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# A Macrosociological Theory of Social Structure[1]

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Social structure is conceptualized as the distributions of a population among social positions in a multidimensional space of positions. This quantitative conception of social structure is the basis for a deductive theory of the macrostructure of social associations in society. The likelihood that people engage in intergroup associations under specifiable structural conditions can be deduced from analytic propositions about structural properties without any assumption about sociopsychological dispositions to establish intergroup associations, indeed, on the assumption that people prefer ingroup relations. Group size governs the probability of intergroup relations, a fact that has paradoxical implications for discrimination by a majority against a minority. Inequality impedes and heterogeneity promotes intergroup relations. The major structural condition that governs intergroup relations is the degree of connection of parameters. Intersecting parameters exert structural constraints to participate in intergroup relations; consolidated parameters impede them. The more differentiation of any kind penetrates into the substructures of society, the greater is the probability that extensive social relations integrate various segments in society.

This paper presents a deductive theory of the structure of social associations, which rests on a quantitative conception of social structure. It is inspired by Simmel (1908), the father of quantitative sociology. To be sure, Simmel did not employ quantitative methods in his work. But by quantitative sociology I mean a subject matter, not the procedures used in investigating it. Quantitative sociology is the conceptual and theoretical analysis of the quantitative dimension of social life—of the implications of the numbers and distributions of people for their social relations—and in this Simmel was a pioneer. The conception of social structure adopted is also akin to that of the British structuralists in anthropology, notably Radcliffe-Brown (1940), Evans-Pritchard (1940), and Nadel (1957), except that their concepts pertaining to the structure of small tribes are adapted to make them applicable to the macrosociological study of large societies as well.

The analysis to be presented may be described as a primitive theory of social structure, in two senses of the term. First, it is a deductive theory,

[1] I am grateful to Ralph Bulle and Hilary Silver for bibliographical assistance and helpful comments.

in which theorems are derived from axioms or primitive propositions that logically imply them. These axioms are either analytic propositions, which are true by definition and refer to the way social structure is defined, or synthetic propositions, which are assumed to be true and rest on simple, plausible, and testable assumptions, for example, that social associations depend on opportunities for contact. Second, the theory is rooted in a primitive, rudimentary conception of social structure. The concept of social structure is confined to the distributions of people among different social positions. This is a very narrow view of social structure, which leaves out of consideration numerous broader implications and connotations of the term, such as value consensus, normative orientations, institutional systems, and functional interdependence. Not everything about social life can be explained in structural terms so narrowly conceived, but the endeavor here is to see how much can be.

## CONCEPTUAL FRAMEWORK

There are a variety of approaches to the study of social structure, and implicit in them are different ways of conceptualizing social structure. The focus may be on the class structure or value orientations, on networks of social relations or institutional integration, on the division of labor or the construction of social reality, on status sets and role sets or the ecosystem. Yet certain elemental properties of social structure are recognized by most social scientists, notwithstanding differences in approach and focus. Whatever else may be encompassed by social structure, it nearly always includes the concepts that there are differences in social positions, that there are social relations among these positions, and that people's positions and corresponding roles influence their social relations. Typically, however, theories of social structure extend the concept beyond these elemental properties. Thus, Marx explains the class structure and the conflicting relations between classes on the basis of the dialectical interplay of productive forces with productive relations. Although Parsons explicitly distinguishes structures of roles and social interaction, which constitute social systems, from patterns of values and meanings, which constitute cultural systems (Parsons and Shils 1951, pp. 20–26; Kroeber and Parsons 1958), his theoretical explanation of social relations and interaction is in terms of value orientations, that is, in cultural rather than structural terms, and he acknowledges that this makes him a "cultural determinist" (Parsons 1966, p. 113). Homans's (1961) deductive theory explains social interaction and role relations on the basis of psychological principles that govern human motivation.

In short, most social theories seek to explain the patterns of relations among people, which are constituent elements of social structure, in terms

that refer to realms outside the social structure, narrowly conceived, be they technological, economic, cultural, or psychological factors. The opposite approach is adopted here. Of course, there can be no doubt that technological and economic conditions, cultural values, and psychological motives influence human behavior and hence social relations. This is not at issue. Granted the existence of these influences, the question raised is what independent influences the structure of social positions in a society or community exerts on social relations.

## Macrostructure

Social structure is conceptualized narrowly as referring to the distributions of a population among different social positions that reflect and affect people's relations with one another. To speak of social structure is to speak of differentiation among people. For social structures, as conceptualized, are rooted in the social distinctions people make in their role relations and social associations. These social distinctions find expression in differences in roles and positions, which in turn influence subsequent social associations. But when the structure of an entire society or community is under consideration, persons naturally occupy several social positions simultaneously, not just one; they have occupations, belong to religious groups, live in communities, work in establishments, are more or less educated, and occupy socioeconomic statuses. A population distribution exists for each type of position.

Accordingly, the macrostructure of societies can be defined as a multidimensional space of social positions among which people are distributed and which affect their social relations. This abstract conception makes society's macrostructure homologous to the microstructures of role relations of individuals. In both cases, formal properties of social positions and relations are abstracted from their substantive contents, notably from cultural and psychological orientations. A fundamental difference, however, is the way in which social positions and relations are defined. Two important problems the macrosociological analysis of social structure must solve are how to deal with the huge number of personal relations in a society or community and how to take into account the multiple positions persons occupy, as Laumann (1973, pp. 2–7) notes.

Microstructures are the networks of interpersonal relations anchored in individuals, as illustrated by a sociogram of links between persons in a small group. Originating in the tradition of sociometry (Moreno 1934), microstructural inquiry has given rise to three main approaches: graph theory, network analysis, and block models. Graph theory (Harary, Norman, and Cartwright 1965; Davis 1967) uses psychological assumptions and mathematical principles to derive propositions about the configurations of links

that are most likely to develop. Network analysis (Barnes 1954, 1972; Mitchell 1969) dissects in detail the networks of person-to-person links in which specific individuals are involved, and the study of these microstructures anchored in individuals is explicitly juxtaposed to the macrosociological study of positions and groups in society represented by British structuralists in anthropology (Mitchell 1969, pp. 1–10). The block models constructed by White and his collaborators (White, Boorman, and Breiger 1976) divide a group into blocks of individuals with equivalent structural positions, defined on the basis of the similarity of the links of the persons in one block with those in others, which means that a block is not necessarily a subgroup of individuals who have direct links to one another. Whether microstructural studies center attention on direct links, as graph theory does, or not, like block models, they define the location of individuals in the social structure on the basis of an examination of all, potential as well as existing, person-to-person links. Such an analysis is not possible without modification for large collectivities. It is usually applied to groups of fewer than 100 persons, though procedures to apply it to groups of up to 1,000 persons have been developed (Coleman and MacRae 1960).

Macrostructural inquiry is concerned with the patterns of social relations among different social positions occupied by many persons, not with the networks of all relations between individuals. This requires redefinitions of two central concepts, position and relation, as Laumann and Pappi (1976, pp. 18–20) point out. Whereas microstructural studies define the positions of individuals in terms of the social relations in which they are involved, the definition of social position in macrostructural analysis is initially in terms of common or similar social attributes of people, such as their religion or socioeconomic status. The social relations between positions with many incumbents are not dichotomous links that either exist or do not exist but are defined as the variable likelihood or rate of association of incumbents of one position with those of another, for example, the rate of intermarriage or the frequency of intergroup contacts. Note that this macrostructural definition of social relations rests on actual associations between persons, as the microstructural definition does—except that a variable rate is substituted for a dichotomous link—which distinguishes the structural approach from theories that focus on the relations of functions, institutions, and values.

A crucial remaining problem is how to take account of the multiple positions people occupy. One strategy for dealing with this problem is to select one dimension of social positions, which is considered on a priori grounds to be of special importance, and to infer from the empirical analysis of observed social relations among these positions other dimensions that affect social relations. This is the strategy Laumann (1973, pp. 1–82)

adopts in one of the few systematic empirical studies of macrostructure. He selects religion, ethnic affiliation, and occupation as three types of important positions. For each, the data on friendships between positions are subjected to smallest-space analysis, the results of which indicate new dimensions of social differences that influence these friendship choices. For instance, the rates of friendships among occupational groups depend on differences in the socioeconomic status of occupations and, to a lesser extent, on differences between primarily bureaucratic and primarily entrepreneurial occupations.[2] A different strategy for dealing with multiple positions is to analyze how the extent to which various types of positions are correlated influences social relations, after having first examined how differences in positions of a single type influence them. This is the strategy adopted here.

## Structural Parameters

The structures of societies and communities are delineated by parameters (Blau 1974). Structural parameters are the axes in the multidimensional space of social positions among which the population is distributed. They are attributes of people that underlie the distinctions they themselves generally make in their social relations, such as age, race, education, and socioeconomic status. People can be classified on the basis of innumerable attributes, any of which may be a parameter. But if a classification made by an investigator does not influence social relations at all, or exerts only idiosyncratic influence on the personal relations of some individuals, it is not meaningful to consider it indicative of social positions. Hence, the double criterion of a parameter circumscribing social positions is that it is an attribute by which a population is classified and that the social relations among persons similarly classified differ on the average from the relations between persons in widely different categories. A typical difference, according to an assumption to be introduced, is that the social associations among incumbents of the same position or proximate ones are more prevalent than those between incumbents of different or distant positions. In short, a parameter is a variable that characterizes individuals and differentiates their role relations and social positions. At the same time, the distribution of the population among these positions yields a new variable that characterizes the degree of differentiation of the society in terms of the parameter. The focus of structural analysis is on the derived variables indicative of the degrees of differentiation of societies in various respects and on their implications for social life.

The two basic types of parameters are nominal and graduated param-

[2] Laumann (1973, pp. 111–30) also devises an ingenious procedure for the empirical study of the microstructures of interpersonal relations of individuals in a large city.

eters. A nominal parameter divides the population into subgroups with distinct boundaries and without an inherent rank order. Sex, religion, race, and place of residence are nominal parameters. A graduated parameter differentiates people in terms of a status rank order, which is in principle continuous, so that the parameter does not draw boundaries between strata. Income, wealth, education, and power are graduated parameters. The social positions delineated by nominal parameters are designated as group memberships, those delineated by graduated parameters as status. Hence, group and status are defined very broadly; for instance, females are a group and age is a status. Groups are not confined to collectivities all of whose members associate with one another, and status is not confined to differences in deference and compliance.

The two generic forms of differentiation, under which its specific forms can be subsumed, are heterogeneity and inequality. Heterogeneity refers to the population distribution in terms of a nominal parameter. The criterion of degree of heterogeneity is the probability that two randomly selected persons do not belong to the same group. For any nominal parameter, the larger the number of groups and the more evenly the population is divided among them, the greater is the heterogeneity. Thus, a community's ethnic heterogeneity is greater if there are many than if there are few ethnic groups; but it is not so great if most people belong to one ethnic group as it is if the population is more evenly divided among several. The criterion takes both components of heterogeneity into account.[3]

Inequality pertains to the population distribution in terms of a graduated parameter. The criterion of degree of inequality is the average difference in status between any two pairs relative to average status. For example, the more the average difference in years of schooling exceeds the average number of years of schooling in a society, the greater is the inequality in formal education. Another way of looking at inequality is that it refers to the extent to which a status resource is concentrated. For instance, the more the national wealth is concentrated in the hands of the richest persons, the greater the inequality in wealth is. It turns out that these two ways of conceptualizing inequality are actually equivalent, and they are indicated by the most widely used empirical measure of inequality, the Gini coefficient.[4] The former conception of inequality is meaning-

[3] The empirical measure of heterogeneity is the index proposed by Gibbs and Martin (1964): $1 - [\Sigma x^2_i/(\Sigma x_i)^2]$, where $x_i$ is the number of persons in a group and the sum is taken over all groups.

[4] A formula for the Gini index, which is equivalent to the one usually used for computing it, is: $2\Sigma s_k p_i (p_j - p_k)/2\Sigma s_i p_i$, where $s_i$ is the mean status in a category, $p_i$ the fraction of the population in that category, and $p_j$ and $p_k$ the fractions of the population whose status is below ($p_j$) and above ($p_k$) that category, respectively, with the sum taken over all categories. The numerator is the (estimated) mean status difference between all pairs, and the denominator is twice the mean status of the population. I am

ful for any status criterion, even when the latter is not (which discloses that the Gini index is substantively appropriate for any status criterion). It is not very meaningful to speak of the degree of concentration of years of schooling, mathematical aptitudes, or intelligence, but it is meaningful to speak of the average difference in these characteristics.

Parameters are not orthogonal dimensions of social structure. On the contrary, their correlations are fundamental characteristics of macrostructures of primary interest in their analysis. The correlations of a nominal parameter with graduated ones indicate status differences among groups, for example, the differences in education and income among ethnic groups. Then one can examine how the status distance between groups affects the associations between their members.[5] If a nominal parameter with many categories is substantially correlated with graduated parameters, a new graduated parameter can be derived from the ranking of the categories. Thus, occupation is a nominal parameter, but classifying occupations by education and income yields an index of occupational status (Duncan 1961). Generally, the degree to which parameters intersect, or alternatively consolidate differences in social positions through their strong correlations, reflects the most important structural conditions in a society, which have crucial consequences for conflict (Coleman 1957) and for social integration.

Societies vary in the extent to which their structures are differentiated along various lines, and they also vary in the extent to which the different segments are integrated. Differentiation and integration are complementary concepts, and the definition of integration takes this into account. Both inequality and heterogeneity, the two forms of differentiation, are barriers to social intercourse, on the assumption that proximate status and common group membership promote social associations. If there were no connections among different social positions, however, these positions would not constitute elements of a single social structure. These connections that integrate the various segments of society are produced by the social associations between persons who occupy positions in different segments, in different groups or hierarchical strata. Society's integration is conceptual-

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grateful to Professor J. P. van de Geer, University of Leyden, for providing this formula and indicating its equivalence with the one usually used to compute the Gini index from the Lorenz curve.

[5] McFarland and Brown (1973) note that the concept of social distance has been used in two distinct ways: some, like Sorokin, use it to refer to differences in the attributes of persons, such as their occupation or income; others, like Bogardus, use it to refer to differences in social relations, such as rare marriages or disinclination to engage in social intercourse. Graduated parameters are indicative of status distance in the first sense, which is distinguished from rates of social association between incumbents of positions (social distance in the second sense). Laumann's (1973) dimensions indicate social distance in the second sense.

ized as resting on the actual social associations between persons in different segments, not on functional interdependence or common values, though these may contribute to integration by promoting social interaction between persons in different groups and strata. Although the assumption is that social associations are less extensive between persons in different social positions than among those in the same ones, high rates of associations among different groups and hierarchical strata are the criterion of macrosocial integration.[6] Dense networks of ingroup relations integrate individuals in their groups, but they threaten to fragment society, the integration of which depends on extensive intergroup relations.[7]

In accordance with this conception of social structure, the theory centers attention on its quantitative properties: the number of persons in different positions and the size of groups; frequency distributions among positions indicative of inequality or heterogeneity; whether various parameters are nearly orthogonal or highly correlated; the degree to which differentiation occurs within or among society's substructures; and how these structural conditions affect the rates of social association among groups and strata. Concern is with the implications for social life, not of the attributes of individuals, but of the distributions of their socially relevant attributes and the correlations of these distributions in society, which are considered the fundamental properties of social structure. Starting with propositions that employ simple concepts, like group size, the theory progresses to more complex terms derived from the simpler ones, such as heterogeneity, inequality, intersecting parameters, consolidation, penetrating differentiation. It is a theory of the influences of structural conditions, conceived narrowly and in quantitative terms, on social interaction, a theory of the structure of social association.[8]

## INTERGROUP RELATIONS

Given the significance attached to intergroup relations for society's integration, it is important to ask which groups have higher rates of intergroup associations than others and why they do. Is the rate of religious intermarriage higher for American Catholics or Protestants? Are inter-

[6] Society's social integration is a theoretical term not directly measured but reflected in the measured prevalence of social associations among different positions in terms of various specific parameters. Similarly, the structural complexity of society is an unmeasured theoretical term reflected in the degree of differentiation in terms of various specific parameters and the degree of intersection of these parameters.

[7] For ease of expression, the term "intergroup relations" is sometimes used, as here, to include relations among different strata as well as groups.

[8] It hardly needs saying that not all important aspects of social life can be considered in a brief paper. Thus, this paper does not deal with ingroup relations, with change, with conflict, but the fuller exposition of the theory does (Blau 1977).

racial friendships more prevalent among blacks or among whites? Do Jews or Christians spend more time, on the average, associating with members of the other religious group? To deal with a specific form of association: Are Catholics or Protestants more likely to engage in premarital sexual intercourse with members of the other group? Blacks or whites? Jews or Christians?

## Minority Groups

Empirical research could answer such questions, though it would be difficult to obtain reliable information for answering some of them, like the amount of time spent and the frequency of premarital intercourse. In any case, a hypothesis is needed to guide the research, or at least to interpret its findings concerning what properties of groups account for differences in extent of intergroup relations. A relevant hypothesis is derivable from Durkheim's (1951) theory that explains the lower suicide rates of Catholics and Jews than of Protestants on the basis of their stronger ingroup integration, which in turn is attributable to the deemphasis on individualism in Catholicism and Judaism and, in part, to position as a minority group. On the plausible assumption that strong ingroup bonds inhibit intergroup relations, one might infer that intergroup relations of various kinds are comparatively infrequent among Catholics and among Jews, and probably also among American blacks, owing to their being a minority. Other considerations lead to the opposite conclusion, however. Research indicates that the religious affiliations of Jews are less strong and have declined more than those of Protestants or Catholics (Lazerwitz 1961; Lenski 1961, pp. 44–53), which suggests that Jews are more likely than Christians to enter into interreligious marriages, and possibly premarital sex as well.[9] One might also conjecture, on the basis of admittedly quite limited empirical evidence, that premarital sex relations are more prevalent among blacks than whites (Sorenson 1973, pp. 172, 255) and more prevalent among Catholics than puritanical Protestants (Kinsey, Pomeroy, and Martin 1948, pp. 469, 472) and hence that such relations with the outgroup are correspondingly more prevalent among blacks and among Catholics.

Jews do have higher rates of premarital sex relations with the outgroup than Christians in the United States and in most western countries; blacks have higher rates than whites; Catholics have higher rates than Protestants. But the reason is not that Jews are less religious, nor is it that blacks

[9] But the same study reports that more Jews (92%) than Catholics (81%) or Protestants (75%) state that it is wiser to marry within one's own religious group (Lenski 1961, p. 54), which suggests the opposite, that Jews are less likely than Christians to intermarry.

or Catholics have fewer puritanical inhibitions about premarital sexual intercourse. It is simply that there are fewer of them than of their counterparts. Every act of intergroup sexual intercourse involves one person from each group, so that the difference between two groups in the rate of such acts is an inverse function of their size. The same is true of all dyadic symmetric association:[10] the rate of intergroup associations of the smaller of two groups must exceed that of the larger. The inference derived from Durkheim's theory is wrong. Minority groups may have stronger ingroup bonds, but their rates of social association with the majority exceed the majority's rates with them.

Hence, the arithmetic properties of groups imply the theorem that *in the relation between any two groups, the rate of intergroup associations of the smaller group exceeds that of the larger.* This first theorem (T-1) applies to three forms of associations and all their specific manifestations: (1) the proportion intermarried (or having another exclusive association, as mutual best friends) in the smaller group exceeds that in the larger (T-1.1); (2) the mean number of intergroup associates in the smaller group exceeds that in the larger (T-1.2); (3) the mean amount of time spent in intergroup associations is greater for the smaller than for the larger group (T-1.3).[11] Although the same principle does not apply to the proportion of members who have any intergroup associates, which can be greater in the small than in the large group, this is only possible if some members of the small group have particularly many intergroup associates and spend much time with them. The smaller group is more involved than the larger in the intergroup relations between the two, either because a greater proportion of the smaller group's members have intergroup associates with whom they spend time, or because those who do have intergroup associates have more of them and spend more time with them.

## Implications

These theorems are tautological, entailed by the definitions of group size and intergroup relations. But they have implications that are not tautological, and even those that are are not self-evident. When differences in group size are very great, most members of the majority have no social contact with the minority. This implies that most WASPs have no social contacts with blacks, Jews, and other small minorities, notwithstanding

[10] Concern is with the frequencies of actual dyadic associations, which are necessarily symmetric. The theorems do not apply to sentiments, deference, or sociometric choices, which are often not symmetric, nor do they apply to relations between a speaker and his audience or a leader and her followers, which are not dyadic.

[11] Every main theorem is in italics, though corollaries are not, and it (or the set including corollaries) is explicitly derived in statements immediately preceding or following it.

extensive associations of minorities with the majority. The social experience of associating with persons with different backgrounds undoubtedly affects attitudes and conduct. It may well broaden people's horizons, promote tolerance, and stimulate intellectual endeavors (Simmel 1908, pp. 685–87; Laumann 1973, pp. 98–105, 126–28). The structurally generated differences in intergroup experience between small minorities and a large majority would lead one to expect these characteristics to be more prevalent among the minorities (Veblen 1919; Seeman 1956).[12] For example, high intellectual achievements would be expected of disproportionate members of minorities, which is apparently the case for some minorities, such as Japanese and Jews. The low intellectual achievements of blacks conflict with this expectation. But a recent study shows that the educational achievements of blacks, when their initial handicaps are controlled, exceed those of whites (Portes and Wilson 1976), which conforms to the expectation that the more extensive intergroup experience of minorities furnishes intellectual stimulation.

*For the groups delineated by a given nominal parameter, the probability of extensive intergroup relations increases with decreasing size* (T-2.1). Specifically, group size is inversely correlated with the proportion intermarried (T-2.1), the mean number of intergroup associates (T-2.2), and the mean amount of time spent with intergroup associates (T-2.3). These probability theorems, which are not tautological, logically follow from the earlier deterministic ones. If in every dichotomy of groups the rate of intergroup associations of the smaller exceeds that of the larger group (T-1), the average rate of all small with larger groups must exceed that of all large with smaller groups, wherever the array of groups by size is divided into smaller and larger ones. Although some small groups may have lower rates of intergroup associations than some large ones, this necessitates that other small groups have exceptionally high rates to compensate for it. The theorems are restricted to comparisons of groups in terms of a given parameter, because differences in the salience of parameters independently influence the extent of intergroup relations. One can hardly expect the proportion of blacks married to whites to exceed the proportion of blue-eyed persons married to brown-eyed ones in the United States, though there are undoubtedly fewer blacks than blue-eyed persons, since skin-color, so-called, has much and eye-color little salience in American social life.

Research generally corroborates these theorems. Studies of religious and ethnic intermarriage find that group size is inversely related to rates of outmarriage (Thomas 1951; Locke, Sabagh, and Thomas 1957; Barnett

[12] Although the theory is macrostructural, it has microstructural implications, as illustrated by these conjectures about possible further implications of the theorems, which themselves have been deductively derived.

1962; Bealer, Willits, and Bender 1963; Burma 1963), sometimes after having started with a different hypothesis. Thus, Bealer and colleagues tested the hypothesis that closeness of religious dogma governs rates of intermarriage between Christian denominations, but their data required rejection of this hypothesis and disclosed that the size of a denomination largely governs its marriage rates with various specific others as well as its total out-marriage rate.[13] Interethnic sociable associations also have been observed to be more probable in small minorities (Williams 1964, p. 162). An apparent exception is revealed by comparison of what are often referred to as the three major religious denominations in the United States—Protestants, Catholics, and Jews—which shows that Jews have the lowest out-marriage rate, although they are the smallest group. But these three groups are not a meaningful classification based on a single parameter. Religion divides people into Christians and Jews, as well as such other religious categories as Muhammedans and Buddhists, which can be further divided into Catholics and Protestants and still further into specific denominations. The salience of the major subdivision is greater than that of the finer ones, as indicated by the higher marriage rates between Protestants and Catholics than between either and Jews. Nevertheless, the low intermarriage rates of Jews must be considered a negative case for T-2.1. As a probability theorem, T-2.1 is not falsified by one negative case. What would falsify it would be the failure of the data on numerous groups (such as those on 18 denominations mentioned in n. 13) to reveal a negative correlation between their size and intermarriage rate.

## Discrimination

The tautological theorem initially advanced (T-1) has unexpected implications for discrimination against minorities. The rate of intergroup relations depends on group size; so does a change in this rate, because the numerators are again identical while the denominators (group size) vary. A given number of associations yields a higher rate for a smaller group, and a given change in this number yields a greater change in the rate for the smaller group, owing to the smaller denominator. This has paradoxical implications for discrimination by a majority group against a minority, "discrimination" meaning simply the reluctance of majority members to associate with minority members, not any other bias in making decisions.

*The more a majority discriminates in social intercourse against a minority, the smaller is the difference between the majority's lower and the minority's higher rate of intergroup associations* (T-3). This surprising

[13] The rank correlation between the size of the 18 denominations and the rate of total intermarriage is —.79 (computed from table 3, Bealer et al. 1963).

theorem follows in strict logic from the premises embodied in the definitions of terms, and it applies to proportion intermarried, average number of intergroup associates, and average amount of time spent with them. If the purpose of majority discrimination against minorities is to control the majority's own members' tendencies to associate with members of the minority, be it by enacting laws or through informal pressures, it serves its purpose well. But if the objective is to prevent minorities from having access to the majority without infringing on the freedom of choice of the majority's own members, majority discrimination defeats its purpose. For it restricts its own members' opportunities for intergroup associations much more than that of the minority's members, the more so the more severe the discrimination and the greater the difference in size. This applies to intimate as well as casual associations, and it applies if concern is restricted to completely mutual associations wanted equally by both parties, excluding such well-known cases of exploitation as sweatshops and sexual exploitation by majority men of minority women.

A corollary of T-3 is: As a majority's discrimination in social intercourse against a minority declines, the difference between the majority's lower and the minority's higher rate of intergroup associations becomes greater (T-3.1). To be sure, reduced discrimination by the majority increases its rate of intergroup associations as well as the minority's. But it simultaneously enlarges the difference between the majority's own lower and the minority's higher rate of intergroup involvement, inevitably so, strange as this may seem. The proportion of group members insulated from any intergroup associations probably changes in complementary fashion with changes in discrimination, but not necessarily: If some minority members have many intergroup associates, the proportion of the minority who have none could be the same as (or greater than) the proportion of the majority who have none. The larger the difference in size between majority and minority, however, the greater is the probability that the proportion insulated, and changes in that proportion, are higher in the majority than in the minority, because a person can have only a limited number of associates, particularly of close associates. For example, for the proportion of American blacks and whites who are insulated from any intergroup friendships to be the same, the average black would have to have 11 times as many intergroup friends as the average white (with most blacks having still more and some having none). Consequently, a probability theorem can be deduced from T-3.1: *As a majority's discrimination in social intercourse against a minority declines, the probable difference between the majority's higher and the minority's lower proportion of members who are insulated from close intergroup associations increases* (T-4).

A fictitious illustration can explicate this. If there are 1 million pairs of mutual best friends between a majority of 100 million and a minority

of 10 million persons, 1% of the majority and 10% of the minority have such a friend, and 99% and 90% do not, a difference of 9% (table 1).[14] We imagine that a decline in discrimination by the majority increases these intergroup friendships from 1 to 3 million pairs, which raises the proportion with, and diminishes the proportion without, a best intergroup friend 2% in the majority and 20% in the minority. Hence the reduction in discrimination has increased the difference in both the proportion with and the proportion insulated from such intergroup friendships from 9% to 27%. It has also increased the ratio of the proportion insulated in the majority and in the minority, from 11:10 to 14:10.

The paradox is that when discrimination by a majority against a minority subsides, the inequality in intergroup involvement between the two becomes more pronounced. Discrimination against minorities in education, employment, and social intercourse has in all likelihood declined in the United States in recent decades, notwithstanding some backlash. Although this has expanded intergroup friendships and diminished insulation from intergroup contacts in the majority as well as the minorities, it has simultaneously increased the difference between minorities and the majority in the extent to which they know each other, socialize with each other, have close enough relations to trust each other. A decline in discrimination, while helping to integrate minorities in society, moves the social experience provided by intergroup life of most minority members and most majority members further apart.[15]

TABLE 1

BEST FRIENDS BETWEEN A MAJORITY AND A MINORITY

| | Majority (%) | Minority (%) | Difference (%) | Ratio |
|---|---|---|---|---|
| 1 Million Intergroup Pairs: | | | | |
| 1. Number of persons (millions) | 100 | 10 | ... | ... |
| 2. Proportion with intergroup friend | 1 | 10 | ... | ... |
| 3. Proportion without intergroup friend | 99 | 90 | 9 | 11:10 |
| Reduced Discrimination: | | | | |
| 3 Million Intergroup Pairs | | | | |
| 4. Proportion with intergroup friend | 3 | 30 | ... | ... |
| 5. Proportion without intergroup friend | 97 | 70 | 27 | 14:10 |

[14] Mutual *best* friends are used in this fictitious illustration to simplify it. Were the criterion close associate or "mutual friend," whether or not both are best friends, the values for "with intergroup friend" (rows 2 and 4) would be the same, but the values for "without intergroup friend" (rows 3 and 5) would be somewhat altered, though the pattern of differences would be essentially the same.

[15] The opposite extreme with virtually no social associations between minority and majority implies that there is no difference between the two groups in the social experiences entailed by intergroup relations, but it also implies that the minority is hardly integrated in the society, inasmuch as the integration of groups in society is defined by their intergroup relations.

If the trend of subsiding discrimination continues, all members of a small minority have eventually close associates in the majority, while most members of the majority still have no close minority associate. Ultimately, minority members may be as likely to marry and to be intimate with members of the majority as with members of their own group, which would mean that the minority has become fully assimilated and has ceased to exist as a group governing social distinctions. The process of assimilation enlarges some differences in the social experiences of a minority and the majority—those resting on intergroup involvement—before finally obliterating most or all of them.

What structural conditions foster intergroup relations and diminish discrimination? Two aspects of differentiation have these consequences: heterogeneity and intersecting parameters.

## DIFFERENTIATION

The size of collectivities and the size distributions within and among them have a dominant impact on social life. This profound insight of Simmel's has long been neglected in social theory and research, particularly in macrosociological inquiries, which have either ignored size completely or tried to control it in order to search for other social influences presumed to be more interesting.[16] Recently, however, social scientists have begun to take size seriously as a concept of fundamental theoretical importance for understanding social relations and social structures. Thus, Mayhew constructs theoretical models that explain on the basis of size alone such diverse phenomena as the formation of elites in societies (1973), differentiation in organizations (Mayhew et al. 1972), and crime rates in cities (Mayhew and Levinger 1976). Research on organizations finds that their size governs many features of their administrative structure (Pugh et al. 1969; Blau and Schoenherr 1971). This approach, which characterizes the theory here outlined, centers attention on the implications of the number of people and their distribution for social relations and for the social structure, including the implications that are mathematically inevitable, from which often further conclusions can be deduced that are not mathematically inevitable.

If differences in group size influence rates of social association between group members, as we have seen, it is of interest to examine how social relations are affected by the distributions of society's entire population among groups and in terms of status, that is, by the two forms of differentiation, heterogeneity and inequality. For this purpose, substantive assumptions about two conditions that influence people's associations are

[16] Attempts to control size in research on social structure often actually fail to do so, as noted by McFarland and Brown (1973, pp. 238–40) and others.

introduced. The preceding theorems do not require these assumptions, or any others, because they are deducible from the analytic propositions defining groups (in terms of size) and intergroup relations (in terms of rates). It should be noted that all theorems, those depending on assumptions as well as those that do not, make assertions about rates of social association, not about the social associations of particular individuals, just as Durkheim's (1951) theory makes statements about rates of suicide. Not all Protestants commit suicide, of course. Similarly, many American whites have extensive friendships with blacks, and many blacks have no white friends, but this does not conflict with the deterministic prediction, implied by T-1 and the racial composition of the United States, that the rate of interracial friendships of blacks exceeds that of nonblacks. Even deterministic propositions about rates of social events imply only probability statements about individual events.

## Assumptions

The first assumption is that *social associations are more prevalent among persons in proximate than those in distant social positions* (A-1). Social proximity is defined in terms of parameters, not in terms of rates of social association. Hence, it is a dichotomy for a nominal parameter but varies by degree for a graduated parameter. The assumption has accordingly two corollaries: for nominal parameters, ingroup associations are more prevalent than outgroup associations (A-1.1); for graduate parameters, the prevalence of social associations declines with status distance (A-1.2). The prevalence of social associations refers not to their absolute rates but to the excess of the observed rates over those theoretically expected on the basis of the population distribution.[17] (The degree to which these observed values exceed the expected ones indicates the salience of the parameter.)

There is much empirical evidence that supports this assumption. For example, disproportionate numbers of marriages involve spouses of the same religion (Kennedy 1944; Hollingshead 1950; Coombs 1962; Willits, Bealer, and Bender 1963); ethnic origin (Murdock 1949; Coombs 1962); residential area (Schapera 1946; Murdock 1949); education (Blau and Duncan 1967); socioeconomic status (Centers 1949; Murdock 1949; Hollingshead 1950; Goode 1962; Blau and Duncan 1967). Friendships, too, are disproportionately often formed with persons who share one's re-

[17] The actual rate of ingroup associations of very small groups is most unlikely to exceed in absolute value their rate of intergroup associations, which is the reason why the operational criterion of the assumption is the excess of actual rates over those expected on the basis of the population frequency distribution. But the operational criterion of intergroup relations is actual rates, without controlling frequencies, since the influence of size or frequencies is the substantive concern of the theory, which would be concealed were frequencies statistically controlled.

ligion and socioeconomic background (Hollingshead 1949; Laumann 1973), as well as with those of the same sex and race (Lazarsfeld and Merton 1954). To be sure, the assumption is undoubtedly not met for all possible attributes of people. Those attributes for which it is not met may be considered not to refer to social positions, which transforms the principle that prevalence of associations depends on proximity from a substantive assumption into an analytic proposition that defines social positions and parameters.

A second assumption is that *social associations depend on opportunities for social contacts* (A-2). This assumption is hardly open to question, because persons cannot associate without having opportunities for contact, and a direct implication of it is corroborated by empirical evidence. Inasmuch as the physical propinquity of people increases their opportunities for contacts, the assumption implies that *physical propinquity increases the probability of social association* (T-5). Research shows that propinquity, including very small differences in physical distance, increases the likelihood of friendships (Festinger, Schachter, and Back 1950) and of marriage (Christensen 1958).

A final assumption is that *the influences of various parameters on social associations are partly additive, not entirely contingent on one another* (A-3). The assumption is not that parameters have no interaction or joint effects on social relations, merely that the effects of any one are not entirely dependent on and cannot be completely suppressed by variations in other parameters. In other words, it is assumed that persons who share several social positions are more likely to associate with each other than are those who share fewer and that sharing a given social position makes associations more likely between both those who do and those who do not share other positions. For example, people who have the same religion or education or any other salient social attribute are expected to be more likely to associate with each other than are others, regardless of whether they also share other social attributes. Actually, A-3 simply makes explicit what is already implicit in A-1—that any common or similar attribute that is considered a parameter makes social associations more probable.

## Differentiation in a Single Dimension

Before turning to the implications of these assumptions for differentiation, implications of the initial theorems for status differences are examined. Status distributions are nearly always positively skewed, with few persons in high status and many in lower status. Some status structures are pyramids, with the largest frequencies at the bottom and declining frequencies as one moves up. Authority in organizations and wealth in society are typically distributed in this manner. Other status structures are trun-

cated diamonds, with frequencies first increasing as one goes up from the bottom and only then decreasing. This tends to be the case for income distribution in western societies. A new theorem is deducible from T-1, that the rate of social association of a smaller with a larger group exceeds that of the larger with the smaller group, given the size differences in a pyramidal status structure or in the pyramidal upper part of another status structure:

*In a pyramidal status structure, the rate of social association of any higher with any lower stratum exceeds that of this lower with this higher stratum* (T-6).[18] If such a difference necessarily characterizes the rates of association between any two strata in a pyramid, it is probable that all strata except the lowest have higher rates of association with lower than with equivalent higher strata. The reason is that all strata in a pyramid except the lowest are smaller than others below and larger than others above them, and the theorem that a group's probable rate of association is an inverse function of its comparative size (T-2) implies that the association rate of a group with another compared to which it is small probably exceeds its association rate with another group compared to which it is large. Consequently, an inference from T-2 is: *People in middle as well as in high strata in a pyramid probably associate more with others below them than with others above them in status* (T-7).

*Reductions in inequality diminish the impact of status on social associations* (T-8). This theorem follows from the assumption that status distance discourages social associations (A-1.2) and the definition of inequality in terms of average status distance. Note that there is no reason to assume that a decline in educational inequality, for instance, lessens the salience of education, at least in the short run; the implication is that a given difference in education will continue to have the same adverse effect on social intercourse. However, after educational inequality has declined, fewer people than before differ widely in education; therefore educational differences have less impact on social intercourse in the society. Whether reductions in inequality affect in the long run the salience of education (or another status) and consequently have further repercussions for social associations is a moot question.

Heterogeneity and inequality, the two forms of differentiation, have opposite implications for social associations among persons whose social positions differ. To be sure, heterogeneity, like inequality, creates barriers to social intercourse, in accordance with the assumption that intergroup associations are less prevalent than ingroup associations (A-1.1). But much or increasing heterogeneity weakens these barriers and promotes intergroup relations. This paradoxical conclusion follows from the assump-

[18] Strata are defined by any equal status intervals, but not by population percentiles; for example, by intervals of $1,000 in income, or by intervals of two years of schooling.

tion that social associations depend on opportunities for social contacts (A-2). Since the degree of heterogeneity is defined by the probability that two randomly selected persons belong to different groups, increasing heterogeneity makes it more likely that fortuitous contact will involve members of different groups, thereby increasing the opportunities for and hence the probability of intergroup associations. In relatively homogeneous communities, there are few group barriers, but those that do exist tend to inhibit social associations more than the more prevalent group barriers in heterogeneous communities. Prevalent group barriers are not so great barriers to social intercourse. The theorem logically deducible from A-2 and the definition of heterogeneity is: *Increasing heterogeneity increases the probability of intergroup relations* (T-9).[19]

## Multiple Differentiation

Only the influences of a single parameter on social life have been considered so far, not yet those of combinations of parameters. People in all societies have several group affiliations, and those in complex societies have many, which are partly intersecting. Differences in sex, race, national background, religion, and occupation do not coincide, though some are correlated. The numerous, partly intersecting nominal parameters of complex social structures engender multiform heterogeneity, which exerts much greater structural constraints on intergroup relations than simple heterogeneity in one dimension.

Pronounced multiform heterogeneity compels people to establish intergroup relations, because it implies that ingroup relations are simultaneously intergroup relations in terms of different parameters (Blau 1974). It is impossible not to associate with outsiders when one's ingroup associates in one dimension are, in several others, members of other groups than one's own (Merton 1972, pp. 22–25). For individuals to satisfy their most salient ingroup preferences, they must set aside other ingroup preferences and enter into intergroup relations along other lines. The very fact that prejudiced persons discriminate against associating with out groups of various kinds restricts their other choices and constrains them

[19] In the analysis of differentiation in a single dimension, nominal parameters are treated as unordered categories and interest is confined to the degree of heterogeneity they indicate. Actually, nominal groups differ in various ways on the basis of which they can be ordered. Occupations are an obvious example: They are nominal groups, but they differ in status. The analysis of multiple parameters takes into account such graded differences among nominal groups in terms of which they can be ordered, inasmuch as it deals with the correlations of a nominal with various graduated parameters. However, the primary substantive focus here is not on trying to discover the major dimensions in terms of which groups can be ordered, as it is for Laumann (1973), but on the extent to which parameters are correlated or orthogonal and its distinctive significance for social relations.

to be more tolerant about associating with outsiders in terms of these other parameters. For example, many academics seem to exhibit strong ingroup biases in their conduct in favor of associates with similar advanced education, who are also academics, and who often are even in the same discipline. One might conjecture that these ingroup biases, by restricting freedom of choice along other lines, are in part responsible for the tolerance of academics about associating with colleagues regardless of religion, class origin, and ethnic background.

What generates these structural constraints on intergroup relations is that parameters are intersecting—that differences of one kind among people are not related or are only slightly related to differences of other kinds among them. *Intersecting parameters promote intergroup relations* (T-10). This theorem applies to the intersection among nominal, among graduated, and of graduated with nominal parameters, and it follows from the assumptions that proximity promotes social associations (A-1) and that the influences of parameters are partly additive (A-3). If differences in income are little related to differences in religion, education, and other social attributes, ingroup preferences in regard to these attributes prompt persons to associate with others whose income differs from theirs. The opposite is the case, however, if income differences are strongly related to differences in other social attributes. Under this condition, the ingroup preferences in regard to the other attributes lead—inadvertently, as it were—to disproportionate associations among persons whose income is similar too, reinforcing the independent effect of income on social associations. Accordingly, a theorem complementary to T-10 is implied by the same two assumptions (A-1 and A-3).

*Strongly correlated parameters consolidate status and group differences and thereby impede intergroup relations* (T-11). When the social differences delineated by various parameters largely coincide, their inhibiting effects on social intercourse reinforce one another. Individuals who differ on many salient social attributes do not have sufficient common interests to sustain extensive social associations, and differences in numerous social positions also reduce the likelihood that instrumental activities bring persons together. If parameters are consolidated, even individuals who do not have ingroup preferences in terms of a given parameter will mostly associate with the ingroup, owing to this parameter's correlations with other parameters in terms of which they do have ingroup preferences. This can be illustrated with the case of the academics mentioned. Tendencies to associate with persons in the same discipline lead to intergroup relations in terms of social background only if academic discipline is little related to background characteristics and colleagues in a discipline greatly vary in religion, class origin, and ethnic background. If academic discipline and background characteristics are strongly correlated, most colleagues in a

discipline have the same social background. In this situation, the tendency to associate with colleagues in one's discipline entails associating mostly with persons who also share one's religion, class origin, and ethnic background, even for individuals who have absolutely no ingroup preferences in terms of these background characteristics.

When parameters are intersecting, ingroup bias leads to intergroup relations; when they are consolidated, lack of ingroup bias leads to ingroup relations. Variations in structural conditions—the interrelations of parameters—determine what consequences given sociopsychological tendencies have for the social processes that integrate the various segments of society. The consolidation and intersection of parameters are polar opposites on the same continuum, indicated by the correlations of parameters. The stronger their positive correlation, the more consolidated parameters are. The weaker their positive correlation, the more parameters intersect.[20]

Intersecting parameters reflect a highly differentiated social structure, whereas consolidated parameters are indicative of a less complex structure with fewer independent lines of differentiation. At the same time, intersecting parameters further the integration of the different segments of society by promoting extensive associations among groups and strata. No assumption about value consensus or functional interdependence has been made to arrive at this conclusion. Functional interdependence typically entails much one-sided dependence and power inequality, which are more likely to impede than to foster social integration. The only substantive assumptions needed to derive the conclusion are that people associate more with others in proximate than with those in distant social positions (A-1) and that this is the case for every parameter (A-3). Although the assumptions stipulate merely proclivities for ingroup associations, nothing about intergroup associations, they suffice to deduce from them, jointly with analytic propositions defining structural properties, tendencies to engage in intergroup associations under specified structural conditions. Variations in structural constraints explain the influence that given (invariant) sociopsychological dispositions exert on the social processes that integrate the segments of society.

## SUBSTRUCTURES

The components of complex social structures are themselves social structures. Societies are composed of communities, which have their own social

[20] Correlations of nominal parameters have no sign and thus cannot be negative. But correlations of graduated parameters can be negative, though it is empirically rare for various aspects of status to be negatively related. Negatively correlated graduated parameters are conceptualized as being still more intersecting than uncorrelated ones, because the structural constraints on social life of opposite status differences in two dimensions are similar to but even greater than those of unrelated status differences.

structure. The propositions advanced apply to the structure of communities as well as that of societies. But society is more than the sum of its communities. Society's structure comprises differences and connections among as well as within its substructures. Any form of differentiation in society is the result of the differentiation within its communities and the differentiation among them. For example, the income inequality in society is the product of the inequalities in income within communities and the income differences among communities. Society's ethnic heterogeneity is the result of some such heterogeneity within and some ethnic differences among communities. The consolidation (correlation) of education and income in society is produced partly by their correlations within communities and partly by the ecological correlation between mean education and mean income for communities.

## Decomposition

The influence exerted on social associations by a given form of differentiation in society can be decomposed into the influence of the differentiation within communities and that of the differentiation among them. The question raised is not what influences various forms of differentiation within communities exert on social relations. This question has been partly answered in the preceding discussion, which applies to the structure of communities, as noted. The problem posed now is what relative significance differentiation within and differentiation among communities, respectively, have for society's intergroup relations and integration. Does the existing degree of heterogeneity or of inequality in society at large influence intergroup relations more if it occurs primarily within the various communities or if it is largely the result of differences among communities?

A corollary of the theorem previously advanced that propinquity increases the probability of social associations (T-5) is that most social associations take place in people's own communities (T-5.1). One would therefore surmise that intergroup relations are more affected by heterogeneity and inequality within communities, where most social associations occur, than by average group and status differences among communities. Since heterogeneity promotes intergroup relations (T-9), one would expect heterogeneity within communities to promote them more than society's heterogeneity that is largely the result of group differences among communities. Correspondingly, since inequality impedes interstratum associations (T-8), one would expect much inequality within communities to impede them more than society's inequality that is largely the result of great status differences among communities, with lesser inequalities within

them. Actually, only the first of these two expectations is correct; the second is false.

*The more society's heterogeneity results from heterogeneity within rather than among communities, the more probable are both intergroup associations and associations among different communities* (T-12). This theorem is deducible from T-5 (or T-9) and A-1. The propinquity of different groups (T-5) living in the same heterogeneous communities increases opportunities for and probabilities of intergroup relations. Besides, mostly within-community heterogeneity implies that the members of a group are dispersed among different communities and few of them are in the same community, which makes it more difficult to satisfy ingroup preferences (A-1) within one's community and encourages associations across communities to satisfy them. These tendencies will be most pronounced for members of small groups living in small communities, for instance, black professionals living in small towns. On the other hand, heterogeneity that exists mostly among communities entails greater homogeneity within communities, with different groups largely living in different communities. In this situation, physical (T-5) and social distances (A-1) tend to coincide and discourage both intergroup and intercommunity associations. In short, the segregation of groups in different communities counteracts the positive effect of heterogeneity on intergroup relations.

*The more society's inequality results from inequality within rather than among communities, the more probable are social associations both among different strata and among different communities* (T-13). This conclusion is quite unexpected, but it follows from the same premises as the preceding theorem. To be sure, great inequality makes social associations among different strata less likely, not more likely. The comparison in the theorem is not among communities that differ in inequality, however, but among societies that vary in regard to the extent to which their existing inequality is mostly owing to inequality within or mostly to that among communities. Still, one might have thought that inequality within communities would have greater adverse effects on social associations than would average status differences among communities. Yet this is wrong, as an illustration clearly shows. When poor and rich live in different communities, the inhibiting effects of status distance (A-1) and physical distance (T-5) on social associations reinforce each other. Mostly within-community inequality implies that different strata live in the same communities and that the same strata are dispersed among different communities. Under these conditions, persons from different strata are more likely to associate than when they live in different communities, owing to physical propinquity (T-5), and the common interests of persons in the same stratum who live in different communities promote some association among them, owing to status proximity (A-1.2). Although inequalities within commu-

nities inhibit social associations, they do not inhibit them as much as do inequalities that are reinforced by residential segregation among strata.

Surprisingly, society's inequality as well as its heterogeneity is more compatible with integrative social associations among its different segments when it exists primarily within communities than when it results mostly from the great differences among communities. Much differentiation of any kind within communities and little among them furthers social relations among the various segments of society. Indeed, a still broader generalization can be derived.

## Penetrating Differentiation

Communities are not the only substructures into which a society can be divided. Place of work instead of place of residence can be the criterion of substructure, and one can partition the division of labor, for instance, into the occupational differences within and those among work organizations. As a matter of fact, any nominal parameter can be the criterion of substructure. Moreover, successive levels of subdivision can be taken into account: nation, province, town, neighborhood; or, organization, department, section, subunit; or, major occupational group, detailed occupation, specialty. The following proposition applies to any form of differentiation (consolidated as well as simple inequalities and heterogeneities), any type of substructure, on any level.

*The penetration of differentiation into substructure promotes intergroup relations of all kinds, that is, it increases the probabilities of social associations among the differentiated groups and strata and among the substructures* (T-14). This theorem is deduced from T-10, that intersecting parameters promote associations among groups and strata, since greater penetration into substructures entails more intersection of the parameters delineating differentiation with the parameter defining the substructures.[21] For example, if there is much income inequality within communities but little within the neighborhoods of the various communities, inequality penetrates less deeply and income intersects less with location than if there is also much income inequality within neighborhoods. Similarly, if great ethnic differences exist among major occupational groups and also among detailed occupations but not within detailed occupations, ethnic heterogeneity prenetrates less into the occupational structure and ethnic differences intersect less and are more correlated with occupational differences than if there is much ethnic variation within the detailed occupations. The

[21] The two preceding theorems, T-12 and T-13, are also alternatively deducible from T-10, inasmuch as differentiation within rather than among communities entails more intersection of the parameter delineating the differentiation with community location, which may be considered a nominal parameter.

greater internal inequality or heterogeneity fosters social associations among the different strata or groups, owing to their common position in the same substructures, and also among substructures, owing to the common status or group membership of many members of different substructures (according to A-1 and A-3, from which T-10 is derived, and which are the only assumptions required to deduce T-14). In short, the penetration of differentiation into substructures weakens the correlation of parameters, which promotes intergroup relations (T-10).

Penetrating differentiation exerts a centrifugal force on social relations that directs them outward and integrates the diverse segments in society. The social integration of a large population in a complex society cannot rest solely on some common values and some interdependence; it requires that the diverse groups and hierarchical strata are not isolated from one another but connected through social associations among their members. This is the reason that society's integration is here defined in terms of the extent of social associations among different groups and strata. The plausible sociopsychological assumption that people prefer ingroup (and proximate-status) to outgroup (and distant-status) associates seems to imply that large societies are necessarily fragmented into segments with few social relations among them. This inference is wrong, however, because it ignores the impact of structural conditions on social relations. When the multiple parameters characterizing social structures are taken into account, it becomes apparent that this very assumption has implications for intergroup relations. The extent of social relations among society's different segments depends on structural conditions. Specifically, the more structural parameters intersect, the more extensive are intergroup relations. Although the homogeneity of narrow social circles discourages intergroup relations, intersecting parameters disturb this homogeneity. Numerous strongly intersecting parameters imply that differentiation in various forms penetrates into the interstices of society, exerting structural constraints to engage in intergroup associations and thereby integrating the diverse segments of society.

## CONCLUSIONS

This paper has outlined a theory of the structure of social associations which is elaborated elsewhere (Blau 1977). The foundation of the theory is a quantitative conception of social structure as the distributions of a population among social positions in a multidimensional space of positions. The axes in this space are termed "parameters," which distinguish either nominal positions, like sex and race, or status gradations, like education and income. The two generic forms of differentiation are heterogeneity, defined

by the distribution of people among nominal positions, and inequality, defined by their distribution in terms of a status criterion.

The substantive focus of the theory is on the influences exerted by structural conditions, particularly the relationships of parameters, on the rates of social associations among different groups and strata, inasmuch as social integration is conceived to rest on extensive social relations among the different segments of society. The theory constructed is a deductive one: 14 theorems and a number of corollaries have been derived—in strict logic, I believe—from the analytical propositions defining properties of social structure and three assumptions, which are synthetic propositions. The assumptions are: (1) social proximity promotes social associations; (2) social associations depend on opportunities for contacts; (3) the influences of parameters are partly additive. The role of these assumptions in the theory is as givens, equivalent to the role of assumption of maximizing utility in economic theory. The substantive focus is not on the significance of these assumptions but, given them, on the significance of variation in structural conditions for processes of social association and social integration.

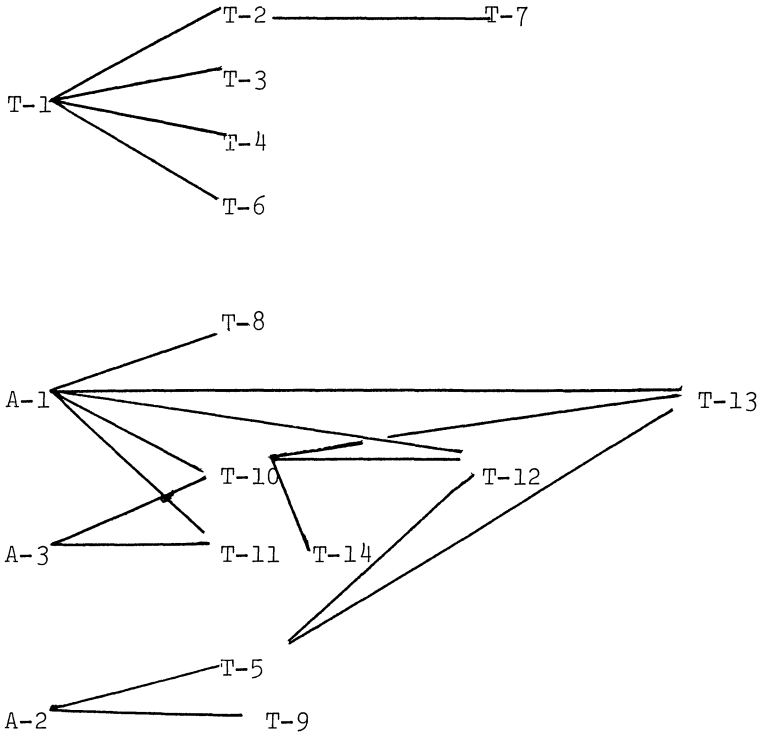


FIG. 1.—Chains of implications

The main chains of implications (not including definitions) are sketched in figure 1. To summarize the 14 theorems derived: (1) In the relation between two groups, the intergroup involvement of the smaller exceeds that of the larger group. (2) The probability of extensive intergroup relations decreases with increasing group size. (3) The more a majority discriminates against a minority in social intercourse, the smaller is the difference between the majority's and the minority's intergroup involvement. (4) As a majority's discrimination against a minority in social intercourse declines, the probable difference between the majority's higher and the minority's lower proportion of members who are insulated from intergroup associations increases. (5) Physical propinquity promotes social associations. (6) In a pyramidal structure, the rate of social associations of a higher with a lower stratum exceeds the rate of the lower with the higher stratum. (7) People in middle as well as in high strata in a pyramid are more likely to associate with others below them than with others above them in status. (8) Reductions in inequality diminish the impact of status on social associations. (9) Increasing heterogeneity promotes intergroup relations. (10) Intersecting parameters promote intergroup relations. (11) Consolidated parameters impede intergroup relations. (12) If society's heterogeneity results mostly from heterogeneity within rather than differences among communities, it promotes intergroup and intercommunity relations. (13) If society's inequality results mostly from inequality within rather than differences among communities, it promotes social associations among different strata and different communities. (14) The penetration of differentiation into substructures promotes social relations among various segments of society that integrate them.

## REFERENCES


Barnes, John A. 1954. "Class and Committees in a Norwegian Island Parish." *Human Relations* 7 (February): 39–58.

Barnes, John A. 1972. *Social Networks.* Modular Publication no. 26. Reading, Mass.: Addison-Wesley.

Barnett, Larry D. 1962. "Research in Interreligious Dating and Marriage." *Marriage and Family Living* 24 (May): 191–94.

Bealer, Robert C., Fern K. Willits, and Gerald W. Bender. 1963. "Religious Exogamy." *Sociology and Social Research* 48 (October): 69–79.

Blau, Peter M. 1974. "Parameters of Social Structure." *American Sociological Review* 39 (October): 615–35.

———. 1977. *Inequality and Heterogeneity.* New York: Free Press.

Blau, Peter M., and Otis Dudley Duncan. 1967. *The American Occupational Structure.* New York: Wiley.

Blau, Peter M., and Richard A. Schoenherr. 1971. *The Structure of Organizations.* New York: Basic.

Burma, John H. 1963. "Interethnic Marriage in Los Angeles, 1948–1959." *Social Forces* 42 (December): 156–65.

Centers, Richard. 1949. "Marital Selection and Occupational Strata." *American Journal of Sociology* 54 (May): 530–35.

Christensen, Harold F. 1958. *Marriage Analysis.* New York: Ronald.
Coleman, James S. 1957. *Community Conflict.* Glencoe, Ill.: Free Press.
Coleman, James S., and Duncan MacRae, Jr. 1960. "Electronic Processing of Sociometric Data for Groups up to 1000 in Size." *American Sociological Review* 25 (October): 722–27.
Coombs, Robert H. 1962. "Reinforcement of Values in the Parental Home as a Factor in Mate Selection." *Marriage and Family Living* 24 (May): 155–57.
Davis, James A. 1967. "Clustering and Structural Balance in Graphs." *Human Relations* 20 (May): 181–87.
Duncan, Otis Dudley. 1961. "A Socioeconomic Index for All Occupations." Pp. 109–38 in *Occupations and Social Status,* edited by Albert J. Reiss, Jr. et al. New York: Free Press.
Durkheim, Émile. 1951. *Suicide.* Glencoe, Ill.: Free Press.
Evans-Pritchard, E. E. 1940. *The Nuer.* Oxford: Clarendon.
Festinger, Leon, Stanley Schachter, and Kurt W. Back. 1950. *Social Pressures in Informal Groups.* New York: Harper.
Gibbs, Jack P., and Walter T. Martin. 1962. "Urbanization, Technology and the Division of Labor." *American Sociological Review* 27 (October): 667–77.
Goode, William J. 1962. "Marital Satisfaction and Instability." *International Social Science Journal* 14 (3): 501–26.
Harary, Frank, R. Z. Norman, and Dorwin Cartwright. 1965. *Structural Models: An Introduction to the Theory of Directed Graphy.* New York: Wiley.
Hollingshead, August B. 1949. *Elmstown's Youth.* New York: Wiley.
———. 1950. "Cultural Factors in the Selection of Marriage Mates." *American Sociological Review* 15 (October): 619–27.
Homans, George C. 1961. *Social Behavior: Its Elementary Forms.* New York: Harcourt Brace Jovanovich.
Kennedy, Ruby Jo Reeves. 1944. "Single or Triple Melting Pot?" *American Journal of Sociology* 49 (January): 331–39.
Kinsey, A., W. Pomeroy, and C. Martin. 1948. *Sexual Behavior in the Human Male.* Philadelphia: Saunders.
Kroeber, A. L., and Talcott Parsons. 1958. "The Concepts of Culture and of Social System." *American Sociological Review* 23 (October) 582–83.
Laumann, Edward O. 1973. *Bonds of Pluralism.* New York: Wiley.
Laumann, Edward O., and Franz U. Pappi. 1976. *Networks of Collective Action.* New York: Academic.
Lazarsfeld, Paul F., and Robert K. Merton. 1954. "Friendship as a Social Process." Pp. 18–66 in *Freedom and Control in Modern Society,* edited by M. Berger, T. Abel, and C. H. Page. New York: Van Nostrand.
Lazerwitz, Bernard. 1961. "Some Factors Associated with Variations in Church Attendance." *Social Forces* 39 (May): 301–9.
Lenski, Gerhard. 1961. *The Religious Factor.* Garden City, N.J.: Doubleday.
Locke, Harvey J., Georges Sabagh, and Mary Margaret Thomas. 1957. "Interfaith Marriages." *Social Problems* 4 (April): 329–35.
Mayhew, Bruce H. 1973. "System Size and Ruling Elites." *American Sociological Review* 38 (August): 468–75.
Mayhew, Bruce H., and Robert L. Levinger. 1976. "On the Emergence of Oligarchy in Human Interaction." *American Journal of Sociology* 81 (March): 1017–49.
Mayhew, Bruce H., Robert L. Levinger, J. M. McPherson, and J. F. James. 1972. "System Size and Structural Differentiation in Formal Organizations." *American Sociological Review* 37 (October): 629–33.
McFarland, David D., and Daniel J. Brown. 1973. "Social Distance as a Metric." Pp. 213–53 in Edward D. Laumann, *Bonds of Pluralism.* New York: Wiley.
Merton, Robert K. 1972. "Insiders and Outsiders." *American Journal of Sociology* 78 (July): 21–29.
Mitchell, J. Clyde. 1969. "The Concept and Use of Social Networks." Pp. 1–50 in *Social*

*Networks in Urban Situations,* edited by J. Clyde Mitchell. Manchester: Manchester University Press.
Moreno, S. L. 1934. *Who Shall Survive?* Washington, D.C.: Nervous and Mental Disease Publishing.
Murdock, George P. 1949. *Social Structure.* New York: Macmillan.
Nadel, Siegfried F. 1957. *The Theory of Social Structure.* Glencoe, Ill.: Free Press.
Parsons, Talcott. 1966. *Societies: Evolutionary and Comparative Perspectives.* Englewood Cliffs, N.J.: Prentice-Hall.
Parsons, Talcott, and Edward A. Shils. 1951. *Toward a General Theory of Action.* Cambridge, Mass.: Harvard University Press.
Portes, Alejandro, and Kenneth L. Wilson. 1976. "Black-White Differences in Educational Attainment." *American Sociological Review* 41 (June): 414–31.
Pugh, D. S., David J. Hickson, C. R. Hinings, and C. Turner. 1969. "The Context of Organization Structure." *Administrative Science Quarterly* 14 (March): 91–114.
Radcliffe-Brown, A. R. 1940. "On Social Structure." *Journal of the Royal Anthropological Institute* 70: 1–12.
Schapera, I. 1946. "Some Features in the Social Organization of the Tloka (Bechuland Protectorate)." *Southwest Journal of Anthropology* 2: 16–47.
Seeman, Melvin. 1956. "Intellectual Perspective and Adjustment to Minority Status." *Social Problems* 3 (January): 142–53.
Simmel, Georg. 1908. *Soziologie.* Leipsig: Duncker & Humblot.
Sorenson, Robert C. 1973. *Adolescent Sexuality in Contemporary America.* New York: World.
Thomas John L. 1951. "The Factor of Religion in the Selection of Marriage Mates." *American Sociological Review* 16 (August): 487–91.
Veblen, Thorstein B. 1919. "The Intellectual Pre-eminence of Jews in Modern Europe." *Political Science Quarterly* 34 (1): 33–42.
White, Harrison C., Scott A. Boorman, and Ronald L. Breiger. 1976. "Social Structure from Multiple Networks I." *American Journal of Sociology* 81 (January): 730–80.
Williams, Robin M., Jr. 1964. *Strangers Next Door.* Englewood Cliffs, N.J.: Prentice-Hall.
Willits, Fern K., Robert C. Bealer, and Gerald W. Bender. 1963. "Interreligious Marriage among Pennsylvania Rural Youth." *Marriage and Family Living* 25 (January): 433–38.