

CHAPTER

8

The Strength of Strong Ties: The Importance of *Philos* in Organizations

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THEORY

In 1973, Mark Granovetter proposed that weak ties are often more important than strong ties in understanding certain network-based phenomena. His argument rests on the assumption that strong ties tend to bond similar people to each other, and these similar people tend to cluster together such that they are all mutually connected. The information obtained through such a network tie is more likely to be redundant, and the network is therefore not a channel for innovation. By contrast, a weak tie more often constitutes a "local bridge" to parts of the social system that are otherwise disconnected, and therefore a weak tie is likely to provide new information from disparate parts of the system. Thus, this theory argues, tie strength is curvilinear with a host of dependent variables: no tie (or an extremely weak tie) is of little consequence; a weak tie provides maximum impact, and a strong tie provides diminished impact.

Subsequent research has generally supported Granovetter's theory (Granovetter 1982), but two issues have been neglected in the research stream. First, there is considerable ambiguity as to what constitutes a strong tie and what constitutes a weak tie. Granovetter laid out four identifying properties of a strong tie: "The strength of a tie is a (probably linear) combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie" (1973:1361). This makes tie strength a linear function of four quasi-independent indicators. At what point is a tie to be considered weak? This is not simply a question for the methodologically curious. It is an important part of the theory itself, since the theory makes a curvilinear prediction. If we happen to be on the very left side of the continuum of

tie strength, then increasing the strength of the tie (going from no tie to weak tie) will increase the relevant information access. On the other hand, at some point making the ties stronger will theoretically decrease their impact. How do we know where we are on this theoretical curve? Do all four indicators count equally toward tie strength?

In practice, tie strength has been measured many different ways. Some have measured strong ties as reciprocated nominations, weak ties as unreciprocated nominations, and no ties as no nominations (Friedkin 1980). Other measures have included recency of contact (Lin, Dayton, and Greenwald 1978). Sometimes labels such as "friend," "relative," or "neighbor" are used to identify strong ties (Erickson and Yancey 1980; Lin, Ensel, and Vaughn 1981). Others (Granovetter 1973:1371) have simply used frequency of interaction as a surrogate for tie strength. One may intuitively agree that these strong ties are clearly *stronger* than the set of weak ties as measured. But it is clear that all of these measures capture the essence of what Granovetter meant when he spoke of the category "strong ties."

The Psychology of Strong Ties

The second issue that has been all but ignored since Granovetter's seminal article is the affective character of strong ties. Of the four characteristics of strong ties, two of these—emotional intensity and intimacy—are inherently subjective and interpretive. A third, "reciprocal services," is perhaps behavioral, but one could argue that the equitable exchange implied by this term is also a subjective criterion. Only the first criterion, time spent in the relationship, is clearly objective.

Again, this is not simply a measurement issue. Granovetter's theory draws on the psychological theory of balance (Heider 1958; Newcomb 1961). From this theory, Granovetter notes that given a triad of actors, *A*, *B*, and *C*, if *A* is strongly tied to *B* and to *C*, then it is likely that the triad will be balanced: that is, *B* and *C* will be strongly tied to each other also. There is certainly evidence of this effect (see, for example, Davis 1979). But what has been forgotten in this research effort is that the underlying rationale for balance is psychological.¹ Heider (1958) uses words like "stress," "tension," and "disharmony" to describe what happens to a person who faces an unbalanced situation. These disquieting affective states presumably motivate the individual to resolve the imbalance. Moreover, the tendency to resolve an unbalanced triad is strongest when the strength of affective attachment is strong. Once triads are balanced, no local bridge can exist. In other words, Granovetter's claim that strong ties do not constitute local bridges is dependent on balance, which in turn is influenced by the affective component of those ties. Yet we seldom see affective dimensions captured in the operationalizations of strong ties.

The Strength of Strong Ties

In his review of a decade of research on the strength-of-weak-ties hypothesis, Granovetter (1982) rightly pointed out that strong ties can

play an important role, and that role should not be ignored. In fact, he noted: "Weak ties provide people with access to information and resources beyond those available in their own social circles; but strong ties have *greater motivation* to be of assistance and are typically more easily available" (113; emphasis mine). Citing Pool (1980), he further asserted that strong ties are more likely to be useful to the individual when that individual is in an insecure position. Granovetter concluded from his review of the research (1982:113–117) that people in insecure positions are more likely to resort to the development of strong ties for protection and uncertainty reduction. In a parallel argument, Krackhardt and Stern (1988) posited that the pattern of friendship ties within an organization will be critical to an organization's ability to deal with crises. Through a set of organizational simulations, they demonstrated that an organization characterized by friendship ties that cut across departmental boundaries is better suited to adapting to environmental changes and uncertainty.

This chapter will build on that theme: the strength of strong ties in cases of severe change and uncertainty. People resist change and are uncomfortable with uncertainty. Strong ties constitute a base of trust that can reduce resistance and provide comfort in the face of uncertainty. Thus it will be argued that change is not facilitated by weak ties, but rather by a particular type of strong tie. To develop this theme, I will draw from Granovetter's original idea of what constitutes a strong tie and his later ideas about how strong ties are useful. First, I will replace the definition of tie strength as a continuous variable with a set of conditions for a particular type of tie, a tie I will call *philos*, the Greek word for friend. (I will reserve the word "friend" for other uses, to be explained shortly.)

A *Philos* Relationship

Since the concept of strong ties has been clouded with ambiguity and inconsistency, I will use the Greek word *philos* to designate a particular type of tie that, because of its special character, has implications that make it different from other types of ties. Grammatically, I will use *philos* as a noun, and rules governing its use will be similar to that of the word "friend." That is, one may say "A is a *philos* to B" or, in the symmetrical case, "A and B are *philos*." I will define a *philos* relationship as one that meets the following three necessary and sufficient conditions:

1. *Interaction*. For A and B to be *philos*, A and B must interact with each other. The implication of this component is that there will be a high probability that each will have access to information that the other has, since such frequent interactions will provide opportunities to exchange such information.
2. *Affection*. For A to be *philos* of B, A must like B, A must feel affection for B. This evaluative component allows much of the important balance predictions of Heider and transitive closure predictions of Granovetter to hold. Heider (1958:202) also made predictions about the symmetry of the

"liking" relationship, and one may assume that in most cases such relationships are symmetrical. However, one can imagine occasions when affection is not reciprocated, resulting in an asymmetric relationship.

3. *Time*. *A* and *B*, to be *philos*, must have a history of interactions that have lasted over an extended period of time. That is, there is no such thing as instant *philos*. One implication here is that *philos* relationships cannot be studied in laboratory experiments. While one can induce short-term affective states and study "liking" (e.g., Byrne 1971), the study of *philos* is relegated to the field, where relationships have sufficient time to develop.

Note that I have not eliminated the psychological, affective quality of the relationship in defining *philos*. In fact, it is explicitly there, and to remove it destroys the predictions I would like to make from the relationship. While the definition of *philos* is not precisely the same as Granovetter's definition of strong ties, one may safely infer that *philos* relations constitute strong ties as Granovetter saw them.

The combination of these qualities are defined to be *philos*. But they also actively combine to make a theoretical prediction, one of *trust*. Interaction creates *opportunity* for the exchange of information, some of which may be confidential. Affection creates *motivation* to treat the other in positive ways, or at least not to do something that would hurt the person (because to do otherwise would create imbalance and consequent feelings of stress, disharmony, tension). And time creates the *experience* necessary to allow each person to predict how the other will use any shared information. These are the ingredients of trust. Granovetter has argued that the structure of embedded relationships in a social system is a necessary part of sociological inquiry to systematic change: "The embeddedness argument stresses instead the role of concrete personal relations and structures (or 'networks') or such relations in generating trust and discouraging malfeasance" (1985:490). With this article, Granovetter has switched emphasis from the strength of weak ties to the strength of strong *philos* ties. I predict that the *philos* relations will be the critical ones in generating trust and discouraging malfeasance.

The three components are necessary for *philos* because without any one of them the basis for trust falls apart. Without current interaction, there is little opportunity to share critical or confidential information. Without the history, there is no experience to know how the other will use the confidential information or who he or she will share it with. Without the positive affect, there is less motivation to maintain Heiderian balance, to share confidential information or to refrain from malfeasance.

Etic *Philos* versus Emic Friends

The underlying construct here is the well-defined *philos*. The concept most closely associated with this idea in the English language is that of "friend." Unfortunately, as Fischer (1982) has pointed out, the term

"friend" is not well defined. In particular, he noted that the term means different things to different people. Based on a set of questionnaire responses about people's acquaintances, Fischer suggested that people use the label "friend" to denote a relationship devoid of any other formal designation (like "father"). However, within the set of coworkers, he found that friends were those with whom one had "sociable interaction" and with whom one would "discuss personal matters," ideas at least consistent with my notion of *philos*.

The correspondence between *philos* and friend can be best related to the anthropological dichotomy between etic and emic definitions. *Philos* is a theoretical construct, an etic concept with precise if abstract meaning. Friend is an emic construct, a word whose true meaning is embedded in the minds of those people in our society who use it frequently. As Fischer notes, we cannot abandon the term "friend" in the pursuit of science simply because the term has an imprecise definition: "It is too important a 'folk concept,' an idea that people use to order their worlds. And, it is too much a part of our own intellectual apparatus" (1982:288).

I will not try to define the folk meaning of friend. Instead, I will assume that the emic word "friend" is an estimate of the etic concept *philos*, just as a sample statistic is an estimate of a population parameter. The extent to which these two constructs match is a question worth exploring. As with all estimates, there will be error; I cannot even assure the reader that the estimate is unbiased. But the face validity of the idea that friends are people who like each other, have known each other for a reasonable time, and frequently interact with each other is at least minimally defensible. I will insist on differentiating between friend and *philos* because it is important to keep the distinction between the etic concept and the emic estimator of that concept.

What follows is a case study of a firm that underwent a union certification campaign. Just prior to this campaign, network data were collected in this firm (see Krackhardt 1990 for a description of the network study). Following the campaign, interviews were conducted with six key informants who provided information about the events that led to the initiation of the union attempt and also to the eventual failure of the campaign itself. I will provide an account of the critical events that occurred and relate these events to two kinds of strong (at least frequent) ties, the friendship and advice networks. These events underscore the importance that *philos* relationships (as measured by friendships) play over and above strong but affectless working relationships, such as the advice relationship, in the course of organizational change.

METHOD

A small entrepreneurial firm, called here Silicon Systems, is located on the West Coast of the United States in an area known for its many small, start-up firms as well as some more established ones. Silicon Systems'

business involved the sales, installation, and maintenance of state-of-the-art information systems in client organizations. Its clients ranged from local banks to schools to medium-sized manufacturing firms to research and development (R&D) labs. Until recently its largest competitors, firms such as IBM and AT&T, focused their marketing efforts on the neighboring metropolitan areas. But recently the growth potential of Silicon Systems' market had attracted the attention of these competitors. According to Silicon Systems' top managers, the small firm's competitive edge rested in its ability to respond more efficiently to idiosyncratic customer demands.

Silicon Systems was wholly owned in equal shares by the three top managers. All employees worked in the single-story building owned by the company. They saw one another regularly, although installers worked many days at client sites rather than in the office. Thus Silicon Systems employees were familiar with one another to varying degrees, and each employee had an opinion about every other employee, with the occasional exception of new hires.

The firm had grown from three people to thirty-six in fifteen years. Much of this growth occurred in the five years preceding the study. Most of these years had been profitable, and the owners anticipated no downward trend in their business.

The Networks of Strong Ties

With the exception of a few employees who had just joined the firm, all of the 36 employees knew one another to some degree and conversed occasionally. Granovetter (1973:1371) defined weak ties as those who interact more than once per year and less than twice per week. He operationalized strong ties as those who interacted at least twice per week. By his criteria, all the employees in Silicon Systems would be considered at least weakly tied to one another.

The presence or absence of weak ties, therefore, is not a viable question in this context. Instead, the focus in this case will be on the presence or absence of various types of strong ties. And, in particular, I claim that the affective component of the strong tie is important in understanding the dynamics surrounding crises or changes in organizations. To demonstrate this, I will distinguish between two types of strong (that is, frequent) ties: a network of advice interactions stemming from routine work problems and a network of *philos* relationships in the firm.

Consistent with my cognitive theme, the network information obtained in this case study was based on the actors' own perceptions about who was related to whom in the firm. Each person provided his or her own estimate of the entire structure (Krackhardt 1987) of both a *philos* and an advice network. These maps are represented as "cognitive cubes," or more formally, $R_{i,j,k}$, where i is the sender of the relation, j is the receiver of the relation, and k is the perceiver of the relation. The directions for the "advice" section of the questionnaire were as follows:

In this section, you will find a set of similar questions with a list of people after each question. The question is: "Who would this person go to for help or advice at work?" That is, if this person had a question or ran into a problem at work, who would they likely go to, to ask for advice or help? Please answer the question by placing a check next to the names of all the people the person is likely to go to. . . . Some people may go to several people for help or advice. Some may go only to one person. Some may not go to anyone, in which case do not check anyone's name under that question.

These directions were followed by 36 questions (e.g., "Who would Cindy Stalwart go to for help or advice at work?"), each asking the same question about a different employee. Each of these 36 questions was followed by a list of 35 names, any number of which the respondent could check off in response to the question.

Similarly, another section of the questionnaire asked about friendships. The directions for this section paralleled those in the previous section:

. . . This time the question is: "Who would this person consider to be a personal friend?" Please place a check next to all the names of those people who that person would consider to be a friend of theirs.

Again, the question was repeated 36 times, once for each employee's name (e.g., "Who would Abe consider to be a personal friend?"), and each question was followed by a list of 35 names from which the respondent could check any number.

The three-dimensional data from these questionnaires allow two different types of aggregations to be formed, each represented in a two-dimensional matrix. The first aggregation creates what will be referred to as the "actual network." The second aggregation is a simple slice of the cognitive cube and will be referred to as the "perceived network." Specific definitions follow.

Actual Network The actual network for both the friendship and advice relations will be identified by an asterisk: $R^*_{i,j}$ (see Krackhardt 1990 for more details). This network is defined as follows:

$$R^*_{i,j} = \begin{cases} 1 & \text{if } R_{i,j,i} = 1 \text{ and } R_{i,j,j} = 1; \\ 0 & \text{otherwise.} \end{cases}$$

That is, both i and j must agree that i goes to j for help and advice before the relation $i \rightarrow j$ in actual advice network is recognized. Similarly, both i and j must agree that i considers j a friend before the $i \rightarrow j$ link is recorded as existing in the actual friendship network.

Perceived Network and Cognitive Accuracy In the network study prior to the union certification campaign, I found that the individual's ability to accurately reconstruct the advice network predicted that person's reputational power in the organization (Krackhardt 1990). I argue that having an

accurate knowledge of the informal organization gave the employee a competitive edge in any political endeavor. In the current case study, I will refer to the accuracy scores of individuals who were critical players in the pre-union activities and in the union drive itself because these scores shed light on the political perspicacity of key employees.

The degree to which a respondent was accurate in his or her perceptions of the networks was simply defined as the correlation between the individual's perceived network and the actual network, as defined earlier. The individual k 's perceived network is denoted $R_{ki,j}$, and the correlation with $R^*_{i,j}$ from here on will be referred to as person k 's accuracy score.²

Centrality

The three most common measures of centrality—degree, closeness, and betweenness—are compared and reviewed by Freeman (1979). I will restrict my discussion to degree and betweenness centrality. Degree centrality is the simplest form of centrality and comes in two forms: indegree and outdegree. The indegree of an actor in the network is the number of other people who choose that actor in the particular relationship. For example, Steve, the president, had an indegree of 19 in the actual advice relationship (see Table 8-1). This meant that 19 employees went to Steve for help and advice at work. Outdegree is the number of people chosen by the actor. For example, Steve had an outdegree of 7 on the actual advice relationship, meaning that he went to seven others for help and advice. The indegree and outdegree of an actor are often good indicators of the informal status that the individual has in the organization. For example, people with high indegrees in the advice relationship are those with experience and know-how to give advice. Those with high outdegrees tend to reach out to others.

Betweenness is somewhat more complicated in its definition. Using Freeman's (1979) notation, betweenness centrality is defined as follows:³

$$C_B(k) = \frac{2 \sum_i \sum_j \left(\frac{g_{ij}(k)}{g_{ij}} \right)}{n^2 - 3n + 2}$$

for all unordered triples i, j, k , where $i < j$, n is the number of nodes in the network, $g_{ij}(k)$ is the number of geodesics (shortest paths) between nodes i and j in the network, and g_{ij} is the number of geodesics from i to j that include k . To the extent that k lies on the shortest paths between each pair (i, j) , then k would be said to have high betweenness centrality. Thus a person with high betweenness is in a position to act as gatekeeper for information that flows through the network. Moreover, betweenness is an indication of the nonredundancy of the source of information. To the extent that a person is connected to otherwise disconnected parts of the network, and therefore has access to different, nonredundant sources of information, that person will have a higher betweenness score.

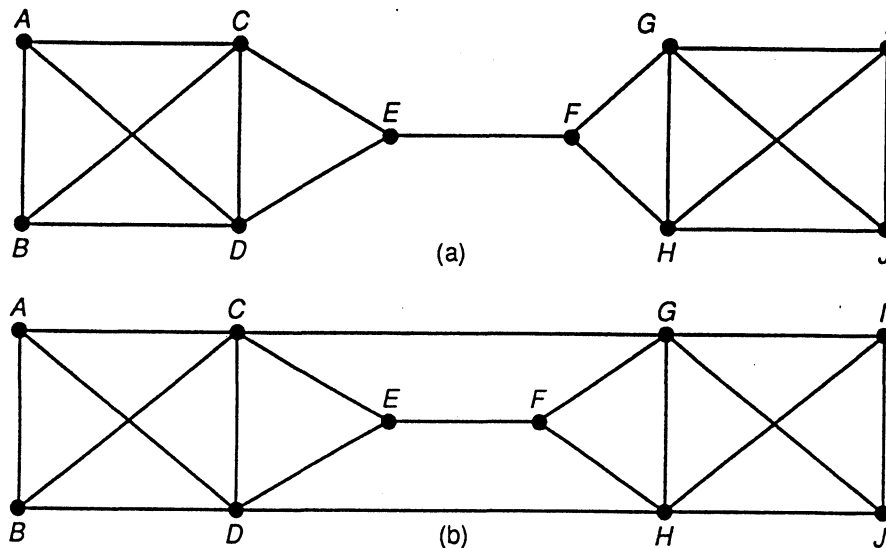


Figure 8-1

Two Sociograms Illustrating Differences in Centrality

The difference between degree and betweenness is illustrated in Figures 8-1a and 8-1b. Each figure describes a set of relationships (indicated with lines) among a set of people (indicated with capital letters). In Figure 8-1a, persons C, D, G, and H have the highest degree centrality, with 4 indegrees and outdegrees each (the choices are assumed to be symmetric in this hypothetical example, so that indegrees and outdegrees are equal). Each of the remaining people has degree centrality of 3. In contrast to these degree measures, betweenness indicators suggest that a different set of people occupy prominent positions in Figure 8-1a. Persons E and F are between $4/9$ of other pairs of people, for a betweenness score of .444. Persons C, D, G, and H are between less than 20% of the pairs of people, for a betweenness score of .185. The remaining people have 0 betweenness. It is E and F's position with their access to *separate* groups that gives them such high betweenness scores.

But if we add merely two lines to Figure 8-1a to connect C with G and D with H (see Figure 8-1b), we destroy this advantage that E and F shared. E and F's betweenness drops from .444 to .056; C, D, G, and H's betweenness barely changes from .185 to .190 (the remaining points are still 0). By adding these lines, the groups on each side are no longer dependent on the E-F bridge. In fact, the entire structure is more wedded together so that no point enjoys the particularly central position that E and F did in Figure 8-1a.

It is worth noting the parallel between the betweenness measure of centrality and Granovetter's concept of a local bridge. A local bridge is a property of a tie; the numerical value of a local bridge (referred to as

its *degree*) is equal to the shortest alternative path between the two points connected by the bridge (say, *A* and *B*) if that bridge were to be removed. The more that the others around *A* and *B* are tied together by direct or relatively short alternative paths, the lower the value or degree of the local bridge between *A* and *B*. Betweenness is an attribute of a node in the graph; local bridge degree is an attribute of a tie. But both measure the degree to which the actors reach disparate and unconnected parts of the social system. The higher the degree of the local bridges a person is connected to, the higher that person's betweenness score will be. Thus I refer to the betweenness of actors in these networks in my discussion of the union certification campaign at Silicon Systems, keeping in mind this relationship to Granovetter's idea of the importance of such bridges.

THE UNIONIZATION ATTEMPT: A CASE STUDY

Four months after the network data were fed back to the firm, Silicon Systems was confronted with an unexpected dilemma. The National Labor Relations Board (NLRB) called the president of the firm (Steve) to inform him that the NLRB was granting a petition by a national union to hold a certification election at Silicon Systems. This news came as a total surprise to top management. They felt nervous about the outcome and extremely sensitive about what this meant about the future of the firm. Further, they asked me to refrain from talking to anyone at the firm about the union or the union drive.

After the union drive was completed, I approached the top management of the firm for permission to interview some key people about what had happened. At that time, I talked to three people who were involved in the process on the condition that no one's identity be divulged. Subsequently, top management gave me permission to interview three more employees to verify the information obtained in the first set of interviews. The six informants were interviewed at length about their view of the union and the events surrounding the certification drive. The interviews were primarily unstructured, but specific questions were always included: "What were the key events in the certification campaign?" "Who were the main players (both for and against the union)?" "Why do you think the union failed to gain certification?" The six people represented a spectrum of employees in terms of their own support for the union and in terms of their longevity with the firm (one person had been there for over 15 years, one had been there for less than a year). Because of the sensitivity of this issue, none of the information below is attributed to any individual in the firm. All accounts reported here represent a consensus of the informants.

By the time top management found out about the employees' union interests, enough employees had signed union authorization cards that the NLRB granted the union's request to have a certification election in two months' time. The three owners were highly concerned, since they believed that they would lose a distinct advantage they had over their

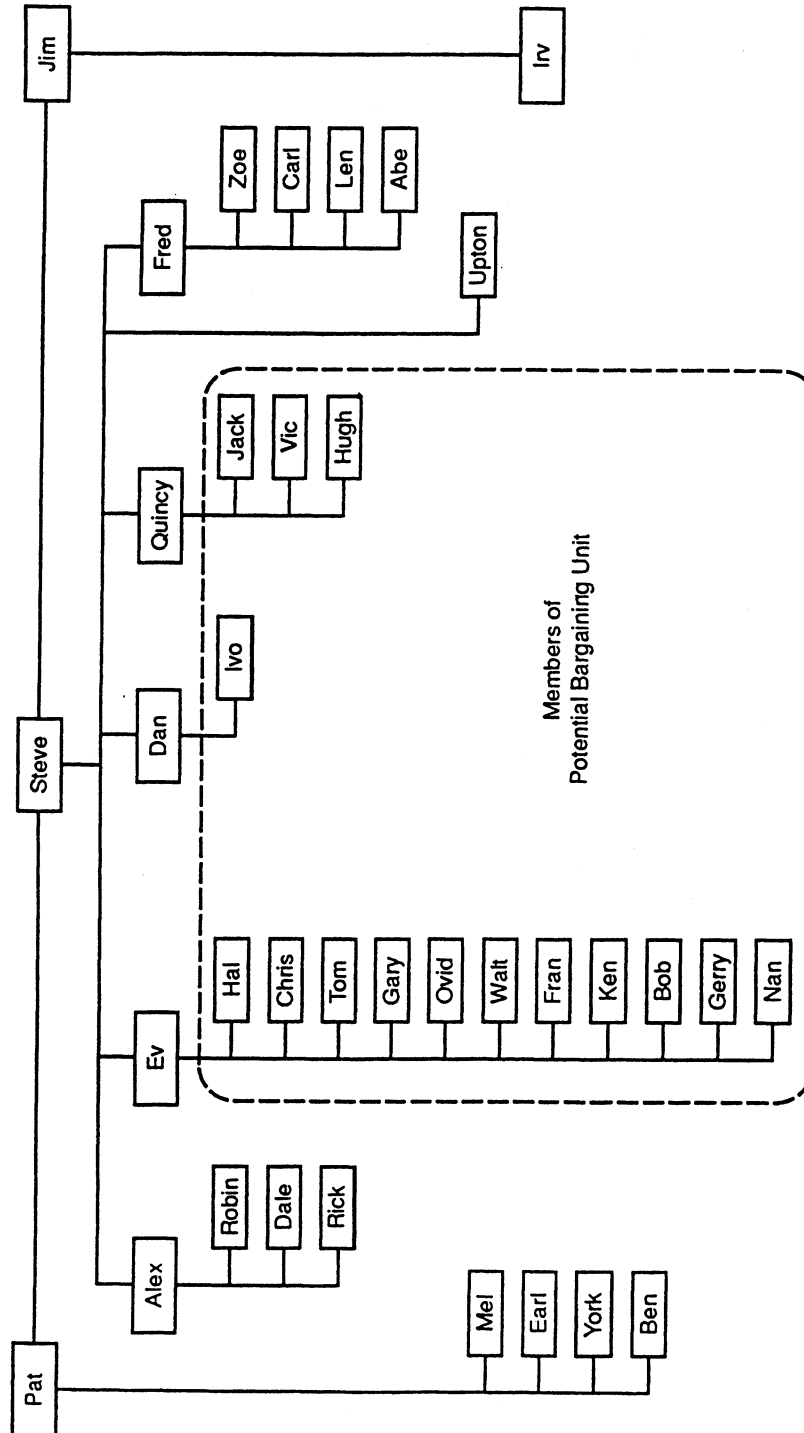


Figure 8-2
Organizational Chart of Silicon Systems

larger competitors if the firm became unionized. They consulted labor lawyers to find out what options they had. Their lawyers informed them that there were legal constraints on what they could do to actively discourage certification without risking an unfair-labor-practices judgment. They decided that they would work within these constraints to provide what information they could to support management's position. However, the fate of the certification campaign depended largely on the dynamic forces between the union officials and the nonmanagement employees, especially those in the bargaining unit itself.

Representatives of neither the union nor the NLRB were willing to divulge what percentage of the bargaining unit had signed authorization cards. But an official of the union did confirm that, as a matter of policy, they do not request an election unless they have at least 55% of the bargaining unit signed up. Moreover, according to this official, the union prided itself on not losing certification elections. The union does not ask the NLRB to conduct an election unless it feels certain it will win. Election campaigns are costly, and the union does not like to lose face.

During the two-month campaign period, the national union held several organizing meetings. Gripes were aired about the firm. As is typical in such cases, debates ensued around the pros and cons of unionization. Feelings strengthened as the vote grew closer.

To understand the dynamics involved, it will be useful to refer to individual employees in the context of their positions in both the formal organization and the informal networks. The pseudonyms for these employees and their respective formal positions in the organizational chart are given in Figure 8-2. The advice network and friendship network are displayed in Figures 8-3 and 8-4, respectively. In the advice network (Figure 8-3), arrows indicate the direction of the advice relationship. For example, the arrow from Bob to Chris (near the top of the figure) indicates that Bob goes to Chris for help and advice. A double-headed arrow, such as the one found between Vic and Rick, indicates that each actor goes to the other for help and advice. The friendship network does not display arrows, because the majority of friendship relations are symmetrical. With the exception of isolates, the placement of the actors in these figures is determined by a multidimensional scaling (MDS) of the graph-theoretic path distances between actors in the network.⁴ The MDS solution tends to put the central actors in the middle of the figure and more peripheral actors scattered around the sides.

In addition to these pictorial representations, degree and betweenness centrality scores and accuracy scores are provided in Tables 8-1 and 8-2. Employee names are arranged in the tables in descending order of betweenness centrality. Three employees chose not to fill out the questionnaire, and consequently no accuracy score could be calculated for them. These missing accuracy scores are indicated by an "M" in Tables 8-1 and 8-2. I was able to calculate centralities for those employees even though they did not fill out the questionnaire because I had estimates of their relations based on other employees' perceptions.

Table 8-1
Centralities and Accuracy on the Advice Network

CENTRALITIES					
ID	Name	Indegree	Outdegree	Betweenness	Accuracy (rank)
5	Ev	19.	1	0.20130	0.485 (3)
19	Steve	19.	7.	0.16405	0.411 (20)
24	Rick	6.	11.	0.08208	M (M)
13	Mel	5.	15.	0.06711	M (M)
6	Fred	9.	3.	0.06249	0.459 (7)
17	Quincy	10.	3.	0.05753	0.514 (1)
25	York	5.	15.	0.05551	0.391 (22)
30	Dan	7.	3.	0.05488	0.430 (10)
29	Chris	7.	6.	0.05263	0.384 (23)
16	Pat	7.	9.	0.03259	0.420 (16)
27	Alex	11.	2.	0.03217	0.397 (21)
12	Len	3.	7.	0.02444	0.212 (33)
35	Irv	6.	5.	0.01912	M (M)
10	Jack	5.	2.	0.01593	0.332 (30)
21	Upton	7.	3.	0.01373	0.413 (19)
20	Tom	4.	3.	0.00834	0.378 (24)
18	Robin	2.	3.	0.00799	0.436 (9)
15	Ovid	2.	4.	0.00469	0.429 (12)
22	Vic	1.	6.	0.00375	0.352 (28)
33	Gerry	0.	5.	0.00274	0.302 (32)
7	Gary	0.	2.	0.00195	0.423 (14)
1	Abe	0.	4.	0.00139	0.482 (4)
36	Jim	5.	4.	0.00111	0.417 (17)
26	Zoe	1.	2.	0.00073	0.475 (5)
8	Hal	2.	3.	0.00067	0.371 (27)
2	Bob	1.	2.	0.00024	0.333 (29)
23	Walt	0.	4.	0.00024	0.417 (18)
28	Ben	2.	4.	0.00000	0.499 (2)
3	Carl	1.	1.	0.00000	0.374 (26)
32	Fran	0.	2.	0.00000	0.378 (25)
31	Earl	0.	2.	0.00000	0.423 (15)
34	Hugh	0.	2.	0.00000	0.470 (6)
9	Ivo	0.	1.	0.00000	0.442 (8)
14	Nan	0.	1.	0.00000	0.314 (31)
11	Ken	0.	0.	0.00000	0.429 (11)
4	Dale	0.	0.	0.00000	0.426 (13)

The Key Players in Management: Steve and Ev

Steve was the founder and president of this company. He knew all of its operations. As noted earlier, in the advice network his indegree was 19 and outdegree was 7 (see Figure 8-3 and Table 8-1). It is no surprise that he was the recipient of so many requests for help and advice. The fact that Steve reached out to seven employees on a regular basis for help and advice underscored his management style: he liked to stay in touch with what was going on in the firm, especially among his management team members, to whom most of his outdegree ties are pointed. He also

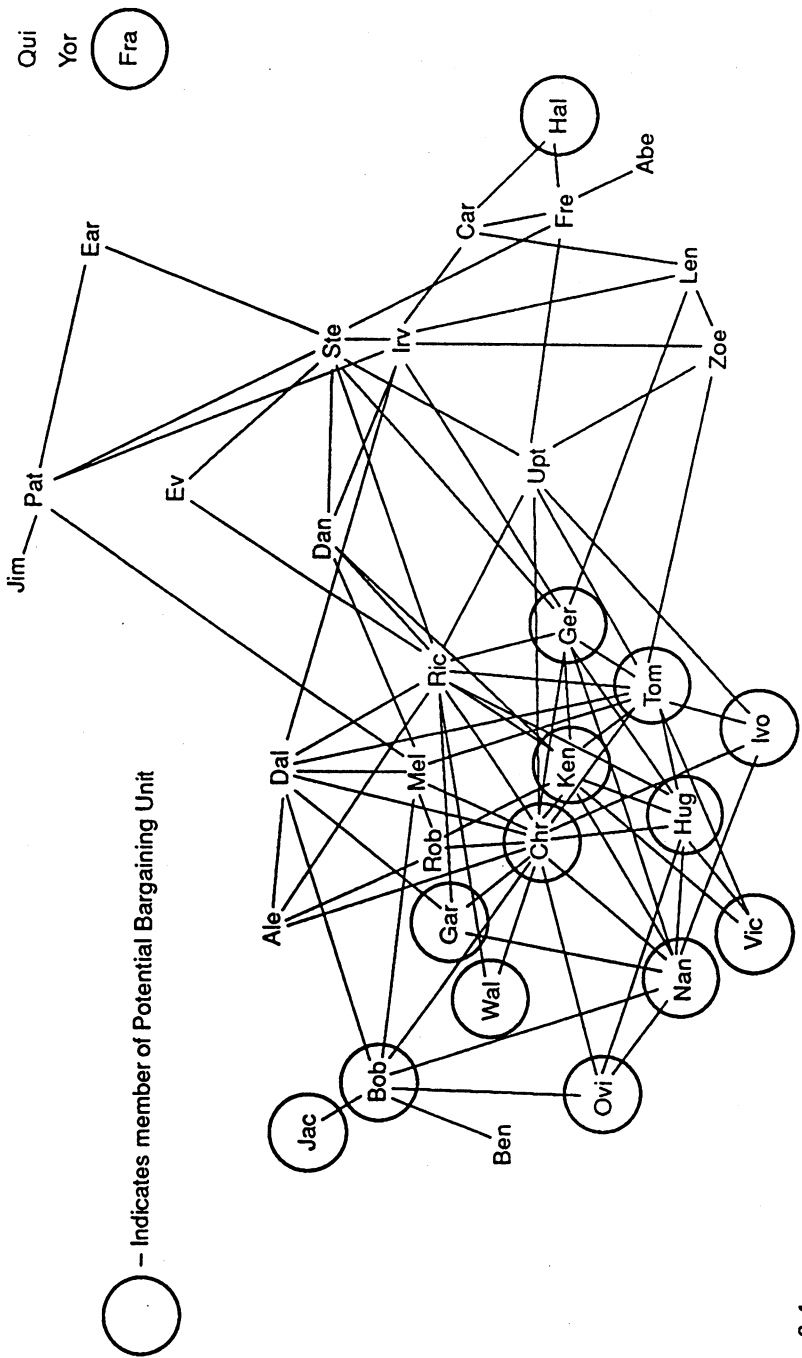


Figure 8-4
Sociogram of Friendship Network

Table 8-2
Centralities and Accuracy on the Friendship Network

CENTRALITIES					
ID	Name	Indegree	Outdegree	Betweenness	Accuracy (rank)
29	Chris	12.	16.	0.16202	0.362 (11)
2	Bob	6.	4.	0.10899	0.344 (15)
24	Rick	11.	9.	0.10573	M (M)
19	Steve	8.	6.	0.10472	0.349 (14)
21	Upton	5.	4.	0.09101	0.356 (12)
6	Fred	4.	2.	0.08981	0.334 (18)
35	Irv	8.	7.	0.07368	M (M)
16	Pat	5.	4.	0.07013	0.323 (23)
13	Mel	6.	7.	0.06695	M (M)
20	Tom	10.	10.	0.06651	0.363 (10)
33	Gerry	8.	7.	0.06615	0.381 (8)
4	Dale	8.	7.	0.05218	0.331 (20)
11	Ken	9.	7.	0.02812	0.384 (7)
14	Nan	5.	7.	0.02504	0.188 (31)
34	Hugh	6.	7.	0.01955	0.407 (3)
3	Carl	2.	4.	0.01792	0.391 (5)
30	Dan	5.	5.	0.01377	0.442 (1)
12	Len	2.	4.	0.00944	0.329 (21)
26	Zoe	3.	2.	0.00695	0.414 (2)
18	Robin	4.	4.	0.00280	0.333 (19)
9	Ivo	3.	2.	0.00268	0.398 (4)
15	Ovid	4.	3.	0.00240	0.302 (25)
27	Alex	3.	3.	0.00230	0.336 (17)
7	Gary	3.	2.	0.00118	0.311 (24)
5	Ev	2.	1.	0.00000	0.292 (26)
22	Vic	1.	3.	0.00000	0.275 (28)
8	Hal	1.	2.	0.00000	0.155 (33)
23	Walt	1.	2.	0.00000	0.352 (13)
36	Jim	1.	1.	0.00000	0.221 (29)
10	Jack	1.	1.	0.00000	0.200 (30)
31	Earl	0.	2.	0.00000	0.380 (9)
28	Ben	0.	1.	0.00000	0.292 (27)
1	Abe	0.	1.	0.00000	0.387 (6)
32	Fran	0.	0.	0.00000	0.325 (22)
17	Quincy	0.	0.	0.00000	0.341 (16)

enjoyed the second-highest betweenness score, indicating that his ties were spread out among various groups within the firm. As indicated by his accuracy score, Steve's knowledge of the advice network was somewhat below the median in the firm. His lack of a better understanding of many of the informal advice ties can be attributed to his lack of attention to the rank and file of the firm.

An interesting contrast to Steve's managerial style was provided by Ev, the technical expert in the firm. Ev supervised the installation of much of the most sophisticated equipment in the field. His critical role in the organization was underscored by the fact that he had the highest betweenness score in the advice network—even higher than that of Steve, the

president. Ev's ability to solve problems in the field made him indispensable to a wide variety of people within the firm. His outdegree score, however, was 1 (Steve). His approach was more that of the engineer—the problem solver—than that of the manager. People came to him with problems, and he solved them or told others how to solve them. Ev did not see as part of his job that he had to seek out others' opinions, advice, or help. But by being so close to where the action was, he was in a good position to observe the informal advice network. His accuracy score reflected this good position: he had the third-highest accuracy in the advice network at Silicon Systems.

While no one questioned Ev's technical skills, some of the installers who worked for Ev indicated discontent with his managerial style. In fact, unbeknownst to top management at the time, dissatisfaction with Ev had spawned union interest on the part of several of the installers. As a result, contact was made secretly with a national union to organize the firm.

The installers' feelings toward Ev are illustrated in his position in the friendship network (Figure 8-4). Ev had only two indegrees (two people considered him a personal friend), neither of whom were people who worked with him in the field. His betweenness in the friendship network was zero. Moreover, Ev's accuracy score for the friendship network was the eighth-lowest in the firm. Not only was friendship something he failed to engage in at work; he also paid little attention to it among others who worked for him or around him.

In contrast, Steve had eight indegrees in the friendship network (eight people considered him a personal friend), and those who chose him were reasonably spread out, as he had the fourth-highest betweenness score. Despite his central position, however, his accuracy score was only slightly above the median for the firm, again because he tended to pay more attention to the top of the organization than to the rank and file. His lack of familiarity with the bottom of the organization led to his overwhelming sense of surprise and betrayal when he was informed by the NLRB that a union drive was under way.

Key Members of the Potential Bargaining Unit: Chris, Hal, Ovid, and Jack

The most central person in the friendship network was Chris, with 12 indegrees, 16 outdegrees, and a betweenness score of .162, substantially higher than the next-closest score. He had a more accurate assessment of the friendship network than anyone in management except Dan. Chris had been with the firm for a number of years, and his experience as a veteran installer was appreciated. But because his technical skills were not as strong as Ev's, Chris did not enjoy as central a position in the advice network as Ev did. In the field, however, Chris was often informally put in charge of a group of people to install some computer equipment, and his coworkers preferred working with him to working with Ev.

Before the union was contacted, Chris was very supportive of the

himself and his fellow installers. While he was not the one who contacted the union, he had discussed with his colleagues the possibility of joining a union.

After the union was contacted, Chris took a back seat to others who were organizing on behalf of the union. He did not lead the organizing meetings, and he said very little publicly. Several fellow employees turned to him for guidance on this issue, but he resisted taking a leadership role. His reticence stemmed from two sources. First, the union made little effort to get him involved. While the union officials spent time with employees at the local bars and other locations, they never approached Chris with plans about his own role in the process. Second, Chris had strong feelings of ambivalence about the union. As noted earlier, he felt positively toward the union issues of pay and fair treatment by supervisors, but he also felt loyalty to the firm itself. He had been with the firm for a number of years, and he had grown to like his job and his coworkers. He did not want to be part of something that he thought might potentially damage the firm. Rather than attempt to lead his colleagues in any particular direction, he chose to remain in the background and did not actively involve himself in the debates at the meetings. As the vote approached, he felt more and more torn. Less than three weeks before the certification vote, he resigned from the firm rather than face the pressures of publicly committing on the union issue. He rejoined the company two days after the certification vote was taken.

Strong pronoun positions were held by three key members of the potential bargaining unit: Ovid, Jack, and Hal. All three men had less betweenness centrality than the two antiunion employees, Mel and Robin. All three had a poorer cognitive picture of the friendship network than Robin (Mel did not fill out the questionnaire, so his cognitive accuracy score was not available). Jack and Hal had minimal friendship ties to others in the potential bargaining unit. While Ovid strongly favored the union, he was very quiet about it, to the point that only a few people knew where he actually stood on the issue. It also was known that he was to leave shortly after the vote, so his influence was diminished. Jack was vocal about his dissatisfaction with how the company treated him. But his position on the periphery of the friendship network (see Figure 8-4, on the extreme left) aptly describes his lack of informal influence with most of his colleagues. He was considered someone who had a grudge and who was motivated by his own personal agenda to be pronoun.

The most central actor in the union's attempt at organizing everyone was Hal. He was the union's original contact with the firm and he was the instigator for the drive. He was the union's key spokesman at the organizing meetings, many of which he ran personally. He told the union representatives that he could get enough of his coworkers to vote for the union to assure a victory for the union. For the union's part, it obviously and publicly chose Hal to lead the employees in the organization attempt.

As one can see in Figure 8-4 (on the right-hand side), Hal was not a central actor in the friendship network. It was true that Hal was the most enthusiastic supporter of the union, which is largely why the union officials selected him. However, his position on the periphery of the friendship network (see Figure 8-4, on the extreme right) aptly describes his lack of informal influence with most of his colleagues.

most informal influence among his colleagues. In fact, he was seen by several members of the potential bargaining unit as a "loose cannon," and not "one of the guys."

Other Key Players: Robin and Mel

There was considerable antiunion feeling in the company, but none of it was located in the bargaining unit being organized. The key nonmanagement company supporters included Robin and Mel. Both were considered "one of the guys" and would often go drinking at local bars with people from the bargaining unit. They were vehemently opposed to the union and told people so. As can be seen in Figure 8-4, Robin and Mel were friends with each other as well as with several of the members of the bargaining unit, including Chris. In fact, their friendship with Chris contributed to Chris's ambivalence toward the union. Thus while they were not formally part of the bargaining unit, they wielded considerable informal influence within that group.

At the start of the two-month campaign, the union had the interest and lukewarm support of a majority of the people in the bargaining unit. In the opinion of several people who were interviewed for this study, the company would have lost the election had it been held on the first day of the campaign. While it is not known exactly how many people were pro-union at the start, according to a union spokesperson interviewed, at least eight of the fifteen members of the potential bargaining unit had signed authorization cards.

Over the two months, the incessant pushing on the part of Hal (and to some extent Jack), instead of rallying support, served only to alienate several coworkers. This, combined with the antiunion position of Mel and Robin, led to a gradual deterioration of support for the union over the campaign period. In the end, the union was defeated in the certification election by a vote of 12 to 3.

DISCUSSION

What this study shows is that the key players in the advice network were not the key actors in the friendship network. Most striking is Ev's relative status in the friendship network. He was connected to the president (Steve) and another, peripheral employee. None of the employees who worked with him in the field were connected to him in the friendship network. By contrast, Chris was the most central actor in the friendship network. Chris was an installer with friendships that cut across functional and hierarchical boundaries. But his position in the advice network was relatively minor.

Chris's ambivalence stemmed from his feelings about the union in conjunction with his feelings about his friends, Mel and Robin. That is, he felt strongly that the union provided important protection for him and his fellow workers. He had been a voice in favor of contacting a union

intensively against the union, he experienced the stress and tension that Heider predicted in such an imbalanced situation. Chris and Mel had a strong mutual "advice" tie, also (that is, Chris would go to Mel for advice and vice versa). But, according to his closest associates, this work-based tie was not what contributed to Chris's discomfort in this situation. The informants I talked with would always refer to Chris's friends as influential on his behavior in this case. The only work-based relationship they discussed as influential in Chris's behavior was his relationship with Ev (his supervisor). If anything, this relationship with Ev, who was strongly opposed to the union, prompted Chris to be more inclined to support the union. Again, this is consistent with Heider's prediction: Since Chris's evaluation of Ev was negative and Ev's evaluation of the union was negative, Heider would predict that Chris would be positively disposed toward the union.

Davis (1963) noted that Heider's balance theory could be used to derive predictions about "cross-pressure" responses (Berelson, Lazarsfeld, and Mcphee 1954). Cross-pressure situations arise when people are linked to groups that differ in their evaluations in important ways. Chris was in a prototypical cross-pressure situation. Davis quoted Berelson et al. (1954:284): "An individual who is characterized by any type of cross-pressure is likely to change his mind in the course of the campaign, to make up his mind late, and occasionally, to leave the field and not to vote at all."

Putting this in balance-theory language, Davis himself wrote: "To the extent that *Person* has a positive bond to *Other*₁ and also to *Other*₂ . . . , it becomes increasingly difficult for him to adopt a stable attitude toward X" (1963:205). He further noted that the stronger the bond between *Person* and *Others*, the more difficult it is to resolve his attitude toward X. *Philos* bonds are particularly strong, since they involve strong affect and also have been invested in for some time. In Chris's case, it was because of the *history and affection* for his colleagues, some of whom (like Ovid) were strongly in favor of the union and others of whom (like Rob and Mel) were strongly opposed to the union, that Chris felt those cross-pressures and finally decided to withdraw from the decision.

It is impossible to know all the reasons for the union's failure to organize Silicon Systems. But according to the informants, a significant part of the failure was due to the fact that the union selected ineffective, nonpowerful people to represent it in the process. While Hal and Jack were enthusiastic and articulate supporters of the union and its cause, they were not considered influential among their peers. Note that they were connected to their peers through the advice network: Hal to five people and Jack to six (see Figure 8-3). But they were marginal players in the friendship network: Hal had two connections (neither of them to other members of the potential bargaining unit), and Jack had only one (see Figure 8-4). As with Chris, when people spoke of Jack and Hal's roles in the process, they referred to affective qualities of friendship—or lack of it—in discussing how little influence each had in swaying the opinions of his coworkers.

Moreover, the union failed to recognize and address the influence that Robin and Mel had over members of the bargaining unit. In contrast to Hal and Jack, Rob and Mel had several friendship connections to members of the potential bargaining unit, most notably Chris. It is clear from Figure 8-4 that Chris could have played an influential role in the process, if he had chosen to do so. His sympathies were with the union, but his alliances were torn. The union officials chose to ignore Chris. Had they co-opted and convinced him to take an active pro-union role, others in the unit might have followed suit and voted for certification.

The Power of an Outsider

Thus we note that some people *behaved* in ways that indicated support for the union; others behaved in ways that indicated support for the management position. But the fact that the individuals *behaved* in particular ways is not enough. They had to be influential, also, for this behavior to be leveraged into actual support. This influence, this leverage, comes from the actors' positions in the *philos* network vis-à-vis others who were to have the final vote on this issue.

An outsider, such as the union in this instance, does not have either a formal or an informal position of influence from which to change people's thinking. But an outsider can acquire knowledge of such positions that others hold. For an outsider, the friendship network (Figure 8-4) provides a map of potential influence. Knowledge of this map provides the outsider with an increased power base with which to accomplish his or her goals.

These conclusions stem largely from references to the friendship network, not the advice network, for two reasons. First, those people interviewed often referred to friendships in talking about who was influential in the campaign. Second, there are theoretical justifications for expecting friendships to be key in the certification drive. Krackhardt and Stern (1988) suggested that friendship links embody trust and that trust leads to cooperation under times of crises or radical change and uncertainty. When radical change requires trust to implement, affect can play an important role in determining where the power lies. In relatively tranquil times, however, work gets done in an organization by well-practiced and routine procedures. When exceptions to the routine are common, the process by which these exceptions are handled becomes part of the routine. In such times the patterns of daily or weekly interactions over work-flow problems become the building blocks of power in the organization. Those who know how to handle the routine exceptions are the ones who know how to get things done and will assume powerful roles (Crozier 1964).

Second, it was clear that affective evaluations and resulting trust dominated the process because the union drive amounted to a major change for the organization—an organizational crisis, from management's point of view. The advice network reflected technical expertise and routine work-flow knowledge. The proposed change was nonroutine;

advice on this critical issue was sought from those one trusted (as friends), not from technical experts.

I would speculate that had union officials had access to the information in Figure 8-4, they might have revised their strategy in their attempt to organize Silicon Systems. While they did not have access to structural power, they could have developed a more accurate assessment of power by asking the same friendship questions used in this research. Their lack of awareness of the *philos* network, in other words, represented a lost opportunity for gaining power as an outsider.

My earlier study results show that accuracy in assessing the *advice* network, not the friendship network, was significantly related to reputational power of the members of the firm (Krackhardt 1990). In this study, however, I argue that power is enhanced through an understanding of the *philos* network. This seeming contradiction makes sense in light of the theoretical arguments just made. At the time that the network and power data were being collected, the firm had not experienced any tumultuous events or environmental jolts. In answering questions about influence and power, employees were responding according to their experiences in their day-to-day lives in the organization. As in the case of Ev, those people central to the advice network, the experts, are likely to derive power from such routine situations. On the other hand, the certification move was an attempt to introduce a significant change in the organization (from both management's and workers' perspectives). Dealing with this change did not require routine information. It required trust, which is better represented in a *philos* network than in an affectively neutral advice network.

CONCLUSION

We opened this chapter by noting that Granovetter's strength-of-weak-ties hypothesis had found support in the literature, but that the support had left some issues unaddressed. Our study did not set out to test or expand the weak-ties hypothesis but attempted to refocus on the importance of strong ties within an organization. In particular, using Granovetter's own logic, we can see how strong ties may become important in organizations when they are spread out among the players.

But a critical part of networks rests in a forgotten aspect of the strong-ties argument: The affect level of these ties cannot be ignored. Frequent interactions that are not part of the *philos* relations are not going to have the same effect as those that are. Someone, even an outsider, who understands the structure of *philos* ties within an organization will be much more able to anticipate political resistance and facilitate change.

Just as I opened by referring to Mark Granovetter, it is fitting that I close with a reference to his current work. In his keynote speech at the 1990 INSNA conference, Granovetter admitted that he tried to escape the label of a social networker and move on to "more substantive interests in stratification, economic sociology and sociological theory" (Granovetter 1990). But, he went on, no matter which substantive avenue he traveled,

a review of the literature in that area led him to rediscover the importance of networks in understanding the social phenomena under scrutiny. Granovetter's current thinking differs especially with that of economists who seek to explain forces toward equilibria: "This means talking seriously about how changes occur. And what happens in such a dynamic account is that you have to look at how people make use of their location in social networks to mobilize resources in order to achieve their economic goals."

If change were simply dependent on new information, then weak ties would be preeminent. But when it comes to major change, change that may threaten the status quo in terms of power and the standard routines of how decisions are made, then resistance to that change must be addressed before predictions can be made about the success of that change effort. A major resource that is required to bring about such change is trust in the propagators of that change. Change is the product of strong, affective, and time-honored relationships. Change is the product of *philos*.

Notes

1. An alternative to the psychological explanation has been offered by Davis (1968:548). He suggests that groups cluster on attributes having less to do with sentiment and more to do with the social categories they belong to or to the fact that organizations are naturally divided into subgroups that facilitate balanced clusters of interaction. This is an interesting conjecture, one that deserves more systematic study. Nonetheless, there is some evidence suggesting that Heider's explanation is at least part of the picture. Krackhardt and Kilduff (1990) explored the friendship patterns within a small firm. The patterns of friendship did not clump into easily identifiable groups, as Davis would have predicted. But, consistent with balance theory, when an individual disagreed with his or her friends about their evaluations of others in the workplace, there was a strong tendency for that person to be relatively disaffected with his or her experience at the organization.
2. Since person k has some input into the definition of $R^*_{i,j}$, that is, when $i = k$ or when $j = k$, these "local ties" were excluded from person k 's accuracy score. For a more thorough discussion, see Krackhardt 1990:350.
3. Betweenness is calculated from the underlying graph of the asymmetric relation R^* . That is, the asymmetric relation is made symmetrical first before the betweenness score is computed. See Krackhardt 1990:351, for more details.
4. The program used here was an adaptation of Lingoes and Roskam's (1973) MINISSA package. See Kruskal and Wish's (1978) discussion of MDS and the various packages available.

References

- Berelson, B. R., Paul F. Lazarsfeld, and W. N. McPhee. 1954. *Voting: A Study of Opinion Formation in a Presidential Campaign*. Chicago: University of Chicago Press.
- Byrne, D. 1971. *The Attraction Paradigm*. New York: Academic Press.
- Crozier, M. 1964. *The Bureaucratic Phenomenon*. Chicago: University of Chicago Press.
- Davis, James A. 1963. "Structural Balance, Mechanical Solidarity and Interpersonal Relations." *American Journal of Sociology* 68:444-463.

- . 1968. "Social Structures and Cognitive Structures." in R. P. Abelson, E. Anderson, N. J. McGuire, T. M. Newcomb, M. J. Rosenberg, and P. H. Tannenbaum, eds. *Theories of Cognitive Consistency: A Source Book*. Chicago: Rand McNally.
- . 1979. "The Davis/Holland/Lernhardt Studies: An Overview." In Paul W. Holland and Samuel Lernhardt, eds. *Perspectives on Social Network Research*. New York: Academic Press.
- Erickson, E., and W. Yancey. 1980. "Class, Sector and Income Determination." Unpublished paper, Department of Sociology, Temple University.
- Fischer, Claude S. 1982. "What Do We Mean by 'Friend'? An Inductive Study." *Social Networks* 3:287–306.
- Freeman, Linton C. 1979. "Centrality in Social Networks: Conceptual Clarification." *Social Networks* 1:215–239.
- Friedkin, N. E. 1980. "A Test of Structural Features of Granovetter's Strength of Weak Ties Theory." *Social Networks* 2:22–41.
- Granovetter, M. S. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78:1360–1380.
- . 1982. "The Strength of Weak Ties: A Network Theory Revisited." In P. V. Marsden and Nan Lin, eds. *Social Structure and Network Analysis*. Beverly Hills: Sage.
- . 1985. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91(3):481–510.
- . 1990. "The Myth of Social Network Analysis as a Special in the Social Sciences." INSNA Conference, San Diego.
- Heider, Fritz. 1958. *The Psychology of Interpersonal Relations*. New York: Wiley.
- Krackhardt, David. 1987. "Cognitive Social Structures." *Social Networks* 9:109–134.
- . 1990. "Assessing the Political Landscape: Structure, Cognition, and Power in Organizations." *Administrative Science Quarterly* 35:342–369.
- Krackhardt, David, and Martin Kilduff. 1990. "Friendship Patterns and Culture: The Control of Organizational Diversity." *American Anthropologist* 92(1):142–154.
- Krackhardt, David, and Robert Stern. 1988. "Informal Networks and Organizational Crisis: An Experimental Simulation." *Social Psychology Quarterly* 51:123–140.
- Kruskal, Joseph B., and Myron Wish. 1978. *Multidimensional Scaling*. Beverly Hills: Sage.
- Lin, N., P. W. Dayton, and P. Greenwald. 1978. "Analyzing the Instrumental Use of Relations in the Context of Social Structure." *Sociological Methods and Research* 7:149–166.
- Lin, N., W. M. Ensel, and J. C. Vaughn. 1981. "Social Resources and Strength of Ties: Structural Factors in Occupational Status Attainment." *American Sociological Review* 46:393–405.
- Lingoes, J. C., and Edward E. Roskam. 1973. "A Mathematical and Empirical Analysis of Two Multidimensional Scaling Algorithms." *Psychometrika* 38:93.
- Newcomb, J. M. 1961. *The Acquaintance Process*. New York: Holt, Reinhart and Winston.
- Pool, I. 1980. "Comment on Mark Granovetter's 'The Strength of Weak Ties': A Network Revisited." Presented at the Annual Meetings of the International Communications Association, Acapulco, May.

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