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THE TIES THAT BIND: ORGANIZATIONAL AND CLASS BASES OF STABILITY IN A CORPORATE INTERLOCK NETWORK*

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We use the interorganizational and intraclass perspectives to examine how hypothesized causes and consequences of interlocking influence one stage in the process by which the interlock network connecting large U.S. corporations is reproduced over time—the reconstitution of disrupted ties. The results of our analysis suggest: 1) that only two of the organizational and class interests associated with interlocking in previous cross-sectional studies operate in the reconstitution stage—the level of interindustry resource constraint between nonfinancial and financial firms and the membership of firms' directors in the same local capitalist class segment, 2) that the interorganizational linkages and intraclass bonds in which ties may become embedded and which they may facilitate are also important determinants of this stage, and 3) that the interorganizational and intraclass perspectives provide valid and interrelated explanations of interlocking, and thus should be integrated in future studies.

An interlock tie exists when one or more persons simultaneously sit on the board of directors of two corporations. The motivation for interlock ties and their potential to facilitate relationships between corporations and their directors has been interpreted in terms of either organizational or class dynamics (Palmer 1983).[1] In the interorganizational perspective, corporations create interlocks in response to their need for resources controlled by other organizations in their environment (Pfeffer and Salancik 1978; Burt 1983; Mintz and Schwartz 1985). In the intraclass perspective, corporate directors create interlocks in response to their need to organize themselves as a social class (Domhoff 1967, 1983; Useem 1983). Both perspectives imply that the relationships interlocks facilitate may significantly transform economic and political institutions, potentially abrogating the free market or subverting pluralist democracy (Brandeis 1914; Domhoff 1970). We draw on, and in one place integrate, these perspectives to analyze the determinants of one stage in the process by which the interlock network connecting large U.S. corporations is reproduced over time—the reconstitution of ties disrupted or severed by the loss of one of the interlocks that composed them.

SIGNIFICANCE OF INTERLOCK TIE RECONSTITUTION

Interlock ties are reproduced in stages over time (see Figure 1). A tie is initiated between two firms when a director of one gains a seat on the other's board. Subsequently, other directors of one firm may come to sit on the board of the other, reinforcing the connection. The director who initiated the tie may eventually leave one or both boards. If other directors connect the firms at that time, the tie is only disrupted. If other directors do not connect the firms, it is severed. Finally, new directors may come to connect the firms after disruption or severance, reconstituting the tie.[2] The factors regulating each stage in this process may not be identical.

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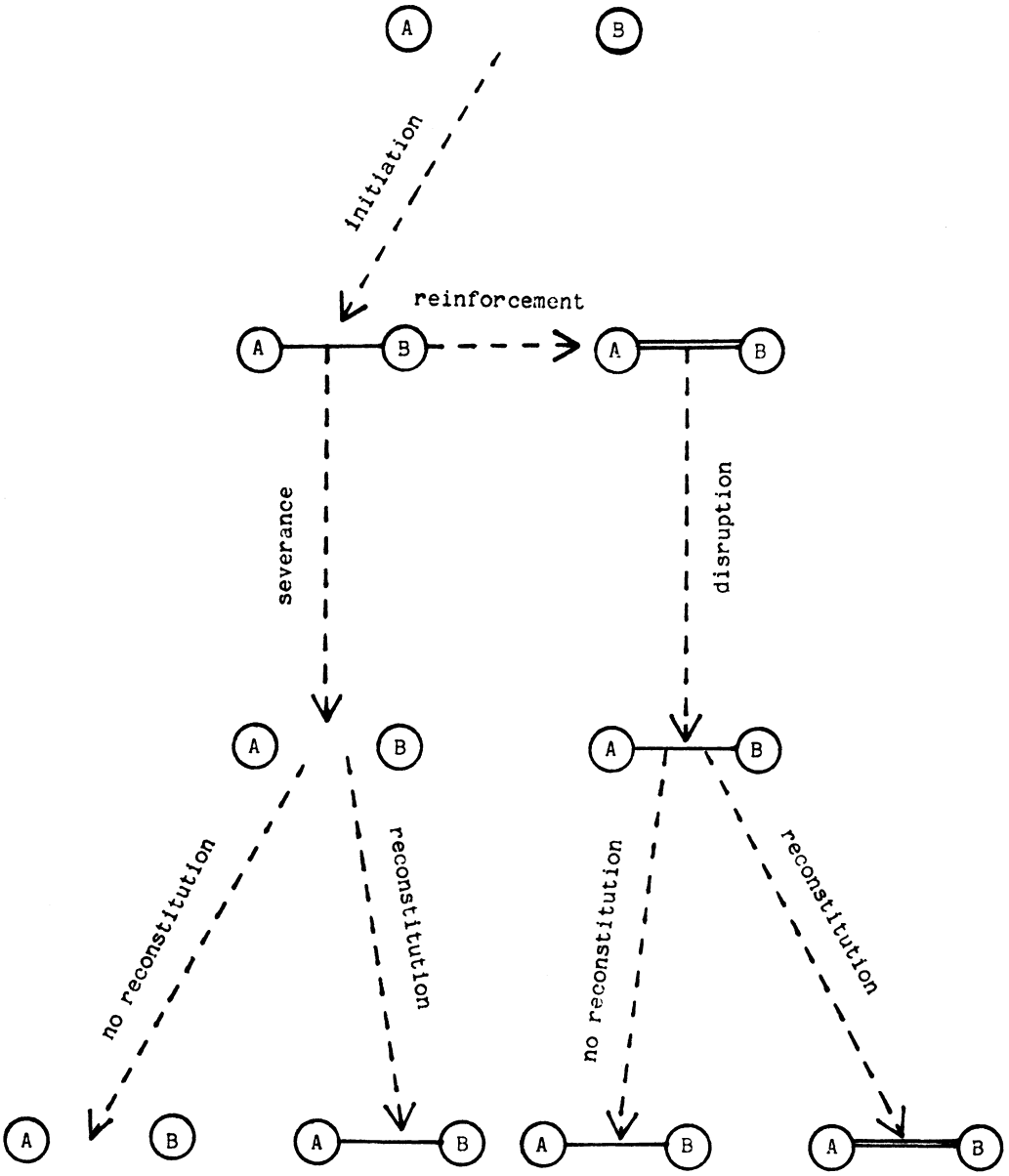
[1] When we say interlocks "facilitate" interorganizational or intraclass relationships, we mean that they help make such relationships possible. Interlocks that make interorganizational and intraclass relationships possible may precede, arise contemporaneously with, or follow such relationships.

[2] In fact, the interlock network is extremely dynamic. For example, in 1962 there were 4877 connections between 1131 of the largest U.S. corporations. Between 1962 and 1964, 922 of these connections were severed and 1030 new connections were created (see Data and Methods section for a description of the data set upon which these descriptive statistics are based).

Figure 1. Stages in the Production of an Interlock Tie between Two Hypothetical Firms.[a]



a. Circles represent corporations, solid lines represent interlocks and dotted lines represent stages in the tie production process.

The tie reproduction process has not been analyzed. While some assert that ties have a history (Mintz and Schwartz 1985), theories about the determinants of the interlock network's structure focus only on the initiation stage (Allen 1974; Pfeffer and Salancik 1978; Burt 1979; Pennings 1980; but see Galaskiewicz and Wasserman 1981). As a result, theorists may overlook determinants of network structure that operate at moments other than the initiation stage. Chief among them are the social relations in which ties may become embedded—the interorganizational linkages and intraclass bonds ties are hypothesized to facilitate. Further, while

some describe changes in the interlock network's structure over time (Allen 1978; Mizruchi 1981; Mintz and Schwartz 1981a, 1981b, 1985; Mariolis and Jones 1982; Roy 1983), studies of the determinants of this structure examine only cross-sectional associations between the characteristics of corporations and their directors and the presence of ties connecting them (Allen 1974; Pfeffer 1972; Pennings 1980; Burt et al. 1980; Burt 1983; but see Galaskiewicz and Wasserman 1981). As a result, researchers cannot specify the stages of the tie reproduction process at which different determinants of network structure operate.

Modeling the reconstitution of ties after they have been disrupted or severed partially overcomes these limitations (cf. Koenig et al. 1979; Ornstein 1982, 1984; Palmer 1983). Examining one stage in the tie reproduction process, rather than the network's cross-sectional structure, enables us to begin to specify the stages at which factors associated with interlocking in past studies actually operate. Examining reconstitution, rather than earlier stages of the tie reproduction process, best enables us to study the role interorganizational linkages and intraclass bonds play in this process.

DETERMINANTS OF INTERLOCK TIE RECONSTITUTION

The Interorganizational and Intraclass Perspectives

In the interorganizational perspective, corporations are viewed as actors and the directors on their boards their instruments. Corporations are situated in an organizational environment, upon which they depend for resources. Resource dependence theorists focus on the problems a corporation experiences from being dependent on other firms—uncertainty regarding the supply of resources (Pfeffer and Salancik 1978) and constraint on profits (Burt et al. 1980; Burt 1979, 1980, 1983). Power structure theorists focus on the power a corporation derives from the dependence of other firms upon it (Mintz and Schwartz 1981a, 1981b, 1985). They also view financial dependence as more significant than nonfinancial dependence.

Interorganizational linkages help firms manage dependence. In the resource dependence approach, corporations establish linkages with firms upon which they depend, because they reduce uncertainty or constraint (hereafter, simply constraint). According to the power structure approach, corporations establish linkages with firms that are dependent upon them in order to translate their power into influence. Interlocks may facilitate three kinds of linkages: information exchange, informal coordination (which entails only transitory relationships, such as tacit price setting agreements), and formal coordination (which entails more extensive relationships, such as long term contracts, joint ventures and interfirm stockholding). As cooptive devices, interlocks are a means by which one firm gains information and influence over another by appointing one of the latter's representatives to its board. As infiltrative devices, they are a means by which one firm gains information and influence over another by placing one of its representatives on the board of the latter. Power structure theorists are more likely than resource dependence theorists to emphasize the role interlocks play in facilitating formal coordination (Mintz and Schwartz 1981a).

In the intraclass perspective, directors are viewed as actors and the corporations on whose boards they sit their instruments. Corporate directors are members of a capitalist class, which is in conflict with other classes in society. There are many variants of this perspective, each of which emphasizes a different dimension along which the capitalist class is internally differentiated—region (Domhoff 1967), industrial sector (Soref 1976), social prominence (Useem 1979), and kinship (Zeitlin et al. 1974). Each dimension shapes the capacity and interests directors have in organizing themselves as segments within the capitalist class and thus serves as a basis of class organization.

Intraclass bonds make it possible for directors to organize their class or class segment. These normatively regulated associations are the microbasis for a common culture, which increases directors' capacity for coordinated economic, political, and social action (Domhoff 1967, 1970, 1983; Useem 1979; Ratcliff 1980a, 1980b; Koenig and Gogel 1981). Although they are generally not created for this purpose, bonds between directors can sometimes facilitate linkages between the firms they command (Mills 1956). Interlocking directorates may facilitate two kinds of bonds which parallel relationships that Granovetter (1973) termed "friends" and "friends of friends." When a director of one firm sits on the board of a second firm, he/she comes into regular, if not frequent, contact with the directors of that firm creating the possibility of first-order bonds between those directors and him/herself. Over time, the interlocking director may relay information about the directors of the second firm to the other directors of the first firm creating the possibility of second-order bonds between the directors of the first and second firm.

Implications for Reconstitution

Firms and directors connected by a tie do not necessarily have an interest in establishing a

relationship that interlocks may facilitate. Further, even if they possess such an interest, the tie that connects them may or may not actually be embedded in such a relationship. We, however, expect that ties connecting firms and directors who have an interest in developing a relationship that interlocks may facilitate will tend to be reconstituted. Such ties may be motivated by the desire of organizational or class actors to pursue a consciously formulated strategy.

We also expect that ties connecting firms or directors actually engaged in a relationship that interlocks may facilitate will tend to be reconstituted. Linked firms should preserve their linkage when the tie that joins them is disrupted, because it may be costly to dismantle the linkage and replace it with a new one to another firm (Granovetter 1985). Firms that decide to preserve their linkage should reconstitute their tie, because the tie may be a means to monitor and control the linkage. The impetus to reconstitute a tie that facilitates a linkage, though, will be diminished if other means of facilitating it exist. Directors who maintain bonds with one another are likely to know and trust each other. Directors must know and trust a candidate before they will appoint him/her to their board (Mace 1971; Granovetter 1974). Thus when a vacancy arises on the boards of two firms, as occurs when an interlock is broken, each firm should be more likely to fill that vacancy with a director from the other firm than with a director of a third firm with whose directors they do not maintain bonds.

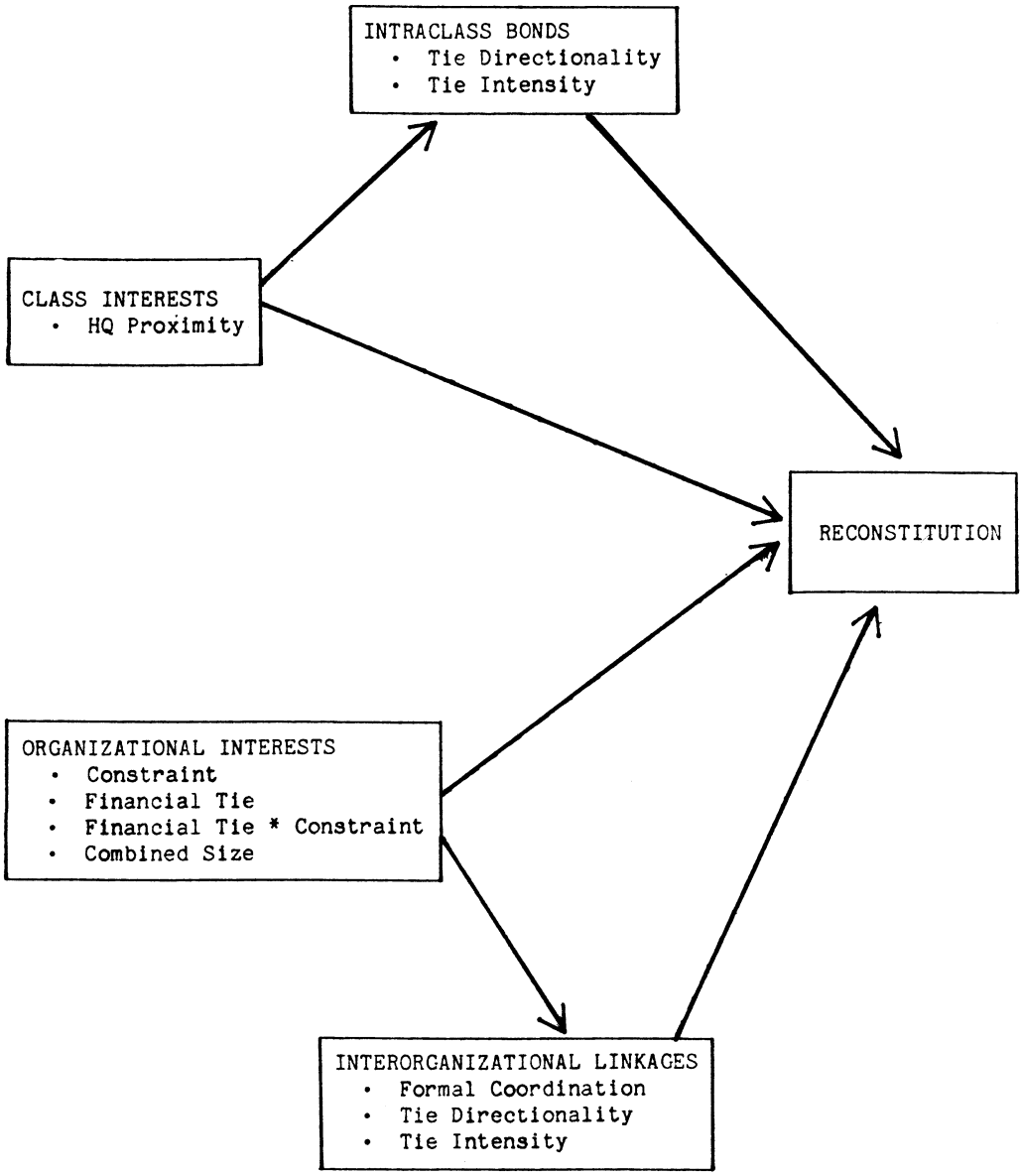
Thus, those ties associated with the most potent interorganizational and intraclass interests and embedded in the most extensive linkages and bonds should be reconstituted most frequently. Below we outline the effects specific interests, linkages, and bonds have on reconstitution. Figure 2 summarizes our general argument as well as our more specific hypotheses that follow.[3]

Organizational Interests: All resource dependence theorists argue that two firms that produce in the same industry or in different industries that exchange inputs and outputs are interdependent with and thus constrain one another. Two firms in the same industry buy from the same suppliers and sell to the same customers. Thus one firm's decision to buy inputs or sell outputs affects the ability of the other to do the same. Competitive constraint is greatest when concentration in an industry is at an intermediate level. When there are many firms in an industry, the actions of a single firm have a small impact on its competitors. When there are only a few firms in an industry, the actions of a single firm have a large impact on its competitors, but those actions are relatively easy to predict. Two firms in different industries that exchange inputs and outputs may buy or sell to one another. Thus one firm's decisions regarding how much, at what price, and with whom they buy and sell affects the ability of the other to acquire the resources it needs for survival. The interindustry constraint one sector poses for another is greatest when the value of the transactions between the two is large, the level of concentration in the former is high, and the level of concentration in the latter is low. The greater the dollar value of transactions between two industries, the more important those transactions are for the firms involved. The greater the concentration in an industry, the more effectively firms in that industry can bargain with firms in other industries that buy from or sell to them. Many studies indicate that the level of interlocking between enterprises in the same industry is related to the level of "competitive" constraint in that industry, and that the level of interlocking between enterprises in different industries is related to the level of "interindustry" constraint they pose for each other (Dooley 1969; Pfeffer 1972; Allen 1974; Pfeffer and Salancik 1978; Pennings 1980; Burt et al. 1980; Burt 1980, 1983). This suggests that the more competitive and interindustry constraint two corporations pose for one another, the greater their interest in interlocking, and thus the greater the likelihood that, once interlocked, they will reconstitute their tie.

Some resource dependence theorists also argue that large corporations are interdependent with, and thus constrain and are constrained by, more firms than are small corporations. Since in general they require and control a greater quantity and range of resources, the actions of large corporations both influence and are influenced by many other firms. Many studies indicate that the largest firms maintain the most interlocks (Allen 1974; Pfeffer and Salancik 1978; Pennings 1980; Burt 1980; Mintz and Schwartz 1981b). This suggests that the larger two firms are, the greater their interest in

[3] A director responsible for an interlock between two corporations may break the interlock by losing his/her seat on the board of one or both firms partner to the connection. Ties disrupted when a director loses his/her seat on the board of only one firm should be reconstituted less frequently than those disrupted when a director loses his/her seat on the board of both firms. In the former case, one firm (the firm that retains the director on its board) must create a vacancy on its board (by dismissing another director or legislating another position on the board) in order to reconstitute the tie. In the latter, neither firm faces such a barrier to reconstitution. Thus, in all analyses we control for whether an interlock break results in vacancies on the boards of both or only one of the firms it previously tied.

Figure 2. Hypothesized Relationships Between Interests, Linkages, Bonds, and Reconstitution



interlocking with one another, and thus the more likely that, once interlocked, they will reconstitute their tie.

Power structure theorists agree that corporations producing in the same industry or in industries that exchange inputs and outputs are interdependent with one another, and that large corporations are subject to more interdependencies than small firms. However, they assert that financial ties and financial interdependence are more significant than other types of ties and interdependencies. While proponents of this approach differ with respect to their specific claims, each draws their insights from the same piece of evidence—that financial institutions are invariably the most central firms in the contemporary interlock network (Bearden et al. 1975; Stanworth and Giddens 1975; Mariolis 1975; Mizruchi 1981; Roy 1983; Mintz and Schwartz 1981a, 1981b, 1985).

Some power structure theorists argue that financial ties help firms cope with competitive, nonfinancial interindustry and size-related constraint better than nonfinancial ties. Financial institutions maintain large research staffs to monitor activity in the economy as a whole, because they lend and manage investments across the full range of industrial sectors (Scott

1979; Burt 1980). Further, financial institutions control the basic decisions of an increasing number of nonfinancial corporations through stock ownership (Kotz 1978). Thus, a firm may find that interlocking with a single financial institution is a more efficient means to gain information about or some measure of control over its sources of competitive, nonfinancial interindustry and size-related constraint than interlocking with the range of nonfinancial firms upon which it depends. This suggests that financial ties are more likely than other ties to be motivated by organizational interests and thus more likely to be reconstituted.

Other power structure theorists claim that financial dependence is qualitatively different than nonfinancial dependence (Mintz and Schwartz 1985). Capital is the most important resource, because its possession is a precondition for the acquisition of other resources. Further, capital exchange is more likely than other exchanges to lead to extensive linkages. Exchanges in which one partner is a financial institution are likely to be arranged with long-term contracts in which the capital obtained by the nonfinancial corporation is repaid with interest over a period of years or even decades. Such formal linkages join the fate of the financial institution to that of the nonfinancial corporation. As a result, financial institutions are likely to seek influence over the basic decisions of the corporations with which they transact, through the creation of even more extensive formal linkages such as detailed covenants or the purchase of stock. This suggests that financial constraint provides corporations with a stronger interest in interlocking than does nonfinancial constraint and that ties motivated by these more potent interests are more likely to facilitate extensive linkages. Thus financial constraint should stimulate reconstitution more than nonfinancial constraint.

Class Interests: In the United States, geographical locales are an important basis upon which the capitalist class is internally differentiated.[4] The regulation of conflict between capital and labor and between competing capitals is regionalized because governmental authority and the geographic distribution of corporate control are relatively decentralized (Newton 1981). A corporation's success is partly dependent upon the economic well being of the locale in which it is headquartered. The effectiveness of a headquarters office depends on the adequacy of local infrastructure, such as mass transit, and the strength of the local economy, in particular, the business service sector (Whitt 1982; Palmer and Friedland 1986; Palmer et al. 1986). And since corporations still situate their plants (especially their most innovative ones) and own land in their headquarter locale, they remain concerned about local labor costs, land values and property taxes (Friedland 1984). Further, firms gain access to the national capital market through regional financial institutions (Duncan et al. 1960; Duncan and Lieberson 1970). Local banks are also dominant actors in the determination of private and public capital allocation within regions (Friedland and Palmer 1984). Thus, the directors of firms headquartered in the same locale share an interest in advancing their firms' position vis-a-vis local labor through the local state, and vis-a-vis nonlocal capital through local financial institutions. Hence, they form coalitions to design and implement local developmental policies (Molotch 1976, 1979; Friedland 1983; Mollenkopf 1984) and to coordinate the use of locally accumulated capital (Mintz and Schwartz 1985).

The directors of firms headquartered in the same locale also have a greater capacity to translate their common interests into intraclass bonds. Such directors are likely to interact frequently with one another due to their common neighborhood residence, membership in elite social clubs, and participation in public policy making groups. This interaction alone may facilitate intraclass bonds (Domhoff 1967). Thus, it should increase the likelihood that an interlock tie connecting firms will facilitate extensive bonds between their directors. Numerous researchers have reported that the national corporate interlock network is segregated into regional clusters (Dooley 1969; Bearden et al. 1975; Allen 1978; Mizruchi 1981; Mintz and Schwartz 1981a, 1981b, 1985; Bearden and Mintz 1984). This suggests that common headquarter location provides the directors of two firms with an interest in sitting on each others' boards and that the ties that result are likely to facilitate extensive bonds. Thus common headquarter location should increase the likelihood that once interlocked, firms will reconstitute their ties.

Interorganizational Linkages and Intraclass Bonds: As noted above, interlocks may facilitate linkages between corporations as well as bonds between directors. We can directly determine if firms are engaged in formal coordination by using archival sources that record whether or not they are linked by long term contracts, joint ventures, intercorporate stockholding, or common ownership by a family or third corporation. Firms linked by any of these relationships should reconstitute their ties more frequently than those that are not, because these ties may facilitate formal coordination.

We cannot directly determine if firms are

[4] We do not elaborate other bases upon which the capitalist class is internally differentiated, because their relationship to reconstitution is ambiguous.

engaged in informal coordination or information exchange, or if directors maintain first or second order bonds with one another. These relationships leave no traces in archival data sources. We can, however, indirectly detect the presence of these linkages and, to a lesser extent, these bonds by characterizing ties *before* they are disrupted. Ties differ in the type and number of interlocks that compose them. "Directional" interlocks are those created by persons who are principally affiliated to (i.e., are an officer or major stockholder in) one of the firms they connect. "Nondirectional" interlocks are those created by persons who are principally affiliated to a third organization, which may or may not be a business enterprise (e.g., a foundation or university). The number of interlocks composing a connection is simply the number of people who simultaneously sit on the boards of the connected firms.

The more interlocks composing a tie, the more likely it facilitates a linkage (Bearden et al. 1975; Koenig and Sonquist 1975; Mizruchi and Bunting 1981; Mintz and Schwartz 1981a, 1981b, 1985; but see Burt et al. 1980; Burt 1983; Galaskiewicz et al. 1985). A tie facilitates information exchange and coordination by allowing one firm's directors to participate in another's board-level decision-making. The more interlocks connecting two firms, the more directors of one are involved in the decision making of the other. We also think that the more interlocks composing a tie, the more likely first-order bonds between the directors of firms connected by it will remain after one of its interlocks is broken. Interlocks facilitate first-order bonds by allowing one firm's directors to come into contact with those of another. When a single interlock tie is disrupted, the first-order bond that the recently broken interlock may have facilitated is automatically severed. When a multiple interlock tie is disrupted, however, other interlocks remain that may facilitate other first-order bonds. This suggests that firms connected by many interlocks should reconstitute their ties more frequently than those connected by only one interlock, because their ties are more likely to facilitate a linkage or first-order bonds that persist after an interlock that composes the tie is broken.

Ties composed of directional interlocks are more likely than those composed of nondirectional interlocks to facilitate linkages (Sweezy 1953; Bearden et al. 1975; Pennings 1980; Mizruchi and Bunting 1981; Mizruchi 1981; Mintz and Schwartz 1981a, 1981b, 1985). A director who is principally affiliated to one of the firms he/she connects is more likely to play the role of corporate representative, which is integral to the functioning of an interlock as a cooptive or infiltrative device. Cooptation and infiltration are the processes by which information exchange and coordination are accomplished. We also think that the directors of firms tied by a directional interlock may be more likely to maintain second-order bonds with one another after an interlock connecting their firms is broken. The number of second-order bonds between the directors of two firms probably depends on the intimacy of the first-order bonds upon which they are based. A director who is principally affiliated with one of the firms he/she connects spends most of his/her time with the directors of at least one of those firms, while a director who is not principally affiliated with either of the firms he/she connects spends only a small portion of his/her time with both. Thus when a directional interlock is broken, the first-order bond it may have facilitated is automatically severed, but other second-order bonds to which it may have given rise may persist. This suggests that firms connected by directional interlocks should reconstitute their connections more frequently than those connected by only nondirectional interlocks because their connections are more likely to facilitate a linkage or second-order bonds that persist after an interlock composing the tie is broken.

Finally, we noted above that linked firms will have less impetus to reconstitute their tie if other means to sustain their linkage exists. An integration of the interorganizational and intraclass perspectives suggests one way in which this might occur. Mills (1956) suggested that bonds between directors may sometimes facilitate linkages between the firms they command. Domhoff (1967) suggests that geographically patterned social interaction generates intraclass bonds. Thus, geographically based class organization may serve as a mechanism for facilitating interorganizational relationships (Ratcliff 1980a, 1980b; Friedland and Palmer 1986). The directors of corporations headquartered in the same city can develop bonds with one another through frequent interaction in the same neighborhoods, social clubs, and policy-making groups. These locally generated associations between directors, because they are normatively regulated, may substitute for interlocks as a means of facilitating linkages between their corporations. Thus corporations engaged in formal coordination and headquartered in the *same* city should reconstitute their ties less frequently than those engaged in formal coordination and headquartered in *different* cities.

DATA AND METHODS

The interlock connections analyzed here were drawn from a larger data set, compiled by the Mathematical Analysis of Corporate Networks (MACNET) research group at SUNY-Stony

Brook. The MACNET data set records all ties between 1131 large U.S. corporations in 1962, 1964 and 1966. Corporations were included in this data set if they were listed by *Fortune Magazine* as one of the 500 largest industrials or 50 largest commercial banks, insurance companies, merchandizing firms or transportation companies in any year between 1962 and 1972 (See Atwood et al. [1985] for a more detailed description of this data set). Our subsample of this data set consists of 238 connections present in 1962 that lost an interlock between 1962 and 1964 at the same time that the director who created the interlock lost his/her principal affiliation. A variety of events may cause a director to lose his/her principal affiliation: death, retirement, and change in place of employment (e.g., a move from the private to the public sector). Case studies indicated that these events were not related to changes in the intercorporate strategies of the firms in question (see Palmer [1983] for a more detailed description of this subsample). We restrict our attention to such "accidentally" disrupted ties, because it allows us to ignore the possibility that changes in strategy, which are extremely difficult to detect, cause firms to forego reconstitution. RECONSTITUTION indicates whether at least one new interlock was added to a tie subsequent to its disruption but before 1967. To be considered "new," an interlock must have been created by a director who did not connect the same firms in 1962. Thirty-six of the 238 connections were reconstituted.

Data on firm type, headquarter location and size were obtained for 1962 from the *Fortune Magazine Directory of Top 500 Corporations* (1963). FINANCIAL TIE indicates whether one or neither of the firms a tie connects is a commercial bank, life insurance company or diversified financial company. HQ PROXIMITY indicates whether firms are headquartered in the same or different cities. COMBINED SIZE sums the total assets of paired firms. The average combined size of paired firms was $4,756,538.

The industries in which firms produced in 1962 were coded from *Standard and Poor's Directory of Corporations and Managers* (1963). Data on competitive and interindustry constraint between partners to nonfinancial connections were taken from Table A.4 in Burt (1983). This table reports the extent to which each of 20 manufacturing industries were constrained by each of 51 other sectors (including the 20 manufacturing sectors) in 1967, and notes when those constraints were "severe." The level of constraint a sector posed to an industry was coded as severe if it lay outside the 95 percent confidence interval around the average level of constraint to which an industry was exposed from all sectors. This table also reports the extent to which firms in the same industry constrained one another and noted when these constraints were "repressed." Competitive constraints were considered to be repressed when they were overshadowed by interindustry constraints. Data on interindustry constraint between partners to a financial tie were taken from the *Standard and Poor's Compustat* (1980) computer tape and *Moody's Industrial Manual* (1963).[5] These sources detail the financial structure of major nonfinancial corporations. CONSTRAINT indicates the level of competitive and interindustry constraint two firms pose for one another. For nonfinancial ties, it is the standardized count of the number of times corporations produced in different industries that severely constrained one another or in the same industry that exhibited an unrepressed constraint. Of the 126 nonfinancial connections, 14 spanned an unrepressed competitive constraint and 50 spanned a severe interindustry constraint. For financial ties, it is the standardized 1962 debt-equity ratio (long term debt divided by stockholders' equity) of the nonfinancial partner. The average debt-equity ratio for the 112 nonfinancial corporations partner to a financial connection was .530.

The presence of formal coordination between firms was detected through the use of two monographs on corporate control (Burch 1972; Kotz 1978), a business data source, (*Moody's Industrial Manual*) and a business press index, (*The Wall Street Journal Index*). In the case of reconstituted ties, FORMAL COORDINATION indicates whether firms were linked by long-term contracts, joint ventures, interfirm stockholding, or common ownership in, or after, 1962 and before their tie was reconstituted. In the case of nonreconstituted ties, FORMAL COORDINATION indicates whether such relationships were present anytime between 1962 and 1966. Of the 238 firms paired in our sample, 73 were engaged in some kind of formal coordination. A little less than one-third of the linkages involved ownership. In one case, interlock partners engaged in a joint venture. In twelve cases one partner owned stock in the other. In five cases, an author of a corporate control monograph judged interlock partners to be controlled by the same family or interest group. And in four cases, one partner was judged by an author of one of the corporate control monographs to "control" the other. Slightly more

[5] No one has yet developed a measure of the extent to which financial institutions are competitively interdependent with one another. For this reason we eliminate from our analysis eight connections that join two financial institutions.

than two-thirds of the linkages involved resource exchange agreements. In twenty-nine cases, one firm provided a service for another. In twenty-two cases, there was some indication that one partner was in debt to the other.

The characteristics of ties before they were disrupted was reported in the MACNET data set. TIE DIRECTIONALITY indicates whether at least one of the interlocks composing a tie in 1962 was created by a director who was principally affiliated to one of the firms. TIE INTENSITY indicates the number of directors who simultaneously sat on the boards of firms in 1962.

Since RECONSTITUTION is a dichotomous dependent variable, we use MLE logistic regression to evaluate our hypotheses. Some interests, particularly those derived from financial constraint and common headquarter location, were hypothesized to stimulate reconstitution partly because they give rise to extensive linkages and bonds. Since this implies that the effects of some interests may be obscured by those of linkages and bonds, we estimate two equations. One, a reduced form model, includes only the five measures of organization and class *interests* motivating a tie. The other, the structural model, includes these variables as well as FORMAL COORDINATION, TIE DIRECTIONALITY, AND TIE INTENSITY—indicators of interorganizational *linkages* between firms and, to a lesser extent, intraclass *bonds* between directors. The descriptions, codings, means, and standard deviations of the variables included in these models are presented in Table 1. The correlations among independent variables and the overall effects these variables have on RECONSTITUTION are displayed in Table 2. The logistic regression analyses are reported in Table 3. The number of cases in each table was reduced to 214 due to missing data.[6]

RESULTS

Interorganizational Linkages and Intraclass Bonds

Ties embedded in relationships that may result from their initiation tend to be reconstituted,

[6] BREAK TYPE indicates whether the severance of an interlock results in vacancies on the boards of both or only one of the firms it previously tied. This control variable has a positive effect on reconstitution. When a director loses his/her seat on the board of both, as opposed to only one, of the firms he/she connects, the probability of reconstitution increases by .235. Apparently, as we hypothesized, connections disrupted when a director loses his/her seat on the board of only one firm are more difficult to reconstitute.

Table 1. Definition, Coding and Descriptive Statistics of Variables

Name	Definition	Coding in Regressions	Mean[a]	St. Dev.[a]
Dependent Variable:				
Reconstitution	Whether interlock partners created at least one new interlock with each other after their tie was disrupted	Yes = 1, no = 0	.14	.35
Independent Variables:				
Constraint	Extent to which interlock partners constrained one another through competitive or interindustry relations	normalized score	.00	1.00
Financial Tie	One interlock partner was a financial institution	Yes = 1, no = −1	.48	.50
Combined Size	Total assets of the two interlock partners	log transformed sum	3.32	.51
HQ Proximity	Whether interlock partners were headquartered in the same city	Yes = 1, no = −1	.52	.50
Formal Coordination	Whether interlock partners were formally coordinating with one another	Yes = 1, no = −1	.30	.46
Tie Directionality	Whether at least one interlock connecting partners was directional	Yes = 1, no = −1	.71	.45
Tie Intensity	Number of interlocks connecting partners	untransformed sum	1.52	.97
Control Variable:				
Break Type	Whether both interlock partners lost a director when connection was disrupted	Yes = 1, no = −1	.67	.47

[a] Dichotomous predictor variables, while effect coded for correlation and regression analyses, are dummy coded for descriptive statistics.

Table 2. Correlations and Overall Effects

	Correlations Among Independent Variables[a]							Overall Effect on Reconstitution[b]		
	Financial Tie	Combined Size	HQ Prox.	Formal Coord.	Tie Direct.	Tie Intens.	Break Type	logit	SE	ΔP^c
Constraint	.001	−.029	−.066	−.025	.142°	.063	−.014	.175	.176	.023
Financial Tie		.629°	.105	.550°	.105	.268°	.017	.458**	.209	.065
Combined Size			.167°	.337°	.043	.056	−.126	.878**	.397	.142
HQ Proximity				.203°	.247°	.275°	−.057	.904****	.259	.358
Formal Coordination					.305°	.379°	.034	.739****	.207	.277
Tie Directionality						.267°	−.049	1.360****	.516	.572
Tie Intensity							.176°	.417***	.169	.058

[a] These are Pearson product moment correlation coefficients. They agree in every aspect with their corresponding Spearman rank order coefficients.

[b] These coefficients indicate the effect an independent variable has on reconstitution, controlling only for Break Type.

[c] ΔP is computed according to Peterson (1985) as:

$$\exp(L_1)/[1 + \exp(L_1)] - \exp(L_0)/[1 + \exp(L_0)]$$

° P<.05 (two-tailed test).

* P<.10, ** P<.05, *** P<.01, **** P<.005 (one-tailed test).

although some relationships seem to stimulate reconstitution more than others. The structural model reveals that FORMAL COORDINATION increases the likelihood of reconstitution. When firms engage in formal coordination, the probability that their tie will be reconstituted increases by .283. This is the first systematic evidence that interlocks and other social relations are associated with one another in the U.S. economy, and more specifically, suggests that interlocks may help firms engaged in formal coordination manage their linkage. Presumably, firms engaged in formal coordination reconstitute their ties in order to insure uninterrupted supervision and control of the extensive relationship that binds them to one another.

TIE DIRECTIONALITY also increases the likelihood of reconstitution. When ties are composed of at least one directional interlock, the probability that they will be reconstituted increases by .405. This suggests that directional interlocks are more likely than nondirectional interlocks to facilitate linkages or second-order bonds that lead to reconstitution. Firms connected by directional interlocks may reconstitute their ties to insure the continued operation of unobserved linkages, in particular, information exchange or informal coordination. Alternately, their directors may reconstitute the tie because they know and trust one another as a result of the departed interlocking director's prior membership on their boards.

TIE INTENSITY, however, has no effect on the likelihood that connections will be reconstituted. A tendency of multiple interlock ties to facilitate only extensive linkages or bonds associated with what we call formal coordination, which itself leads to reconstitution, does not account for this result. Estimation of a model that excluded FORMAL COORDINATION and its interaction with HQ PROXIMITY also revealed no effect of TIE INTENSITY. This suggests either that multiple interlock ties are not more likely to facilitate linkages and first-order bonds that remain after disruption, or that they are, but that such linkages and bonds do not lead to reconstitution when associated with multiple interlock ties. The latter would be the case if multiple interlocks in a tie are redundant. Perhaps linked firms do not need to reconstitute a multiple interlock tie because other interlocks remain subsequent to disruption to sustain their linkage. Perhaps the directors of two firms do not know and trust one another better when the multiple interlock tie that connects them facilitates first-order bonds that remain subsequent to disruption. The remaining first-order bonds may provide each firm with the same information about the same candidates for its board that the recently severed first-order bond provided—information about the behavior of their tie partner's directors on their tie partner's board. This speculation that multiple interlocks in a tie are redundant is consistent with Galaskiewicz and Wasserman's (1981) finding that "reciprocated" ties (those in which connected firms each place a representative on their tie partner's board) are transformed into "nonreciprocated" ties (those in which only one firm places a representative on its tie partner's board) more frequently than nonreciprocated ties become reciprocated.

Table 3. Effects of Interests, Linkages, and Bonds on Reconstitution

	Structural Model			Reduced Form Model		
	Logit	S.E	ΔP	Logit	S.E.	ΔP
Organizational Interests:						
Constraint	.237	.227		.210	.213	
Financial Tie	−.080	.327		.285	.262	
Constraint * Financial Tie	.315*	.237	[a]	.224	.214	
Combined Size	.521	.591		.331	.528	
Class Interests:						
HQ Proximity	.844**	.341	.328	.906***	.269	.359
Linkages and Bonds:						
Formal Coordination	.753**	.370	.283			
Tie Directionality	.997**	.546	.405			
Tie Intensity	.101	.206				
Formal Coordination * HQ Proximity	−.449*	.326	[b]			
Control Variable:						
Break Type	.652**	2.89	.235	.615**	.271	.218
Constant	−5.140	2.23		−3.610	1.83	
−2 * Log Likelihood	130.262			146.088		
χ^2 for no effect of variables/d.f.[c]	38.460****/9			28.630****/5		

[a] ΔP for this term alone is of little interest. Instead we compute the effect constraint has on the probability that financial ties will be reconstituted by adding the effects for constraint and constraint * financial tie and using this sum (1.104) to obtain L_1(.491) for the computation of ΔP(.189).

[b] ΔP for this term alone is also of little interest. Instead we compute the effect formal coordination has on the probability that connections joining firms headquartered in the same city will be reconstituted by 1) subtracting the log odds of reconstitution when firms are headquartered in the same city and are not engaged in formal coordination [(−1) (.753) + (+1)(.844) + (−1)(−.449) = .540] from the log odds of reconstitution when firms are headquartered in the same city and are engaged in formal coordination [(+1)(.753) + (+1)(.844) + (+1)(−.499) = 1.148] and 2) using this difference (.608) to obtain L_1(.299) for the computation of ΔP(.090). And we compute the effect formal coordination has on the probability that connections joining firms headquartered in different cities will be reconstituted in an identical way [L_1 = .358 − (−1.866) = 2.224; ΔP = .461].

[c] This is the difference between the log likelihood associated with the model and the log likelihood associated with a baseline model that includes terms for Break Type and the constant.

* p<.10; ** p<.05; *** p<.01; **** p<.005 (one-tailed test).

Organizational and Class Interests

Ties connecting firms and their directors who have an interest in establishing a relationship that ties can facilitate tend to be reconstituted, although not all interests stimulate reconstitution. The structural model reveals that the interaction of CONSTRAINT and FINANCIAL TIE increases the likelihood of reconstitution, albeit only at the .10 level of statistical significance. Increasing the debt equity ratio of the nonfinancial partner to a financial tie by one standard deviation (.541) increases the probability that firms will reconstitute their connection by .189. It also reveals, however, that neither COMBINED SIZE, CONSTRAINT nor FINANCIAL TIE has a direct effect on reconstitution. Further, the reduced form model shows that the absence of direct effects for COMBINED SIZE, CONSTRAINT and FINANCIAL TIE in the structural model is not due to the mediating effects of interorganizational linkages. In fact, none of the organizational interest variables affect reconstitution in the reduced form model, which excludes terms for the number and types of interlocks composing connections and the existence of formal coordination between the firms they join.

The results of both models suggest that nonfinancial constraint, whether of the competitive and interindustry or size-related variety, does not provide firms with a strong interest to interlock and does not motivate ties that facilitate extensive linkages, even when it gives rise to ties involving a financial institution. The results of the structural model suggest that financial constraint does provide firms with a strong interest to interlock and does motivate ties that facilitate extensive linkages. The fact that the interaction effect of CONSTRAINT and FINANCIAL TIE was not greater in the reduced form than the structural model casts some doubt on the second part of this conclusion. Perhaps the type of extensive linkages that are associated with financial constraint and that lead to reconstitution are not measured well by our

three linkage indicators. Loan covenants that specify narrow limits within which a nonfinancial corporation can exercise discretion are more likely to lead to reconstitution than business service contracts that only designate a financial institution as a nonfinancial's stock disburser. Our variables FORMAL COORDINATION, TIE INTENSITY, and TIE DIRECTIONALITY are more likely to be associated with the latter type of linkage than the former. Information about business service contracts is available in public sources while information about loan covenants is not. Further, financials that exercise influence over nonfinancial corporations through the imposition of loan covenants may not need to initiate directional or multiple interlocks, because such covenants are legal documents enforced by the state.

These results are consistent with the power structure approach which claims that financial constraint is qualitatively different than other types of constraint. They also refine the resource dependence approach's explanation of ties motivated by nonfinancial or size-related constraint. Resource dependence theorists do not specify the kinds of linkages that interlocks facilitate when they are initiated to cope with these types of constraint. They do, however, imply that such interlocks can facilitate tacit and even formal coordination. Pfeffer and Salancik (1978, p. 161) remark that interlocking is a strategy for "exchanging information" and "developing interfirm commitments" and thus provides an opportunity for firms to develop "a stable collective structure of coordinated action." Burt (1979, p. 418) makes the weaker claim that an interlock between two firms "give(s) each firm some effect on, or special knowledge of, decisions made by the other firm." Our results suggest that ties motivated by nonfinancial and size-related constraint facilitate primarily information exchange. Ties that facilitate only information exchange are least likely to be reconstituted, since they entail relatively few sunk costs. Firms connected by such ties can just as easily and effectively replace a broken interlock with another interlock to a new firm in the same industrial sector (e.g., financial v. nonfinancial, or heavy chemicals v. light machinery) or size class (large v. small) as their previous tie partner. This is consistent with recent interview studies which report that the directors of nonfinancial corporations are wary of interlocking with other nonfinancials with which their corporations contract. Such interlocks may restrict a management's discretion to terminate unfavorable buyer/supplier relationships and may appear as collusive to litigation-prone stockholders and public interest groups (Hirsch 1982; Useem 1983).

The structural model also reveals that HQ PROXIMITY has a positive effect on reconstitution. When firms are headquartered in the same city, the probability that their connection will be reconstituted is increased by .328. This suggests that ties connecting firms headquartered in the same city are motivated by strong class interests and facilitate extensive intraclass bonds. The reduced form model shows that HQ PROXIMITY has only a slightly greater effect on reconstitution ($\Delta P = .359$) when FORMAL COORDINATION, TIE DIRECTIONALITY, and TIE INTENSITY—primarily indicators of interorganizational linkages—are omitted. This suggests that the reconstitution of ties connecting firms headquartered in the same city is not due to their association with such linkages. Thus, these results are consistent with the intraclass approach claim that the directors of firms headquartered in the same city belong to the same local capitalist class segment. This common class position provides directors with both the interest and capacity to establish bonds with one another, but does not lead the firms they command to engage in interorganizational linkages—at least of the kind we measure.[7]

Finally, full structural model indicates that the interaction of FORMAL COORDINATION and HQ PROXIMITY decreases the likelihood of reconstitution, albeit only at the .10 level of statistical significance. When firms are headquartered in different cities, engaging in formal coordination increases the probability that a connection will be reconstituted by .461. When firms are headquartered in the same city, however, engaging in formal coordination increases the probability of reconstitution by only .090. This suggests that when two firms are headquartered in the same city, their directors frequently interact with one another in the context of a common culture, and that such normatively regulated interactions can substitute for interlocks as a mechanism to facilitate formal coordination between the firms they command. Thus, this result is consistent with our integration of the interorganizational and

[7] Some proponents of the interorganizational approach argue that the regionalization of the interlock network reflects the geographical clustering of resource exchanges (Allen 1978). We do not elaborate this explanation, because most firms in the 1960s operated a sizeable proportion, if not the majority, of their plants outside the cities and even states in which they were headquartered (Friedland and Palmer 1983). We did, however, evaluate it by estimating a model that included a term for the interaction between common headquarter location and constraint. If the interorganizational explanation of the regionalization of the interlock network is correct, common headquarter location should affect reconstitution only when, and to the extent that, firms constrain one another. No such effect was found.

intraclass perspectives. Geographically based class organization may substitute for organizational boundary-spanning structures as means by which intercorporate coordination can be affected.

This result also rules out alternative interpretations of two results that were discussed earlier. It is possible that connections between firms engaged in formal coordination tend to be reconstituted, not because interlocks facilitate formal coordination, but rather because formal coordination may increase social interaction between the directors of firms. Management of formal coordination may lead the directors of two firms to know and trust one another. This in turn may make the directors more likely to appoint one another to each others' corporate boards when vacancies arise, as vacancies do when interlocks are accidentally broken. It is also possible that connections between firms headquartered in the same city tend to be reconstituted, not because the directors of the firms they connect are members of the same local capitalist class segment, but rather because they are more likely to be aware of one another and to be willing, given the costs of travel between cities, to serve on each others' boards. If either (or both) of these alternative explanations were correct, we would expect no interaction effect or a positive interaction effect of formal coordination and headquarter proximity on reconstitution.[8]

[8] On the one hand, consider the possibility that: 1) being headquartered in the same city causes two firms' directors to be aware of one another and to be willing to serve on each others' boards, or even causes them to become members of the same local capitalist class segment, but 2) being engaged in formal coordination only causes the level of social interaction between the directors of two corporations to increase. In this case, firms engaged in formal coordination should, if anything, be more likely to reconstitute their ties when headquartered in the same city. Social interaction between directors that results from a linkage should not depress and might even increase the salience of the social interaction or common class segment membership that directors share as the result of commanding firms headquartered in the same city. It also might provide directors with information about the internal workings of each other's organization, making service as an outside director easier. On the other hand, consider the possibility that: 1) interlocks are required for the facilitation of formal coordination, but 2) being headquartered in the same city only causes two firms' directors to know one another and be willing to serve on each other's board. In this case, linked firms headquartered in the same city should not eschew reconstituting their ties, because social interaction that is not regulated by a strong normative framework should not serve as an adequate alternative to interlocking as a mechanism to facilitate formal coordination between firms. For a similar argument, see Granovetter (1985).

DISCUSSION

Implications for Broken Ties Research

Our study differs from previous studies of the reconstitution of disrupted ties in several important respects. Previous research assumed that ties will be reconstituted if they facilitate formal coordination and the more binding forms of informal coordination. Koenig et al. (1979) use the term "reciprocity," Ornstein (1982) uses "alliances," and Palmer (1983) uses "joint corporate planning" when referring to such relationships. In contrast, we assume that ties may be reconstituted for a number of reasons. Previous research focused primarily on estimating the frequency with which ties are reconstituted (Koenig et al. 1979; Ornstein 1982; Palmer 1983) and secondarily on determining the causes of reconstitution (Ornstein 1982, 1984; Palmer 1983). We are interested only in the latter issue. Finally some previous studies analyze *all* disrupted ties (Ornstein 1982, 1984), while we analyze only *accidentally* disrupted ones.[9] Still, comparison of our results with those of the two previous studies that have examined the determinants of reconstruction is instructive.

Palmer (1983) and Ornstein (1982, 1984), who studied Canadian corporations, found, as we did, that connections which included directional interlocks were more likely to be reconstituted. Ornstein (1984) also found, similar to us, that firms linked by stockholding agreements were more likely to reconstitute their connections, while large firms were not. However, contrary to our results, Palmer (1983) and Ornstein (1982, 1984) found that connections composed of multiple interlocks were more likely to be reconstituted. Further, Ornstein (1984) found that connections in which one firm was a financial institution were more likely to be reconstituted, while firms headquartered in the same city were not.

Ornstein (1984) may have found no effect of geographic proximity on reconstitution while we did, because the Canadian economy is more geographically centralized that the U.S. economy. There are many more corporate headquarter centers in the U.S. than in Canada. As a result, the Canadian capitalist class may be less geographically differentiated. Ornstein (1984) may have found an effect of involvement of a

[9] Further, because he examines all disrupted connections, Ornstein (1982, 1984) allows connections to be reconstituted up to two years *before* as well as two years after they are disrupted. This takes into account the possibility that two firms may reinforce their connection in anticipation of a planned disruptive interlock break (e.g., a change in an executive's boundary spanning responsibilities).

financial institution on reconstitution while we did not, because he did not include a measure of financial dependence in his study. Involvement of a financial institution is, by definition, correlated with this measure, which we found affects reconstitution. Finally, Ornstein (1982, 1984) and Palmer (1983) may have found that the number of interlocks connecting firms stimulates reconstitution, while we did not, because both authors did not measure the organizational and class interests that firms and their directors have in interlocking; in the case of the former, financial constraint, and in the case of the latter, both financial constraint and headquarter proximity. In our study, these factors are associated with both the number of interlocks composing a connection and the likelihood of reconstitution.

Implications for Interlock Research in General

The network of interlocking directorates among large corporations is reproduced over time and the factors regulating each stage in this reproduction process appear to be different. By conceptualizing only the initiation stage, theorists have overlooked how the social relations in which ties are embedded shape the interlock network. Foremost among these social relations are the interorganizational linkages and intraclass bonds that ties are hypothesized to facilitate. We found that firms engaged in formal coordination tend to reconstitute their ties. This result does not allow us to determine whether the initiation of ties leads to formal coordination or whether the reverse is the case. Our firms were already tied at the beginning of the study. However, it does suggest that interlocking is associated with formal coordination and may be necessary for its persistence. We also found that ties that include directional, although not multiple, interlocks tend to be reconstituted. This suggests that directional, but not multiple, interlock ties are more likely than others to connect firms engaged in information exchange and informal coordination or to connect directors who maintain first- and second-order bonds with one another. All previous interlock research is based on the unsubstantiated assumption that the network is a reflection of actual relationships between corporations and their directors. Further, research in the power structure tradition is based on the more restrictive assumption that interlocks sometimes facilitate even extensive linkages. Our study validates both assumptions. It also indicates that in the future, researchers should consider directionality but not the intensity of ties when using the interlock network as a reflection of the relationships between corporations and their directors, once the interests that these corporations and directors share have been taken into account.

By examining only cross-sectional relationships between interlocking and its hypothesized determinants, past researchers have been unable to specify the stages in which these determinants operate. We found that while competitive, interindustry, and size-related constraint between corporations and the common local capitalist class membership of directors have been associated with interlocking in past studies, only financial interindustry constraint and common local capitalist class membership stimulate reconstitution. Perhaps all these organizational and class interests cause corporations and their directors to initiate ties, but only financial interindustry constraint and common local capitalist class memberships provide corporations and their directors with a strong interest interlocking and lead to ties that facilitate extensive linkages and bonds. This may help explain why Burt and his associates found that ties patterned as if to coopt nonfinancial constraints had only a small effect on industry profitability (Burt et al. 1980; Burt 1983).

Thus, we found support for both the interorganizational and intraclass perspectives on interlocking. We also found support for an integration of the two.[10] Firms engaged in formal coordination and headquartered in the same city were less likely to reconstitute their ties than those engaged in formal coordination and headquartered in different cities. This suggests that directors who maintain intraclass bonds with one another by virtue of their common residence in elite neighborhoods and membership in social clubs and public policy-making groups need not sit on one anothers' boards in order to facilitate coordination between the firms they command. Geographically-based class organization may substitute for organizational boundary-spanning structures. In the future, researchers should pay more attention to the ways in which class structures, especially those rooted in geography, and organizational structures affect one another. Interdependence may cause firms to locate their headquarters near one another, because headquarter proximity allows the directors of firms to belong to the same local capitalist class segment. Intraclass bonds between directors, forged in neighborhoods, social clubs, or public policy-making groups, may enable the firms they command to create interlocks that facilitate

[10] Mizruchi (1984) and Bearden and Mintz (1986) have also explored the compatibility of what we call the interorganizational and intraclass perspective, but at a more general level.

linkages in order to reduce constraint. Alternately, intraclass bonds may directly facilitate such linkages. If so, past models of interlocking which ignore headquarter proximity and the social bonds it fosters may be misspecified. Interdependence may affect headquarter proximity and both may affect interlocking. Further, there may be a negative interaction affect of interdependence and headquarter proximity on interlocking. Interdependent firms headquartered in different cities should interlock more frequently than those headquartered in the same city. This conjecture is consistent with a recent study by Galaskiewicz et al. (1985), which found no association between competitive and nonfinancial interindustry interdependence and interlocking among firms headquartered within the Minneapolis-St. Paul metropolitan area.

In summary, these results provide support for the assertions which motivated our study. The determinants of the corporate interlock network appear to differ with respect to the stages in the tie reproduction process at which they operate. The social relations in which ties may become embedded and which they may facilitate seem to regulate the latter stages in this process—in particular, reconstitution. Finally, the interorganizational and intraclass perspectives provide compatible and possibly complementary explanations of interlocking. Researchers who do not use both the interorganizational and intraclass perspectives to analyze the process by which the network is reproduced over time may ignore or misinterpret important determinants of the network's structure. Thus, ultimately our results suggest the need for an integrated processual theory and a dynamic analysis of the interlock network. Only then will we be able to fully comprehend the difference between transient connections and the ties that bind.

REFERENCES

Allen, Michael Patrick. 1978. "Economic Interest Groups and the Corporate Elite Structure." *Social Science Quarterly* 58:597–615.

_____. 1974. "The Structure of Interorganizational Elite Cooptation: Interlocking Corporate Directorates." *American Sociological Review* 39:393–406.

Atwood, William, James Bearden, Peter Freitag, Carolyn Hendricks, Peter Mariolis, Beth Mintz, Mark Mizruchi, Donald Palmer, and Michael Schwartz. 1985. "Data Collection and Analysis for the Mathematical Analysis of Corporate Networks (MACNET)." In Mintz, Beth and Michael Schwartz, *The Power Structure of American Business*. Chicago: University of Chicago Press.

Bearden, James, William Atwood, Peter Freitag, Carol Hendricks, Beth Mintz and Michael Schwartz. 1975. "The Nature and Extent of Bank Centrality in Corporate Networks." Paper presented at the annual meetings of the American Sociological Association, San Francisco.

Bearden, James and Beth Mintz. 1984. "Regionality and Integration in the United States Interlock Network." In *Corporations and Corporate Structure* edited by Frans Stokman, Rolf Zeigler, and John Scott. Oxford: Polity Press.

_____. 1986. "The Structure of Class Cohesion: The Corporate Network and Its Dual." In *Structural Analysis of Business,* edited by Mark Mizruchi and Michael Schwartz. New York: Cambridge University Press.

Brandeis, Louis D. 1914. *Other People's Money*. New York: Frederick A. Stockes Co.

Burch, Philip H.J. 1972. *The Managerial Revolution Reassessed*. Lexington, MA: D.C. Heath and Co.

Burt, Ronald. 1983. *Corporate Profits and Cooptation*. New York: Academic Press.

_____. 1979. "A Structural Theory of Interlocking Corporate Directorates." *Social Networks* 1:415–35.

Burt, Ronald, Kenneth Christman and Harold C. Kilburn. 1980. "Testing a Structural Theory of Corporate Cooptation." *American Sociological Review* 45:821–41.

Domhoff, G. William. 1983. *Who Rules America Now? A Review for the 80's*. New York: Prentice Hall.

_____. 1970. *The Higher Circles: The Governing Class in America*. New York: Vintage.

_____. 1967. *Who Rules America?* Englewood Cliffs, NJ: Prentice Hall.

Dooley, Peter. 1969. "The Interlocking Directorate." *American Economic Review* 59:314–23.

Duncan, Beverly and Stanley Lieberson. 1970. *Metropolis and Region in Transition*. Beverly Hills, CA: Sage.

Duncan, Otis Dudley, W. Richard Scott, Stanley Lieberson, Beverly Duncan, and Hal H. Winsborough. 1960. *Metropolis and Region*. Baltimore, MD: Johns Hopkins Press.

Friedland, Roger. 1984. "The Profits of Poverty." *Urban Affairs Quarterly* 19:41–53.

_____. 1983. *Power and Crisis in the City*. New York: Schocken.

Friedland, Roger and Donald Palmer. 1986. "Corporation, Class and Space." Paper presented at the Conference on Science and Humanism in Geography, University of California, Santa Barbara, CA.

_____. 1983. "The Geographical Structure of the Large Corporation." Paper presented at the Annual Meeting of the American Sociological Association, Detroit, MI.

_____. 1984. "Park Place and Main Street: Business and the Urban Power Structure." *Annual Review of Sociology* 10:393–416.

Galaskiewicz, Joseph and Stanley Wasserman. 1981. "Change in a Regional Corporate Network." *American Sociological Review* 46:475–84.

Galaskiewicz, Joseph, Stanley Wasserman, Barbara Rauschenbach, Wolfgang Bielefeld, and Patti Mullaney. 1985. "The Influence of Corporate Power, Social Status, and Market Position on Corporate Interlocks in a Regional Network." *Social Forces* 64:403–431.

Granovetter, Mark. 1985. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91:481–511.

_____. 1974. *Getting a Job*. Cambridge, MA: Harvard University Press.

_____. 1973. "The Strength of Weak Ties." *American Journal of Sociology* 78:1360–80.

Hirsch, Paul. 1982. "Network Data Versus Personal Accounts: The Normative Culture of Interlocking Directorates." Paper presented at the Annual Meeting of the American Sociological Association, San Francisco.

Koenig, Thomas and Robert Gogel. 1981. "Interlocking Corporate Directorships as a Social Network." *American Journal of Economics and Sociology* 40:37–50.

Koenig, Thomas, Robert Gogel and John Sonquist. 1979. "Models of the Significance of Interlocking Corporate Directorates." *American Journal of Economics and Sociology* 38:173–85.

Koenig, Thomas and John Sonquist. 1975. "Interlocking Directorates in the Top U.S. Firms." *Insurgent Sociologist* 5:196–229.

Kotz, David. 1978. *Bank Control of Large Corporations in the United States*. Berkeley: University of California Press.

Mace, Myles. 1971. *Directors: Myth and Reality*. Boston, MA: Harvard University Press.

Mariolis, Peter. 1975. "Interlocking Directorates and the Control of Corporations." *Social Science Quarterly* 56:425–39.

Mariolis, Peter and Maria H. Jones. 1982. "Centrality in Corporate Interlock Networks: Reliability and Stability." *Administrative Science Quarterly* 24:571–84.

Mills, C. Wright. 1956. *The Power Elite*. New York: Oxford University Press.

Mintz, Beth and Michael Schwartz. 1985. *The Power Structure of American Business*. Chicago: University of Chicago Press.

_____. 1981a. "The Structure of Intercorporate Unity in American Business." *Social Problems* 29:87–103.

_____. 1981b. "Interlocking Directorates and Interest Group Formation." *American Journal of Sociology* 46:851–68.

Mizruchi, Mark. 1984. "An Interorganizational Theory of Class Cohesion: Incorporating Resource Dependence Concepts into a Social Class Model of Intercorporate Relations." *Power and Elites* 1:23–36.

_____. 1981. *The Structure of the American Corporate Network: 1904–1974*. Beverly Hills, CA: Sage Publications.

Mizruchi, Mark and David Bunting. 1981. "Influence in Corporate Networks: An Examination of Four Measures." *Administrative Science Quarterly* 26:475–89.

Mollenkopf, John. 1984. *The Contested City*. Princeton, NJ: Princeton University Press.

Molotch, Harvey. 1979. "Capital and Neighborhood." *Urban Affairs Quarterly* 14:289–312.

_____. 1976. "The City as a Growth Machine: Toward a Political Economy of Place." *American Journal of Sociology* 82:309–31.

Moody's Industrial Manual. Moody's Investment Service, Inc., New York. New York Times, 1962–1964, *passim*.

Newton, Kenneth. 1981. *Urban Political Economy*. London: Pinter.

Ornstein, Michael D. 1982. "Interlock Directorates in Canada: Evidence from Replacement Patterns." *Social Networks* 4:3–25.

_____. 1984. "Interlocking Directorates in Canada: Intercorporate or Class Alliance." *Administrative Science Quarterly* 29:210–31.

Palmer, Donald. 1983. "Broken Ties: Interlocking Directorates and Intercorporate Coordination." *Administrative Science Quarterly* 28:40–55.

Palmer, Donald and Roger Friedland. 1986. "Corporation, Class, and City Growth." In *Structural Analysis of Business*, edited by Mark Mizruchi and Michael Schwartz. New York: Cambridge University Press.

Palmer, Donald, Roger Friedland, and Amy Roussel. 1986. "A City's Position in the System of Cities as a Determinant of its Business Service Activity." Paper presented at the Sunbelt VI Social Network Conference, Santa Barbara, CA.

Pennings, Johannes M. 1980. *Interlocking Directorates*. San Francisco: Josey Bass.

Peterson, Trond. 1985. "A Comment on Presenting Results from Logit and Probit Models." *American Sociological Review*, Vol. 50, No. 1:130–31.

Pfeffer, Jeffrey. 1972. "Size and Composition of Corporate Boards of Directors: The Organization and its Environment." *Administrative Science Quarterly* 7:218–28.

Pfeffer, Jeffrey and Gerald R. Salancik. 1978. *The External Control of Organizations*. New York: Harper and Row Publishers.

Ratcliff, Richard. 1980a. "Banks and Corporate Lending: An Analysis of the Impact of the Internal Structure of the Capitalist Class on the Lending Behavior of Banks." *American Sociological Review* 45:553–70.

_____. 1980b. "Declining Cities and Capitalist Class Structure." Pp. 115–18 in *Power Structure Research*, edited by G. William Domhoff. Beverly Hills, CA: Sage.

Roy, William G. 1983. "The Unfolding of the Interlocking Directorate Structure of the United States." *American Sociological Review* 48:248–56.

Scott, John. 1979. *Corporations, Classes and Capitalism*. New York: St. Martins.

Soref, Michael. 1976. "Social Class and a Division of Labor Within the Corporate Elite: A Note on Class, Interlocking, and Executive Committee Membership of Directors of U.S. Industrial Firms." *The Sociological Quarterly* 17:360–68.

Standard and Poor's Corporation. *Standard and Poor's Register of Corporations, Directors and Executives*. (Published annual). New York: Standard and Poor's Corporation.

Stanworth, Philip, and Anthony Giddens. 1975. "The Modern Corporate Economy: Interlocking Directorates in Britain 1906–1970." *The Sociological Review* 23:5–28.

Sweezy, Paul. 1953. "Interest Groups in the American Economy." *The Past as Present*, edited by Paul Sweezy. New York: Monthly Review Press.

Useem, Michael. 1983. *The Inner Circle: Large Corporations and Business Politics in the U.S. and U.K*. New York: Oxford University Press.

_____. 1979. "The Social Organization of the American Business Elite and Participation of Corporate Directors in the Governance of American Institutions." *American Sociological Review* 44:553–72.

Whitt, Alan. 1982. *Urban Elites and Mass Transportation: The Dialectics of Power*. Princeton, NJ: Princeton University Press.

Zeitlin, Maurice, Lynda Ewen, and Richard Ratcliff. 1974. "New Princes for Old? The Large Corporation and the Capitalist Class in Chile." *American Journal of Sociology* 80:87–123.