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THE TIES THAT TORTURE:
SIMMELIAN TIE ANALYSIS IN ORGANIZATIONS

David Krackhardt

ABSTRACT

This paper draws on Simmel's triadic analysis of relations and compares the predictions to what Burt asserts from his structural holes theory. Burt's claim is that individuals who occupy positions high in structural holes will be least constrained in (and most delighted with) the situation. While Burt's theory is consistent with much of what Simmel argues, I suggest that there is an inconsistency which stems from what I have called Simmelian ties (ties embedded in cliques). In particular, this paper demonstrates the hazards of being surrounded by structural holes *and* being connected through Simmelian ties. In addition, this paper demonstrates the power of conducting Simmelian tie analysis in identifying structural roles in an organization.

INTRODUCTION

There has been no more important advance in the social network literature for organizational scholars within the past decade than Ron Burt's development of

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structural holes theory (Burt 1992).[1] In this and other supporting work (Burt and Knez 1995a, 1995b; Burt et al. 1994; Burt and Talmud 1993; Burt and Celotto 1992), Burt has shown that being in the center, being between others in a social system has distinct advantages. Burt's central theme is that an individual who is connected to alters who are not themselves connected to each other, that is a person who acts as a bridge between other actors in the social system, will be able to negotiate better agreements, extract higher rents, and in general be more powerful and successful than an individual who does not occupy such a bridging role.

This argument has echoes from the past. Lin Freeman's work on betweenness centrality makes a similar, if less elaborate, claim (Freeman 1979; Freeman and Roeder 1980). Indeed, Brass (1984) found that betweenness centrality was the best predictor of powerful actors in the organization he studies intensely. And Granovetter's (1973) work on the strength of weak ties also points to the advantage of occupying a position that bridges to distant parts of the social system. Granovetter explicitly made a somewhat different prediction, however. His concern was in the nature of the tie itself, and he predicted that weaker ties would more likely be such bridges than strong ties. Burt (1992) explicitly addresses Granovetter's theory and suggests that the strength of the tie is almost irrelevant (Burt, 1992, pp. 26-30). What counts most is whether the tie bridges or not. Therefore, Burt argues, bridging ties, independent of strength, are less constraining on the actor than non-bridging ties. In fact, at the margin, Burt claims, if you can bridge with a stronger tie, you are better off (stronger ties give you more leverage).

The argument I would like to present in this paper is that occupying such a position is not always as advantageous to the individual employee as Burt would have us believe. In fact, it may be under some reasonable conditions that occupying a bridging role can be *more* constraining, not less, especially if the tie is of a particularly strong kind, which I will call a Simmelian tie. The argument is not simply one of strength, though, but rather that the quality of the tie itself interacts with the bridging role to produce more constraint on the unsuspecting actor. To lay out this argument, I will first present Simmel's model of how ties fundamentally change when embedded in a triad.

Simmel's Triadic Model

Simmel focused attention on social relationships as a key to understanding how and why people behave and think as they do. And while others have looked at structural units larger than dyads (e.g., Kadushin's "social circles" in Kadushin 1968; Alba and Moore 1983), Simmel (1950, pp. 135-169) provided the first and most thorough theoretical foundation for the idea that social triads are fundamentally different in character from dyads. This difference is not due simply to the fact that triads have more participants. Rather the difference is one of quality, of dynamics, and of stability. Because this difference is key to motivating this paper, I will briefly describe the main arguments in Simmel's model.

Simmel distinguished dyads from connected triads on three grounds. First, dyads preserve the *individuality* of both players, relative to the players in triads, because within a dyad no majority can be mustered to outvote any individual. In any strongly connected group of three or more, an individual can be outvoted by the other group members, suppressing individual interests for the interests of the larger group.

Second, the *bargaining power* of the parties in a dyad is considerable relative to the bargaining power of parties in a triad. When faced with only one other partner, a player has equal footing with that other partner. He/she can threaten to dissolve the partnership if his or her demands are not met. In a triad, the demanding individual can withdraw, but the threat is made hollow by the fact that the remaining two (or more) members of the group can console each other, leaving only the offending deserter to be isolated from the group. Thus, the threat of withdrawal carries less weight.

Third, *conflict*, which is inevitable in any relationship over time, is more readily managed and resolved in a triad. In a standard dyadic arrangement, conflicts escalate, and positions harden. In the presence of a third party, such positions are more likely to be moderate. The third party can reformulate and present the concerns of the other parties without the harsh rhetoric and emotional overtones. As Simmel (1950, p. 145) put it, "The appearance of the third party indicates transition, conciliation, and abandonment of absolute contrast." Even if a third party doesn't act decisively in resolving a conflict between two parties, his or her mere presence can ameliorate dissension. "Such mediations need not occur in words: a gesture, a way of listening, the quality of feeling which proceeds from a person, suffices to give this dissent between two others a direction toward consensus."

Simmel's three triadic forces—toward reduced individuality, reduced individual power, and moderated conflict—contribute to the group's survival and preserve its identity at the expense of the individual, at least when compared with the isolated dyad. Thus, as a consequence of this theory, one would expect that individuals who are a part of a three-person (or more) informal group are less free, less independent, more constrained, than a person who is only party of a strong dyadic relationship.

It should be emphasized here that, thus far, we have said nothing about Simmel's theory to which Burt would disagree. Indeed, in the same paper, Simmel also discussed the *divisive* force that the presence of a third party can have under two conditions: (1) *Tertius Gaudens*, in which the two competing parties do not have a strong relationship between them but are mainly related indirectly through the third party, in which case the third party can take advantage of the conflict for his or her own benefit; and (2) *Divide et Impera*, in which the third party actively participates in separating the two other parties to attain or maintain supremacy. In fact, it is these alternative two Simmelian structures that are the building block for Burt's structural hole theory. My purpose here, though, is to focus on the dyad-triad comparison that Simmel proffered, that is how the strongly connected triad (clique) differs substantially from the isolated dyad, not on how the different

forms of triadic structures differ from each other (a point to which I will return shortly). Indeed, the triad was special to Simmel primarily because of its contrast to the dyad. In his view, the differences between triads and larger cliques were minimal. The difference between a dyad and a triad, however, was fundamental. Adding a third party to a dyad "completely changes them, but...that the further expansion to four or more persons by no means correspondingly modifies the group any further" (Simmel, 1950, p. 138).

Simmelian Tie Defined

Based on Simmel's theory of triadic structures, I define a "Simmelian tie" as follows: Two people are "Simmelian tied" to one another if they are reciprocally and strongly tied to each other and if they are each reciprocally and strongly tied to at least one third party in common. This definition resembles the concept of a clique (Luce and Perry 1949), and there is a strong isomorphism between the two ideas. Cliques are defined on a graph as a maximal set of three or more nodes (people, in this case) all of whom are directly and reciprocally connected to each other. Thus, each pair of people in a clique are Simmelian tied to each other; and conversely, any pair of individuals who are Simmelian tied are co-members of at least one clique. Thus, a perfectly good alternative definition of a Simmelian tie is a tie embedded in a clique, or a co-clique relationship (two actors who are members of the same clique).

In addition, since I will be comparing Simmelian ties to dyadic ties that are not Simmelian, it is worth developing a terminology to refer to these non-Simmelian ties. To this end, I will use the terminology developed elsewhere (Krackhardt in press). A *dyadic tie* from one party to another is one of three mutually exclusive and exhaustive types: (1) it may be *Simmelian*, as defined above; (2) it may be *asymmetric* (the first party sends a tie to the second party but the second party does not send a comparable tie back to the first party); or (3) it may be *sole-symmetric* (the two parties are reciprocally tied to each other but there is no third party who is also reciprocally tied to the first two parties).

ROLES AND SIMMELIAN TIES

One of the key threads in the historical development of social network analysis as a paradigm is that network structures can help to identify roles in social systems (Lorrain and White 1971; Burt 1982; White, Boorman, and Breiger 1976). In a series of published lectures, Nadel (1957) proposed that roles could be thought of as a set of expectations about how people should relate to other role occupants. Indeed, Nadel specifically proposed that roles in a social system could be best understood by noting how such relationships changed as people interacted with others in different role sets. He argued that people's actions are constrained not

only by their membership in a role set but more importantly by the rules that governed how members of a given role set were to act towards or with members of other specific role sets. That is, behaviors are not a function of an individual's role per se but rather how occupants of that role are expected to behave with occupants of another role. Police are stern and foreboding with criminals; but they are helpful and polite with what they see as the "naive public" (Van Maanen 1978). Professors are authoritative with their students, but deferential to their accountants.

In a watershed piece, Lorrain and White (1971) used Nadel's ideas to argue that what is needed is a systematic method of identifying such roles. They suggested using network relations as raw data and inferring roles from these by partitioning the nodes of the network in such a way that reveals the predominant relations among them. The partitions would define the roles and network relations would describe the interaction patterns that the roles prescribe and proscribe.

This seminal idea has become the hallmark of much of network analysis in the past 25 years (Burt 1976; White, Boorman, and Breiger 1976; Breiger, Boorman, and Arabie 1975; Wasserman and Faust 1994). The building block for this formalism has come to be interpreted as people occupy the same role (are *structurally equivalent*) to the extent that they have the same relations with the same other individuals (see Borgatti and Everett, 1992, for a lucid discussion of the differences in formal definitions of structural equivalence). Roles then are comprised of sets of individuals who are (relatively) structurally equivalent.

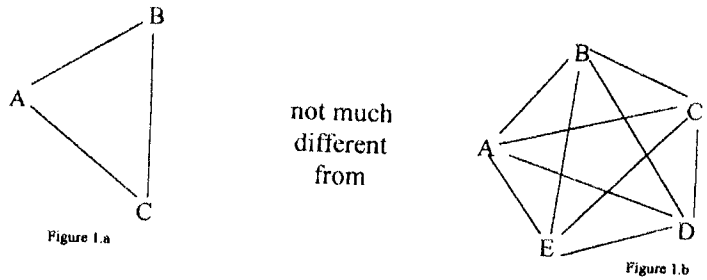
The end product of such analysis, frequently, is groups of individuals who occupy structurally similar roles. The theoretical basis for this type of analysis is well developed elsewhere (Burt 1982) and has become the core of much of the current structural thinking about organizations. For example, DiMaggio (1986) argued that organizational populations or fields can be identified by structurally equivalent roles occupied by organizations. Burt (1983, 1994) has shown that an industry's profit margin is significantly related to the industrial sector's structural autonomy, a concept defined in part by identifying structurally equivalent roles that organizations have in the industry. At the micro level, Nelson (1989) showed how conflict management within organizations is significantly related to the extent to which participants in different structurally equivalent roles are connected to each other. And Krackhardt and Porter (1986) applied an extension of the structural equivalence role analysis to predict who was likely to leave an organization.[2]

Simmelian Ties and Role Constraints

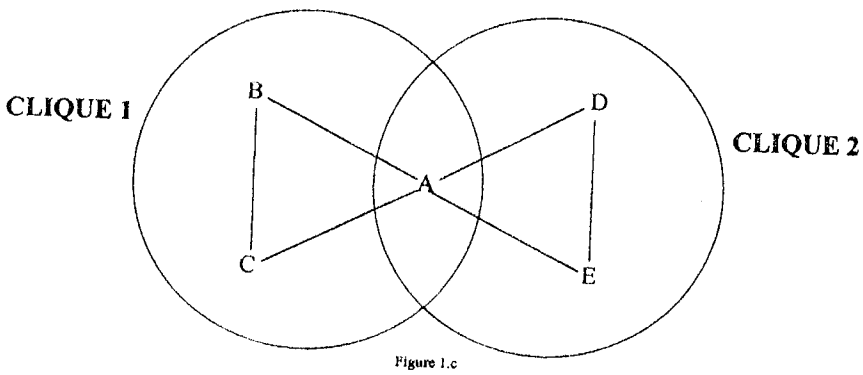
How do Simmelian ties relate to role analysis? Recall that Simmel's primary argument was that ties bound by a third party gave each party less autonomy, less power, less independence in relating to the other members of the triad. That is, the formation of a group (a triad or larger) fundamentally restricts an individual's options in terms of their public behavior vis-à-vis the other members of the group.

Solely dyadic ties may provide comfort, support, and information, but they are not as restrictive. People have more power to act independently. Once a triad is formed, group norms develop rules by which each member must play to stay a part of the group (Schein 1965).

Role constraints are restricting. But roles that are based on dyadic ties (the conventional definition of structural roles) are not as restricting as roles that are based on Simmelian ties. That is, two actors are bound to those roles with more force than two actors who are structurally equivalent because they have the same sole-symmetric or asymmetric ties.



Constraints on A in Figures 1.a and 1.b: S1 = set of permissible behaviors as determined by norms of one clique



Constraints on A in Figure 1.c: must satisfy two cliques' sets of norms: $S1 \cap S2$

Figure 1. Role Constraints of Simmelian Ties with Multiple Groups

Simmelian Ties to Multiple Groups

This reasoning brings to the fore a serious implication for Simmelian ties. As stated earlier, one person having a Simmelian tie to someone else is equivalent to saying they are members of a common clique. But, a person may be a member of more than one clique. In the past, the prevalence of overlapping cliques has been viewed as a limitation of clique analysis that has kept researchers from any practical application of the powerful concept in empirical organizational work (see Scott's 1991 discussion of these limitations).

However, if we treat cliques as indicators of Simmelian ties—strong bonds that constrain an individual's choices to act independently in public—then we can take advantage of the existence of multiple overlapping cliques in an interesting way. First, recall that Simmel argued that expanding beyond three persons only marginally affects the dynamics. The size of the group, from his perspective, was less relevant than the fact that the group (size = three or greater) existed at all. Thus, in Figure 1, whether A is surrounded by two others (Figure 1.a) or four others (Figure 1.b) makes relatively little difference. She is constrained by the norms of that clique, whatever those norms are.

Norms are sets of rules about how one behaves as the price for staying a member of the group (Schein 1961). One can characterize these norms as relatively peripheral versus critical, or as mandates versus prohibitions. For didactic purposes, I will designate the norms of a clique as a set S_1 and define the set as all those behaviors that are *permissible* in group (or clique) #1. By definition, then, all behaviors outside this set are prohibited by the group. A potentially different set of norms, S_2, would be permissible in clique #2.

If person A were simultaneously a member of two cliques (such as in Figure 1.c), then person A would be subject to two sets of restrictions, those defined by S_1 and those defined by S_2. The permissible set of behaviors that would satisfy both groups, then, would be $S_1 \cap S_2$. The key point here is, if we assume (reasonably, I would argue) that the set of norms of one clique is not strictly a subset of the set of norms of another clique, i.e., $S_1 \not\subset S_2$ and vice versa, then $S_1 \cap S_2 < S_1$ *and* $S_1 \cap S_2 < S_2$. That is, to the extent that norm-bound behaviors are visible to members of both groups, a person who is a member of two cliques has fewer permissible behaviors than a person who is a member of just one of them. By extension, the more cliques one is a member of, the more constrained are one's options.

Returning to person A in Figure 1, there is a considerable difference in person A's position in Figure 1.b and Figure 1.c. In the former case, person A is constrained by one clique. In the latter case, she is constrained by the norms of two cliques. By this logic, even though she appears to be heavily bound with more Simmelian ties in Figure 1.b, person A is normatively bound to a smaller set of acceptable behaviors in Figure 1.c. Therefore, she enjoys more structural freedom in Figure 1.b than Figure 1.c.

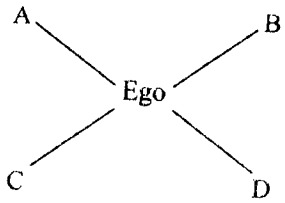
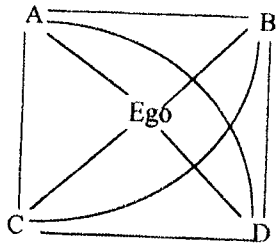
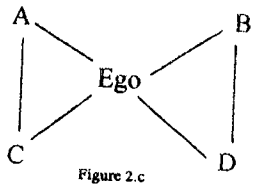
	Burt's Structural Hole Theory	Simmelian Tie Theory
 Figure 2.a	Least Constrained	Least Constrained
 Figure 2.b	Most Constrained	Somewhat Constrained, but only by 1 Clique
 Figure 2.c	Somewhat Constrained, but also empowered as bridge between 2 Cliques	Most Constrained, must satisfy 2 Cliques

Figure 2. Constraint on Ego According to Structural Holes vs. Simmelian Tie Theories

To summarize this Simmelian logic, Simmelian ties strengthen the bond between actors at a price: they also subject the players to group norms. More Simmelian ties only marginally strengthen one's bonds. But the more cliques one has Simmelian ties to, the more restrictions there are on one's behavior.

It is here that the triadic Simmelian theory diverges from Burt's structural hole theory. Burt's primary emphasis is on whether a person's ties to a set of alters are tied to each other; the more the alters are tied together, the more constraint is placed on ego. Simmelian theory, on the other hand, cares not only about such ties but whether a person is embedded in cliques; the more cliques one is embedded in, the more constrained the person is.

Under many circumstances, these predictions will be the same. But Figure 2 demonstrates where the two predictions depart from one another. In Figure 2.a, where the focal person (ego) is tied to four alters who have no relationship with one another, both Burt's theory and Simmelian tie theory would agree: such ties place the least amount of constraint on ego. In Figure 2.b, ego is surrounded by a dense clique. In Burt's theory, this represents the maximum constraint condition, with no opportunities for *tertius gaudens* plays. In Simmelian tie theory, this condition does represent some constraint on ego, but ego is only embedded in one clique. Therefore, ego only has to please one clique's set of norms.

Figure 2.c represents the case where ego is embedded in two different (but smaller) cliques. According to structural hole theory, there is some constraint placed on ego here, because alters A and C are tied to each other, and B and D are tied to each other. Therefore, ego's ties to A and C are somewhat redundant and cannot be played off against each other: and the same is true for B and D. But, ego is empowered by the fact that he is a bridge between the two disconnected cliques. Thus, while ego does not enjoy as much structural freedom as in Figure 2.a, ego is considerably more powerful in Figure 2.c than he was in Figure 2.b.

Simmelian tie theory, on the other hand, predicts a different outcome. In Figure 2.c, ego is subjected to the norm sets of two different cliques. To the extent that the norms generated by the A-C-Ego clique are distinct from the B-D-Ego clique, then Ego is faced with higher, not lower, constraints in Figure 2.c than in Figure 2.b.

Method for Role Analysis of Simmelian Relations

Two essential points were made in the last section. First, roles based on Simmelian ties will yield stronger roles (and role constraints) than roles based on ordinary dyadic ties. Second, being Simmelian tied to many cliques is more constraining still than being Simmelian tied to one clique. I will now illustrate an application of these ideas to demonstrate how a role analysis of Simmelian ties can yield a deeper understanding of the structure in which social actors are embedded.

The method used below combines the idea of clique analysis (Luce and Perry 1949) and block modeling (White, Boorman, and Breiger 1976). The basic strategy to be followed will be first to translate the raw relationship matrices into Simmelian links and then ask the question what roles emerge from this structure. Since the procedure is somewhat unusual, I will describe each step in detail:

Step 1: Identify cliques. Each relationship data matrix is symmetrized using an intersection rule to preserve strong ties. Then this matrix is subjected to a Luce-Perry clique detection algorithm, which identifies all cliques of size three or larger. The result is a matrix **C** of order (where K is the number of distinct cliques uncovered by the algorithm), such that

$$C_{ik} = \begin{cases} 1 \text{ if actor } i \text{ is a member of clique } k; \\ 0 \text{ otherwise.} \end{cases}$$

Step 2: Calculate co-clique matrix. For each C_{ik}, a co-clique matrix K is calculated as follows:

$$\mathbf{K} = \mathbf{CC}',$$

where C' is the transpose of C. Each entry in this matrix K is the number of cliques that i and j both belong to; K_{ii} is the total number of cliques that i is a member of. There will be G such matrices, one for each relation.

Step 3: Stack the co-clique matrices. Each of the K matrices is merged into one large overall matrix, S, of order , where $Q = GN$. That is, the first K occupies the first N rows of S, the next K occupies the next N rows, and so on, until all G matrices are included in S.

Step 4: Calculate R. Correlations are calculated from S for each (i,j) pair of actors and stored in matrix R. The vectors for the correlation between i and j are the columns in S corresponding to column i and column j.

Step 5: Cluster R. Johnson's hierarchical clustering is performed on R, using the "average" method, which reduces the likelihood of "chaining" occurring during the clustering. "Chaining" in clustering is the tendency for clusters to be built by

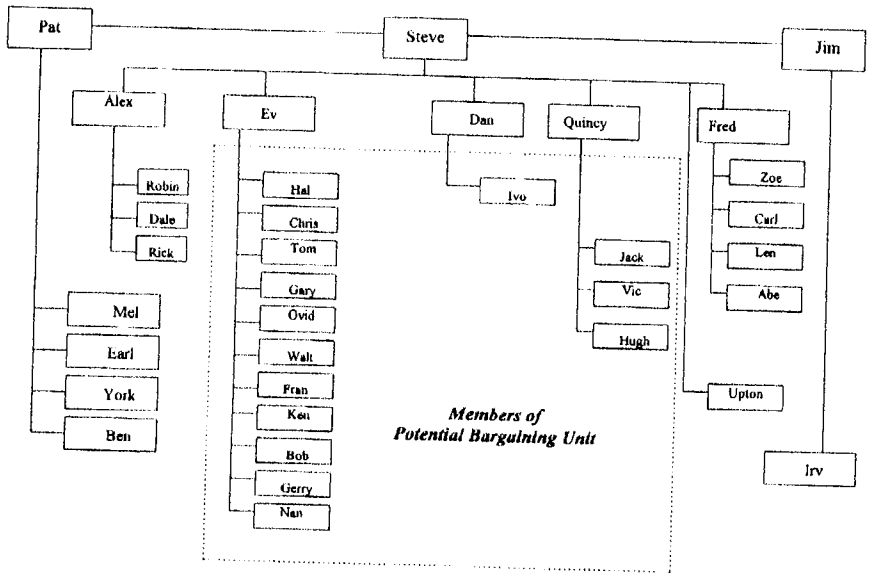
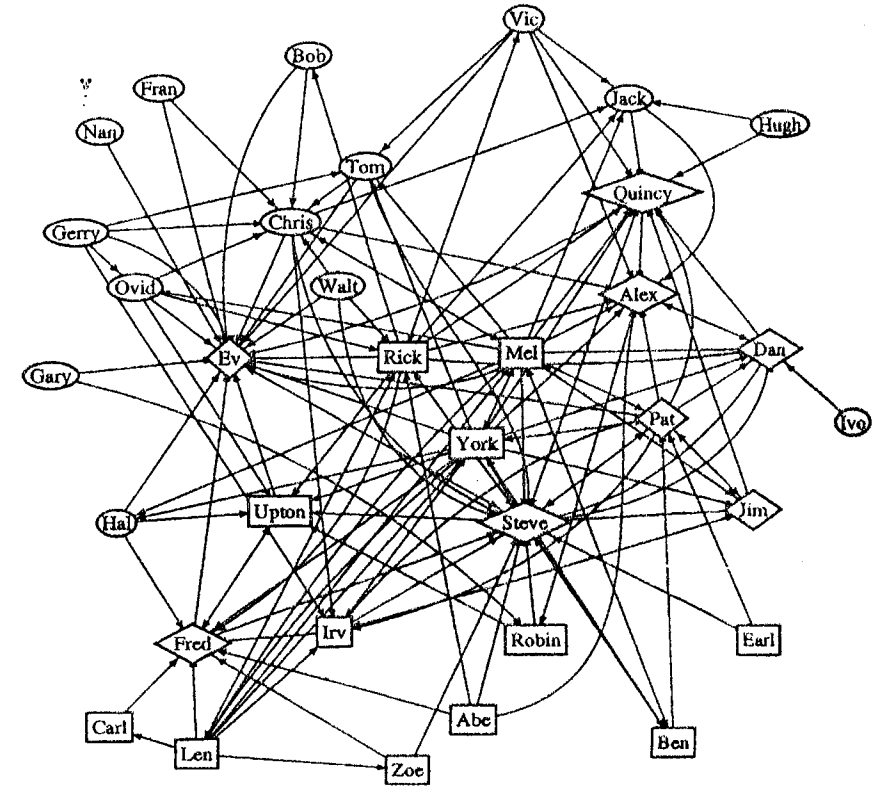


Figure 3. Organizational Chart of Silicon Systems



Note: Names in ovals are members of the potential bargaining unit.

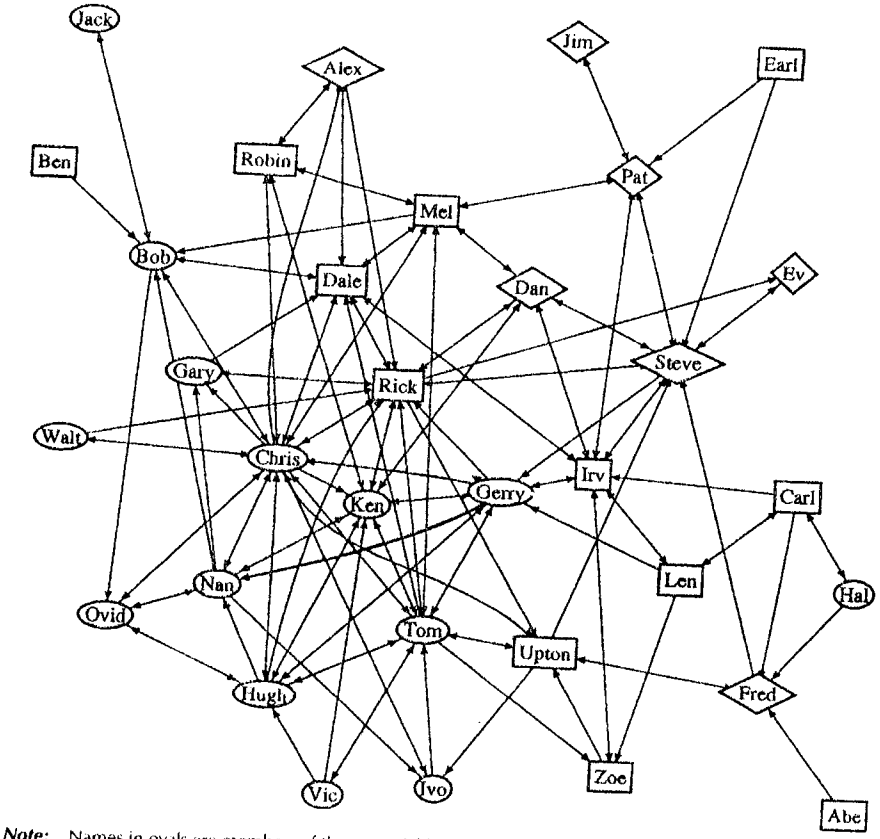
Figure 4. Advice Sociogram of Silicon Systems

simply adding one isolated node at each step, creating an often uninterpretable and usually uninteresting agglomeration. The "average" clustering method results in a partition of the set of actors into definable groups that are structurally similar based on their Simmelian ties.

Step 6: Create blockmodels. For each relation, create a block density and image matrix based on the groupings in Step 5. From these matrices, one can infer the roles played by each group.

The Site: Silicon Systems

In this portion of the paper, I will borrow data collected by Krackhardt (1992) in an entrepreneurial computer firm called Silicon Systems. Figure 3 shows the organizational chart of all 36 employees. Silicon Systems' business involved the sales,



Note: Names in ovals are members of the potential bargaining unit.

Figure 5. Friendship Sociogram of Silicon Systems

installation, and maintenance of computer systems in client organizations. The firm was wholly owned by the three top managers (Steve, Jim, and Pat), each of whom owned an equal share. As part of a larger study (Krackhardt 1990), a questionnaire was distributed to all 36 employees, 33 of which were completed. For purposes of the analysis of relations here, the responses to the two network questions are relevant: "Who would you go to for help or advice?" and "Who do you consider to be a personal friend?" These relations are depicted in sociograms provided in Figures 4 and 5, respectively.

Four months after the network data were fed back to the firm, a union certification drive was started by the employees of the firm. In an analysis of the event, Krackhardt (1992) argued that Chris and Ovid, who were pro-union in sentiment, were quiet and kept their opinions to themselves. In contrast, Jack, Hal, and Ivo

Table 1. Person by Clique Membership Table for Advice

	Clique					
	1	*2*	*3*	*4*	*5*	*6*
1 Abe	.	.	.	.	.	.
2 Bob	.	.	.	.	.	.
3 Carl	.	.	.	.	.	.
4 Dale	.	.	.	.	.	.
5 Ev	.	.	.	.	.	.
6 Fred	.	.	.	.	.	.
7 Gary	.	.	.	.	.	.
8 Hal	.	.	.	.	.	.
9 Ivo	.	.	.	.	.	.
10 Jack	.	.	.	.	.	.
11 Ken	.	.	.	.	.	.
12 Len	.	1	.	.	.	.
13 Mel	.	1	1	1	.	.
14 Nan	.	.	.	.	.	.
15 Ovid	.	.	.	.	.	.
16 Pat	1	.	1	.	1	1
17 Quincy	.	.	.	.	.	.
18 Robin	.	.	.	.	.	.
19 Steve	1	.	.	.	.	.
20 Tom	.	.	.	.	.	.
21 Upton	.	.	.	.	.	.
22 Vic	.	.	.	.	.	.
23 Walt	.	.	.	.	.	.
24 Rick	.	.	.	.	.	.
25 York	.	1	1	1	1	.
26 Zoe	.	.	.	.	.	.
27 Alex	.	.	.	.	.	.
28 Ben	.	.	.	1	.	.
29 Chris	.	.	.	.	.	.
30 Dan	.	.	.	.	.	.
31 Earl	.	.	.	.	.	.
32 Fran	.	.	.	.	.	.
33 Gerry	.	.	.	.	.	.
34 Hugh	.	.	.	.	.	.
35 Irv	.	.	.	.	1	1
36 Jim	1	.	.	.	.	1

Table 2. Person by Clique Membership Table for Friendship

		Clique														
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1	Abe	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	Bob	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.
3	Carl	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	Dale	1	1	.	.	.	.	.	1	.	.	.	.	.	.	.
5	Ev	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	Fred	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7	Gary	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8	Hal	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9	Ivo	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10	Jack	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11	Ken	.	.	.	.	.	.	.	.	1	1	1	1	.	.	.
12	Len	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13	Mel	1	.	.	.	.	.	1	.	.	.	.	.	.	.	.
14	Nan	.	.	.	1	1	.	.	.	.	.	1	.	.	.	.
15	Ovid	.	.	.	1	.	1	.	.	.	.	.	.	.	.	.
16	Pat	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.
17	Quincy	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18	Robin	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.
19	Steve	.	.	.	.	.	.	.	.	.	.	.	.	1	1	1
20	Tom	1	1	1	.	.	.	.	.	1	1	.	.	.	.	.
21	Upton	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22	Vic	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23	Walt	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24	Rick	.	1	.	.	.	.	.	.	.	1	.	1	.	1	.
25	York	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26	Zoe	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27	Alex	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28	Ben	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29	Chris	1	1	1	1	1	1	1	.	.	.	.	.	.	.	.
30	Dan	.	.	.	.	.	.	.	.	.	.	.	1	.	1	1
31	Earl	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
32	Fran	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33	Gerry	.	.	1	.	1	.	.	.	1	.	1	.	.	.	.
34	Hugh	.	.	1	.	.	1	.	.	1	.	.	.	.	.	.
35	Irv	.	.	.	.	.	.	.	.	.	.	.	.	1	.	1
36	Jim	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

(also pro-union) were quite vocal about their stand. Dale, Mel and Robin, who were not members of the potential bargaining unit but had close ties with others who were members, vociferously supported the anti-union position. Krackhardt (1990) maintained that the key participants who were pro-union were not influential either because they did not take a stand or they were too isolated from the main group in the friendship network. The key anti-union people were influential because they were both in an influential position and were actively proselytizing. After the certification campaign of two months, the union was resoundingly defeated by a vote of 12-3. My purpose here is to see if this analysis of these events can be enhanced by re-examining roles through the Simmelian ties.

Co-Clique Analysis of Silicon Systems

The first task is to determine what cliques exist in the two network relations. To do so, the data represented in Figures 4 and 5 (advice and friendship relations) were symmetrized (using an intersection rule) and submitted to UCINET's (Borgatti, Everett, and Freeman 1992) clique detection program. The results are given in Tables 1 and 2.

Table 1 shows that there were only six cliques in the advice network, and only eight of the 36 employees were in any cliques at all. The remaining 28 employees were in no cliques. I will call these latter employees pseudo-isolates: While they may have had strong directed relations with many other players, as shown in Figure 2, none of these relations were Simmelian because they were not relations reinforced by a third party. Table 2 shows that the friendship network had more cliques (15 in all) and that more people (16) are members of at least one clique. This difference between the two networks is dramatic, especially considering that the raw data for the advice network was denser than for the friendship, making it much easier to find cliques by happenstance. However, the higher frequency of Simmelian ties observed in the friendship network can be explained by the fact that advice relations in general are more often asymmetric, and many of these relations thus failed the test of a Simmelian tie because they were not reciprocated. An advice clique required that a group of at least three people all go to each other for advice. It is apparent from these results that it is much easier to find groups of employees all of whom considered each other friends than it is to find groups of employees all of whom went to each other for advice. It is apparent from these results that it is much easier to find groups of employees all of whom considered each other friends than it is to find groups of employees all of whom went to each other for advice.

From these data, we construct the co-clique tables for advice and friendship cliques (Tables 3 and 4, respectively). The cells in these tables show how many different cliques the row person and column person shared. The diagonal cells (indicating that the row person is the same as the column person) contain the number of different cliques the person was in.

Table 3. Co-Clique Table for Advice

Clique Co-Memberships

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
	AB	BO	CA	DA	EV	FR	GA	A	IV	JA	KE	LE	ME	NA	OV	PA	QU	RO	ST	TO	UP	VI	WA	RI	YO	ZO	AL	BE	CH	DA	EA	FR	GE	HU	IR	JI
1 ABE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2 BOB	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3 CARL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 DALE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
5 EV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6 FRED	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7 GARY	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8 HAL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9 IVO	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10 JACK	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11 KEN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12 LEN	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.
13 MEL	.	.	.	.	.	.	.	.	.	.	.	1	3	.	.	1	.	.	.	.	.	.	.	.	3	.	.	1	.	.	.	.	.	.	.	.	.
14 NAN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
15 OVID	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
16 PAT	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	4	.	.	1	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	2	2
17 QUINCY	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18 ROBIN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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19 STEVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
20 TOM	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
21 UPTON	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22 VIC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23 WALT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24 RICK	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
25 YORK	.	.	.	.	.	.	.	.	.	.	.	1	3	.	.	2	.	.	.	.	.	.	.	.	4	.	.	1	.	.	.	.	.	.	1	.
26 ZOE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27 ALEX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28 BEN	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.
29 CHRIS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
30 DAN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
31 EARL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
32 FRAN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33 GERRY	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
34 HUGH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
35 IRV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	2	1
36 JIM	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	2

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Table 4. Co-Clique Table for Advice

Clique Co-Memberships

	1 AB	2 BO	3 CA	4 DA	5 EV	6 FR	7 GA	8 A	9 IV	10 JA	11 KE	12 LE	13 ME	14 NA	15 OV	16 PA	17 QU	18 RO	19 ST	20 TO	21 UP	22 VI	23 WA	24 RI	25 YO	26 ZO	27 AL	28 BE	29 CH	30 DA	31 EA	32 FR	33 GE	34 HU	35 IR	36 JI
1 ABE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2 BOB	.	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.
3 CARL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 DALE	.	1	.	3	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	2	.	.	.	1	.	.	.	.	3	.	.	.	.	.	.	.
5 EV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6 FRED	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
7 GARY	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8 HAL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
9 IVO	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10 JACK	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11 KEN	.	.	.	.	.	.	.	.	.	.	4	.	.	1	.	.	.	.	.	2	.	.	.	2	.	.	.	.	.	1	.	.	2	1	.	.
12 LEN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
13 MEL	.	.	.	1	.	.	.	.	.	.	.	.	2	.	.	.	.	1	.	1	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.
14 NAN	.	.	.	.	.	.	.	.	.	.	1	.	.	3	1	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	2	.	.	.
15 OVID	.	.	.	.	.	.	.	.	.	.	.	.	.	1	2	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	1	.	.
16 PAT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.
17 QUINCY	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
18 ROBIN	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.
19 STEVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	3	.	.	.	.	1	.	.	.	.	.	2	.	.	.	.	2	.
20 TOM	.	.	.	2	.	.	.	.	.	.	2	.	1	.	.	.	.	.	.	5	.	.	.	2	.	.	.	.	3	.	.	.	2	2	.	.
21 UPTON	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
22 VIC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
23 WALT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
24 RICK	.	.	.	1	.	.	.	.	.	.	2	.	.	.	.	.	.	.	1	2	.	.	.	4	.	.	.	.	1	2	.	.	.	.	.	.
25 YORK	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
26 ZOE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
27 ALEX	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
28 BEN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
29 CHRIS	.	1	.	3	.	.	.	.	.	.	.	.	2	2	2	.	.	1	.	3	.	.	.	1	.	.	.	.	8	.	.	.	2	2	.	.
30 DAN	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	2	.	.	.	.	2	.	.	.	.	.	3	.	.	.	.	1	.
31 EARL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
32 FRAN	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
33 GERRY	.	.	.	.	.	.	.	.	.	.	2	.	.	2	.	.	.	.	.	2	.	.	.	.	0	.	.	.	2	.	.	.	4	2	.	.
34 HUGH	.	.	.	.	.	.	.	.	.	.	1	.	.	.	1	.	.	.	.	2	.	.	.	.	.	.	.	.	2	.	.	.	2	3	.	.
35 IRV	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	2	.	.	.	.	1	.	.	.	.	.	1	.	.	.	.	2	.
36 JIM	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

The correlation matrix R was created from stacking the tables in Tables 3 and 4 along with their transposes and correlating every pair of columns. R was then subjected to a clustering analysis, the results of which are in Figure 6. Because there is very little evidence of chaining, the clusters are reasonably clear and interpretable. First, the pseudo-isolates are clustered together on the left. These 16 people are members of no cliques in either the advice or friendship networks.

Perhaps most striking from this analysis is the unusual jump in the size of the correlation as one moves up the dendogram to less agglomerated levels as shown in the left-hand column in Figure 6. Very often, these changes are so gradual that it is difficult to decide what is a "natural" number of groups. In this case, however, there is a sizable jump from four groups (with an average within-group correlation of .19) to five groups (with an average within-group correlation of .42). Choosing a five-group cluster provides a sizable increase in the degree to which each group is composed of structurally similar actors, compared with a four-group solution. If one were to choose six groups, then the members of each group would be more similar to each other (.47), but not substantially more so than the more parsimonious five groups. Ordinarily, the decision regarding how many groups to select for the blockings is an arbitrary one. In this case, the decision was made much easier by the clear jump in information attained in the five-block solution.[3]

Figure 7 shows the final roles (blocks) as revealed by this analysis. I will give these roles names so as to be able to talk about how the participants in each role affected the outcome of the event of interest here, the union certification campaign.

Block 5 is composed of Pat, Steve, and Jim—the three owners— and Irv. I call this role the Power Center of the organization. Individuals in this block are Simmelian tied with each other on advice, and there are some Simmelian advice ties to Block 1. They are weakly linked to themselves and to Block 2 in Simmelian friendship links. Thus they are predominantly an advice block, and mostly to each other.

Block 1, composed of Len, Mel, York, and Ben, is very similar in structure to the Power Center block. People in this block are strongly linked to others in the block in Simmelian advice ties, and they have weak Simmelian friendship ties to others in their block and to one other group (Block 4). Informally, then, Block 1 looks similar to the Power Center, but individuals in it lack the formal power of those in Block 5. I call Block 1 the Shadow Cabinet.

Block 4, the second largest group after the pseudo-isolates (Block 3), is composed of 10 people whose most distinguishing characteristic is that they make up the friendship nerve center for the organization. They are heavily linked to each other in Simmelian friendship ties, with some weak connections to Block 2 and the Shadow Cabinet. They have no Simmelian advice ties. I call Block 4 the Affect Integrators.

Block 2, a Lonely Duo of Rick and Dan, is inexplicable in its position, and I have no better name for it. Rick and Dan play a small bridging role in the Simme-

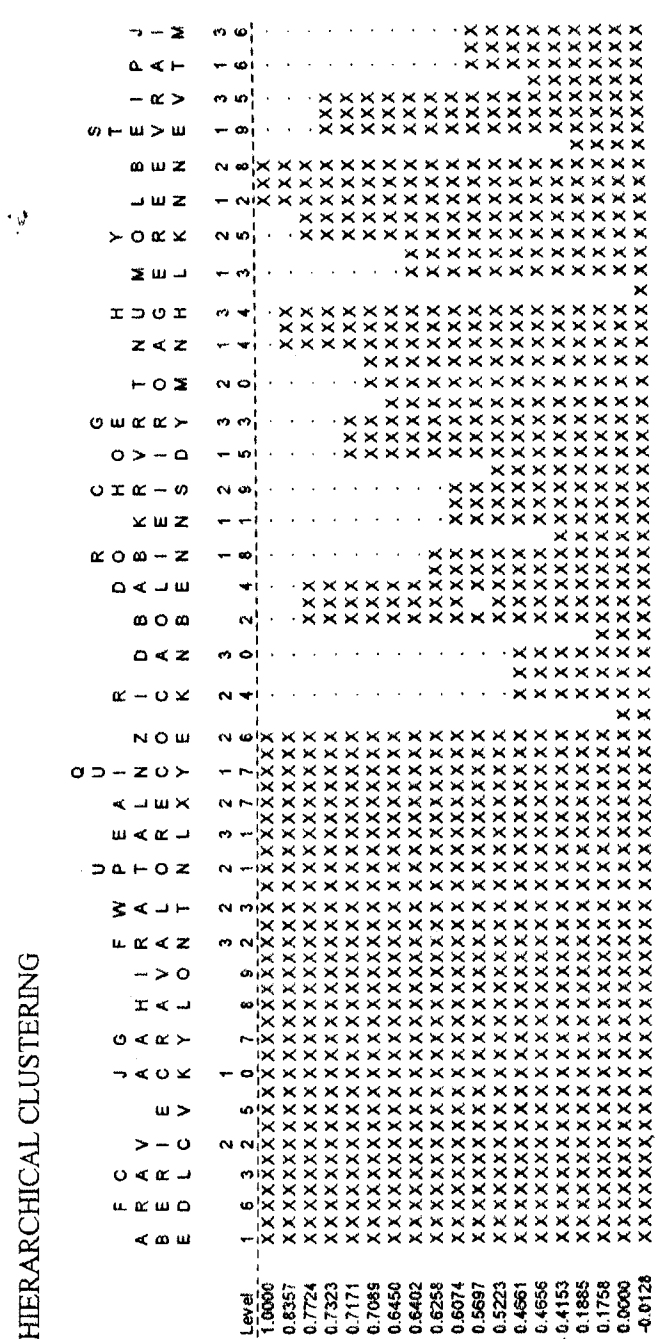

Figure 6. Dendogram on Clustering of Structural Similarities

Block	Members:
1:	Len, Mel, York, Ben
2:	Rick, Dan
3:	Abe, Carl, Ev, Fred, Gary, Hal, Ivo, Jack, Quincy, Upton, Vic, Walt, Zoe, Alex, Earl, Fran
4:	Bob, Dale, Ken, Nan, Ovid, Robin, tom Chris, Gerry, Hugh
5:	Pat, Steve, Irv, Jim

Advice

	1	2	3	4	5
1	1.44	.	.	.	0.25
2	.	.	.	.	.
3	.	.	.	.	.
4	.	.	.	.	.
5	0.25	.	.	.	1.44

Friendship

	1	2	3	4	5
1	0.13	.	.	0.13	.
2	.	2.75	.	0.35	0.50
3	.	.	.	.	.
4	0.13	0.35	.	1.04	.
5	.	0.50	.	.	0.88

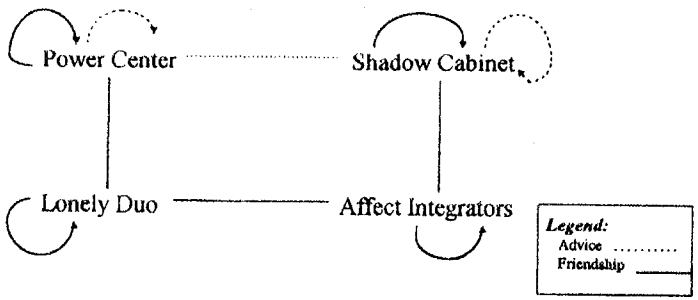

Figure 7. Block Densities and Image Graph for Silicon Systems

lian friendship ties between the Affective Integrators and the Power Center, but because they had little role to play in the organization's dynamics during the unionization attempt according to Krackhardt's (1992) ethnographic account, I will ignore them for the current analysis.

What role did the key actors play in the union certification drive? The chief pro-union people were Jack, Hal, Ivo, Chris, and Ovid. The chief anti-union actors were Dale, Robin, and Mel. One explanation offered by Krackhardt (1992) for the failure of the union campaign was that Hal, the most vocal of all, was ineffective in his pro-union pleas because he was relatively isolated in the friendship network

from the remaining people in the potential bargaining unit (see Figure 5). And Chris, who was the most central person in the friendship network, and one of the most respected and influential people informally in this group, remained quiet throughout the two-month certification campaign. Thus his powerful position was neutralized by his reticent behavior. Ovid, another pro-union person, was also part of the friendship group, but, like Chris, chose not to actively lead the campaign to support the union. Again, his potential influence was diminished by his behavior.

One look at the friendship network reveals that the key vocal supporters (Jack, Ivo, and especially Hal) of the union were relatively peripheral to the potential bargaining unit. In contrast, Ovid and especially Chris, both supportive but not openly so, were very influential at the center of the friendship network. Krackhardt speculates that if Chris and Ovid had been vocal supporters and if Jack, Ivo and Hal had been the quiet ones, then the vote would have easily gone the other way. While this interpretation is undoubtedly true, it leaves unanswered one critical question: *Why* did Chris and Ovid take a back seat in this process (despite their personal views of support for the union), while Jack, Ivo, and Hal were so openly enthusiastic in their support?

The role analysis here sheds light on this question. The potential move to becoming unionized was highly controversial within the firm. The change was viewed as dramatic, one that would have been counter to the entrepreneurial culture that constituted the status quo. Publicly working against the status quo requires a certain degree of freedom, or independence, from it. Revolutionary ideas are often controversial, and those that threaten the established culture are even more so.

One of the key tenets of Simmel's argument is that triads constrain behavior more decisively than (sole-symmetric) dyads. A three-person group thus not only develops norms but enforces them more successfully than dyads. This suggests that clique membership will strongly suppress deviant behavior, and the prevailing norm for most of the groups in this organization was to have no union. While some were in favor of it, others were not, and to introduce a union would have constituted a radical change form the way things were done in the past.

While it is true that at least Jack and Ivo were connected to other members of the bargaining unit in the friendship network—and therefore presumably had to reckon with how this controversy might affect these relationships—they had no Simmelian ties to anyone. Jack, Ivo and Hal's roles were that of *pseudo-isolates*. They were not constrained by being trapped in normatively bound roles. They were free to speak their minds. And they did.

There were internal pressures to keep the union out. Had the central Affective Integrators been unanimous in this support of the union, this organizational/cultural norm could have been overruled. But, as Asch (1951) pointed out, it only takes one dissenter to allow the force of unanimity to be broken. Two members of the Affect Integrators, Dale and Robin, were opposed to the union because of the experience they had had in other organizations. Dale and Robin were not members of

the potential bargaining unit, and therefore one might argue they should not have carried any weight in this process. But they were members of the stronger, informal club of Affective Integrators. Their dissension was enough to break the unanimity that might have allowed the group to go against the company norm. Chris and Ovid, hamstrung by Simmelian ties, were heavily constrained to abide by the inertial condition: no union. Despite the fact that their personal beliefs were in favor of the union, these social pressures were sufficient to keep them from being active in their support. By contrast, Jack, Hal, and Ivo, because they were pseudo-isolates, were under no severe Simmelian constraints. Thus they could voice their disagreements with the organization's status quo with less counterpressure.

Of the two quiet supporters, Krackhardt argues that Chris was single-handedly in a position to sway the election either way. He was instrumental in bringing in the national union for the vote in the first place. Had he actively supported the union, Krackhardt claims, the outcome would have undoubtedly been different. But, would he have been involved if only, as Krackhardt suggested, the union had seen the friendship picture and gently but assertively recruited Chris' support?

One answer to this question lies in Table 4, the friendship co-clique table. As stated earlier, the diagonal contains the number of cliques the person is part of. Most people are members of at most two cliques. Five people are members of three cliques; three people are members of four cliques; one is a member of five cliques. Chris, however, tops out the list: he is a member of eight different cliques. By the Simmelian logic given earlier, he is frozen by the set of constraints imposed by the numerous cliques he belongs to. His options were far more limited than those of the other employees. This heavy constraint was exacerbated by the fact that three of the cliques he belonged to included Dale, two included Mel, and one included Robin, three vociferous opponents to the union. Satisfying the mutually exclusive positions of the varied cliques he belonged to turned out to be an impossible task. This perhaps best explains why Chris asked to be given a "leave" on the day of the union vote, and when his request was refused he chose to resign from the firm 10 days before the vote was taken. (He rejoined the firm two days following the vote.)

This Simmelian interpretation of Chris' actions suggests that no amount of artful persuasion on the part of the union could have overcome the conflicting demands on his loyalties. It is true that his central position was one of potential power in the organization (Brass 1984). One might have expected that being connected to different cliques gave him an opportunity to play these groups off of one another, as Burt has argued (Burt 1992). But this power base, embedded as it was in cohesive cliques, came at a cost in that it constrained how he could publicly use his power.

DISCUSSION AND CONCLUSION

This paper has argued that Simmelian ties are qualitatively different from simple, dyadic ties that networkers normally focus on. When Simmelian ties are taken into account, Krackhardt's earlier analysis of the union events at Silicon Systems can be expanded to include an explanation of the key players' behaviors that does not rely on ad hoc personality or dispositional explanations, but, rather, relies on the strength of their Simmelian ties to their fellow employees.

I now revisit the discussion that began this paper. Burt's structural holes theory places emphasis on whether one's ties create bridges. In contrast, Simmelian tie analysis places emphasis on the normative power of groups. It is interesting that both theories stem from the same paper of Simmel's, yet the difference in emphasis leads us to different predictions in some cases.

This leads us to the question, when will Burt be correct and when will Simmelian theory as proposed by this paper be correct? This is largely an empirical question. But one key difference between the union study here, suggesting that Chris was heavily constrained by being a strong bridge to so many different cliques, and many of the stories that Burt tells is the extent to which the actors are *public* in their behaviors. Chris was asked to take a stand publicly by his friends. The gatherings at which the union issue was discussed were often held in a local bar after work. Whichever position he took, all sides would see it, and he would be offending someone.

In contrast, Burt (1992) emphasizes the behind-the-scenes political nature of the *tertius* actor (the person connected to others who are not themselves connected). The *tertius* is someone who is described as taking advantage of what the different actors know—without telling the other parties (because to do so would destroy the *tertius* advantage). Or, the *tertius* plays two groups off of one another, extracting rents in the process, much like the Clint Eastwood character in *A Fist Full of Dollars*. But, the key to success in the Eastwood movie is that neither party knows what the *tertius* is telling the other family. Thus, the strength of the *tertius* position is that *tertius* can make deals with each group independently and privately, without the other party knowing the details.

Thus, we have one possible explanation for why both Burt's theory and this current one are correct, conditioned on the type of behavior being controlled. *If* the behaviors being constrained by the norms of the group are *private behaviors*, known only to ego and the local group members, then ego is free to engage in different behaviors in different groups, changing her colors as she moves from group to group. In such cases, Burt's argument prevails: being tied to separate groups is not constraining, because the other group who might be offended by the aberrant behavior does not observe it. *If*, on the other hand, the behaviors being constrained by the norms are *public behaviors*, then the Simmelian argument of this paper prevails: engaging in such behaviors while maintaining embedded ties to different groups is more constraining.

This paper also suggests that insights derived from traditional role analysis could be greatly enhanced by looking at Simmelian ties. Reducing a structure to its Simmelian ties provides a bare bones picture of the organization, highlighting ties that constrain and influence. These ties are likely to be more enduring, more visible, and more critical than sole-symmetric ties (Krackhardt in press). They may be the ones that reveal the true underlying structure in the organization. In the clustering analysis here, the number of groups (five) was easily determined, because, if there is a natural blocking, the co-clique analysis will readily reveal it, since it is not encumbered with noisy, more ephemeral non-Simmelian ties. By focusing only on these strongest of ties, the Simmelian tie analysis may be the best vehicle for exposing groups and roles that naturally exist in the structure.

One should not consider this paper an argument for doing away with traditional role analysis on raw network relations. Such analyses are necessary to uncover weak ties and bridges between groups. As Burt (1992) has so ably demonstrated, those actors who are not embedded in cliques may find themselves in particularly advantageous positions. Rather, I believe that we enhance our chances of understanding organizational systems, and crises in them, by supplementing such traditional analyses with Simmelian tie analysis, as suggested here. In pursuing both the very strong ties and the bridging ties Granovetter and Burt emphasize, we may find that structural analysis provides us with more insight into organizational phenomena.

NOTES

1. For a series of comparative reviews and comments on Burt's structural holes theory, see the *Administrative Science Quarterly* special book review symposium, 1995, volume 40, pages 343-358.

2. The specific method by which such structural analysis is done has been the focus of some debate (Burt 1986; Faust 1988; Faust and Romney 1985, 1986) and has produced logical extensions (Sailer 1978; White and Reitz 1983; Borgatti and Everett 1992). The two most popular techniques for determining structural equivalences that have emerged are Burt's Euclidean distance measure (Burt 1982; Burt and Minor 1983) and Breiger's CONCOR (Breiger, Boorman, and Arabie 1975). The problems of each of these methods have been discussed at length in the literature (Faust 1988). I will use Faust's recommendation (Faust 1988, p. 318) to cluster on the first iteration correlation in part because the hierarchical clustering is based on a bounded and interpretable score (Pearson's *r*), whereas Euclidean distance is unbounded and not directly interpretable. This approach calculates R (the correlation matrix among all actors' rows/columns across all relations) and then clusters the results using Johnson's hierarchical clustering (average method). As I will show in the reanalysis of data below, this results in an easily understood and robust way of reducing the original data to structurally equivalent role sets to better understand the dynamics of a unionization attempt at a computer firm.

3. I should note here that I have analyzed two other network data sets using Simmelian ties, and in each case there has been a clearer jump in the dendogram than there is when using simple ties. While it is too early to reach definitive conclusions, this may be an additional unintended benefit of Simmelian role analysis: that the *number* of roles in a system is clearer.

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PART IV

IDENTITIES AND MEANINGS IN NETWORKS