[*Sociological Theory*, Volume 1 (1983), 201-233.]

In this chapter I review empirical studies directly testing the hypotheses of my 1973 paper "The Strength of Weak Ties" (hereafter "SWT") and work that elaborates those hypotheses theoretically or uses them to suggest new empirical research not discussed in my original formulation. Along the way, I will reconsider various aspects of the theoretical argument, attempt to plug some holes, and broaden its base.

7

THE STRENGTH OF WEAK TIES: A NETWORK THEORY REVISITED

Mark Granovetter

STATE UNIVERSITY OF NEW YORK, STONY BROOK

The Argument Recapitulated

The argument asserts that our acquaintances *(weak ties)* are less likely to be socially involved with one another than are our close friends *(strong ties)*. Thus the set of people made up of any individual

I am indebted to Everett Rogers who first suggested this study, inviting it for a special session of the International Communications Association meetings on the weak-ties hypothesis. The first version was delivered at this session in Acapulco on May 21, 1980. A version closer to the present one was delivered at the conference on Structural Analysis, April 4, 1981, SUNY-Albany. I am indebted to participants in these two conferences for their generous comments — especially Fernando Morett, Scott Feld, Nan Lin, and Ronald Rice. This chapter has also drawn heavily from the comments and literature review of Ellen Granovetter.

and his or her acquaintances comprises a low-density network (one in which many of the possible relational lines are absent) whereas the set consisting of the same individual and his or her *close* friends will be densely knit (many of the possible lines are present).

The overall social structural picture suggested by this argument can be seen by considering the situation of some arbitrarily selected individual — call him Ego. Ego will have a collection of close friends, most of whom are in touch with one another — a densely knit clump of social structure. Moreover, Ego will have a collection of acquaintances, few of whom know one another. Each of these acquaintances, however, is likely to have close friends in his own right and therefore to be enmeshed in a closely knit clump of social structure, but one different from Ego's. The weak tie between Ego and his acquaintance, therefore, becomes not merely a trivial acquaintance tie but rather a crucial bridge between the two densely knit clumps of close friends. To the extent that the assertion of the previous paragraph is correct, these clumps would not, in fact, be connected to one another at all were it not for the existence of weak ties (SWT, p. 1363).

It follows, then, that individuals with few weak ties will be deprived of information from distant parts of the social system and will be confined to the provincial news and views of their close friends. This deprivation will not only insulate them from the latest ideas and fashions but may put them in a disadvantaged position in the labor market, where advancement can depend, as I have documented elsewhere (1974),on knowing about appropriate job openings at just the right time. Furthermore, such individuals may be difficult to organize or integrate into political movements of any kind, since membership in movements or goal-oriented organizations typically results from being recruited by friends. While members of one or two cliques may be efficiently recruited, the problem is that, without weak ties, any momentum generated in this way does not spread *beyond* the clique. As a result, most of the population will be untouched.

The macroscopic side of this communications argument is that social systems lacking in weak ties will be fragmented and incoherent. New ideas will spread slowly, scientific endeavors will be handicapped, and subgroups separated by race, ethnicity, geography, or other characteristics will have difficulty reaching a *modus vivendi.* These

themes are all taken up in greater detail, with supporting evidence, in SWT.

I now wish to review the past eight years' literature on weak ties. First, I will review work focusing on the impact of weak ties on individuals, then work relating to the flow of ideas and the sociology of science, and, finally, work evaluating the role of weak ties in affecting cohesion in complex social systems.

The Impact of Weak Ties on Individuals

An early draft of SWT was entitled "Alienation Reconsidered: The Strength of Weak Ties." In this draft I argued that weak ties, far from creating alienation, as one might conclude from the Chicago school of urban sociology—especially from Louis Wirth—are actually vital for an individual's integration into modern society. Upon further reflection it is clear that this argument is closely related to certain classic themes in sociology. In the evolution of social systems, perhaps the most important source of weak ties is the division of labor, since increasing specialization and interdependence result in a wide variety of specialized role relationships in which one knows only a small segment of the other's personality. (See the perceptive comments of Simmel, 1950, pp. 317–329.) In contrast to the emphasis of Wirth, and also Toennies, that role segmentation results in alienation, is the Durkheimian view that the exposure to a wide variety of different viewpoints and activities is the essential prerequisite for the social construction of individualism.

In a provocative article, Rose Coser (1975) takes up some of these themes. She describes the complexity of role set—to use Robert Merton's expression for the plurality of others with whom one has role relations—as a "seedbed of individual autonomy." In Simmel's view, she recalls, "the fact that an individual can live up to expectations of several others in different places and at different times makes it possible to preserve an inner core, to withhold inner attitudes while conforming to various expectations" (p. 241). Furthermore, persons "deeply enmeshed in a *Gemeinschaft* may never become aware of the fact that their lives do not actually depend on what happens within the group but on forces far beyond their perception and hence beyond their control. The *Gemeinschaft* may prevent individuals from articulating

their roles in relation to the complexities of the outside world. Indeed, there may be a distinct *weakness in strong ties"* (p. 242).

Coser then elaborates the cognitive ramifications of this conundrum: "In a *Gemeinschaft* everyone knows fairly well why people behave in a certain way. Little effort has to be made to gauge the intention of the other person. . . . If this reasoning is correct . . . the manner of communication will tend to be different in a *Gesellschaft*. Hence, the type of speech people use should differ in these two types of structures" (p. 254). She relates this difference to Basil Bernstein's distinction between *restricted* and *elaborated* codes of communication. Restricted codes are simpler—more meanings are implicit and taken for granted as the speakers are so familiar with one another. Elaborated codes are complex and universal—more reflection is needed in organizing one's communication "when there is more difference between those to whom the speech is addressed" (p. 256). While some weak ties may connect individuals who are quite similar, of course, there is, as I pointed out in SWT, "empirical evidence that the stronger the tie connecting two individuals, the more similar they are, in various ways" (p. 1362). Thus Coser's argument applies directly to the distribution of weak and strong ties. She concludes that in "elaborated speech there is a relatively high level of individualism, for it results from the ability to put oneself in imagination in the position of each role partner in relation to all others, including oneself" (p. 257). She goes on to argue that the social structure faced by children of lower socioeconomic backgrounds does not encourage the complex role set that would, in turn, facilitate the development of "intellectual flexibility and self-direction" (p. 258).

This discussion casts a different light on some of the arguments of SWT. There I argued that while West Enders, for example, did have some weak ties, they were embedded within each individual's existing set of strong ties rather than bridging to other groups. I interpreted this lack of bridging as inhibiting organization because it led to overall fragmentation and distrust of leaders. Coser's argument suggests further that *bridging* weak ties, since they do link different groups, are far more likely than other weak ties to connect individuals who are significantly different from one another. Thus, in addition to the overall macrostructural effect of bridging weak ties, I could also have argued that they are exactly the sort of ties that lead to complex role sets

and the need for cognitive flexibility. The absence of flexibility may have inhibited organization against urban renewal, since the ability to function in complex voluntary organizations may depend on a habit of mind that permits one to assess the needs, motives, and actions of a great variety of different people simultaneously.

There is no special reason why such an argument should apply only to lower socioeconomic groups; it should be equally persuasive for any set of people whose outlook is unusually provincial as the result of homogeneous contacts. In American society there is thus some reason for suggesting that upper-class individuals as well as lower-class people may suffer a lack of cognitive flexibility. Baltzell (1958) and others have described in detail the cloistered features of upper-class interaction; Halberstam (1972) has suggested that such a social structure creates inflexibility in the form of arrogance and a sense of infallibility and had much to do with American involvement in the Vietnam War.

At a more mundane level, I argued (SWT, pp. 1369–1373; 1974, pp. 51–62) that weak ties have a special role in a person's opportunity for mobility — that there is a "structural tendency for those to whom one is only weakly tied to have better access to job information one does not already have. Acquaintances, as compared to close friends, are more prone to move in different circles than oneself. Those to whom one is closest are likely to have the greatest overlap in contact with those one already knows, so that the information to which they are privy is likely to be much the same as that which one already has" (1974, pp. 52–53). In my empirical study of recent job changers (1974), I found, in fact, that if weak ties are defined by infrequent contact around the time when information about a new job was obtained, then professional, technical, and managerial workers were more likely to hear about new jobs through weak ties (27.8 percent) than through strong ones (16.7 percent), with a majority in between (55.6 percent).

Three pieces of empirical research offer partial confirmation of this argument. Langlois (1977) studied a large sample of men and women in a branch of the Quebec provincial government. Langlois notes that even though this branch had "attempted to formalize the recruitment of its members as much as possible" (p. 217), 42.7 percent of the 2,553 individuals in the sample found their jobs through personal contacts. Using frequency of recent contact as the definition of tie

strength (but with slightly different cutting points from mine), he also found that weak ties were indeed often the ones that resulted in a new job, but the pattern varied strongly by occupation. Administrative or managerial employees had a pattern very much like the one I reported: 35.5 percent using weak ties, 15.8 percent strong ones, and 48.7 percent intermediate. Professionals and officeworkers also were heavy users of weak ties (30.8 percent and 25.8 percent but, unlike managers, used strong ties even more frequently (51.0 and 44.4 percent). Semiprofessionals found only 13.1 percent of jobs through weak ties and blue-collar workers 19.1 percent; the former found 44.9 percent of jobs through strong ties, the latter only 19.1 percent.

Ericksen and Yancey (1980) studied a probability sample of 1,780 adults aged sixty-five and under living in the Philadelphia area in 1975. Respondents who had significant help from another person in finding their current job were classified as having used ties (1980, p. 14). If the person providing the help was identified as a relative or friend of the respondent, the tie was considered strong. If the person was classified as an acquaintance, the tie was considered weak. Ericksen and Yancey note that most acquaintances were work-related and about two thirds of the strong ties were relatives. A majority of respondents used some form of personal connection to land the job. Of those who were not self-employed, 41.1 percent used strong ties, 15.6 percent weak ties, and 43.3 percent formal means or direct application (p. 15). It is hard to compare this classification of ties to my trichotomy — the operational definitions are different, there are two categories instead of three, and the population at risk here is of broader socioeconomic background.

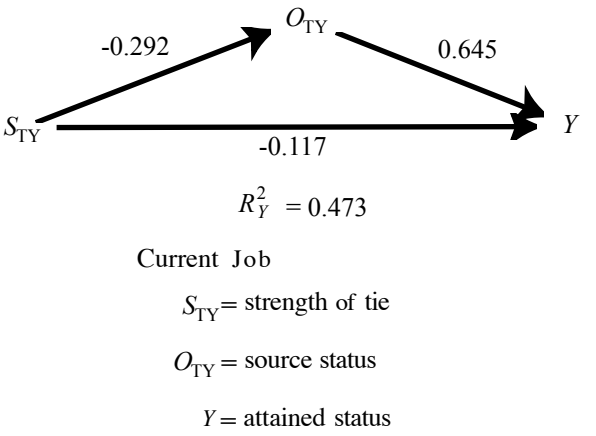
One set of results is of special interest, however. Ericksen and Yancey found that less-well-educated respondents were those most likely to use strong ties for jobs: "The rate drops among respondents who attended college and is balanced by a correspondingly large increase in the likelihood of using weak ties and a slight increase in the use of bureaucratic procedures" (p. 24). In fact, 31 percent of managers used weak ties in finding jobs, a figure close to that found by Langlois, though 30 percent used strong ties, a larger figure than in the Canadian sample. Regression analysis was then implemented to detemine whether the strength of ties used had any impact on income (net of other variables). Results indicated that the use of strong ties had no consis-

tent impact; for weak ties, the overall effect on income is substantial and negative—opposite to the predictions of the weak-ties hypothesis. But there is a significant weak-ties/education interaction (pp. 24–25): "Weak ties actually lead to a reduction in income among the poorly educated, but . . . this reduction grows smaller with increasing levels of education such that there is a small increase among high school graduates . . . and this increase grows larger with further increases in education. Thus, for that group of well-educated respondents where weak ties are most likely to be used we see that the effects of using the weak ties are most positive."

Lin, Ensel, and Vaughn (1981) use similar definitions of weak and strong ties to probe the relation between tie strength and occupational status attainment for a representative sample of men aged twenty to sixty-four in an urban area of upstate New York. Those ties identified by respondents as acquaintances or friends of friends were classified as weak whereas friends, relatives, or neighbors were considered strong ties. Their method was essentially similar to that used by researchers such as Blau, Duncan, and Featherman—the construction of structural equation models, or path analyses, to measure the relative contribution of different independent variables to some dependent variable, in this case occupational status (as measured by the Duncan Socioeconomic Index). Their central finding was this: The use of weak ties in finding jobs has a strong association with higher occupational achievement only insofar as the weak ties connect the respondent to an individual who is well placed in the occupational structure. This conclusion is illustrated in the path diagram from their article (Figure 1).

For the first job, the direct combination of tie strength is negligible; for the current one it is larger but still less than the indirect effect. The indirect effect is large because the great majority of weak ties used in finding jobs connected respondents to high-status individuals: 76.2 percent of weak ties (compared to 28.9 percent of strong ones) for the first job and 70.7 percent (compared to 42.9 percent of strong ones) for the current job were to informants of high occupational status (defined as a score of 61 to 96 on the Duncan scale). The most likely interpretation of these findings is that weak ties are more efficient at reaching high-status individuals, so that if such ties are available they are preferred. But since only 34 percent of jobs in this sample were found through weak ties (among those whose job was found through social

Figure 1. Effects of Tie Strength and Source Status on Attained Occupational Status.



ties) it appears that many individuals had no choice but to fall back on strong ties.

These studies clarify the circumstances under which weak ties provide unusual advantage. The argument of SWT implies that only ***bridging*** weak ties are of special value to individuals; the significance of weak ties is that they are far more likely to be bridges than are strong ties. It should follow, then, that the occupational groups making the greatest use of weak ties are those whose weak ties do connect to social circles different from one's own. In Langlois's Canadian study, the most frequent users are managers and professionals—just the categories, to use Robert Merton's terms, most likely in an organization to be cosmopolitans rather than locals and most likely to deal with acquaintances in other organizations or other branches of the same organization. Homans has argued that high-status individuals are more likely in all groups to have contacts outside the group (1950, pp. 185-186).

Ericksen and Yancey too find managers to be the group with the highest frequency of jobs found through weak ties. How should we interpret the interaction effect, in their data, between weak ties and education in determining income? I suggest that in lower socioeconomic groups, weak ties are often not bridges but rather represent friends' or relatives' acquaintances; the information they provide would then not constitute a real broadening of opportunity—reflected

in the fact that the net effect of using such ties on income is actually negative. In higher groups, by contrast, weak ties do bridge social distance; thus if there are no lucrative job openings known to one's own social circle at a given moment, one may still take advantage of those known in other circles. Here the net effect of weak ties on income is strongly positive.

Consistent with this interpretation is the finding of Lin and colleagues (1981) that weak ties have positive effects on occupational status only when they connect one to high-status individuals. For those of lower status, weak ties to those of similar low status were not especially useful, whereas those to high-status contacts were. In the latter case the status difference alone strongly suggests that the ties bridged substantial social distance. When high-status respondents use weak ties of similar status, there is no status difference to seize on for evidence that such ties bridge; here we must speculate that the hypothesized tendency of high-status individuals to have more bridges among their weak ties is in effect.

These interpretations, though consistent with the data, could be better supported by detailed field reports of the exact circumstances under which respondents used weak ties. Some findings, such as Langlois's, of great strong-tie use by professionals and little weak-tie use by semiprofessionals are simply not explained by the arguments of SWT and thus await further speculation.

Excursus on the Strength of Strong Ties

Lest readers of SWT and the present study ditch all their close friends and set out to construct large networks of acquaintances, I had better say that strong ties can also have value. Weak ties provide people with access to information and resources beyond those available in their own social circle; but strong ties have greater motivation to be of assistance and are typically more easily available. I believe that these two facts do much to explain when strong ties play their unique role.

A general formulation is suggested by Pool (1980), who argues that whether one uses weak or strong ties for various purposes depends not only on the number of ties one has at various levels of tie strength but also on the utility of ties of different strength. Thus people for whom weak ties are much more useful than strong ties may still be

constrained to use the latter if weak ties make up an extremely small portion of their contacts; conversely, one for whom strong ties are more useful may be socially isolated and forced to fall back on weak ones. Thus the analytic task is to identify factors affecting these variations. Pool argues, for example, that the number of weak ties is increased by the development of the communications system, by bureaucratization, population density, and the spread of market mechanisms. Further, he suggests that average family size affects the number of weak ties, since where "primary families are large, more of the total contacts of an individual are likely to be absorbed in them" (p. 5).

Peter Blau has suggested that since the class structure of modern societies is pyramidal, and since we may expect individuals at all levels to be inclined toward homophily—the tendency to choose as friends those similar to oneself—it follows that the lower one's class stratum, the greater the relative frequency of strong ties. This happens because homophilous ties are more likely to be strong and low-status individuals are so numerous that it is easier for them to pick and choose as friends others similar to themselves.' A literal interpretation of this comment would lead us to expect upper-status individuals to have large numbers of weak ties, since there are so few others of high status; it would further follow that many of these weak ties would then be to others of lower status, since the latter would be so numerous. This conclusion does not accord with ethnographic accounts of upper-class life that stress the importance of strong ties to other members of the upper class. But it does suggest why the upper class must invest so much in institutions such as private clubs, special schools, and social registers; the effort to maintain a network of homophilous strong ties is more difficult here than for lower strata. (See, for example, Baltzell, 1958.)

Important as it may be to know what an individual's total network looks like before we can assess the meaning of that person's use of a strong or weak tie, there exist few data that allow us to take this factor into account. It may be that recent work on the sampling of large social networks will allow us to make progress in this area. (See, for example, Granovetter, 1976, and Frank, 1981).

More can be said about the value to individuals of ties of different strength. Here Pool observes that "the utility of weak links is a function of the security of the individual, and therefore of his wealth. A

highly insecure individual, for example a peasant who might starve if his crop fails, is under strong pressure to become dependent upon one or a few strongly protective individuals. A person with resources on which he can fall back can resist becoming dependent on any given other individual and can explore more freely alternative options" (1980, p. 5).

This hypothesis can be strongly supported empirically. In my study of job finding, for example, I found that those whose job was found through strong ties were far more likely to have had a period of unemployment between jobs than those using weak ties (1974, p. 54). I suggested, moreover, that those in urgent need of a job turned to strong ties because they were more easily called on and willing to help, however limited the information they could provide. Murray, Rankin, and Magill (1981) studied social and physical scientists at one Canadian and one American university: Most found jobs through strong rather than weak ties. They interpret this finding as contradicting my hypothesis that salient job information derives from weak ties (p. 119). But more than 80 percent of their data concern first academic jobs—situations of considerable insecurity for new Ph.D.s who have few useful contacts in their discipline as yet and typically rely on mentors and dissertation advisers who know them and their work well. (This is the definition of strong tie used by Murray and colleagues.) They do find that the proportion using strong ties for jobs subsequent to the first is still high—47 percent versus 58 percent for first jobs—but the data for the 47 percent consist of about fifty individuals, in one university, where response rate barely exceeded 50 percent. Even if the figure were representative, it would need to be disaggregated by career stage; thus the present hypothesis suggests that as professors move further away from their first academic job, their reliance on strong ties should decline. The question of whether respondents face unemployment or not also would be relevant here; when individuals are denied tenure, for example, one would expect a greater reliance on strong ties, other things being equal, than if it were not strictly necessary to find a new job.

A purely theoretical model from economics bears directly on this question: Boorman (1975) used economic theory and network ideas to suggest when rational economic actors might choose to allocate their time and energy to weak ties as compared to strong ones. He assumes

that strong ties require more time to maintain than weak ones and that if one hears of a job, one offers the information to strong ties (if any are unemployed) and otherwise to weak ties. These simple assumptions lead to a complex mathematical model. The results, however, can be summed up simply: If the probability of unemployment in the system is low, rational individuals will invest all their time in weak ties and such a situation will be a Pareto-optimal equilibrium; for a high probability of unemployment, on the other hand, the only stable equilibrium is one in which only strong ties are maintained, though such an equilibrium is not Pareto-optimal. (That is, the situation of some actors could be improved without that of any others being worsened.) This model, based on assumptions and ideas entirely different from those reported in my theoretical and empirical work, ends up with remarkably similar conclusions—which suggests that more attention ought to be paid in such studies to the level of employment security enjoyed by different participants in the labor market. (Doorman's model is elaborated and extended in important ways by Delaney 1980.)

Employment difficulty is not the only occasion that prompts the use of strong ties. All sorts of everyday problems have this result. Summing up studies of helping networks in a Toronto suburb, Wellman indicates that the "closer (stronger)the intimate relationship (as measured by the respondents' ordinal ranking of the intimates), the more the perceived availability of help becomes a salient defining component of that tie. Closeness is apparently the single most important defining characteristic of helpful intimate relationships; . . . 56 percent of the first closest ranked intimates are relied on in emergencies . . . while only 16 percent of the sixth closest intimates are" (Wellman, 1979, pp. 1222–1223).

A number of studies indicate that poor people rely more on strong ties than do others. Ericksen and Yancey, in a study of Philadelphia, conclude that the "structure of modern society is such that some people typically find it advantageous to maintain strong networks and we have shown that these people are more likely to be young, less well educated, and black" (1977, p. 23). In their words: "Strong networks seem to be linked both to economic insecurity and a lack of social services. As long as the unemployment rate is high the threat of living in poverty is real, and as long as large segments of the population find access to medical services, day care, and social welfare services problem-

atic, we can expect to find reliance on strong networks to continue among them" (p. 28)

Two ethnographic studies demonstrate the same point: Stack (1974) studied a black, urban American, midwestern ghetto, Lomnitz (1977)a shantytown on the fringes of Mexico City. Without apparent knowledge of one another's work, and despite the enormous cultural differences between these two populations, the investigators came to nearly identical conclusions. Stack: "Black families living in the Flats need a steady source of cooperative support to survive. They share with one another because of the urgency of their needs. . . . They trade food stamps, rent money, a TV, hats, dice, a car, a nickel here, a cigarette there, food, milk, grits, and children. . . . Kin and close friends who fall into similar economic crises know that they may share the food, dwelling, and even the few scarce luxuries of those individuals in their kin network. . . . Non-kin who live up to one another's expectations express elaborate vows of friendship and conduct their social relations within the idiom of kinship" (1974, pp. 32–33, 40). Lomnitz: "Since marginals are barred from full membership in the urban industrial economy they have had to build their own economic system. The basic social economic structure of the shantytown is the reciprocity network. . . . It is a social field defined by an intense flow of reciprocal exchange between neighbors. The main purpose . . . is to provide a minimum level of economic security to its members" (1977, p. 209). The similarity extends also to the use of fictive kinship as both effect and cause of further reciprocity.

This pervasive use of strong ties by the poor and insecure is a response to economic pressures; they believe themselves to be without alternatives, and the adapative nature of these reciprocity networks is the main theme of the analysts. At the same time, I would suggest that the heavy concentration of social energy in strong ties has the impact of fragmenting communities of the poor into encapsulated networks with poor connections between these units; individuals so encapsulated may then lose some of the advantages associated with the outreach of weak ties. This may be one more reason why poverty is self-perpetuating. Certainly programs meant to provide social services to the poor have frequently had trouble in their outreach efforts. From the network arguments advanced here, one can see that the trouble is to be expected.

Weak Ties in the Spread of Ideas

In SWT I suggested application of the argument on weak ties to the study of innovation diffusion (1973, pp. 1365–1369). This suggestion has been taken up by Everett Rogers in his analysis of family planning over a ten-year period in rural Korean villages; in combination with other network variables, this argument helps explain the level of adoption in these villages (Rogers, 1979, pp. 155–157; Rogers and Kincaid, 1981, pp. 247–249).

This argument applies not only to the diffusion of innovations but to the diffusion of any ideas or information. It has been taken up especially with regard to the spread of cultural and scientific ideas. Fine and Kleinman, for example, in an article entitled "Rethinking Subculture: An Interactionist Analysis" (1979),assert that the sociological concept of subculture is deficient because it is stripped of its interactional origins and regarded mainly as a set of disembodied symbols. They confront, in particular, the paradox that large numbers of individuals, most of whom have never been in contact with one another, nevertheless manage to sustain common understanding and meanings—as in the example of youth culture. They reject the view that such a common culture can be mostly explained by the pervasive influence of mass media: "While media diffusion can result in widespread knowledge, one must not equate the extent of information spread with method of transmission. Much that is communicated by the mass media is not transmitted or used by audiences" (p. 9). Furthermore, many cultural items never transmitted by the media are known throughout an extensive network: "Youth cultures offer excellent examples of subcultures which provide a set of communication channels external to the media. Much material which is common knowledge among young people—dirty jokes, sexual lore, aggressive humor . . . —is not communicated by the adult-controlled media" (p. 9). They go on to suggest that the

> speed at which children's lore is spread across great distances . . . suggests the role of weak ties. In addition to the school peer group, children who have been geographically mobile may maintain friendships over many miles. The childhood pastime of having pen pals is an

> example of this phenomenon. Likewise, the distant . . . cousins who populate American extended families provide children with others with whom to compare their life situations and cultures. Since children's culture has both regional and local variations, these kin ties can provide a mechanism by which cultural traditions breach geographical chasms. . . . The spread of culture from an individual in one local social network to an acquaintance in another local social network seems to be a critical element for the communication of cultural elements within a subculture, [pp. 10–11]

One suggestive empirical study consistent with this argument was carried out by Lin, Dayton, and Greenwald (1978). Volunteers in a tri-city area of the eastern United States agreed to forward a booklet to designated but previously unknown target persons through a chain of personal acquaintances (see Milgram, 1967). Lin and colleagues investigated this question systematically by defining strength of tie in two different ways: by recency of contact and also by the type of relationship named by respondents sending the booklet along to the next person. Data based on both measures showed that successfully completed chains made much more use of weak ties. The authors sum up by saying that "participants in the successful chains tended to utilize fewer strong ties in their forwarding effort. The successful terminals [those who reached the target] dramatically showed that they had weak ties with the targets" (p. 163). While this experiment is artificial in the sense that no information or ideas were actually being transmitted with these booklets, the efficacy of weak ties in reaching socially distant and unknown targets suggests that the process cited by Fine and Kleinman to explain the diffusion of cultural ideas and symbols across wide segments of a society—via weak ties—may indeed operate as hypothesized.

What makes cultural diffusion possible, then, is the fact that small cohesive groups who are liable to share a culture are not so cohesive that they are entirely closed; rather, ideas may penetrate from other such groups via the connecting medium of weak ties. It is a seeming paradox that the effect of weak ties, in this case, is homogenization, since my emphasis has been the ability of weak ties to reach out to groups with ideas and information different from one's own. The paradox dissolves, however, when the process is understood to occur

over a period of time. The ideas that initially flow from another setting are, given regional and other variations, probably new. Homogeneous subcultures do not happen instantly but are the *endpoint* of diffusion processes. What cannot be entirely explained from arguments about diffusion is why groups in California and New York, with initially different orientations, adopt enough of one anothers' cultures to end up looking very similar. Weak ties may provide the possibility for this homogenization, but the adoption of ideas cannot be explained purely by structural considerations. Content and the motives for adopting one rather than another idea must enter as a crucial part of the analysis. The active role of individuals in a culture cannot be neglected lest the explanation become too mechanistic. Fine and Kleinman note that "culture usage consists of chosen behaviors. . . . Culture can be employed strategically and should not be conceptualized as a conditioned response. Usage of culture requires motivation and, in particular, identification with those who use the cultural items. Thus, values, norms, behaviors, and artifacts constitute a subculture only insofar as individuals see themselves as part of a collectivity whose members attribute particular meanings to these 'objects'" (1979, pp. 12–13).

This point can be clarified by contrasting the diffusion of subcultural items to that of scientific information. The scientific case is different in that the adoption of innovations is supposed not to be arbitrary, as in subcultures, but to be governed by accepted tests and standards. That the supposed difference is only one of degree is suggested by Chubin's model of scientific specialization (1976), which is similar to Fine and Kleinman's analysis of cultural groups. He points out that despite considerable division of labor in science, few problem areas are likely to be sociometrically closed—any scientific field has a center and a periphery, and the periphery may be defined by its members' weak ties with the center and to *other* scientific groups.

The importance of this notion is clear. If "the innovativeness of central units is shackled by vested intellectual interests (or perspectives) then new ideas must emanate from the margins of the network" (p. 460). Furthermore, as I suggested in SWT for the case of high-risk innovations (p. 1367), Chubin points out that marginals, in science, can better afford to innovate; the innovations, if useful, are seized on by the center. This sequence of events may go unnoticed because the "adoption is sure to affect the innovator's position in the specialty as

well. Weak ties are transformed; the former marginal may become the nucleus of a cluster" (p. 464). A similar position is taken by Collins (1974),who reports an empirical investigation of eleven laboratories in Britain, the United States, and Canada involved in the development and production of a certain type of laser. Arguing from his data and from theoretical considerations, Collins contends that the idea of an "invisible college" is misleading because it suggests too coherent an internal structure. For Collins the likely importance of weak ties in scientific innovations throws "serious doubt on the validity of the questionnaire response as a direct indicator of the flow of real scientific innovatory influence" (p. 169).

The most comprehensive attempt, in a scientific setting, to test empirically the validity of my arguments on weak ties is that of Friedkin (1980). He sent questionnaires to all faculty members in seven biological science departments of a large American university and received ninety-seven responses (71.3 percent of the relevant population). Two alternative definitions of weak tie led to similar outcomes. The results reported rest on the following definition: Two scientists were said to have a weak tie if one reported having talked with the other about current work, but the other made no such report. Where both made this statement about the other the tie was defined as strong. (See SWT, p. 1364 n., for a discussion of the definition of mutual choices as strong ties.)

Friedkin tests a number of my propositions systematically. One test concerns what I called *local* bridges—ties between two persons that are the shortest (and often the only plausible) route by which information might travel from those connected to one to those connected to the other (SWT, pp. 1364–1365). I argued that while not all weak ties should be local bridges, all such bridges should be weak ties—an argument central to the assertion that weak ties serve crucial functions in linking otherwise unconnected segments of a network. Friedkin found that there were eleven local bridges in the network; *all* were weak ties (1980, p. 414). Moreover, this result is much stronger than might have been expected by chance: 69 percent of ties among respondents were weak and 31 percent were strong. By a binomial test of significance, therefore, the chance of such a result, if ties were randomly chosen to be local bridges, would be only 0.017.

Other findings predicted in SWT materialize strongly in these data. I argued, for example, that the stronger the tie between two people, the greater the extent of overlap in their friendship circles. I contended too that people with strong ties to third parties are more likely to be acquainted than are those with weak ties to those parties, who in turn are more likely than if they had no mutual friends. All these propositions are verified in substantial detail (Friedkin, 1980, pp. 415-417). Friedkin concludes that this "evidence suggests that local bridges tend to be weak ties because strong ties encourage triadic closure, which eliminates local bridges. Other things being equal, weak local bridges will tend to be maintained over time, while strong local bridges will tend to be eliminated" (p. 417). Finally, the hypothesis that intergroup ties (as opposed to intragroup ties) consist disproportionately of weak ties is assessed: 77 percent of interdepartmental ties, compared to 65 percent of intradepartmental ties, are weak ties ($p = 0.002$).

The assertions about bridging can also be cast in terms of transitivity — the tendency of one's friends' friends to be one's friends as well. In SWT I asserted that transitivity could be expected of strong ties, but not especially of weak ones, since the rationale for transitivity — if A chooses B and B chooses C, it is inconsistent for A not to choose C — is irrelevant for weak ties: A may not even know C, and if he does he will not find it inconsistent not to be interacting with his acquaintance's acquaintance (SWT, p. 1377). In a study of an Israeli kibbutz with 280 members, Weimann (1980) measured the strength of ties by tenure, importance, and frequency. Using a program written by Samuel Leinhardt (SOCPAC II) that compares the frequency of transitive triads to that expected by chance, Weimann found that "networks of strong ties are significantly tending to transitivity, while networks of weak ties lack this tendency, and in some cases even tend to intransitivity. . . . Weak ties, relatively free from the tendency to transitivity, are less structured, thus enabling them the role of bridging separate cliques or subgroups, carrying information to all the network's segments" (1980, pp. 16–17).

Weimann finds also, however, that strong ties are not irrelevant in information flow — the speed of flow, credibility, and especially influence are all greater through strong ties and, in fact, "most of the influence is carried through strong ties" (1980, p. 12). He suggests a

division of labor between weak and strong ties: Weak ties provide the bridges over which innovations cross the boundaries of social groups; the decision making, however, is influenced mainly by the strong-ties network in each group (p. 21).

Weimann also points out that weak ties play an important cohesive role in the kibbutz—a social unit formerly regarded as tightly organized. "Encouraged by growing heterogeneity, the process of segmentation . . . limited the power of traditional social forces and threatened some of the basic principles of the kibbutz, namely direct democracy, equality, and participation. . . . Conversation networks in a kibbutz play . . . the role of social control mechanism: Gossip becomes one of the social forces suppressing deviants and keeping the obedience to the common norm. . . . By the transmission of gossip items (mainly in weak ties, as shown in this research), the kibbutz social system can keep solidarity, sanctions, and obedience in a heterogeneous, segmented social group" (1980, pp. 19–20).

Friedkin points to the need for greater precision about the regularity and type of information transmitted through different kinds of ties:

> Granovetter's theory, to the extent that it is a powerful theory, rests on the assumption that local bridges and weak ties not only represent opportunities for the occurrence of cohesive phenomena . . . but that they actually do promote the occurrence of these phenomena. A major empirical effort in the field of social network analysis will be required to support this aspect of Granovetter's theoretical approach. . . . It is one thing to argue that when information travels by means of these ties it is usually novel, and, perhaps, important information to the groups concerned. It is another thing to argue that local bridges and weak ties promote the regular flow of novel and important information in differentiated structures. One may agree with the former and disagree with the latter. If we accept the proposition that regular flows of information depend on the presence of multiple short paths between persons, than a local bridge does not represent a likely path of information flow, though it represents a possible path of such flow. . . . One might argue that such information as does flow by means of local bridges is crucial to the social integration of differ-

> entiated populations, that is, that regular flows of information between differentiated groups are not crucial to their systemic integration. If so, one is asserting that there are different bases of macro and micro integration; for example, that macrointegration can be based on weak ties which permit episodic transmissions of information among groups, while microintegration is based on a cohesive set of strong ties which permit regular transmissions within groups. [1980, pp. 421–4221

Weak Ties and Social Organization

Friedkin's emphasis on weak ties as the basis of macrolevel rather than microlevel integration is similar to Peter Blau's argument that since "intimate relations tend to be confined to small and closed social circles . . . they fragment society into small groups. The integration of these groups in the society depends on people's weak ties, not their strong ones, because weak social ties extend beyond intimate circles (Granovetter, 1973) and establish the intergroup connections on which macrosocial integration rests" (Blau, 1974, p. 623).

In this section, therefore, I consider a number of studies that address the role of weak ties in organizing groups larger than the primary groups of microsociology. Two such studies consider the problem of integration of diverse groups within formal organizations. Karweit, Hansell, and Ricks (1979)do not present new data but rather a stimulating review of the literature on how features of peer groups within schools affect the educational aspirations and achievements of their members. After noting that numerous investigations have sought to document the socializing power of the peer group, they remark: 'The dyadic view implies that peer socialization to different values occurs only through close friendship ties. However, other peer relationships — such as admiration for someone quite different from oneself — may be more important socialization sources than close friendships" (p. 19). (Recall the evidence cited in SWT that ties to those very different from oneself are much more likely to be weak than strong, p. 1362.) Further, they question whether it is proper policy to create a situation where the values of one group in school (such as high-achievers) can be efficiently assimilated by others. A more desirable peer structure, they suggest, would be one in which "diverse cul-

tures can exchange information and support without necessarily becoming more similar" (p. 19).

They then consider how my argument about weak ties may be applied to biracial school settings in the United States, suggesting that "racial integration in the classroom can be achieved by arranging classroom structures to produce enough weak contacts to connect black and white cliques, rather than by encouraging strong biracial friendships [the usual strategy]. This result would be immediately applicable in schools because weak ties are easier to stimulate through realistic organizational innovations. . . . If the idea that racial integration has to occur in strong contacts at the dyadic level can be relaxed, many possibilities for planned intervention in schools to foster racial accommodation become feasible" (p. 20). Finally, Karweit and colleagues suggest that a "good deal of students' alienation from school may be associated with their lack of indirect contacts with student leaders and their consequent inability to contribute to student decision-making processes" (p. 26). This point is reminiscent of my argument in SWT that West Enders in Boston may have been loath to join the fight against urban renewal because a lack of bridging weak ties left most of them without even indirect access to leaders of such an organization. If the same argument applies to school settings, the strategy of encouraging bridging weak ties, suggested by Karweit and colleagues, could have the effect not only of linking culturally different groups but of reducing student alienation and increasing social solidarity.

Judith Blau presents a case study of successful integration in a children's psychiatric hospital in New York City (1980) and argues that this integration can only be understood by considering the role of an extensive network of weak ties. This public hospital has a staff of two hundred and serves severely impaired children. Treatment is difficult and outcomes uncertain. Although comparable institutions elsewhere are marked by high staff turnover and low morale, Blau notes that this is decidedly not the case at the Childrens' Center. She attributes the high morale at the center to the surprising predominance of weak ties among staff members—so many that "all two hundred staff members are on a first-name basis" (p. 6). Interaction is so evenly distributed that there is an absence of cliques, though she did discover "a highly differentiated system of specialized staff relations" forming stable subnetworks (p. 8).

These subnetworks have many different foci of organization reflecting the complex arrangement of the hospital into departments (Psychology, Nursing), committees, programs (art, recreation), residential units, and clinical teams focused on specific sets of patients. If the ties in these stable subnetworks were strong, by my argument this would tend to close them off from one another, so that they would develop into cliques; the overwhelming predominance of weak ties, even if structured, produces and maintains, instead, a situation in which each subnetwork overlaps extensively with many others, and a large number of the weak ties serve bridging functions. Blau found, for example, that neither "homogeneous work groups nor strong friendship relations could be identified. . . . The institution's intolerance of close dyadic ties is expressed by the ritualized avoidance patterns among those who have a sexual or family alliance outside of the institution. . . . This suggests . . . that in a complex structure . . . extensive weak networks can remain viable only when close ties are prohibited. . . . For when dimensions of structure intersect and staff are integrated in subnets of multiple crosscutting role relations, close bonds with some will threaten working relations with others" (pp. 20-21). Further, "an individual's access to opportunities and resources can only be fully exploited if he or she is linked with others in diverse positions furnishing different information, but strong ties tend to involve closed circles that limit [such] access. . . . Since information is so widely diffused throughout the hospital structure, it is imperative for staff to sustain bridging intergroup connections, further weakening bonds of ingroup solidarity" (p. 21).

Relating her findings to organization theory, Blau notes that the problem of integrating large numbers of diverse specialists in a formal setting is not simple; in the present case, there are psychiatrists, social workers, doctors, dentists, teachers, art and music therapists, and learning disability specialists, as well as the usual aides. The standard solution to this problem is strong mechanisms of control built into a formal hierarchy. As an alternative to this formal solution some clinics have tried to create "familylike and egalitarian relations." Blau points out, however, that both solutions exhibit forms of strong ties (p. 19). In the bureaucratic solution, the ties are hierarchical; in the democratic clinics, many of which have reacted against the formal model, "tenacious ties provide a matrix of close primary group relations unifying

the entire structure. These strong ties strikingly resemble patterns observed in small communities, summer camps, and Jesuit monastic orders" (p. 20). Thus the weak-tie solution of the Bronx psychiatric hospital seems significantly different from either of these patterns. Blau implies that it is better by associating the hierarchical pattern with ineffectual coordination of health care delivery; one might assume, moreover, that the democratic solution, which depends on a network of strong ties to bind an institution together, would be severely limited regarding the size of the system so bound. Attempts to extend the size of institutions would confront the constraint that individuals could not sustain the requisite number of strong ties, leading to fragmentation of the institution into cliques with a corresponding loss of morale and integration.

If the weak-tie mode of organizational integration is in fact efficient and leads to high morale and good services for the general theoretical reasons Blau suggests, can the model be exported to similar settings? To answer this question we must understand how such a pattern came about originally. Blau suggests that there was a conscious attempt to develop a new kind of structure, but it is unclear whether the founders understood the structural implications of their early decisions.

In a larger setting, that of entire communities, Breiger and Pattison (1978) use the methods of blockmodeling (see White, Boorman, and Breiger, 1976) to argue that weak ties play the bridging roles I have suggested in integrating communities and that, moreover, it would be possible to infer the weak versus strong quality of certain ties entirely from algebraic manipulation and reduction of the raw sociometric data even without other information. They take sociometric data collected by Laumann and numerous associates (Laumann and Pappi, 1976; Laumann, Marsden, and Galaskiewicz, 1977) in a German city, Altneustadt, and an American one called Towertown (both pseudonyms). Though the patterns are different in the two cities, Breiger and Pattison show that they share certain structural features suggesting the importance of weak ties. In technical terms, the joint homomorphic reduction of the two blockmodel semigroup multiplication tables generates a common structure in which certain algebraic relations are satisfied—relations that would be predicted by the arguments of SWT.

In their analysis Breiger and Pattison studied three types of ties in the two communities — social, community affairs, and business-professional — and found that social ties function as strong ties, that business-professional ties are weak, and that community-affairs ties are strong in relation to business ties but weak in relation to social ones (1978, pp. 222–224). This characterization is consistent with the ethnographic accounts of the communities, even though it can be developed without knowledge of those accounts. While it is not possible here to give an adequate treatment of the mathematical complexities of the Breiger–Pattison analysis, it should be stressed that the algebraic role structure they predict on the basis of the weak-ties argument is not one that can be found empirically by any variety of curve fitting; the hypothesis is entirely falsifiable, but it is, in the present case, confirmed for the two communities.

In SWT I suggested that individuals with few weak ties were unlikely to mobilize effectively for collective action within their communities, arguing that the West Enders described by Gans were for this reason ineffective in fighting urban renewal. (See Gans, 1961, and my exchange with Gans on this question in *American Journal of Sociology*, September 1974.) Steinberg (1980) puts this suggestion into a general context, noting that there are "two dominant schools of thought on the relationship between community attachment and participation in organized protest." One is the mass society argument: Protest results from the "sudden activation of previously 'unattached' individuals or uprooted collectivities." The second school, largely in response to the first, argues that "attached individuals or organized collectivities are most likely to engage in sustained protest" (1980, p. 2). To argue the importance of weak ties in organization is a position halfway between these two; the second school has had little to say about preexisting social ties, and Steinberg notes the surprising "paucity of empirical research which systematically examines the social ties of the members of protest groups. . . . We need systematic microlevel inquiries that examine the social ties of initiators and initial recruits before and after the formation of conflict groups in different contexts as well as the effects of these ties" (p. 3).

Steinberg's own work is a longitudinal study that analyzed "the politically relevant social ties of the initiators and initial recruits in five

conflict groups mobilized around [different] educational issues in a suburban community" (p. 3). In all five cases, local school authorities resisted the dissidents' goals; as a result, they were forced to initiate new groups (p. 4). For all groups, Steinberg asked about preexisting ties between initiators and initial recruits, those among the recruits, and those between group members and nonmembers relevant to educational affairs. She found that of the seven individuals responsible for initiating the five groups, none was seriously integrated into the community; all were women who occupied a "marginal position in relation to the network of groups and individuals active in community affairs" (p. 17). Furthermore, of twenty initial members recruited directly by initiators, nineteen stemmed from preexisting ties and fifteen of these were weak; the other four were concentrated in one group. (Strong ties were those described by respondents as representing good friends.)

The group recruited on the basis of strong ties "was linked to the fewest organizations and individual memberships were concentrated in the same organizations which formed a dense network. Later recruits tended to join the same groups as the founders. Groups formed on the basis of weak ties, on the other hand, were linked to more organizations that were loosely knit and individual memberships tended to be scattered throughout these organizations" (p. 19). The strong-tie group was ultimately unsuccessful, whereas three of the other four groups were able to implement many of their aims. Steinberg concludes that although the initiators of successful groups were marginal individuals in the community, they were able to recruit people who had occupied leadership positions and were linked to a dense network of school activists. "The evidence suggests, tentatively, that where innovations are controversial, a mobilization strategy based on the activation of weak ties is more likely to facilitate adoption of the goal and integration into the school decision-making structure" (Steinberg, 1980, p. 25).

Here we see the intricate interplay between weak and strong ties in structuring outcomes and mediating the competing claims of various community groups. The final study to be reported also points to such an interplay and contains elements of conflict and cohesion. The study itself reports only the cohesion achieved by the business community; left implicit is the extent to which this cohesion may imple-

ment the goals of that community in conflict with those of competing groups such as labor or consumers. Bearden and colleagues studied interlocking directorates among American corporations—a tie between two corporations was said to exist when at least one individual sat on the boards of directors of both. It has long been noted that such interlocks permit interfirm control or collusion.

Ever since the investigation of interlocking directorates began early in the twentieth century, one of the persistent issues has been whether the corporate network consists of cliques (or interest groups), which might then be seen as competing with one another, or of one large densely connected web, reflecting the overarching influence of unity among capitalist leaders. A number of studies (reviewed in Bearden and others, 1975, pp. 1–16) have produced inconclusive results on this question.

The study to be reviewed here, Bearden and others (1975), is described in a widely circulated (though unpublished) paper; the most extensive study of interlocking directorates ever carried out in the United States, it covered the 1,131 largest American corporations during the period 1962–1973. From various sources Bearden and colleagues collected data on all 13,574 directors of these companies in 1962. In resolving the issue of interest groups versus one large connected network, Bearden and coworkers comment that if "all interlocks are treated as having equal strength, the whole network is so highly connected that the identification of cliques is very difficult." They point out, however, that when an officer of firm A sits on the boards of firms B and C, two types of interlocks are created. The A–B and A–C interlocks are functional or strong interlock ties since there is a direct connection between an officer of one corporation and the board of the other. This is the kind of interlock that might occur, for example, "when one company places someone on the board of another company because of stock ownership, buyer–seller relationship, or other functional relationship" (Bearden and others, 1975, p. 27). On the other hand, the individual from firm A also creates an interlock between the boards of firms B and C, which may have no direct business ties with one another. This interlock can then be seen as incidental, or weak. Another weak tie is the interlock created between two companies when an individual from outside the corporate world entirely—from a university or law firm, for example—sits on both boards.

Bearden and colleagues argue that in order to uncover cliques or interest groups it is necessary to compare the corporate network as a whole to that formed only by strong interlock ties. They find that when the *entire* network is analyzed, there is "no sign of interest groups . . . [but] lack of clustering reflects the prevalence of weak ties in the interlock network" (p. 60). When only strong ties are analyzed, definite cliques appear, "with banks playing the central roles in all the clusters" (p. 68). They comment:

> Recent interlock literature has produced contradictory indications about the survival of the "interest" groups uncovered by pre–World War II research. . . . It is our contention that both sides of the dispute are correct: The integration of New York, Boston, Chicago, Philadelphia, and California centers of business into a national and even international network of corporations has occurred simultaneously with the maintenance and further development of interest groups. . . . The intensive clusters are created by strong ties. . . : interfirm stockholding, . . . indebtedness, enduring economic interdependence. . . . Like the small groups studied by Granovetter, these intense ties tend to produce cliques which are in some ways competitive and exclusive of each other. The extensive national network is formed from weak ties. . . . They do not imply specific interfirm economic connections; instead they reflect an overall common orientation and interest, the need for common action across cliques, and a growing sense of national and international interdependence among large corporations. Thus . . . the network . . . contains both the coordinative leverage of weak ties and the cliquishness of strong ties; national cooperation among most firms as well as competitive antagonism between clusters; unity and conflict simultaneously. [pp. 51–52]

Their argument is oriented, then, to the force of weak intercorporate ties in creating cooperation and coordination in the national network of firms. It seems likely also that such ties play a role analogous to that highlighted by Fine and Kleinman in helping to maintain a common *cultural* consciousness among the managers of large corporations — in transmitting information and influences on stylistic matters, political judgments, and broad social trends. It could be

argued that such cultural homogeneity is a necessary condition for any large-scale corporate coordination.

The Question of Verification

In this account of empirical research bearing on the argument of SWT, I have shown that the argument has in fact been useful in clarifying a variety of phenomena ranging from effects of social relations on individuals, to the diffusion of ideas and innovations, to the organization of large-scale social systems. But still one may usefully ask: Do these studies show that the argument is empirically verified? Many of the studies cited did not set out systematically to test the argument of SWT. In some cases that argument came in handy to explain empirical findings that would have otherwise been anomalous. This is the case for Rogers, J. Blau, and Bearden and colleagues. While these studies certainly lend credence to the argument, the procedure for finding them — either personal contact with the authors or else their citation of SWT — is not an unbiased procedure for *testing* the argument. There is no way to know, for example, about empirical studies in which the SWT argument was considered, rejected, and not mentioned because it did not fit the facts; scholars can hardly be expected to cite every argument that does not help explain their anomalies.

Furthermore, a number of the studies cited are mainly theoretical efforts — proposing that, in their subject area, weak ties can be seen as serving important functions, but not actually bringing a substantial body of empirical data to bear on this assertion. The work of Coser, Boorman, Fine and Kleinman, Chubin, and Karweit and colleagues fits this category. These studies are more valuable in providing stimulating leads for future research than in providing direct confirmation of the argument.

Other studies have set out, as part of their work, to put the argument to a systematic test: Langlois; Lin, Ensel, and Vaughn; Ericksen and Yancey; Murray, Rankin, and Magill; Rogers; Lin, Dayton, and Greenwald; Breiger and Pattison; Weimann; Steinberg; and Friedkin have done so. The results of these studies are very encouraging, but not conclusive. As Friedkin points out, one needs to show not only that ties bridging network segments are disproportionately weak but also that something flows *through* these bridges and that whatever

it is that flows actually plays an important role in the social life of individuals, groups, and societies. While some of these studies do make such a showing, the case remains incomplete.

This review has also highlighted a crucial feature of the original argument that has important bearing on its verification: I have not argued that all weak ties serve the functions described in SWT — only those acting as bridges between network segments. Weak ties are asserted to be important because their likelihood of being bridges is greater than (and that of strong ties less than) would be expected from their numbers alone. This does not preclude the possibility that most weak ties have no such function. It follows that an important part of further specifying the argument would be more systematic investigation of the origin and development of those ties which bridge as compared to those which do not. In SWT I suggested that for a community to have many weak ties which bridge, there must be several distinct ways or contexts in which people may form them. I went on to point out that Charlestown (in Boston), which successfully fought urban renewal, as compared to the West End, which did not, had a rich organizational life and its male residents worked within the community. The implication was that weak ties formed in these contexts were more likely to bridge than weak ties that result by meeting friends of friends — in which case the new tie is clearly not a bridge. None of the work reviewed here has taken up this point; a recent paper by Feld (1981), however, develops a new theoretical perspective based on the issue of what social foci organize the formation of social ties. Work proceeding from this perspective may shed new light on the issues raised here. The most pressing need for further development of network ideas is a move away from static analyses that observe a system at one point in time and to pursue instead systematic accounts of how such systems develop and change. Only by careful attention to this dynamic problem can social network analysis fulfill its promise as a powerful instrument in the analysis of social life.

Note

1. Discussant's comments on the material in this chapter, which was presented as a paper at the Conference on Contributions of Network Analysis to Structural Sociology, Albany, N.Y., April 4, 1981.

References

BALTZELL, E. D.
1958 *Philadelphia Gentlemen: The Making of a National Upper Class.* Glencoe, 111.: Free Press.

BEARDEN, JAMES, AND OTHERS
1975 "The Nature and Extent of Bank Centrality in Corporate Networks." Paper presented at the 1975 meeting of the American Sociological Association, San Francisco.

BLAU, JUDITH
1980 "When Weak Ties Are Structured." Unpublished manuscript, Department of Sociology, State University of New York, Albany.

BLAU, PETER
1974 "Parameters of Social Structure." *American Sociological Review* 39(5):615-635.

BOORMAN, SCOTT
1975 "A Combinatorial Optimization Model for Transmission of Job Information Through Contact Networks." *Bell Journal of Economics* 6(1):216-249.

BREIGER, RONALD, AND PATTISON, PHILIPPA
1978 "The Joint Role Structure of Two Communities' Elites." *Sociological Methods and Research* 7(2):213-226.

CHUBIN, DARYL
1976 "The Conceptualization of Scientific Specialties.? *Sociological Quarterly* 17(4):448-476.

COLLINS, HARRY
1974 "The TEA Set: Tacit Knowledge and Scientific Networks." *Science Studies* 4:165–186.

COSER, ROSE
1975 "The Complexity of Roles as Seedbed of Individual Autonomy." In L. Coser (Ed.), *The Idea of Social Structure: Essays in Honor of Robert Merton.* New York: Harcourt Brace Jovanovich.

DELANY, JOHN
1980 "Aspects of Donative Resource Allocation and the Efficiency of Social Networks: Simulation Models of Job

Vacancy Information Transfers Through Personal Contacts." Ph.D. dissertation, Yale University.

ERICKSEN, E., AND YANCEY, W.

1977 "The Locus of Strong Ties." Unpublished manuscript, Department of Sociology, Temple University.

1980 "Class, Sector and Income Determination." Unpublished manuscript, Temple University.

FELD, SCOTT

1981 "The Focused Organization of Social Ties." *American Journal of Sociology* 86(5):1015–1035.

FINE, GARY, AND KLEINMAN, SHERRYL

1979 "Rethinking Subculture: An Interactionist Analysis." *American Journal of Sociology* 85(1):1–20.

FRANK, OVE

1981 "A Survey of Statistical Methods for Graph Analysis." *Sociological Methodology* 12:110–155.

FRIEDKIN, NOAH

1980 "A Test of the Structural Features of Granovetter's 'Strength of Weak Ties' Theory." *Social Networks* 2:411–422.

GANS, HERBERT

1961 *The Urban Villagers.* New York: Free Press.

GRANOVETTER, MARK S.

1973 "The Strength of Weak Ties." *American Journal of Sociology* 78(6):1360–1380.

1974 *Getting a Job: A Study of Contacts and Careers.* Cambridge, Mass.: Harvard University Press.

1976 "Network Sampling: Some First Steps." *American Journal of Sociology* 81:1287-1303.

HALBERSTAM, DAVID

1972 *The Best and the Brightest.* New York: Random House.

HOMANS, GEORGE

1950 *The Human Group.* New York: Harcourt Brace Jovanovich.

KARWEIT, NANCY, HANSELL, STEPHEN. AND RICKS, MARGARET

1979 "The Conditions for Peer Associations in Schools." Report no. 282, Center for Social Organization of Schools, Johns Hopkins University.

LANGLOIS, SIMON

1977 "Les Reseaux Personnels et la Diffusion des Informations sur les Emplois." *Recherches Sociographiques* 2:213-245.

LAUMANN, E., AND PAPPI, F.

1976 *Networks of Collective Action.* New York: Academic Press.

LAUMANN, E., MARSDEN, P., AND GALASKIEWICZ, J.

1977 "Community-Elite Influence Structures." *American Journal of Sociology* 83:594-631.

LIN, NAN, DAYTON, PAUL, AND GREENWALD, PETER

1978 "Analyzing the Instrumental Use of Relations in the Context of Social Structure." *Sociological Methods and Research* 7(2):149–166.

LIN, NAN, ENSEL, W., AND VAUGHN, J.

1981 "Social Resources, Strength of Ties and Occupational Status Attainment." *American Sociological Review* 46(4): 393-405.

LOMNITZ, LARISSA

1977 *Networks and Marginality.* New York: Academic Press.

MILGRAM, STANLEY

1967 "The Small-World Problem." *Psychology Today* 1(May): 62–67.

MURRAY, S., RANKIN, J., AND MAGILL, D.

1981 "Strong Ties and Job Information." *Sociology of Work and Occupations* 8(1):119–136.

POOL, ITHIEL

1980 "Comment on Mark Granovetter's 'The Strength of Weak Ties: A Network Theory Revisited.'" Read at the 1980 meeting of the International Communications Association, Acapulco, Mexico.

ROGERS, EVERETT

1979 "Network Analysis of the Diffusion of Innovations." In P. Holland and S. Leinhardt (Eds.),*Perspectives on Social Network Research.* New York: Academic Press.

ROGERS, EVERETT, AND KINCAID, D. LAWRENCE

1981 *Communication Networks: Toward a New Paradigm for Research.* New York: Free Press.

SIMMEL, GEORG
1950 *The Sociology of Georg Simmel*. (Translated and edited by Kurt Wolff.) New York: Free Press.

STACK, CAROL
1974 *All Our Kin*. New York: Harper & Row.

STEINBERG, LOIS
1980 "Preexisting Social Ties and Conflict Group Formation." Paper presented at the 1980 meeting of the American Sociological Association, New York.

WEIMANN, GABRIEL
1980 "Conversation Networks as Communication Networks." Abstract of Ph.D. dissertation, University of Haifa, Israel.

WELLMAN, BARRY
1979 "The Community Question: The Intimate Networks of East Yorkers." *American Journal of Sociology* 84(5): 1201–1231.

WHITE, HARRISON, BOORMAN, SCOTT, AND BREIGER, RONALD
1976 "Social Structure from Multiple Networks: I. Blockmodels of Roles and Positions." *American Journal of Sociology* 81:730-780.