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could *explain* inequality and delineate its social consequences. He has not become bogged down in deploring it as a departure from American ideals. (See, in comparison, Reissman, 1973; Tumin, 1967.) Because he adhered strictly to a scientific path, Blau provides a basis for assessing the meaning of contemporary conflict between members of various groups and strata (pp. 112–116) without having to resort to guilt-ridden rewriting of history. By not descending into the anguished cynicism induced or aggravated by assassinations, Vietnam, campus turmoil, Watergate, etc., Blau has not had to squander scholarly effort on trying to show that conflict had "always" been as American as apple pie. His theory can be addressed instead to spelling out conditions in which conflict is frequent and other conditions in which it is rare.

By providing explanation, Blau may have done more to facilitate desired change than can be done by piously declaring change to be more important than understanding. For example he notes that the frequency of association with outgroup members varies inversely with the fraction of a population contained within ingroup boundaries. From this, he derives theorems stating that members of a minority experience dyadic conflict with members of a majority more commonly than majority members experience dyadic conflict with minority members. Since whites outnumber blacks in America, but blacks outnumber whites in South Africa, the race relations experiences of the dominant group (whites) will have been importantly different in the two countries. Blau thus enables us to understand obstacles to effective American-South African dialogues about race relations issues.

Despite the modesty implicit in the subtitle, Blau's book is a theoretical masterpiece. It provides an impressive indication that sociological science may actually have survived the identity crises and future shock besetting it in the last fifteen years. Blau has helped make sociology a less fumbling ecological science.

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A Theory of Social Structure: An Assessment of Blau's Strategy

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Blau's Image of Social Structure

In *Inequality and Heterogeneity*, Peter M. Blau develops a "primitive theory" of social structure. This theory excludes social psychology and cultural variables from serious consideration and focuses on how generic properties of social structure influence pat-

terns of interaction. Thus, Blau defines social structure as "the multidimensional space of positions among which a population is distributed and which reflect and affect people's role relations and social relations" (p. 278). Several key terms in this definition best reveal the highly structural approach taken by Blau. "Positions" are attributes, such as age, sex, occupation, ethnicity, and wealth, that distinguish people and influence their social relations. "Population distribution" refers to the number of individuals who occupy the various interrelated positions comprising a social structure. "Role relations and social associations" stress the view that structure is composed of actual interactions among real people rather than analytical interchanges or postulated functional interdependencies.

Armed with these definitions, Blau then proceeds to isolate some of the basic properties of social structure. The concept of "parameters" is introduced to denote the fact that people employ various types of criteria for differentiating those positions that influence their social relations. There are two basic types of parameters: nominal and graduated. "Nominal parameters" divide people into "groups," while "graduated parameters" differentiate people in terms of "status rankings." In turn, "groups" are seen as all people who share a given attribute that influences their interaction with each other without regard to rank, while "status" pertains to those attributes exhibiting graduations of rank that influence social relations among individuals.

These distinctions allow Blau to visualize two generic forms of differentiation in social structure: heterogeneity and inequality. "Heterogeneity" is the distribution of a population among groups in terms of a nominal parameter(s), while "inequality" is the status distribution of people in terms of a graduated parameter(s). Blau assumes that differentiation poses barriers to interaction and that barriers to interaction create problems of integration in social structures. Indeed, one of the major themes of Blau's theory concerns the dialectic between differentiation and integration.

This vision of social structure and the dialectic between differentiation and integration leads Blau to view two basic social processes. One is "social associations" because, in Blau's view, integration of social structure does not involve functional interdependence or value consensus but face to face contact and interaction among people. Such contact is influenced by how parameters organize positions into groups and status rankings. Social mobility of people from position to position is the other basic process since it influences the distribution of people in positions and hence, the nature of their social relations.

It is with this image of social structure that Blau begins to build his "primitive theory." While certainly primitive, Blau's theory is nonetheless brilliant. In both style and substance, he re-directs and re-kindles sociology's often wayward and stymied search for the laws of social structure. A closer examination of Blau's strategy and theory will thus provide a clearer vision of what a science of society should be.

Blau's Theoretical Strategy and Theory

Blau's theoretical strategy involves exploring the properties of macro social structure with abstract theorems which follow from various assumptions. During the course of his discussion, he introduces some twenty assumptions in order "to explore the implications of structural properties in a variety of substantive contexts" (p. 246). His apparent intent is to consider some of the most central assumptions as axioms from which the theorems can be "deduced." These axioms, however, represent only background assumptions, for it is in the theorems that the core of the theory resides. Table 1 summarizes the thirty-four major theorems developed by Blau.

Table 1: *Blau's 34 Major Theorems*

1. For any dichotomy of society, the small group has more extensive intergroup relations than the larger.
2. Changes in a parameter's salience change the extent of intergroup relations of a minority with the majority more than the majority's with that minority.
3. The more a majority discriminates in social intercourse against a minority, the smaller is the discrepancy between the majority's lower and the minority's higher rate of intergroup associations.
4. Social mobility promotes intergroup relations.

5. For a division of status above the median, the upper stratum has more extensive relations with the lower than the lower with the upper.
6. The higher the rates of vertical mobility between two social strata the more prevalent are the associations between their members.
7. Ceteris paribus, a decline in inequality reduces the impact of status in social associations.
8. Ceteris paribus, if the net fertility of lower strata exceeds that of higher strata, inequality increases.
9. For inequality to diminish it is necessary that some low or middle strata experience upward mobility or that some highest strata experience downward mobility.
10. Ceteris paribus, if the net fertility of lower strata exceeds that of high strata, status diversity declines.
11. Increasing heterogeneity increases the probability of intergroup relations.
12. The lower the positive correlation between parameters, the more extensive are intergroup relations.
13. The greater the physical propinquity, the greater is the probability of social associations.
14. As group size in terms of one nominal parameter declines, the probability of intergroup relations in terms of other intersecting parameters increases.
15. The more parameters intersect, the greater is the structural complexity.
16. Intersecting parameters increase social mobility.
17. Intersecting parameters increase the probability of interpersonal conflict between members of various groups or strata.
18. High rates of social mobility promote structural change.
19. The prevalence of ingroup relations in subgroups probably exceeds that in larger groups encompassing them delineated by the same nominal parameter.
20. Intergroup relations in terms of one nominal parameter are most probable for persons who belong to the same groups in terms of other nominal parameters.
21. The pronounced intersection of two parameters has a structural effect on intergroup relations, increasing them more than would the additive effects of the parameters alone.
22. The consolidation of nominal with graduated parameters has structural effects on superordination in intergroup relations, which is manifest in an influence on mean group status, independent of individual's own status, on superordination.
23. The probability of associations with many different persons increases with increasing size and population density of the community.
24. Efficient means of transportation reduce the influence of propinquity on social associations.
25. The more society's differentiation in terms of any parameter results from differentiation within rather than among communities, the more probable are intergroup relations both in terms of this parameter and among different communities.
26. The further society's differentiation penetrates into succesive subunits of its structural components, the more it promotes the integration of groups by increasing intergroup relations.
27. Opportunities for communication and association promote the division of labor.
28. The advancing division of labor increases the probability of social relations among different occupations that integrate them in society.
29. The more of a society's division of labor results from that within rather than from that among work organizations, the more probable are extensive social associations among occupational strata and among different organizations.
30. The more of an organization's division of labor results from that within rather than from that among departments, the more probable are extensive social relations among occupational positions and among departments.
31. The homogeneity of diverse groups has a structural effect increasing the preponderance of ingroup relations.
32. At advanced stages of the division of labor, increases in it diminish inequalities in education and qualifications.
33. As the number of employees in work organizations increases, authority becomes more concentrated.
34. The concentration of power increases the insulation of the lower class from higher strata.

These thirty-four theorems are organized into "sets," with each major theorem "implying" a series of sub-theorems. One is tempted to call the latter corollaries, but it is not clear if this is what Blau intends. In any case, a "theorem set" is designed to tease out the full empirical implications of a theorem for understanding social structures. Since there are some 188 theorems in all the theorem sets, only one shortened example is offered in Table 2.

Table 2. *A Shortened Example of a Theorem Set*

T–1	For any dichotomy of society, the small group has more extensive intergroup relations than the large.
T–1.11	For any dichotomy of society, the proportion of group members intermarried is an inverse function of group size.
T–1.12	For any dichotomy of society, the mean number of intergroup associates is an inverse function of group size.
T–1.13	For any dichotomy of society, the mean amount of time spent in intergroup associations is an inverse function of group size.
T–1.2	Minority groups are more involved in intergroup relations with the majority than the majority is with them.
T–1.21	The proportion of a minority group who are married to members of the majority exceeds the proportion of the majority who are married to members of the minority.
T–1.22	The mean number of majority-group associates of a minority exceeds the mean number of associates in that minority of the majority.

Major theorems, definitions, assumptions, axioms, and sub-theorems in sets become the premises for subsequent theorems and sub-theorems. The result is a vast interlocking web of propositions that, in Blau's words, "imply" each other. Indeed, on page 249 he tries to diagram some of these connections for the theorems. Yet, as I will argue below, this theoretical strategy, for all of its brilliance, suffers from a number of problems. In creating a "web" of propositions which are "implied" by twenty assumptions and various other theorems and sub-theorems, much of the deductive rigor that Blau would like to introduce is lost; and as the theory loses rigor, its capacity for guiding either theory or research is correspondingly reduced.

Problems with the Theory

Blau's strategy and theory are vulnerable to two general lines of criticism: (1) Many of the propositions are tautologies. (2) The theorems are unsystematically couched at many different levels of abstraction. Let me elaborate.

(1) Blau admits that theorems such as 15 in Table 1 are tautologies. In the case of theorem 15, structural complexity and intersecting parameters cannot be defined independently of each other because it is true by definition that structural complexity involves multiple, intersecting parameters. While the tautology is obvious in proposition 15, it is less easily recognized in many other theorems and sub-theorems throughout the book. For example, theorem 11 in Table 1 might be tautological, since the two variables—heterogeneity and intergroup relations—are not easily separated or defined independently of each other. Heterogeneity is defined as the division of a population into groups in terms of a nominal parameter; in turn, parameters are defined as attributes that influence social associations or relations; and intergroup relations are defined as social relations among groups distinguished by a nominal parameter.

Yet, Blau is correct in his assertion that such tautologies can be obviated by what is deduced from them. Many abstract propositions in the more developed sciences, such as $F = ma$ or $E = mc^2$, are tautologies which become non-tautologous when deductions to empirical reality are conducted. Similarly, even if it is conceded that theorem 11 is a tautology (and one could argue, I think, either way), the other theorems in the set are not tautologies and have fascinating implications. For example, one sub-theorem (T–11.1 in Blau's notation) takes theorems 11 and 1 as premises for the following "deduction": "ceteris paribus, the larger of two groups discriminates more than the smaller against associating with members of the other group." This proposition is not a tautology and has many insightful implications for actual social relations, such as black-white relations in American society.

Thus, I do not think that the problem of

tautology is a serious one in Blau's theory. I have emphasized the issue here, because it will, no doubt, surface in commentaries on the theory. Hopefully, commentators will be dissuaded from this line of attack and concentrate on the far more serious problems revolving around the unsystematic web of propositions couched at so many different levels of abstraction.

(2) Blau's intent is to construct a deductive theory of social structure, but in fact, the current theory resembles more of a collage of propositions than a series of systematic deductions. Propositions are linked together not so much through deduction as through the fact that they "imply" each other. In this way, assumptions, axioms, theorems, and sub-theorems can all be the premises from which "deductions" are made. The result is for a theory that is rich in insight, but lacking deductive continuity or elegance.

Part of the problem, I think, resides in the failure to establish a clear set of axioms from which the theorems are to be deduced. While a number of assumptions are viewed as axiomatic "premises," it is evident that these are not always the most appropriate premises. In fact, in many cases they could be abandoned without any loss in deductive rigor or substantive implications. Moreover, the frequent use of certain theorems as "premises" would argue for their status as axioms from which corollaries could be deduced. While Blau indicates that he prefers his theory to carry its full implications in the theorems rather than axioms, I think that he underestimates the degree to which he employs some key theorems as implicit axioms. The theory would thus reveal much more deductive rigor and provide even greater insight if the key theorems and the most important of the twenty assumptions were explicitly viewed as axioms.

The lack of attention to deductive procedures creates a theory where some theorems, such as 1 and 21 in Table 1, are highly abstract, whereas others, such as 32, are empirical generalizations. Furthermore, some major theorems like 30 and 25 are really deductions to a specific type of empirical contexts (the division of labor in organizations and community) from a more abstract theorem (in this case, 26 in Table 1). The result is for a rather inefficient generation of theorems and sub-theorems which appear to jump up and down the abstraction ladder without careful attention to why and how such leaps are made. Furthermore, if the axioms were more clearly articulated, the number of theorems could be greatly reduced without loss of the theory's rich substantive implications.

A Modest Proposal for Reformulating the Theory

Improvement in Blau's theory will come, I feel, with the recognition that (a) a small number of axioms should guide all deductions, (b) theorems should represent applications of the axioms to general types of structural conditions, (c) theorems should be couched at a consistent level of abstraction, and (d) empirical propositions should follow from the theorems and denote the most specific properties of empirical conditions. These considerations will guide my modest suggestions for reformulation of Blau's theory.

The first step in revising Blau's theory involves formulating explicit axioms. In Table 3, I have used Blau's image of macrostructure, several key assumptions, and some central theorems to formulate the six axioms which can serve as the deductive premises for Blau's other propositions.[1] All other theorems in Table 1 and in the book are, I feel, either corollaries of these axioms or deducible theorems. I have re-phrased the assumptions and theorems into non-tautological statements of co-variance, but Blau's intended meaning is retained. I have also re-phrased to maintain a consistent level of abstraction.

In Table 3, the "propinquity" and "opportunity" principles represent re-statements of two key background assumptions (Blau's axioms A–1 and A–9). The "size," "mobility," "multiple parameter," and "structural effects" principles involve an elevation of important theorems to the status of axioms (T–1, T–4, T–12, and T–21 in Table 1). With these axioms the theory is, I feel, more

[1] Actually, I think that this list could be shortened if one wanted to reduce even further the number of axioms. The "mobility" and "propinquity" principles could probably be viewed as theorems that can be deduced from the "opportunity" principle. This appears to be Blau's original intent, but I think that the theory reveals more continuity when all six axioms are employed.

Table 3: *Creating Abstract Axioms for the Theory*

1. *Propinquity Principle:* The more proximate positions in a system, the more likely are social associations among people in those positions.
2. *Opportunity Principle:* The more opportunities for contact among people in a system, the more likely are social associations among people.
3. *Size Principle*: The greater the size difference between two groups distinguished by a parameter, the more likely are social associations among members in the smaller group with the larger group to exceed those of the larger with the smaller.
4. *Mobility Principle*: The greater the rate of mobility of people in a system, the more likely are social associations among people.
5. *Multiple Parameter Principle*: The more multiple parameters intersect and remain unconsolidated, the more likely are social associations among people.
6. *Structural Effects Principle:* The more multiple parameters intersect or consolidate, the more likely is their effect on social associations to exceed the additive effects of the parameters alone.

coherent, since precise deductions to specific forms of inequality or heterogeneity can be made. These deductions will involve the application of one or more axioms to general types of empirical conditions. The vehicle for such deductions should be an abstract theorem which introduces a general social structural condition and shows how some combination of axioms can "explain" the pattern of social associations evident under this general condition. Then, specific empirical propositions can be deduced from the theorem to demonstrate how the theorem can explain specific events in more concrete empirical contexts. Let me illustrate this approach for theorems 25, 26, 29, and 30 listed in Table 1.

Theorem 26 can be derived from axioms 1, 2, 5, and 6. The existence of differentiated groups as sub-structures within a more inclusive system promotes proximity of positions, creates opportunities to communicate, prevents consolidation of parameters, and promotes the structural effects of intersecting parameters. The division of labor in work organizations (theorems 29 and 30) and differentiation within (rather than among) communities (25) all represent applications of theorem 26 to specific types of empirical contexts. Thus, rather than representing equivalent theorems, these propositions can be arranged hierarchically in the following form: The axioms represent, as Blau intends, general premises; theorem 26 denotes a general type of of empirical condition (differentiated sub-structures that cut across more inclusive structures); and theorems 25, 29, and 30 represent specific instances (differentiation in work organizations, departments, and communities) of the general empirical condition denoted by theorem 26; and the specific propositions in the theorem sets for these empirical propositions (25.1, 25.11, 25.12, 25.2, 25.21, 25.3; 29.1, 29.2, 29.21, 29.22, 29.3; and 30.1, 30.2, 30.3) are all further specifications of the general empirical conditions covered by theorem 26 as it is deduced from axioms 1, 2, 5, and 6. This deductive form requires that only proposition 26 in Table 1 be considered a true theorem. Propositions 25, 29, and 30 and their respective "sets" are not theorems, but propositions about specific empirical conditions that can be derived from theorem 26 and the axioms.

When this form of deduction is employed, only some of Blau's thirty-four propositions in Table 1 are sufficiently abstract to qualify as true "theorems." Many represent highly specific instances of the general empirical conditions denoted by an abstract theorem. Others can be consolidated and re-worded to become an abstract theorem. Still others can be abandoned because they represent definitions or tautologies that are less critical to the deductive system.

In Table 4, I have presented a tentative list of abstract theorems contained in Blau's theory. These are directly deducible from at least one of the six axioms in Table 3 and represent the application of these axioms to *general types* of empirical conditions. All of Blau's other theorems in Table 1 that are not incorporated into this list are either definitional tautologies or specific instances of the abstract theorems listed in Table 4. By performing this exercise, the number of theorems is reduced from thirty-four to thirteen. Thus, at its present state of development, the essence of Blau's theory consists of six axioms and thirteen theorems, plus a large number of proposi-

Table 4: *The Revised Theorems*

1. The more the salience of a parameter influencing intergroup relations is altered, the more the minority's relations with the majority are changed than the majority's with the minority. (From A-3 in Table 3)
2. The greater the inequality among social strata in a system of status rankings, the less social association among their members. (From A-1, 2, 3, 4)
3. The more a social stratum is above the median in a system of status rankings, the greater is the rate of association of the upper stratum with the lower strata than the lower strata's associations with the upper. (From A-3)
4. The greater the rate of mobility among social strata in a system of status rankings, the more prevalent are associations among their members. (From A-1, 2, 4)
5. The greater the heterogeneity among groups in a system, the greater is their rate of social association. (From A-2, 5)
6. The greater the propinquity among groups in a system, the more extensive are their intergroup relations. (From A-1)
7. The lower the positive correlations among parameters delineating groups, the more extensive are intergroup relations. (From A-5, 6)
8. The more group size in terms of one nominal parameter declines, the more likely are intergroup relations in terms of other intersecting parameters. (From A-3, 6)
9. The more parameters intersect, the greater is the social mobility. (From A-1, 2)
10. The more a subgroup within a larger group can be delineated by a nominal parameter, the more relations within the subgroup exceeds outgroup relations. (From A-1, 2)
11. The more nominal and graduated parameters are consolidated, the greater is their effect on superordination in intergroup relations. (From A-5, 6)
12. The greater the size and population density of a system, the more likely are social associations among many different persons. (From A-1, 2)
13. The further system differentiation penetrates into succesive subunits, the more it promotes social associations and intergroup relations. (From A-1, 2, 5)

tions that can be derived from these theorems and applied to specific empirical contexts. One beneficial consequence of reducing the number of abstract propositions in this way is that neglected areas of inquiry as well as inconsistencies in the theory are more readily exposed, with the result that reformulation, revision, and expansion of the theory is facilitated. Indeed, my intent in this modest proposal for reformulation is to present the theory in a way that will encourage others to build from the theoretical foundation laid by Blau.

Another beneficial consequence of making Blau's theory more deductive in format is that theoretically oriented research inquiry is encouraged. For empirically inclined scholars, it is a relatively easy task to take any of the many empirical propositions (that is, the generalizations in Blau's many "theorem sets") and test out their implications. But contrary to so much empirical work in sociology, these tests will have implications for the abstract theory from which they are deduced.

Conclusion

In sum, Blau's brilliant book has significantly advanced the sociological enterprise by providing inspiration for theorists and researchers alike. His theory is distinctly sociological in its focus on social structure—that is, on the properties of what goes on *between*, rather than on what goes on *in*, people. Equally important, the theory abandons sociology's obsession with causal modeling by recognizing that deductive theory promises considerably more intellectual pay-off than correlational techniques that line up variables in causal sequences. For reasons of theoretical substance and strategy, then, *Inequality and Heterogeneity* is one of the most important theoretical works ever written in sociology.