may well be the most promising result of theory classification via numerical taxonomy.

**APPENDIX A**

## APPENDIX A

### THEORETICAL WORKS FOR THE INITIAL CLASSIFICATION

Blalock, Hubert

- 1967 "Status inconsistency, social mobility, status integration and structural effects." *American Sociological Review* 32 (October):790-801.

Comte, August

- 1820 "A brief estimate of modern history." Pp. 499-526 in *System of Positive Polity*. Vol. 4. New York: Burt Franklin (1966).

Cooley, Charles Horton

- 1909 "On the ascendancy of a capitalist class." Pp. 256-72 in *Social Organization: A Study of the Larger Mind*. New York: Schocken Books (1962).

Durkheim, Emile

- 1912 "The negative cult and its functions: the ascetic rites." Pp. 337-65 in *The Elementary Forms of the Religious Life*. New York: Free Press (1965).

- 1897 "Anomic suicide." Pp. 241-76 in *Suicide*. New York: Free Press (1961).

Goffman, Erving

- 1956 "The nature of deference and demeanor." *American Anthropologist* 58 (June):473-502.

Homans, George C.

- 1974 "Leadership." Pp. 269-98 in *Social Behavior: Its Elementary Forms*. Rev. ed. New York: Harcourt Brace Jovanovich.

- 1950 "The job of the leader." Pp. 415-40 in *The Human Group*. New York: Harcourt, Brace and World.

Lundberg, George A.

- 1952 "Interethnic relations in a high-school population." *American Journal of Sociology* 58 (July):1-10.

Marx, Karl

- 1852 "The eighteenth Brumaire of Louis Bonaparte." Pp. 97-180 in *Karl Marx and Fredericks Engles: Selected Works*. New York: International Publishers, 1970.

Merton, Robert K.

- 1948 "The self-fulfilling prophecy." Pp. 421-36 in *Social Theory and Social Structures*. Rev. and enlarged. Glencoe, Illinois: Free Press, 1957.



Merton, Robert K.

- 1936 "Puritanism, Pietism and Science." Pp. 574-606 in *Social Theory and Social Structures*. Rev. and enlarged. Glencoe, Illinois: Free Press, 1957.

Pareto, Vilfredo

- 1901 *The Rise and Fall of the Elites: An Application of Theoretical Sociology*. Totowa, New Jersey: Bedminster Press (1968).

Park, Robert Ezra

- 1936 "Succession: an ecological concept." Pp. 85-94 in Ralph H. Turner (ed.), *Robert E. Park on Social Control and Collective Behavior*. Chicago: University of Chicago Press, 1967.

- 1928 "Human migration and the marginal man." Pp. 194-206 in Ralph H. Turner (ed.), *Robert E. Park on Social Control and Collective Behavior*. Chicago: University of Chicago Press, 1967.

Parsons, Talcott

- 1971 "The first crystallization of the modern system." Pp. 50-70 in *The System of Modern Societies*. Englewood Cliffs, New Jersey: Prentice-Hall.

- 1953 "A revised analytical approach to the theory of social stratification." Pp. 386-439 in *Essays in Sociological Theory*. Rev. ed. New York: Free Press, 1954.

- 1937 "Empirically verified conclusions." Pp. 697-726 in *The Structure of Social Action, Vol. II*. New York: Free Press (1968).

Schutz, Alfred

- 1945 "The homcomer." Pp. 294-308 in Helmut R. Wagner (ed.), *Alfred Schutz on Phenomenology and Social Relations*. Chicago: University of Chicago Press, 1970.

Simmel, Georg

- 1908a "Conflict and the structure of the group." Pp. 87-123 in *Conflict and the Web of Group-Affiliations*. New York: Free Press, 1955.

- 1908b "The poor." Pp. 150-78 in Donald N. Levine (ed.), *Georg Simmel on Individuality and Social Forms*. Chicago: University of Chicago Press, 1971.

Sumner, William Graham

- 1906 "Asceticism." Pp. 502-19 in *Folkways*. New York: New American Library (1960).

## Tarde, Gabriel

- 1901 "The public and the crowd." Pp. 277-94 in Terry N. Clark (ed.), *Gabriel Tarde on Communication and Social Influence*. Chicago: University of Chicago Press, 1969.

## Weber, Max

- 1922 "Ancient and medieval democracy." Pp. 210-45 in *The City*. New York: Free Press (1958).

- 1904- "Asceticism and the spirit of capitalism." Pp. 155-83 in *The Protestant Ethic and the Spirit of Capitalism*. New York: Charles Scribner's Sons (1958).

**APPENDIX B**

## APPENDIX B

## THEORETICAL TRAITS FOR THE INITIAL CLASSIFICATION

## Dimension One: The Abstract Subject Focus of Sociology

## Variables

- 1) Interpretive conceptions of social-science subject matter
- 2) Positivistic conceptions of social-science subject matter
- 3) Social levels for explanatory variables
- 4) Psychological levels for explanatory variables
- 5) Holistic-synthetic conceptualizations of social life
- 6) Relational-analytic conceptualizations of social life
- 7) The study of equilibrium in social life
- 8) The study of development in social life

## Dimension Two: Abstract Methodological Strategies

## Variables

- 9) Analytic-inductive strategies
- 10) Formal-deductive strategies
- 11) Typical sampling
- 12) Sampling from universal conditions
- 13) Analysis with type concepts
- 14) Directly propositional analysis
- 15) Focus on prediction
- 16) Focus on explanation

## Dimension Three: Groups Used as Sites of Analysis

## Variables used as units of analysis

- 17) The primary group
- 19) The complex or large-scale organization
- 21) The community
- 23) The total society

## Variables used as objects of analysis

- 18) The primary group
- 20) The complex or large-scale organization
- 22) The community
- 24) The total society

**Dimension Four: Group Process-Problems Analyzed****Variables**

- 25) Group formation
- 26) Differentiation
- 27) Socialization
- 28) Deviation
- 29) Coordination
- 30) Stratification
- 31) Innovation
- 32) Social change

**Dimension Five: Principal Data-Gathering Techniques****Variables**

- 33) Direct studies of institutional structures
- 34) Interviews/questionnaires
- 35) Observations
- 36) Experiments

**Dimension Six: Observational Categories****Variables**

- 37) Material environment
- 38) Spatial location
- 39) Population base
- 40) Structural characteristics
- 41) Social characteristics
- 42) Cultural products

**APPENDIX C**

## APPENDIX C

### LIST OF ABBREVIATIONS FOR THEORETICAL WORKS\*

- Blak Hubert Blalock--on "Status inconsistency" (1967)  
Comt August Comte--on "Modern history" (1820)  
Cool Charles Horton Cooley--from Social Organization (1909)  
DK12 Emile Durkheim--from Elementary Forms of the Religious Life (1912)  
DK97 Emile Durkheim--from Suicide (1897)  
Goff Erving Goffman--on "Deference and demeanor" (1956)  
Ho74 George C. Homans--from Social Behavior (1974)  
Ho50 George C. Homans--from The Human Group (1950)  
Lund George A. Lundberg--on "Interethnic relations" (1952)  
Marx Karl Marx--on "The Eighteenth Brumaire of Louis Bonaparte" (1852)  
Mr48 Robert K. Merton--on "The self-fulfilling prophecy" (1948)  
Mr36 Robert K. Merton--on "Puritanism Pietism and Science" (1936)  
Pare Vilfredo Pareto--from The Rise and Fall of the Elites (1901)  
Pk36 Robert Ezra Park--on "Succession" (1936)  
Pk28 Robert Ezra Park--on "Human migration and the marginal man" (1928)  
Pr71 Talcott Parsons--from The System of Modern Societies (1971)  
Pr53 Talcott Parsons--on "Stratification" (1953)  
Pr37 Talcott Parsons--from The Structure of Social Action (1937)  
Schu Alfred Schutz--on "The homecomer" (1945)  
SimC Georg Simmel--on "Conflict and the structure of the group" (1908)  
SimP Georg Simmel--on "The poor" (1908)  
Sumn William Graham Sumner--from Folkways (1906)  
Tard Gabriel Tarde--on "The public and the crowd" (1901)  
We22 Max Weber--from The City (1922)  
We45 Max Weber--from The Protestant Ethic and the Spirit of  
Capitalism (1904-05)

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\*See Appendix B for the complete bibliography.

**APPENDIX D**



## APPENDIX D

### CODING GUIDE FOR TRAIT VARIABLES

**Variables 1 and 2: interpretive and positivistic conceptions of subject matter**

- 1 0 Basic stress on interpretations made by social actors. E.g., Goffman's "self" and Schutz's ideal-type "homecomer."
- 0 1 Behavior taken at face value although a psychological motive may be posited as a given. E.g., Simmel's types of "poor."
- 1 1 Both cultural-subjective meaning and institutional structure crucial to analysis. E.g., Weber's Protestant Ethic and Park's "marginal man."

Ritzer, 1975; Wagner, 1963; Wallace, 1969.

**Variables 3 and 4: social and psychological levels for explanatory variables**

- 1 0 Activity completely explained in terms of social environment (Goffman's explanation of social pressures in a mental ward) or in terms of the social environment and a psychological given (Simmel's "poor").
- 0 1 Psychological state is the principle explanatory variable. E.g., Homans' Elementary Forms.
- 1 1 Psychological state alternates with social environment as part of an explanatory chain. E.g., Tarde's view of crowd behavior.

Buckley, 1967; Rex, 1961; Wallace, 1971.

**Variables 5 and 6: holistic-synthetic conceptualizations and relational-analytic ones**

- 1 0 Stress on system qua system, total and intermeshing parts. E.g., Parsons' discussion of the development of N.W. Europe.
- 0 1 Stress on parts without explicit regard for the givens of the system as a whole. Analysis could easily shift to a different system and still apply. E.g., Homans in Human Group, Blalock.
- 1 1 Certain relationships are singled out for inspection. But analysis performed in terms of how the selected relationship fit with the system. E.g., Marx, Weber's Protestant Ethic.

Budkley, 1967; Rex, 1961; Wallace, 1971.

**Variables 7 and 8: the study of equilibrium and development**

- 1 0 Stress on balance, changes are recurrent cycles. E.g., Pareto. Or emphasis on specific balanced times; even though change has occurred from one balance to another, the mechanism is not detailed. Simmel's "poor" or Merton's work on Puritanism and science.
- 0 1 Main point is how a development originated or shifted. E.g., Weber's Protestant Ethic, Marx.
- 1 1 Two (or more) stable systems explored with some mechanisms that account for the shift between them. E.g., Tarde, Weber's work on the city.

Blalock, 1969; Nadel, 1957.

**Variables 9 and 10: analytic-inductive and formal-deductive strategies**

- 1 0 A search for patterns in the data. Patterns defining a concept, e.g., Simmel's "poor." Patterns of a specific relationship, e.g., Homans' Human Group. Patterns of systems, e.g., Parsons in System of Modern Societies.
- 0 1 Theory explicitly set up to "test," sets of statements to be falsified or verified (in some aspect, at least) by the "test." E.g., Blalock, Merton's study of Puritans and science, Pareto.
- 1 1 Both discovery of patterns in data and tests of relationships either within the pattern or between the pattern and other variables. E.g., Weber's Protestant Ethic, Parsons on stratification.

Kaplan, 1964; Reynolds, 1971.

**Variables 11 and 12: typical sampling and sampling from universal conditions**

- 1 0 Underlying assumption that conditions "average out" in any random sample. E.g., Blalock; Park on neighborhood succession.
- 0 1 Underlying assumption that a combination of historical, temporal conditions affect other variables. An "extreme" sample may be chosen to highlight these conditions. E.g., Weber in Protestant Ethic, Simmel on the "poor."
- 1 1 Use of "universal" historical conditions for part of the research but not all, e.g., Tarde, Pareto. Or use of a "typical" sample to build to universal conditions, e.g., Homans in Human Group, Merton on "self-fulfilling prophecy."

Rex, 1961; Willer, 1967.

Variables 13 and 14: analysis with type concepts and direct propositional analysis

- 1 0 One type (or constellation of variables) related to another type, e.g., Weber's Protestant Ethic. Both types also explored internally.
- 0 1 No "types" involved, direct comparison of two variables, e.g., Blalock. Or types incidental to the analysis in question, e.g., Pareto's analysis of elites (who have residues). Or analysis of the inner workings of a type in terms of its variable relationships.
- 1 1 Exploring a developed type in terms of certain variable relationships, e.g., Tarde, Merton on Puritans and science. Using types as part of a broader analysis, e.g., Durkheim in Elementary Forms.

Kaplan, 1964; Stinchcombe, 1968.

Variables 15 and 16: prediction and explanation

- 1 0 Stress on prediction. Possibilities under given conditions, e.g., Simmel on conflict. Necessities under certain conditions, e.g., Parsons on stratification.
- 0 1 Stress on the process of change, mechanisms that shift from one set of conditions to another, e.g., Cooley.
- 1 1 Stress on both outcome and mechanisms, structure and means for producing the structure, e.g., Weber in Protestant Ethic, Pareto.

Dubin, 1969; Gibbs, 1972; Kaplan, 1964.

Variables 17 to 24: groups used as sites of analysis--units (independent variables) and objects (dependent variables).

Primary group: group in which relations are based on the quality of person qua person.

- 17 Unit: the primary group or its relations creates or shapes the action, e.g., Cooley.
- 18 Object: the structure or quality of group relations is affected by other variables, e.g., Goffman.

Broom and Selznick, 1973.

Complex or large-scale organization: group designed to accomplish explicitly stated goals (even if the group has other goals as well).

- 19 Unit: the complex organization structure affects other action, e.g., Goffman.
- 20 Object: the complex organization structure is affected by other variables, e.g., Simmel on how conflict changes organizations.

Perrow, 1972.

Community: group based, at least to some degree, on residence in a small geographical area, integrated social relations, and a sense of common membership beyond family ties.

- 21 Unit: the quality of community life is used as an independent variable, e.g., Weber in Protestant Ethic.
- 22 Object: the quality of community life is affected by some other variables, e.g., Weber on life in ancient and medieval cities.

21-

- 22 Park on succession within the community

Bernard, 1973.

Total society: self-sufficient system with allegiance to a common "system of action" which lasts longer than the individual and recruits largely through birth in the system. In modern systems society tends to be coterminous with the nation state, in old systems with the community.

- 23 Unit: the variables originate in the structure or cultural milieu of the society, including the societally defined background traits of people, e.g., Weber on societal influences affecting city life.
- 24 Object: societal structures affected by other forces, e.g., Simmel on conflict relations and societal cohesiveness.
- 23-
- 24 Blalock on how traits of people affect their position and attitudes within the society.

Inkles, 1964.

Variables 25 to 32: group processes analyzed

- 25 Group formation--the establishment of boundaries with norms and goals, e.g., Simmel on conflict.
- 26 Differentiation--of specialized skills and values distributed in the group; the creation and sustaining of roles and performances, e.g., Goffman, Park on "marginal man."
- 27 Socialization--for the transmission of patterns; process of learning identity and performance, internalization, e.g., Durkheim in Elementary Forms.

- 28 Deviation--both individual departures and group challenges to the system; either applauded or deplored, e.g., Park on "marginal man," Goffman.
- 29 Coordination--to repress some deviance, to sustain some patterns, to enforce authority, e.g., Pareto, Parsons in System of Modern Societies, Parsons on stratification, Marx.
- 30 Stratification--systems of rewards and opportunities segregating different segments of the population, e.g., Blalock, Parsons on stratification, Marx, Goffman.
- 31 Innovation--technical, valuational, associational; new forms that do not start as "challenges" (deviation), e.g., Parsons in Structure of Social Action, Weber on the Protestant Ethic.
- 32 Social change--collective effects of innovation or deviance as felt in the social system, e.g., Pareto on cyclical change (circulation of the elites), Weber on developmental change in the Protestant Ethic.

Boskoff, 1972.

Variables 33 to 36: principle data-gathering techniques

- 33 Comparative or contextural study of institutional structures.  
Examining the behavior of a group, the patterns of behavior most characteristic within a group or the distribution of social traits characteristic of a group. E.G., Marx, Pareto, Park on urban succession.
- 34 Interviews/questionnaires.  
Asking the person about himself, his opinions, including asking dead persons by reviewing documents. E.g., Homans and Blalock using the questionnaire/interview material of others. Weber in Protestant Ethic and Parsons in Structure of Social Action.
- 35 Observations of behavior.  
Observing behavior of individuals in interaction. E.g., Goffman, Homans (who used observational material collected by others).
- 36 Experiments.  
Deliberately manipulating a social structure to see the effects of manipulated variables. No examples in this typology. Homans used the experimental work of others, but not in the pieces used here.

Ritzer, 1975.

Variables 37 to 42: observational categories

- 37 Material environment (available materials, limiting climatic conditions). Material environment used as a limit set on interaction. E.g., Cooley and Tarde on modern technology, Marx on material-economic limits.
- 38 Spatial location (ecological patterns, social distance). E.g.,

Marx on organization among peasants, Park on urban succession for geographical space; Park on "marginal man" and Goffman on social space.

- 39 Population base (demographic variables as preconditions). Population defining the base of social interaction. E.g., Park on urban succession.
- 40 Structural characteristics (technology level, age distribution, social mobility, power distribution, and other features of the group). Structural items involved in interaction, not just limits on the whole system, for example, technology as a variable that determines action between specific groups (as used by Marx in explaining social class). E.g., Durkheim on the relations between sacred and profane areas in Elementary Forms, Simmel on structural changes during conflict.
- 41 Social characteristics (class, ethnicity, religious identification, other background traits of individuals or groups). E.g., Blalock on attitudes and social-class membership, Merton on religious affiliation and scientific activity.
- 42 Cultural products (symbols, inventions, laws, beliefs). Thought structures and ideas. E.g., Weber on the nature and effect of inner-worldly asceticism, Goffman on the symbolic meaning of gestures, Park on the cultural marginality of immigrants.

No specific reference.

**APPENDIX E**

## APPENDIX E

### COMPUTATIONAL FORMULAS\*

1. Simple matching coefficient (for a pair of works)

$$S_{sm} = \frac{m}{m + u} \quad m \text{ is the number of matched (similarly coded) trait variables.}$$

$u$  is the number of unmatched trait variables.

Sokal and Sneath, 1963:133.

2. Standard error of the simple matching coefficient (which approximates a conservative binomial distribution)

$$Se_s = \sqrt{\frac{S(1-S)}{N}} \quad S \text{ is the simple matching coefficient.}$$

$N$  is the number of trait variables.

Sokal and Sneath, 1963:313-15.

3. The t-test for comparisons between sub-group means and the total group mean

$$t = \frac{\bar{X} - \mu}{Se_s / \sqrt{N-1}} \quad N \text{ is the number of trait variables.}$$

4. Total possible high-similarity connections between pairs in a given group

$$\text{connections} = \frac{n(n-1)}{2} \quad n \text{ is the number of works in the group.}$$

Beauchamp, 1970:33-34.

5. Cophenetic similarity correlation coefficient

$r_{cs}$  = a normal Pearson's  $r$  between coded similarity levels rather than just raw scores

Sokal and Sneath, 1963:312-13.

6. Elementary matrix analysis

The similarity matrix comparing work pairs can be arranged to cluster similar work pairs together. Place the most related pairs (in this instance, those with similarities of .81 and above) close to the diagonal of the matrix and surround them with the next related pairs.

---

\*Formulas only included if they are unusual or if they deviate in some way from standard statistical procedures.



In the ideal situation, this procedure should yield a final matrix with all highly related pairs clustered along the diagonal, all minimally related pairs in the left-hand corner.

Sokal and Sneath, 1963:178-80.

#### 7. Modified single-linkage clustering procedure

Begin with groups of highly related pairs (those of .81 and above, then the next similarity level). In this instance, there are seven exclusive groups (the seven defined by elementary matrix analysis). Enlarge each nucleus by adding works from the next lower similarity level that are related to those already in the group. Proceed until reaching .71, the cut-off point used in the elementary matrix procedure. In this example, it included about 20 per cent of all pairs. One cluster had 23 (of a possible 25) works before the clustering was completed.

Bailey, 1975:116-19.

**APPENDIX F**

APPENDIX F

SPECIAL COMPUTER PROCEDURES (OTHER THAN SPSS MATERIAL)

1) Calculation of the total similarity matrix from raw data scores (on cards for each theorist). Program also punches similarity matrix on cards for later use.

```
// MSGLEVEL=(1,1),TIME=2, CLASS=L
// EXEC PLIXCL2,PARM.LKED=
//PLI.SYSIN DD *
EF: PROCEDURE OPTIONS(MAIN);
  DCL X1(25) BIT(42);
  X5(25,42) BIT(1) DEF X1
  X4 BIT(42),
  X3(42) BIT(1) DEF X4,
  SIMILARITY(25);
  GET EDIT(X5)(COL(20),(4)((8)B(1),X(1)),(4)B(1),X(1),(6)B(1));
  DO I=1 to 25;
    DO J=1 to 25;
      MATCH=0
      X4=BOOL(X1(I),X1(J),'1001'B);
      DO K=1 to 42;
        IF X3(K) THEN MATCH=MATCH+1;
      END;
      SIMILARITY(J)=MATCH/42.;
    END;
  PUT EDIT((SIMILARITY(K) DO K=1 to 25)) (COL(1),(25)F(5,2));
  PUT FILE(SYSPUNCH) EDIT(SIMILARITY)(COL(1),(8)F(10,7));
END;
END EF;
*
GO.SYSP DD SYSOUT=B, DCB=BLKSIZE=80
GO.SYSIN DD *
  (Insert data cards punched 0 for absent trait, 1 for present one.)
*
```

APPENDIX F--(Cont)

2) Calculation of the similarity matrix for sixteen trait variables.

```

EF: PROCEDURE OPTIONS(MAIN);
  DCL X1(25) BIT(42),
      X4 BIT(42),
      X5(42) BIT(1) DEF X4
  SIMILARITY(25):
  GET EDIT(X5)(COL(20),(4)((8)B(1),X(1)),(4)B(1),X(1),(6)B(1));
  X1(I)=X4;
  DO J=1 to I;
    MATCH=0
    X4=BOOL(X1(I),X1(J),'1001B);
    IF X5(K) THEN MATCH=MATCH+1;
  END'
  SIMILARITY(J)=MATCH/16.;
  END;
  PUT EDIT((SIMILARITY(K) DO K=1 to I) (COL(1),(25)F(5,2)));
END;
END EF;
/*
//GO.SYSIN DD *
  (Insert data cards as above.)
/*

```

## BIBLIOGRAPHY

## BIBLIOGRAPHY

Abel, Theodore

1970 The Foundation of Sociological Theory. New York: Random House.

Alinsky, Saul P.

1972 Rules for Radicals: A Pragmatic Primer for Realistic Radicals. New York: Vintage Books.

Alker, Hayward R. Jr.

1969 "Statistics and politics: the need for causal data analysis." Pp. 244-312 in Seymour M. Lipset (ed.), Politics and the Social Sciences. New York: Oxford, 1969.

Baggaley, Andrew R.

1964 Intermediate Correlational Methods. New York: John Wiley and Sons.

Bailey, Kenneth D.

1975 "Cluster analysis." Pp. 59-128 in David R. Heise (ed.), Sociological Methodology 1975. San Francisco: Jossey-Bass.

1973a "Constructing monothetic and polythetic typologies by the heuristic method." Sociological Quarterly 14 (Summer):291-308.

1973b "Monothetic and polythetic typologies and their relation to conceptualization, measurement, and scaling." American Sociological Review 38 (February):18-33.

1972 "Polythetic reduction of monothetic property space." Pp. 83-111 in Herbert L. Costner (ed.), Sociological Methodology 1972. San Francisco: Jossey-Bass.

Barnes, Harry Elmer

1948 "Social thought in early modern times." Pp. 29-78 in Barnes (ed.), An Introduction to the History of Sociology. Abridged edition. Chicago: Phoenix Books, 1966.

Basu, A. K. and R. Kenyon

1972 "Causality and typology: alternative methodological solutions in theory and practice." Pacific Sociological Review 15 (October):425-41.

Beauchamp, Murry A.

1970 Elements of Mathematical Sociology. New York: Random House.

Becker, Howard P. and Harry Elmer Barnes

1961 Social Thought from Lore to Science. 3rd ed. New York: Dover Publications (1st ed. 1938).

- Becker, Howard S. and Irving Louis Horowitz  
 1972 "Radical politics and sociological research: observations on methodology and ideology." *American Journal of Sociology* 78 (July):48-65.
- Bendix, Reinhard  
 1960 *Max Weber: An Intellectual Portrait*. Garden City, New York: Anchor.
- Bernard, Jessie  
 1973 *The Sociology of Community*. Glenview, Illinois: Scott, Foresman.
- Birnbaum, Norman  
 1971 "Preface." Pp. vii-xii in *Toward a Critical Sociology*. New York: Oxford.
- Bisher, John W. and Donald W. Drews  
 1970 *Mathematics in the Behavioral and Social Sciences*. New York: Harcourt, Brace and World.
- Blalock, Hubert M. Jr.  
 1974 "Beyond ordinal measurement: weak tests of stronger theories." Pp. 424-55 in Blalock (ed.), *Measurement in the Social Sciences: Theories and Strategies*. Chicago: Aldine.
- 1970 *An Introduction to Social Research*. Englewood Cliffs, New Jersey: Prentice-Hall.
- 1969 *Theory Construction: From Verbal to Mathematical Formulations*. Englewood Cliffs, New Jersey: Prentice-Hall.
- 1961 *Causal Inferences in Nonexperimental Research*. Chapel Hill, North Carolina: University of North Carolina Press.
- Boskoff, Alvin  
 1972 *The Mosaic of Sociological Theory*. New York: Thomas Y. Crowell.
- 1969 *Theory in American Sociology: Major Sources and Applications*. New York: Thomas Y. Crowell.
- Boudon, Raymond  
 1976 "Rawls: A Theory of Justice." *Contemporary Sociology* 5 (March):102-09.
- 1970 "Notes sur la notion de theorie dans les sciences sociales." *Archives Européennes de Sociologie* 11:201-51.
- Bramson, Leon  
 1961 "The uses of sociology." Pp. 11-26 in *The Political Context of Sociology*. Princeton, New Jersey: Princeton University Press.

- Braude, Lee**  
1970 "'Park and Burgess': an appreciation." *American Journal of Sociology* 76(July):1-10.
- Broom, Leonard and Philip Selznick**  
1973 *Sociology: A Text with Adapted Readings*. New York: Harper and Row.
- Brown, Robert**  
1963 *Explanation in Social Science*. Chicago: Aldine.
- Buckley, Walter**  
1967 *Sociology and Modern Systems Theory*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Cattell, Raymond B.**  
1968 "Taxonomic principles for locating and using types (and the derived taxonomic computer program)." Pp. 99-148 in Benjamin Kleinmuntz (ed.), *Formal Representation of Human Judgment*. New York: John Wiley and Sons.
- Clark, Terry Nichols**  
1975 "Community Power." Pp. 271-95 in Alex Inkles (ed.), *Annual Review of Sociology*. Vol. 1. Palo Alto, California: Annual Reviews.
- Coleman, James**  
1975 "Social structure and a theory of action." Pp. 76-93 in Peter M. Blau (ed.), *Approaches to the Study of Social Structure*. New York: Free Press.
- Collins, Randall**  
1975 *Conflict Sociology: Toward an Explanatory Science*. New York: Academic Press.  
  
1974 "Book review of *A Sociology of Sociology*." *American Journal of Sociology* 79(March):1364-67.
- Comte, Auguste**  
1858 *The Positive Philosophy of August Comte*. Freely translated and condensed by Harriet Martineau. New York: Calvin Blanchard. Original, larger edition in French, written from 1830-1842.
- Cooley, Charles H.**  
1926 "The roots of social knowledge." Pp. 289-309 in *Sociological Theory and Research*. New York: Henry Holt and Company.  
  
1918 *Social Process*. New York: Charles Scribner's Sons (1922).
- Cooley, William W. and Paul R. Lohnes**  
1971 *Multivariate Data Analysis*. New York: Wiley.



## Coser, Lewis A.

- 1975 "Presidential address: two methods in search of a substance." *American Sociological Review* 40(December):691-700.
- 1971 "Robert Ezra Park, 1864-1944." Pp. 357-84 in *Masters of Sociological Thought*. New York: Harcourt, Brace, Jovanovich.

## Crane, Diana

- 1972 *Invisible Colleges: Diffusion of Knowledge in Scientific Communities*. Chicago: University of Chicago Press.
- 1969 "Social structure in a group of scientists: a test of the 'invisible college' hypothesis." *American Sociological Review* 34(June):335-52. Reprinted pp. 295-323 in Larry T. Reynolds and Janice M. Reynolds (eds.), *The Sociology of Sociology*. New York: David McKay, 1970.
- 1967 "The gatekeepers of science: some factors affecting the selecting of articles for scientific journals." *The American Sociologist* 2(November):195-201. Also pp. 406-22 in Larry T. Reynolds and Janice M. Reynolds (eds.), *The Sociology of Sociology*. New York: David McKay, 1970.

## Curtis, James E.

- 1972 "The sociology of sociology: some lines of inquiry in the study of the discipline." *Sociological Quarterly* 13(Spring): 197-209.

## Deutsch, Karl W.

- 1971 "Conditions favoring major advances in social science." *Science* 171(February 5):450-55.

## Deutsch, Morton and Robert M. Krauss

- 1965 *Theories in Social Psychology*. New York: Basic Books.

## Douglas, Jack O.

- 1971 "The rhetoric of science and the origins of statistical social thought: the case of Durkheim's Suicide." Pp. 44-57 in Edward A. Tiryakian (ed.), *The Phenomenon of Sociology*. New York: Appleton-Century-Crofts, 1971.

## Driver, Harold E.

- 1965 "Survey of numerical classification in anthropology." Pp. 301-44 in Dell Hymes (ed.), *The Use of Computers in Anthropology*. The Hague: Mouton and Company, 1965.

## Dubin, Robert

- 1969 *Theory Building*. New York: Free Press.

## Dunnell, Robert C.

- 1971 *Systematics in Prehistory*. New York: Free Press.

**Durkheim, Emile**

- 1901 "Author's preface to the second edition." Pp. xli-lvii in *The Rules of the Sociological Method*. New York: Free Press (1964).
- 1900 "Sociology and its scientific field." Pp. 354-75 in Kurt H. Wolff (ed.), *Emile Durkheim, 1858-1917*. Columbus, Ohio: Ohio State University Press, 1960. Reprinted as *Essays in Sociology and Philosophy*. New York: Harper Torchbooks, 1964.
- 1897 *Suicide: A Study in Sociology*. New York: Free Press (1966).
- 1890 "The principles of 1789 and sociology." Pp. 37-43 in Edward A. Tiryakian (ed.), *The Phenomenon of Sociology*. New York: Appleton-Century-Crofts, 1971.

**Eisenstadt, S. N.**

- 1971 *Social Differentiation and Stratification*. Glencoe, Illinois: Scott, Foresman.

**Fleiss, Joseph L. and Joseph Zubin**

- 1969 "On the methods and theory of clustering." *Multivariate Behavioral Research* 4(April):235-50.

**Fox, Karl A.**

- 1974 *Social Indicators and Social Theory: Elements of an Operational System*. New York: John Wiley and Sons.

**Freese, Lee**

- 1972a "Cumulative sociological knowledge." *American Sociological Review* 37(August):472-82.
- 1972b "Cumulative sociological knowledge: an addendum." *American Sociological Review* 37(August):486-87.

**Friedrichs, Robert**

- 1970 *A Sociology of Sociology*. New York: Free Press.

**Fruchter, Benjamin**

- 1954 *Introduction to Factor Analysis*. New York: D. Van Nostrand.

**Gannon, Thomas M. and George W. Traub**

- 1969 *The Desert and the City: An Interpretation of the History of Christian Spirituality*. New York: MacMillan.

**Gibbs, Jack**

- 1972 *Sociological Theory Construction*. Hinsdale, Illinois: The Dryden Press.

**Glaser, Barney G. and Anselm L. Strauss**

- 1967 *The Discovery of Grounded Theory*. Chicago: Aldine.

- Goffman, Erving  
1959 The Presentation of Self in Everyday Life. Garden City, New York: Doubleday-Anchor.
- Gouldner, Alvin W.  
1970 The Coming Crisis of Western Sociology. New York: Basic Books.
- Gusfield, Joseph R.  
1963 Symbolic Crusade. Urbana, Illinois: University of Illinois Press.
- Hadden, J. K. and E. F. Borgatta  
1965 American Cities: Their Social Characteristics. Chicago: Rand McNally.
- Hansen, Norwood Russell  
1958 Pattern of Discovery. Cambridge: At the University Press (1972).
- Hauser, Robert M., John N. Koffel, Harry P. Travis, and Peter J. Dickinson  
1975 "Temporal change in occupational mobility: evidence for men in the United States." American Sociological Review 40(June): 279-93.
- Hinkle, Roscos C., Jr., and Gisela J. Hinkle  
1954 The Development of Modern Sociology. New York: Random House.
- Hirschi, Travis and Hanna C. Selvin  
1967 Delinquency Research: An Appraisal of Analytic Methods. New York: Free Press.
- Homans, George C.  
1974 Social Behavior: Its Elementary Forms. Rev. ed. New York: Harcourt, Brace, Jovanovich.  
1971 "Commentary." Pp. 363-78 in Herman Turk and Richard Simpson (eds.) Institutions and Social Exchange. Indianapolis, Indiana: Bobbs-Merrill Company.
- Horowitz, David  
1971 "General introduction." Pp. 1-12 in Horowitz (ed.), Radical Sociology: An Introduction. San Francisco: Canfield Press.
- Huber, Joan  
1973 "Symbolic interaction as a pragmatic perspective: the biases of emergent theory." American Sociological Review 38(April): 274-84.
- Inkles, Alex  
1964 What is Society? Englewood Cliffs, New Jersey: Prentice-Hall.

- Janowitz, Morris  
1965 "Social and political consequences of social mobility."  
Pp. 71-87 in Political Conflict: Essays in Political Sociology.  
Chicago: Quadrangle Books, 1970.
- Kaplan, Abraham  
1964 The Conduct of Inquiry. San Francisco: Chandler Publishing.
- Kerlinger, Fred N.  
1973 Foundations of Behavioral Research. 2d ed. New York: Holt,  
Rinehart and Winston.
- Kim, Jae-On  
1975 "Factor analysis." Pp. 468-514 in Norman H. Nie (et al.  
eds.), Statistical Package for the Social Sciences. 2d ed.  
New York: McGraw-Hill.
- Klecka, William R.  
1975 "Discriminant analysis." Pp. 434-67 in Norman H. Nie (et al.  
eds), Statistical Package for the Social Sciences. 2d ed.  
New York: McGraw-Hill.
- Komarovsky, Mirra  
1973 "Presidential address: some problems in role analysis."  
American Sociological Review 38(December):649-62.
- Kuhn, Thomas S.  
1970 The Structure of Scientific Revolutions. 2d enlarged.  
Chicago: University of Chicago Press (1st ed. 1962).
- Lenski, Gerhard E.  
1966 Power and Privilege: A Theory of Social Stratification.  
New York: McGraw-Hill.
- Lipset, Seymour Martin  
1975 "Social structure and social change." Pp. 172-209 in Peter  
M. Blau (ed.), Approaches to the study of Social Structure.  
New York: Free Press.
- Lodahl, Janice Beyer and Gerald Gordon  
1972 "The structure of scientific fields and the functioning of  
university graduate departments." American Sociological  
Review 37(February):57-72.
- Lundberg, George A.  
1939 Foundations of Sociology. New York: Macmillan.
- Madge, John  
1962 "Suicide and anomie." Pp. 12-51 in The Origins of  
Scientific Sociology. New York: Free Press.
- Mannheim, Karl  
1936 Ideology and Utopia. New York: Harcourt, Brace.

**Marshall, Clifford W.**

1971 Applied Graph Theory. New York: Wiley-Interscience.

**Martindale, Don**

1960 The Nature and Types of Sociological Theory. Boston: Houghton Mifflin.

**Marx, Karl**

1846a The German Ideology, parts I and III. New York: International Publishers (1960).

1846b "Marx to P. V. Annenkov." Pp. 669-80 in Karl Marx and Frederick Engels: Selected Works. New York: International Publishers, 1968.

1844 Economic and Philosophical Manuscripts of 1844. New York: International Publishers (1964).

**Masterman, Margaret**

1970 "The nature of a paradigm." Pp. 59-89 in I. Lakatos and A. Musgrave (eds), Criticism and the Growth of Knowledge. Cambridge: At the University Press.

**Mayr, Ernst**

1942 Systematics and the Origin of Species. New York: Columbia University Press.

**McFarland, David L., and Daniel J. Brown**

1973 "Social distance as a metric: a systematic introduction to smallest space analysis." Pp. 213-53 in Edward O. Laumann, Bonds of Pluralism. New York: John Wiley and Sons.

**McKinney, John C.**

1966 Constructive Typology and Social Theory. New York: Appleton-Century-Crofts.

**Mennell, Stephen**

1974 Sociological Theory: Uses and Unities. New York: Praeger Publishers.

**Merton, Robert K.**

1975 "Structural analysis in sociology." Pp. 21-52 in Peter M. Blau (ed.), Approaches to the Study of Social Structure. New York: Free Press.

1968 "The Matthew effect in science." Science 159 (January):56-63. Also pp. 439-56 in The Sociology of Science. Chicago: University of Chicago Press, 1973.

Merton, Robert K.

- 1967 "On sociological theories of the middle range." Pp. 39-72 in *On Theoretical Sociology*. New York: Free Press.
- 1956a "Notes on problem finding in sociology." Pp. ix-xxiv in Robert K. Merton, Leonard Broom, and Leonard S. Cottrell, Jr. (eds.), *Sociology Today*. New York: Basic Books.
- 1956b "Social conflict over styles of sociological work." Pp. 172-97 in Larry T. Reynolds and Janice M. Reynolds (eds.), *The Sociology of Sociology*. New York: David McKay, 1970.
- 1938 *Science, Technology and Society in Seventeenth Century England*. New York: Howard Fertig (1970).

Merton, Robert K. with Harriet Zuckerman

- 1972 "Age, aging, and age structure in science." Pp. 397-505 in Merton, *The Sociology of Science: Theoretical and Empirical Investigations*. Chicago: University of Chicago Press, 1973.

Mouzelis, Nicos P.

- 1967 *Organization and Bureaucracy: An Analysis of Modern Theories*. Chicago: Aldine.

Movahedi, Siamak and Richard H. Ogles

- 1973 "Axiomatic theory, information value of propositions, and derivation rules of ordinary language." *American Sociological Review* 38 (August):416-24.

Mullins, Nicholas C.

- 1968 "The distribution of social and cultural properties in informal communication networks among biological scientists." *American Sociological Review* 33 (October):786-97.

Mullins, Nicholas C. with the assistance of Carolyn J. Mullins

- 1973 *Theories and Theory Groups in Contemporary American Sociology*. New York: Harper and Row.

Nadel, S. F.

- 1957 *The Theory of Social Structure*. Glencoe, Illinois: Free Press.

Needham, R. M.

- 1965 "Computer methods for classification and grouping." Pp. 345-56 in Dell Hymes (ed.), *The Use of Computers in Anthropology*. The Hague: Mouton and Company.

Nisbet, Robert A.

- 1966 *The Sociological Tradition*. New York: Basic Books.

Parsons, Talcott

- 1976 "Reply to Cohen, Hazelrigg and Pope." *American Sociological Review* 41 (April):361-65.

**Parsons, Talcott**

- 1964 "Levels of Organization and the mediation of social interaction." *Sociological Inquiry* 34 (Spring):207-20.
- 1959 "The role of general theory in sociological analysis. *Alpha Kappa Deltan* 29 (Winter):13-22.
- 1937 *The Structure of Social Action*. New York: Free Press (1968).

**Perrow, Charles**

- 1972 *Complex Organizations: A Critical Essay*. Glenview, Illinois: Scott, Foresman.

**Phillips, Derek L.**

- 1975 "Paradigms and incommensurality." *Theory and Society* 2 (Spring): 37-61.

**Pope, Whitney, Jere Cohen, and Lawrence Hazelrigg**

- 1975 "On the divergence of Weber and Durkheim: a critique of Parsons' convergence thesis." *American Sociological Review* 40 (August):417-27.

**Popper, Karl**

- 1959 *The Logic of Scientific Discovery*. New York: Harper Torchbooks (1968).

**Quarentelli, E. L., and Jack M. Weller**

- 1974 "The structural problem of sociological speciality: collective behavior's lack of a critical mass." *The American Sociologist* 9 (May):59-68.

**Rainwater, Lee**

- 1970 *Behind Ghetto Walls: Black Family Life in a Federal Slum*. Chicago: Aldine.

**Rawls, John**

- 1971 *A Theory of Justice*. Cambridge, Massachusetts: Belknap Press of Harvard University Press.

**Rex, John**

- 1961 *Key Problems of Sociological Theory*. London: Routledge and Kegan Paul (1970).

**Reynolds, Larry T., Janice M. Reynolds, Ted R. Vaughan, and Leon H. Warshay**

- 1970 "The 'self' in symbolic interaction theory; an examination of the social sources of conceptual diversity." Pp. 422-38 in Reynolds and Reynolds (eds.), *The Sociology of Sociology*. New York: David McKay, 1970.

**Reynold, Paul Davidson**

- 1971 *A Primer in Theory Construction*. Indianapolis, Indiana: Bobbs-Merrill.

- Ritzer, George  
1975 *Sociology: A Multiple Paradigm Science*. Boston: Allyn and Bacon.
- Roof, Wade Clark  
1976 "Traditional religion in contemporary society: a theory of local and cosmopolitan plausibility." *American Sociological Review* 41 (April):195-028.
- Sherman, Lawrence W.  
1974 "Uses of the masters." *The American Sociologist* 9 (November): 179-81.
- Siebler, Sam  
1973 "The integration of fieldwork and survey methods. *American Journal of Sociology* 78 (May):1335-59.
- Simmel, Georg  
1908a "Quantative aspects of the group." Pp. 87-179 in Kurt H. Wolff (ed.), *The Sociology of Georg Simmel*. New York: Free Press, 1950.  
1908b "The web of group affiliation." Pp. 125-95 in Kurt H. Wolff and Reinhard Bendix (trans.), *Conflict and the Web of Group Affiliations*. New York: Free Press, 1955.
- Singlemann, Peter  
1972a "Exchange as symbolic interaction." *American Sociological Review* 38 (August):414-24.  
1972b "On the reification of paradigms: reply to Abbott, Brown, and Crosbie." *American Sociological Review* 38 (October):506-09.
- Smelser, Neil J.  
1962 *Theory of Collective Behavior*. New York: Free Press.
- Sneath, Peter H. A., and Robert R. Sokal  
1973 *Numerical Taxonomy: The Principles and Practice of Numerical Classification*. San Francisco: W. H. Freeman and Company.
- Sokal, Robert R.  
1974 "Classification: purposes, principles, progress, prospects." *Science* 185 (September):1115-23.  
1966 "Numerical taxonomy." *Scientific American* 215:106-16.
- Sokal, Robert R., and Peter H. A. Sneath  
1963 *Principles of Numerical Taxonomy*. San Francisco: W. H. Freeman and Company.
- Sorokin, Pitirim A.  
1947 *Society, Culture, and Personality*. New York: Harper and Row.  
1928 *Contemporary Sociological Theories*. New York: Harper Torchbooks.



Stinchcombe, Arthur L.

1975 "A structural analysis of sociology." *The American Sociologist* 10 (May):57-64.

1968 *Constructing Social Theories*. New York: Harcourt, Brace and World.

Sumner, William Graham

1910 "Unaltered sections." *The Science of Society*. New Haven: Yale University Press, 1957.

1900 "The predicament of sociological study." Pp. 415-25 in Albert Galloway Keller (ed.), *The Challenge of Facts and Other Essays*. New Haven: Yale University Press, 1914.

Suttles, Gerald

1968 *The Social Order of the Slum*. Chicago: University of Chicago Press.

Tarde, Gabriel

1904 "A debate with Emile Durkheim." Pp. 136-40 in Terry N. Clark (ed.), *Gabriel Tarde on Communication and Social Influence*. Chicago: University of Chicago Press, 1969.

Timasheff, Nicholas S.

1967 *Sociological Theory: Its Nature and Growth*. 3d ed. New York: Random House.

Truzzi, Marcello

1975 "Review symposium on Mullins' theories and theory groups in Contemporary American Sociology." *Contemporary Sociology* 4 (May):223-25.

Turner, Jonathan H.

1974 *The Structure of Sociological Theory*. Homewood, Illinois: Dorsey Press.

Udy, S. H., Jr.

1958 "'Bureaucratic' elements in organizations: some research findings." *American Sociological Review* 23 (August):415-18.

Urry, John

1973 "Thomas S. Kuhn as sociologist of knowledge." *British Journal of Sociology* 24 (December):462-73.

Van de Geer, John P.

1971 *Introduction to Multivariate Analysis for the Social Sciences*. San Francisco: W. H. Freeman and Company.

Wagner, Helmut R.

1970 "Introduction." Pp. 1-50 in Wagner (ed.), *Alfred Schutz on Phenomenology and Social Relations*. Chicago: University of Chicago Press, 1970.

Wagner, Helmut R.

- 1963 "Types of sociological theory." *American Sociological Review* 28 (October):735-41. Also pp. 41-52 in R. Serge Denisoff, Orel Callahan, Mark L. Levine (eds.), *Theories and Paradigms in Contemporary Sociology*. Itasca, Illinois: F. E. Peacock Publishers, 1974.

Wallace, D. L.

- 1968 "Clustering." Pp. 519-24 in D. L. Sills (ed.), *International Encyclopedia of the Social Sciences*. Vol. 2. New York: Free Press.

Wallace, Walter L.

- 1971 *The Logic of Science in Sociology*. Chicago: Aldine.
- 1969 "Overview of contemporary sociological theories." Pp. 1-59 in Wallace (ed.), *Sociological Theory*. Chicago: Aldine.

Ward, Thomas J.

- 1973 "Definitions of theory in sociology." Pp. 28-40 in R. Serge Denisoff, Orel Callahan, Mark L. Levine (eds.), *Theories and Paradigms in Contemporary Sociology*. Itasca, Illinois: F. E. Peacock Publishers, 1974.

Warshay, Leon H.

- 1975 *The Current State of Sociological Theory*. New York: David McKay.

Weber, Max

- 1922 *Economy and Society: An Outline of Interpretive Sociology*. New York: Bedminster Press (1968).
- 1918 "Science as a vocation." Pp. 129-56 in *From Max Weber: Essays in Sociology*. New York: Oxford University Press, 1946.
- 1917 "The meaning of 'ethical neutrality' in sociology and economics." Pp. 1-47 in *The Methodology of the Social Sciences*. Glencoe, Illinois: Free Press, 1949.
- 1905 "Critical studies in the logic of the cultural sciences." Pp. 113-88 in *The Methodology of the Social Sciences*. Glencoe, Illinois: Free Press, 1949.
- 1904-05 *The Protestant Ethic and the Spirit of Capitalism*. New York: Charles Scribner's Sons (1958).
- 1904 "Objectivity in social science and social policy." Pp. 49-112 in *The Methodology of the Social Sciences*. Glencoe, Illinois: Free Press, 1949.

Webster, Murray J.

- 1973 "Psychological reductionism." *American Sociological Review* 38 (April):258-73.

- White, Harrison C., Scott A. Boorman, and Ronald L. Greiger  
 1976 "Social structure from multiple networks. I block models of roles and positions." *American Journal of Sociology* 81 (January):730-80.
- Wilkins, Leslie T., and P. McNaughton Smith  
 1964 "Predictive attribute analysis." Pp. 814-27 in Norman Johnson, Leonard Savitz, and Marvin E. Wolfgang (eds.), *The Sociology of Punishment and Correction*. New York: John Wiley and Sons (1970).
- Willer, David  
 1967 *Scientific Sociology: Theory and Method*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Willer, David and Judith Willer  
 1973 *Systematic Empiricism: Critique of a Pseudoscience*. Englewood Cliffs, New Jersey: Prentice-Hall.
- 1972 "Why sociological knowledge is not cumulative: a reply to Professor Freese." *American Sociological Review* 37 (August): 483-86.
- Wolfe, John H.  
 1970 "Pattern clustering by multivariate mixture analysis." *Multivariate Behavioral Research* 5 (July):329-50.
- Young, T. R.  
 1971 "The politics of sociology: Gouldner, Goffman, and Garfinkel." *American Sociologist* 6 (November):276-81.
- Zetterberg, Hans L.  
 1965 *On Theory and Verification in Sociology*. 3d enlarged. Totowa, New Jersey: Bedminster Press (1st ed. 1954).
- Znaniecki, Florian  
 1965 *Social Relations and Social Roles*. San Francisco, California: Chandler.
- 1940 *The Social Role of the Man of Knowledge*. New York: Harper Torchbooks (1968).

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