

FRAME DECAY, INFORMAL POWER, AND THE ESCALATION OF SOCIAL CONTROL IN A MANAGEMENT TEAM: A RELATIONAL SIGNALING PERSPECTIVE

Rafael Wittek, Marijtje A. J. van Duijn and
Tom A. B. Snijders

ABSTRACT

In a study of conflict in organizations, Lindenberg's relational signaling theory is used to develop hypotheses on the impact of relationship strength, network embeddedness, and organizational change on social escalation. Social escalation is defined as the involvement of one or more third parties in a conflict. An empirical test is conducted with data on 67 conflicts involving 22 managers, gathered during three years of ethnographic fieldwork and a longitudinal network study in a management team of a German paper factory. Multilevel analysis indicates that strong ties between conflicting parties decrease the level of social escalation, whereas informal power advantage of one party increases the chances for social escalation. Both effects disappear over time. It is argued that the dissolving impact of relationships and networks is due to the disappearance of so-called

solidarity frame-stabilizing activities in the firm. The results highlight the context-dependence of network effects and escalation processes.

INTRODUCTION

It has often been argued that during the past two decades "flat" organizational structures and self-organizing teams have acquired a more important role in the governance of organizations (Cappelli et al., 1997, pp. 94-99; Osterman, 2000). This development also stimulated an increasing theoretical interest in factors that facilitate or inhibit the functioning of these new organizational forms (see, e.g., Podolny & Page, 1998). Informal conflict management plays a crucial role in this context (Wittek, 1999). Three implicit assumptions seem to underlie writings on conflict management and social control behavior. First, teams are successful because they contribute to the solution of the second-order free-rider problem. This means that, when confronted with a problem caused by a colleague, team members opt to actively sanction their peer rather than remain passive and wait for an intervention by a superior. Second, workgroups help reduce transaction costs because they encourage quick bilateral conflict resolution among those involved, thus avoiding the time-consuming activation of third parties as mediators or allies and minimizing the use of formal grievance procedures. The number of individuals and institutions involved in the resolution of intraorganizational conflicts is far less than in bureaucratic organizations. Third, in comparison with bureaucratic organizations, conflicts are resolved informally rather than through interventions by formal agents of control. The theoretical construct that encapsulates all three dimensions – passive versus active, direct versus indirect, informal versus formal – is called *social escalation* (Morrill & King Thomas, 1992).

The level of social escalation is defined by the number of actors who participate in the process of sanctioning. In other words, the higher the number of third parties that are involved, the higher the level of escalation. The different levels of social escalation can be distinguished as: unilateral, direct, indirect, formal, and public strategies. Examples of these types of behavior are, respectively: hidden retaliation, talk to the other conflict party, gossip with colleagues about the other person, complain to your boss about your colleague, and discuss the issue during a department meeting. Thus, social escalation is lowest where the "instigator" acts on his own, and highest where sanctions are allocated to another actor in the presence of at least one colleague. The activation of a superior is considered as ranking higher in the escalation hierarchy than the incorporation of a peer. The degree to which this theoretical construct is in fact congruent with our cognitive representation of conflict management strategies is of course a question

that needs further empirical investigation (but see Ellickson, 1991; Rooks, 2002 for supporting evidence). In the discussion section, we will tackle some of the problems this conceptualization of the theoretical construct entails.

So far, relatively little systematic empirical research has been done to address the determinants of social escalation in organizations. Most social-psychological research conceives of escalation as increasing levels of assertiveness or emotional reactions within a dyad (see, e.g., Nauta & Sanders, 2000; Pruitt et al., 1997) while the management and organization literature usually emphasizes the role of supervisors as arbitrators in conflicts. The result is that these literatures focus on the effectiveness of different negotiation strategies, leadership styles, and the use of grievance procedures (see, e.g., Sheppard, 1984; Staw & Ross, 1987).

Both research traditions have largely neglected the question: under which conditions does someone involve a third party in a conflict? This article will attempt to address this question. We want to find out how choices that are made in a conflict can explain variations in the level of social escalation. By doing so, we want to show the usefulness of a specifically sociological approach which emphasizes structural aspects of conflict resolution and the social and institutional embeddedness of actors.

The article is structured as follows. The following section gives a brief overview of current research on social escalation, particularly the impact of three factors: *relationship strength*, *network embeddedness*, and *organizational context*. The theoretical framework and five hypotheses will be sketched and empirically tested with data on informal control and social networks between 22 members of a management team in a German paper factory. We conclude with a discussion of the implications of the research findings for organization theory and conflict research.

RELATIONSHIP STRENGTH, NETWORK EMBEDDEDNESS, AND ORGANIZATIONAL CONTEXT AS DETERMINANTS OF ESCALATION OF CONFLICTS

Studies on the determinants of informal control strategy choice and conflict management behavior usually focus on one of four different levels of analysis with regard to the independent variables: the organizational context, the pattern and quality of relationships, the grievance event, or actor attributes and personality characteristics (for a systematization and overview of this literature, see Wittek, 1999, ch. 2). In this article, we limit ourselves to the organizational and relational dimension.

Conflict researchers studying how the quality of social relations between two conflicting parties can influence social escalation tend to disagree about the direction of this effect. Empirical research often produces contradictory results (Dillard & Burgoon, 1985, p. 292). Some researchers (Cody et al., 1981;

Fitzpatrick & Winke, 1979; Miller et al., 1994; Roloff & Barnicott, 1978) show that relational closeness between both parties favors escalation. Moreover, they argue that strong ties tend to lead to the use of a broader range of conflict management strategies (Sillars, 1980). Other authors (Cody et al., 1986; Michener & Schwertfeger, 1975; Pruitt & Carnevale, 1993, p. 136; Raven & Kruglanski, 1970) report effects in the opposite direction. They say that a high degree of intimacy is more likely to mean that direct and conciliatory strategies are used because those involved do not want to jeopardize their relationship (Cody et al., 1986). In other words, friends prefer not to resolve their conflicts via third parties.

These contradictory findings led us to conclude that the closeness of relationships as such does not explain escalation, and that more attention should be paid to the mediating role of context conditions: "intimacy alone is of limited consequence in determining message selection, but [that] it interacts with other situational variables" (Dillard & Burgoon, 1985, p. 292).

In this article, two context conditions will be examined more closely: network embeddedness of the conflicting parties and the organizational context. Since escalation implies a process in time, we will also take into account how conflict management behavior between two persons changes over time.

Research on the effect of *network embeddedness* on social escalation shows that indirect conflict management strategies tend to occur when the "relational distance" between the two conflicting parties is great and when both parties have contact with third parties whom they can involve either as allies or mediators (Barley, 1991; Burt & Knez, 1996; Gargiulo, 1993; Kapferer, 1969; Lazega & Vari, 1992; Thurman, 1979; Wittek, 1997; Wittek & Wielers, 1998). In both cases, it is assumed that the likelihood of social escalation between conflicting parties who have no or a poor relationship increases with the strength of their network embeddedness.

Organizational contexts as determinants of conflict management behavior are still among the least explored areas in intraorganizational conflict research (Barry & Watson, 1996, p. 289; Nauta & Sanders, 2000). However, there is evidence that both formal structure and organizational strategy play a role. Direct (bilateral) conflict management strategies are more likely to be found in "flat" and matrix organizations, whereas supervisors are more important for conflict resolution in more "traditional" bureaucratic organizations (Morrill, 1995). It seems that, particularly, in flat organizations conflict management acquires a more hostile character than in traditional bureaucratic settings (Barker, 1993; Nauta, 1996).

Though the factor time is inextricably linked with the phenomenon of escalation, we are not aware of any empirical work – apart from case studies (Ellickson, 1991; Kapferer, 1969; Thurman, 1979) – that systematically investigates how conflict management behavior between organizational members changes over time.

Experimental research (Pruitt et al., 1997) and the case studies just mentioned show that both emotional and social escalation are the result of unsuccessful previous attempts to resolve the conflict. An additional complication for organization studies results from the fact that changes in organizational context are often among the reasons for the escalation of conflicts (Tebbutt & Marchington, 1997).

This brief sketch of previous research leads to the following conclusions. Although there is a lack of systematic empirical research, the strength of the relationship between the contestants, their network embeddedness, the organizational context, and the history of the conflict itself seem to be important determinants of social escalation. The question is how these factors interact with each other. Previous research has not given a theoretical explanation for the contradictory effects of relationship strength. Therefore, it is still unclear under which context conditions a strong relationship between the contestants will favor or impede social escalation. The following section sketches a theoretical framework capable to resolve this problem.

RELATIONAL SIGNALS AND ESCALATION OF CONFLICTS

The interaction between relationship strength, network embeddedness, context conditions and cooperation is a central element of Lindenberg's (1997, 1998, and Lindenberg's, 2003 contribution in this volume; see also Mühlau, 2000; Wielers, 1997) *relational signaling theory*, which has recently been used to explain conflict management behavior (Wittek, 1999). Relational signaling theory analyzes relationship strength in terms of the contribution of social relationships to individual social well-being. The latter can be achieved either through the exchange of affect, the recognition of prestige, or through social rewards as they follow from compliance to solidarity norms. In solidarity relationships, the realization of individual gain is tempered by the desire to conform to solidarity norms. The stronger the relationship, the more one is willing to take into consideration the interests of the other actor, even if doing so entails considerable cost. Such solidarity considerations are absent in opportunistic relationships. Here, both actors try to maximize their personal gains and are willing to cheat.

How do solidarity norms influence conflict management behavior? In order to answer this question it is necessary to address the content of solidarity norms. In stable solidarity relationships both parties conform to normative expectations. This implies that they take into consideration how their actions will affect the other's well-being, as well as the relationship to this person (see also Pruitt & Carnevale, 1993, p. 137). Each party avoids actions that could be interpreted as

hostile and expects signals, which show that the other is still interested in the relationship. Both actors are attentive to cues (relational signals) in the behavior of the other person that may reveal something about his or her intentions with regard to the maintenance of the relationship. A positive relational signal means that the other person wants to continue the relationship with the receiver of the signal. In solidarity relationships, conflict management behavior will also be evaluated according to its relational signaling content. Direct strategies have some advantages in this respect. First, compared to indirect strategies they reduce the likelihood of communication biases because information that is spread via third parties is more likely to become distorted than direct communication. Involving a third party lengthens the chain of communication and multiplies the potential sources of misunderstandings. Third parties might misrepresent the original information either deliberately (because they pursue their own goals) or by accident (because they forget relevant pieces of information or emphasize different aspects). Second, direct strategies enable the receiver to judge the reliability of the signal better. Direct strategies imply that the sender and the receiver interact with each other verbally or non-verbally. While communicating, both actors have the opportunity to visually screen each other's behavior for possible cues of relational (dis)interest. Goffman's (1959, p. 2) distinction between *expressions given* vs. *expressions given off* illustrates this process. He showed that relational signals in the first category – like a gift – enable the sender to hide his or her potential opportunistic intentions (an *expression given*), whereas signals in the second category are far more difficult to manipulate because they are physiological signals (blushing, showing nervousness, etc.) which are difficult to control (they are *given off*). If a person sends a message to another person via a third party rather than in a face-to-face encounter, the receiver of the message does not get the opportunity to observe expressions given off. From this perspective, the content of the message (Kellermann & Cole, 1994) becomes less important than the question whether the conflict party chooses a direct or an indirect strategy (Morrill & King Thomas, 1992). *Face-to-face* communication between both conflicting parties means that they enable the other person to receive relational signals as *expressions given off*. These advantages, and the fact that direct strategies are themselves an expression of a direct relation, imply that, in case of a conflict, the use of a direct strategy can often be seen as a positive relational signal.

The question is: when will one of the conflicting parties choose a direct or an indirect strategy to resolve the conflict? The choice of an indirect strategy implies that the other party does not get the opportunity to receive *expressions given off*. Therefore, in a functioning solidarity relationship indirect strategies are more likely to be interpreted as negative relational signals than direct strategies. Assuming that conflict parties anticipate on the relational signaling character of their sanctions

it follows that the stronger the solidarity relationship between the two parties, the more they will prefer direct strategies of conflict resolution.

However, individuals in solidarity relationships will not immediately suspect opportunistic motives if one of the others in the relationship violates a solidarity-rule. To a certain extent, they will tolerate such infractions – if they are not too costly, or if the other party makes credible efforts to restore the status quo by apologizing or actively attempting to repair any damage (Lindenberg, 1998; see also Ellickson, 1991). As a result, particularly in the case of minor problems, individuals in solidarity relationships are less likely to actively sanction each other than those in opportunistic relationships (Wittek, forthcoming).

In relationships where solidarity is absent or opportunistic behavior dominates, conflicting parties do not take the impact of their behavior on the other's well-being into consideration and they do not expect positive relational signals. Consequently, their choice of a conflict management strategy is not constrained by the relational signaling character of their sanctions. In an opportunistic relationship, where *ego* is the instigating party and *alter* is the other party in a relationship, it is likely that *alter* will put up more resistance to direct control than *alter* in a solidarity relationship would. Therefore, *ego* in an opportunistic relationship will try to choose a level of escalation at which *alter's* resistance is likely to be lower or the benefits of conflict management are expected to be higher. *Alter's* resistance will be lower if the direct control attempt is made by somebody (an *ego*) with whom he or she has a solidarity relationship. Empirical research on the expected effectiveness of attempts to wield influence in different relational contexts shows that expected effectiveness is higher in solidarity relationships than in opportunistic relationships (Cody et al., 1986; Dillard & Burgoon, 1985). Assuming a continuum of social escalation that ranges from unilateral through direct, indirect, formal, and public forms of conflict resolution, it can be hypothesized that conflicts within solidarity relationships will be resolved unilaterally or directly:

Solidarity Hypothesis (H1). The stronger the solidarity relationship between *ego* and *alter*, the lower the level of escalation that *ego* chooses to resolve conflicts with *alter*.

How does network embeddedness influence the level of social escalation? From a relational signaling perspective, social relationships are an important means to acquire social well-being through the production of social approval in the form of behavioral confirmation, affect, or status recognition. For situations in which an actor (*ego*) is confronted with negative externalities generated by another actor (*alter*), this assumption has the following implications.

First, if the relationship between the two is defined in terms of (weak or strong) solidarity, *ego* may see behavior that results in negative externalities as a potential

threat to the stability of the solidarity relationship. *Alter's* action may be an indicator for the decreasing salience of *alter's* solidarity frame. In other words, *ego's* estimation of the likelihood of upsetting *alter* (i.e. losing social approval) will increase. If *ego* has no credible evidence that *alter* misbehaved unintentionally (e.g. *alter* offers credible apologies, the misbehavior turns out to be a mistake) *ego* has an incentive to compensate the temporary loss of social approval. The threat to *ego's* social production function will stimulate him to look for alternative sources of social approval (Lindenberg, 1998). In network structures, there will be potential, substitute, sources of social approval in the form of third-parties who are related to *ego* in a solidarity relationship, but who are themselves not linked to *alter*, and may even have a negative relationship with *alter*. This specific structural situation increases the likelihood that they will not defend *alter*, but express sympathy for *ego's* statements about *alter*, and even actively defend *ego* in discussions with *alter*. Burt (2001) refers to this process as the echo-effect. Note that this effect does not necessarily exclude the possibility that *ego* may try to resolve the conflict with *alter* bilaterally. Due to the solidarity relationship, *ego* will estimate *alter's* expected resistance to a direct control effort as being lower than the expected resistance of somebody with whom he has no ties.

Second, if the relationship between *ego* and *alter* is not a solidarity relationship, the negative externality caused by *alter* is not a threat to *ego's* production function for social well-being, since the relationship was not necessary as a source of social approval. Consequently, there is no regulatory interest originating from the fear of loss of social approval. However, in organizational settings, functional interdependencies often force people to work together who have a negative relationship. Where employees depend on each other to carry out their jobs properly, a regulatory interest emerges from the functional interdependencies between them. It is to *ego's* advantage if *alter* stops producing negative externalities in the future. Since they do not have a solidarity relationship, *ego* will estimate *alter's* resistance to a direct control effort as being higher than the expected resistance of somebody with whom he has a solidarity relationship. This decreases the expected probability that bilateral control efforts will be successful. The primary purpose of mobilizing allies in this case is to increase the potential indirect pressure on *alter*. Allies can exert indirect pressure either verbally by arguing with *alter* or supporting *ego's* standpoint, or by withholding resources necessary for *alter* to carry out his work.

Hence, the first condition for networks to have an effect on social escalation consists of the presence of potential allies defined as third parties who have no, or a negative, tie to *alter*, but to whom *ego* has a solidarity relationship. Such allies are either alternative sources of social approval for *ego* or partisans who can exert indirect pressure on *alter* on *ego's* behalf.

The presence of allies is a necessary, but not a sufficient condition to increase the level of escalation. The reason is that *alter* also has the opportunity to mobilize allies, and can therefore threaten *ego's* work situation. Allies will only be mobilized if the expected benefits in terms of social approval or indirect pressure outweigh the expected costs from *alter's* counter-mobilization efforts. It can be assumed that the expected benefits of mobilization of an ally will be higher if one has more allies than the other party. In an opportunistic relationship, if *ego* has more allies than *alter*, *ego* can exert more indirect pressure on *alter* than *alter* can on *ego*. *Ego* has more supporters and will be less vulnerable to *alter's* efforts to mobilize his own allies against him. In a solidarity relationship, if *ego* has more allies than *alter*, mobilizing these allies increases the opportunity to produce social approval.

Hence, the second factor in the way a network effects social escalation consists of the relative informal power advantage of *ego* over *alter*. If both factors are present, that is to say if *ego* has potential allies, and the number of allies constitutes a relative informal power advantage over *alter*, the likelihood of social escalation increases.

Informal Power Advantage Hypothesis (H2). The larger the relative informal power advantage that *ego* has over *alter*, the higher the level of social escalation that *ego* will choose to resolve conflicts with *alter*.

A crucial requirement for the effects specified in Hypotheses 1 and 2 is the stability of the underlying solidarity frames. Only if both actors have an interest in maintaining their relationship and if both are convinced that the other is not driven by opportunistic motives, will repeated conflicts between two persons not result in escalating conflict management behavior. However, solidarity frames are inherently unstable and vulnerable (Lindenberg, 1998, pp. 78–92). The major reason is that conforming to solidarity norms will not always attract the attention of other persons. As a result, norm-conformity is often not rewarded, while the person conforming to norms will be well-aware of the related costs. This leads to a gradual erosion of the solidarity frame:

When there are fairly high costs involved in executing solidarity behavior and when the situations are repetitive, then we are likely to observe, *ceteris paribus*, a decay in the overall salience of the solidarity frame (Lindenberg, 1998, p. 80).

This process will not occur if there are supplementary arrangements to stabilize the solidarity frame, such as activities or institutions in the group context. Lindenberg mentions ritual confirmation of group membership and identification of common goals as the most important factors:

The most obvious and well recognized focus of a frame-stabilizing ritual in a sharing group is the identification of the group as group, making membership easily recognizable, and the celebration of a common goal that is abstract enough to cover all joint lower-level goals (Lindenberg, 1998, p. 83).

Thus, solidarity frames will erode only if these types of stabilizing activities are lacking or decreasing in frequency or intensity. If the strength of the solidarity frame influences conflict management behavior – as is claimed in the *Solidarity Hypothesis* – then the level of escalation between two persons who repeatedly have a conflict will increase through time in settings where little frame-stabilizing activities occur:

Frame Decay Hypothesis (H3). The fewer solidarity frame-stabilizing activities occur in the dyad or the group context, the higher the level of escalation that *ego* will choose to resolve (repeated) conflicts with *alter*.

The effect specified in the *Frame Decay Hypothesis* in fact predicts the increase of indirect conflict management strategies over time independently of the strength of the relationship between the conflicting parties and their informal power advantage. Put differently: social networks lose their impact as a determinant of conflict management behavior if solidarity frame-stabilizing activities in the organizational context disappear. There are two major reasons for this process.

First, somebody who has repeatedly been annoyed by the same person will be less and less inclined to interpret this behavior in a solidarity frame. Even though solidarity considerations (and the focus on the costs associated with the conflict) will not immediately disappear, *ego* will become increasingly aware of the costs resulting from *alter's* behavior. Therefore, the de-escalating effect of a solidarity relationship between the two parties will decrease over time if no other factors contribute to the stabilization of the solidarity frame. This means that the solidarity norm to resolve conflicts directly will lose its strength as the principle that guides *ego's* conflict management efforts.

Second, a reduction of solidarity frame-stabilizing activities in the organizational context will increase the likelihood that individuals misinterpret each other's behavior as ambiguous relational signals. Behavior that would be perceived as innocent within a salient solidarity frame, will raise suspicion as potentially being driven by opportunistic motives when stabilizing efforts are lacking. The reason for this has to be sought in a spill-over effect. The individuals in a dyad are exposed to information about grievances and sanctioning behavior taking place in the rest of the group. Solidarity stabilizing activities facilitate the interpretation of these actions in terms of their relational signaling character because they create opportunities for direct interaction and thus mutual monitoring of group members. They also help to create clear distinctions between actions that constitute either a negative or a positive relational signal. The reduction of frame-stabilizing activities

will increase the uncertainty about the real intentions behind other's actions. It becomes more likely that norm violations as well as sanctions are seen as ambiguous relational signals. The result is a destabilization of the solidarity frame in social relationships. Where the solidarity frame between two conflicting parties loses its salience, their ties are also less likely to stimulate the use of direct conflict management strategies. Similarly, the fading solidarity frame of allies and mediators will render the power base of a potential controller increasingly insecure and therefore reduce the tendency to use higher levels of social escalation. As a result, the use of indirect strategies will also decrease in dyads characterized by opportunistic relationships.

The following hypothesis summarizes these interaction effects between decreasing frame-stabilizing activities, relationship strength, and third-party ties on social escalation:

Destabilization Hypothesis (H4). The less solidarity frame-stabilizing activities occur in the dyad or group context, the weaker will become the effect of: (a) relationship strength and (b) informal power advantage on social escalation over time.

Figure 1 presents a graphical overview of all hypotheses.

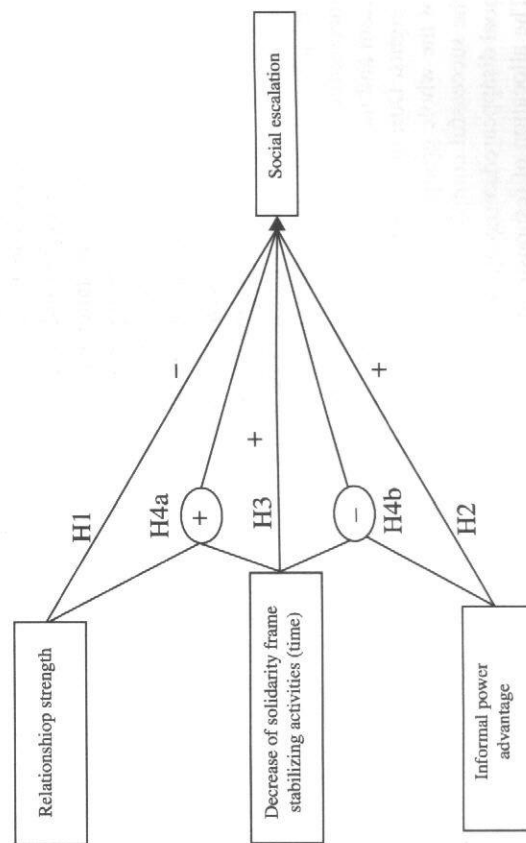


Fig. 1. Graphical Representation of the Hypotheses.

RESEARCH DESIGN

A test of the hypotheses requires detailed information on five dimensions:

- (a) the conflict management strategy that *ego* has used with regard to *alter* in a conflict,
- (b) the quality of the relationship between *ego* and *alter*,
- (c) the network embeddedness of *ego* and *alter* (i.e. how many potential mediators and allies are in *ego*'s network),
- (d) repeated measurements of conflict management behavior in a group, taken over an extended time period, and
- (e) type and frequency of frame-stabilizing activities in the group context.

In order to collect this information, a multi-method design was used to study conflict resolution practices in the management team of a German paper factory (Wittek, 1999). The three most important sources of data are questionnaire based longitudinal social network research, semi-structured "trouble case" interviews, and participant observation. In what follows, we will first describe the organizational context. A brief description of the network panel and the *trouble case* methodology follows.

The Organization. The factory is situated in a village with 800 inhabitants in southern Germany. When fieldwork started in 1995, the organization had 170 employees and two paper machines. After being declared bankrupt in 1993, the company was taken over by a German multi-national that decided to invest 40 million German Marks on enlarging the site with a new production hall and a third paper machine. The latter was scheduled to be operative on September 1, 1995. During the observation period (February 1995 to July 1997), these activities before the deadline of September 1 1995 were the main focus at the factory. The formal structure of the factory was substantially changed twice during the observation period. This means it is necessary to distinguish three phases (for a detailed description of these processes see Wittek, 1999, pp. 67-152). During the first phase, the managers had to cope with a double workload. Besides their normal job in the daily production process, they were now also responsible for the successful realization of the common project. Mutual interdependence between them and the necessity to coordinate and cooperate reached previously unknown heights. During this phase (1995) a clear group goal was present. Daily meetings of the whole group contributed to the stability of a strong solidarity frame. With the successful completion of the project at the end of 1995, the common group goal disappeared, although the production department still formed a single entity. The allocation of responsibilities concerning the new paper machine was highly ambiguous. In the beginning of 1996, solving the new machine's implementation problems was, on the whole, considered to be a joint task. But during the same

period, the number of times the whole group met was reduced from regular daily gatherings to irregular meetings every two to three weeks. Finally, in 1997 the production department was split up into three semi-autonomous units. The frequency of meetings of the whole management team was further reduced to once a month.

To sum up, *formal* activities, rituals, and categorizations, which could contribute to the stabilization of a solidarity frame of the whole group were gradually reduced in the period from 1995 to 1997.

Network Panel. The questionnaire-based survey is based on a panel study with three measurements, spread over 18 months, with six months in between each measurement. Apart from items measuring attitude, the questionnaire contained a number of socio-metric questions that dealt with, for example, the intensity of personal relations. Twenty-two of the twenty-five members of the management team responded. This allowed the reconstruction of the network of personal relations between 22 managers at three points in time. In 1995, mean age of the team members was 41 (SD 10.9), with a mean tenure of 13.2 years (SD 11.8). Almost 80% had been working for the factory for more than 5 years. Two thirds of the managers had a degree in engineering. There were seven departments: production, the chemical laboratory, maintenance, logistics, personnel, technical customer service, and a project department. The majority of the managers did not live in the village where the factory is situated, and had little personal contact with each other outside the work context (Wittek, 1999, p. 243).

Participant Observation. Approximately 7 months, spread over a period of three years (1995-1997), were spent doing ethnographic research at the site. The key element of fieldwork consisted of eliciting *trouble cases* through semi-structured interviews and direct observation (Morrill, 1995). A *trouble case* is defined as a critical incident

- (a) that was caused by a colleague,
- (b) that irritated the respondent, and
- (c) for which the reaction of the respondent was known (the so-called control event).

Content analysis of the transcribed interviews and field notes resulted in a total of 171 control events, of which 125 involved the 22 respondents for whom there was also information available about the social network.

DATA AND METHOD OF ANALYSIS

Dependent Variable. For each control event it was determined who was *ego* (the person carrying out the control effort), who was *alter* (the person towards whom

the control effort was directed), and whether it was a unilateral, direct, indirect, formal, or public reaction. Unilateral strategies are reactions to cooperation problems where *ego* does not talk to anybody about the incident. This includes resignation, but also tactics like avoidance of interaction or hidden retaliation. Direct strategies are control attempts during which *ego* privately talked to *alter* about the problem. Indirect strategies are situations when *ego* talks to one or more other colleagues about the problem without *alter* being present. If the third person is a superior of *ego* or *alter*, the control attempt is coded as a formal strategy. Finally, public control refers to the situation when *ego* talks to at least one other third person about the problem in the presence of *alter*.

The dependent variable is the level of *social escalation* between two managers, increasing in strength from 1 to 5 in the following order:

- (1) unilateral,
- (2) direct,
- (3) indirect,
- (4) formal,
- (5) public.

Thus, rather than using explorative scaling techniques, a theoretical ordering of the categories of the dependent variable was preferred.¹

In 11 cases *ego* carried out a repeated effort (and in one case two repeated efforts) during one of the three phases in order to resolve a conflict with *alter*. The dependent variable is the strategy that was chosen during a control attempt between two actors at a particular point in time. If more than one conflict occurred between two persons during the observation period, the strongest strategy was coded. Since the selection of the events was purely based on the dependent variable, this selection entails no bias for the test procedure.

A total of 67 complete observations were available for the 22 actors (see Table 1). Six of the events were unilateral, 30 direct, 1 indirect, 10 formal and 20 public.

Independent Variables. Five independent variables were operationalized. *Relationship strength* between the managers was determined at three points in time using socio-metric questions. Managers indicated the intensity of their relationship with each colleague by ranking colleagues as those "whom you would certainly not take into your confidence" to "colleagues with whom you discuss personal problems related either to work or private life." Answers were coded accordingly on a five-point scale ranging from: distant, absent, neutral, trusting to very trusting. The results were as follows (frequencies in brackets): distant (1), absent (5), neutral (26), trustful (29), and very trustful (6).

Informal power advantage – a measure of the degree of network embeddedness – was determined by carrying out a triad census. For this purpose, relationships were

Table 1. Frequency of Conflict Management Strategies per Phase.

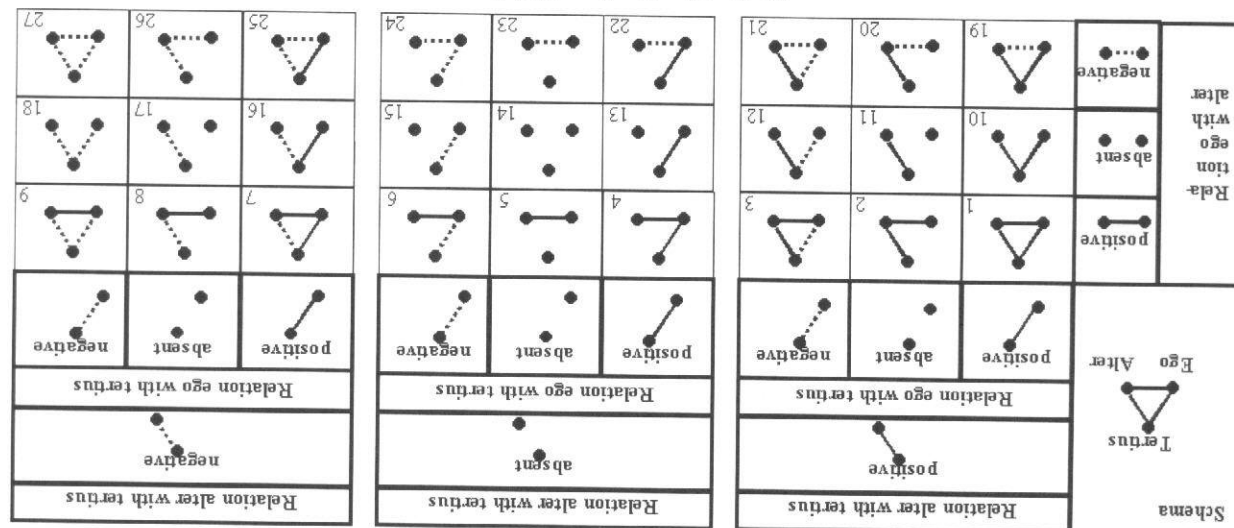
Strategy	Time			Total
	1995	1996	1997	
Unilateral	2	4	0	6
Direct	8	8	14	30
Indirect	0	0	1	1
Formal	4	4	2	10
Public	11	6	3	20
Total	25	22	20	67

trichotomized. "Trustful" and "very trustful" ties were coded as "strong," and the remaining ties were coded as "absent" or "negative." Figure 2 shows all the possible combinations of relationship strength and network embeddedness for the smallest possible network, the triad. Informal power advantage of *ego* over *alter* was calculated taking the difference in frequency between the power advantage of *ego* (see Fig. 2 for conditions: 4, 7, 8, 13, 16, 17, 22, 25, 26) and the power advantage of *alter* (see Fig. 2 for conditions: 2, 3, 6, 11, 12, 15, 21, 24). In a triad in which *ego* has an informal power advantage, *ego* has either: (a) a positive, a negative, or no tie to *alter*, and (b) a positive tie to a third party who has no, or a negative, tie to *alter*. The mean informal power is 3.04 (SD 5.68).

The variable *frame-stabilizing activities* indicates whether a conflict took place in 1995 ("1"), 1996 ("0"), or 1997 ("1"). Since frame-stabilizing activities decreased through time, the variable is reverse coded. As was indicated in the description of the organizational context, activities to stabilize a strong solidarity frame gradually decreased from 1995 to 1997. Since each of the three phases coincides with a change in the organizational context, the indicators for time and stabilizing activities in the organizational context are identical in this study.

Two interaction terms were created by multiplying the centered variable *frame-stabilizing activities* with the (centered) variables *relationship strength* and *informal power advantage*.

Control Variable. Previous research has shown that superiors tend to prefer the direct resolution of conflicts, and therefore choose a low level of escalation (Cody & McLaughlin, 1985; Kipnis et al., 1980; Miller et al., 1994, p. 183; Putnam & Wilson, 1982). Therefore, the *formal power relationship* between *ego* and *alter* was included as a control variable. A control effort of a superior towards a subordinate was coded "1," control attempts between equals were coded "0," and control efforts from a subordinate towards a superior were coded "-1."



Forty control attempts were lateral (i.e. between managers in the same hierarchical position). Nineteen control efforts were from a superior directed towards a subordinate, and 8 control efforts originated from a subordinate towards a superior.

Method. The complex structure of the data – repeated measurements between actors in a social network – requires a non-standard method of analysis. There are various sources of variance: the two actors in a dyad, the directed relationship between them, and the repeated measurement. The various sources of variance result in dependence between the observations, so that methods like linear regression – which assumes that residuals are independent – are not suitable. An appropriate model for the present data structure is the *Social Relations Model* (Snijders & Bosker, 1999, ch. 13; Snijders & Kenny, 1999). This is a special multilevel model with crossed random effects. In this model, the dependence between relations from and to the same actor is modeled with (correlated) random effects of the “sending” and the “receiving” actor. Due to the data structure in our case, the *Social Relations model* needs to be enlarged by means of an additional (lowest) level, representing the repeated measurements. Since there are only 67 observations (i.e. only 5% of the $22 \times 21 \times 3 = 1386$ possible observations for 22 actors and 3 points in time), the data are highly imbalanced. This is not a problem for the definition of the model, but leads to a lower power for testing various variance parameters (which represent the strength of the sources of variance as they were sketched above), and it may result in numerical instability of the estimation algorithm. The estimation of the *Social Relations Model* showed that some variances were estimated 0, and in some specifications could not be estimated at all due to non-convergence. In the models using various explanatory variables reported here, the variance for the “sending” and the “receiving” actors was estimated to be 0, and therefore negligible compared to other variances. Therefore, given these data, it is not necessary to use the *Social Relations Model*, whose cross-nested structure can be simplified into a standard multilevel model with three levels: the observation (level 1), nested in a directed relationship (level 2), nested in a dyad (level 3). The dyad, formed by actors *i* (ego) and *j* (alter), comprises of two directed relationships: from *i* to *j* and from *j* to *i* (which, as explained above, do not need to be realized both in this data set). Thus, this model assumes that the dyads (i.e. the pairs of actors) are independent, which is based empirically on the zero estimates for the variances in the *Social Relations Model*.

In the model, both a linear and a random effect of *frame-stabilizing activities* were specified at the dyad level, in order to investigate whether or not the level of escalation varies through time. Interaction-effects of all centered variables with *frame-stabilizing activities* were specified, in order to find out whether or not the effect of the variables varies through time. In order to model the effect of time, a random slope (for a discussion of this term see Snijders & Bosker, 1999, ch. 5)

for *frame-stabilizing activities* (coded as "-1", "0", and "+1") was incorporated into the model. This effect represents the possibility that, in some dyads, social escalation – as far as it is not modeled through explanatory variables – can increase or decrease more strongly than in other dyads.

RESULTS

Table 2 summarizes the parameter estimates. On the level of the dyad (i.e. between dyads) the variance turns out to be negligible. On the relationship level (i.e. between relations within a dyad) the variance is small. Variance is mainly found between the three points in time. When testing at the 0.05 level, significant main effects of *relationship strength* and *frame-stabilizing activities*, as well as

Table 2. Parameter Estimates for Complete Multilevel Models for the Effects of Relationship Strength, Network Embeddedness, and Time on Social Escalation.

Effect	Hypothesis	Parameter estimate	Standard error	p-value ^a
Fixed effects				
Relationship strength	–	–0.42	(0.22)	0.026
Informal power advantage	+	0.045	(0.031)	0.073
Stabilizing activities (decrease) ^b	+	–0.48	(0.21)	0.020
Stabilizing activities × Relationship strength	+	0.42	(0.31)	0.088
Stabilizing activities × Informal power advantage	–	–0.057	(0.035)	0.052
Formal power advantage ^c	–	–0.36	(0.28)	0.102
Random effects				
Between-dyad variance		0	0	
Within-dyad variance		0.14	(0.49)	
Between-time variance		1.62	(0.55)	
Constant		3.10	(0.18)	
Deviance		227.5		

Note: $N = 67$ conflicts. The dependent variable is coded as follows: 1 = unilateral, 2 = direct, 3 = indirect, 4 = formal, 5 = public.

^aFor frame-stabilizing activities a two-sided p -value is reported, since the direction of the effect differs from the predicted direction. All other p -values are based on one-sided tests.

^bCoded as: "–1" (1995, frequent); "0" (1996, intermediate); "1" (1997, rare).

^cCoded as: "1" control effort from a superior towards a subordinate; "0" control effort between equals; "–1" control effort from a subordinate towards a superior.

significant interactions between *frame-stabilizing activities* and *informal power advantage* (the effect decreases through time) were found. The main effects of *formal power* and *informal power advantage* are significant at the 0.10 level, as is the interaction effect between *frame-stabilizing activities* and *relationship strength* (the effect becomes weaker through time).

The *Solidarity Hypothesis* (H1) predicts a negative effect of *relationship strength* on *social escalation*: the stronger the relationship between *ego* and *alter*, the lower the level of social escalation. The effect of relationship strength is negative ($p = 0.026$). This means that a strong tie between two conflicting parties in fact reduces the likelihood of escalation of a conflict. Our results support the *Solidarity Hypothesis*.

Informal power advantage has a positive effect on social escalation ($p = 0.073$), as specified in the *Informal Power Advantage Hypothesis* (H2). Thus, individuals who have more allies than their counterparts also are more likely to induce higher levels of social escalation.

The *Frame Decay Hypothesis* (H3) predicts that the level of escalation increases over time if no, or few, frame-stabilizing activities take place or their intensity decreases. Since the frequency of frame-stabilizing activities decreased from 1995 to 1997, one would expect a gradual increase in the level of escalation. The opposite is the case: the effect of the variable *frame-stabilizing activities* is negative ($p = 0.020$). This means that the level of social escalation decreases rather than increases over time. This trend is shown in Table 1. At the beginning of the observation period, the managers preferred public strategies, whereas later they prefer direct ones. However, the lowest level of social escalation (i.e. unilateral strategies) is used most frequently during the second phase. We will address the implications of this result in the discussion.

The *Destabilization Hypothesis* (H4) predicts that the effects of: (a) relationship strength and (b) informal power advantage on social escalation decrease over time if frame-stabilizing activities are absent or decreasing over time. Both parts of this hypothesis are supported by the data. First, the interaction effect of *frame-stabilizing activities* with *relationship strength* is positive ($p = 0.088$). The almost equal but negative main effect of relationship strength implies that during the early phases of the observation period a strong relationship between the conflicting parties favors de-escalation, whereas during the last phase a strong relationship does not contribute to the escalation of the conflict. Second, also the interaction effect between *frame-stabilizing activities* and *informal power advantage* is supported by the data: the effect is negative ($p = 0.052$). Given the fact that the main effect of *informal power advantage* is positive, and more or less the same in size, it can be concluded that, the escalating impact of the relative informal power advantage between conflicting parties decreases through time and disappears in the last phase.

The effect of the control variable *formal power* is negative – as expected – but fails to reach significance at the 0.10 level ($p = 0.102$). Those with formal authority over their targets have a slight tendency to choose lower levels of escalation than those without formal authority. Thus, the formal relationship between the conflicting parties still affects conflict management behavior after controlling for the variables relationship strength, informal power advantage, and frame-stabilizing activities. The positive effect supports earlier claims that subordinates use more non-confrontational and indirect strategies because they can compensate for their lack of a formal power base by building coalitions (Cody & McLaughlin, 1985, p. 291).

DISCUSSION AND CONCLUSION

Based on relational signaling theory, four hypotheses were developed to explain how social escalation is effected by: relationship strength, informal power advantage, and changes in the frequency of frame-stabilizing activities. These hypotheses were tested empirically using data collected from 67 conflicts in a German paper factory, in particular the social networks between 22 members of the management team. Three of the four hypotheses are supported by multilevel analyses. These are:

- the level of social escalation decreases the stronger the relation between the conflicting parties;
- the de-escalating impact of social relationship decreases through time;
- the escalating effect of having a larger number of allies than one's adversaries decreases through time.

The effect of frame-stabilizing activities did not occur as expected. This variable (*frame-stabilizing activity*) was found to have a mainly negative effect. This suggests that the level of social escalation decreases through time in contrast to an increase as predicted by the escalation hypothesis.

A closer look at the *frame-stabilizing activities* (changes) and *social escalation* in the organizational context clarifies this result. *Frame-stabilizing activities* were coded on the basis of the indicator "frequency of meetings," which decreased linearly from 1995 to 1997. However, as became evident from the ethnographic research, the most problems occurred in the organization in the second phase when the managers ceased to respond to cooperation problems, or tried to resolve them via their superior. During this phase of the observation period (1996) the system of informal social control had partially broken down, with visible negative consequence for the production process (Wittek, 1999, pp. 141–147). Social control

activities, particularly direct strategies, increased again in the final phase. Based on the ethnographic evidence, it was shown that ambiguity of task responsibilities and the disappearance of a clear group goal had caused this discontinuous pattern. Two conclusions can be drawn from this evidence.

Firstly, the number of meetings alone is not sufficient to stabilize a solidarity frame if there is no salient group goal and responsibilities are not clearly demarcated. Secondly, public control strategies were frequently used and proved extremely effective in sanctioning misbehavior in highly solidarity teams even though our theoretical construct predicted social escalation. Our conclusions seem to apply to situations characterized by the absence of relational signaling problems. In other words, a high solidarity setting with strong functional interdependencies, frequent frame-stabilizing activities, a salient group goal and clearly demarcated individual responsibilities. The lack of a group goal, combined with a decrease in frame-stabilizing activities and a blurring of responsibilities, resulted in an opportunistic frame being more common in phase two. Behavior that was perceived as unproblematic during the first phase increasingly acquired an ambiguous relational signaling character. The managers became increasingly wary of the opportunistic motives behind their colleagues' behavior. The ambiguity of relational signals had a direct effect on conflict management behavior, and solidarity relationships between the conflicting parties were increasingly less able to prevent escalation. An increase in the use of formal and unilateral strategies was the result. Apparently, these ways of dealing with conflict are indicators of relational signaling problems. Finally, with the restructuring in phase three, weak solidarity became the dominant frame. Frame-stabilizing activities further decreased, nevertheless, clearly demarcated responsibilities, group goals and interdependencies were re-established at sub-unit level, which then led to the use of direct strategies. Thus, direct strategies can be said to flourish in settings where weak solidarity is the dominant relational frame. These results indicate that future research should pay closer attention to the role of public control strategies, a dimension that up to now has been largely neglected by researchers on conflict management and informal control in organizations. Our results also support a conclusion from previous research that argues that how social relationships and networks affect conflict management behavior depends on the specific organizational context. Hence, network research on organizational conflict management will never be complete as long as the broader organizational context and frame-stabilizing activities are neglected.

In order to assess to what degree the theoretically motivated coding of the dependent variable *social escalation* influenced our results, we repeated several analyses after recoding. First, we dichotomized the dependent variable that distinguished between public and direct strategies, on the one hand, and indirect/formal and unilateral strategies, on the other. This produced quite different (and non-significant)

results in the parameter estimates. This finding supports our conclusion that public and direct strategies have different meanings as relational signals. Public strategies are more appropriate in strong solidarity settings, while direct strategies are favored in weak solidarity contexts. Second, we dichotomized the dependent variable by distinguishing direct versus indirect, formal and public strategies. This produced comparable results to the ones presented here. Third, the position of the unilateral strategy in the hierarchy of control strategies (i.e. coding it as "high" or "low") did not influence our results. This supports our proposed theoretical ordering of escalation strategies.²

Our results emphasize the importance of a process and contextual approach to social escalation. A strong tie reduces the likelihood that a conflict will escalate, whereas informal power advantage favors escalation. Both effects become weaker over time because of a gradual decrease in solidarity stabilizing activities (meetings etc.). Thus, the contradictory findings of earlier studies can be explained by the fact that they did not take into account the history of the conflict and changes in organizational contexts. Solidarity relations are fragile. If frame-stabilizing institutions and activities do not continuously support them, solidarity will gradually erode. The results also lead to a more general question. To what degree is the relational signaling character of different conflict management strategies context dependent? It is possible that in some organizations the mobilization of a superior is less problematic from a relational signaling point of view than the attempt to resolve a conflict in public during a meeting. The question is, of course, under which circumstances this will be the case. Identifying these circumstances is an interesting topic for future research, as is the relational signaling character of formal grievance procedures.

The results show the advantages of using a relational signaling perspective to study informal control and conflict management in organizations. It provides a theoretical explanation for the contradictory findings in previous research. It also offers a specification of the interaction between relational, structural, and organizational factors and their effects on conflict management behavior. It also the relational signaling approach can be a valuable supplement to perspectives, such as *Dual Concern Theory* (Pruitt & Carnevale, 1993; van de Vliert, 1997) or *Conflicting Loyalties Theory* (Flap, 1988), which either limit their attention to only one type of factor or neglect the dynamic aspect of conflict management processes.

In this study, we did not look into all the factors that may affect social escalation such as: the type of the grievance (how strong are ego's stakes in the issue?), the simultaneous use of various strategies (does ego attempt to influence alter directly and indirectly?), functional interdependencies between the actors (i.e. whose input does ego need to carry out to do his tasks properly?), the presence or absence of grievance procedures, as well as actor attributes like age or the amount of

self-confidence. Nor did we examine the effect of different conflict management strategies on organizational outcomes like performance or cooperation (de Dreu, 1997; Gupta et al., 1994; Jehn, 1995; Murnighan & Conlon, 1991; Wittek et al., 2000). Rather than assessing the use of alternative theoretical approaches (for an overview, compare Wittek, 1999, ch. 2) or deriving competing hypotheses, we opted to elaborate on the relational signaling theory. This theory is well suited to transcend the "narrow" conceptualization of rationality because it can incorporate framing effects, assumptions about social goals, and network embeddedness systematically. Future research would benefit from increasing the level of cognitive complexity in comparison to less intricate models of social escalation (Wittek, forthcoming) that are limited to the cost aspects of social (Rooks & Snijders, 2001).

The current study focuses on the impact of social networks on conflict management behavior and social escalation in organizations by analyzing empirical data of conflict over a period of three years in a German paper factory. At least in the present case study, informal social networks turned out to be far less powerful in providing a structural basis for the self-regulation of a work team than much of the literature on social networks would suggest. Informal networks will not be able to "replace" hierarchies as instruments to govern the firm. Our results emphasize that increasingly "horizontal" work relations require new organizational contexts that will produce less ambiguous relational signals and thus contribute to the stability of solidarity frames. Social networks will only have a substantial impact on de-escalation where intraorganizational rules and institutions work properly.

NOTES

1. Theoretically, unilateral strategies can represent both extremes of a continuum of social escalation. On the one hand they can reflect the fact that the conflict has a low priority for ego (ego tolerates the behavior). On the other hand, they can be an indicator for the fact that ego wants to dissolve the relationship with alter, because the conflict has escalated. The implications of this ambiguity will be addressed in the discussion.
2. Other dichotomizations (like take action vs. take no action, direct vs. indirect, public vs. indirect) were not feasible due to highly skewed distributions and lack of data (see Table 2).

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