

# A Cylindrical Model of Communication Behavior in Crisis Negotiations

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*This article integrates existing theoretical perspectives on message content and negotiator motivation to formulate a comprehensive definitional model of the interrelationships among communication behaviors in crisis negotiation. A sample of 189 nuclear dialogue spans were transcribed from 9 resolved cases of hostage negotiation and each utterance coded at the level of thought units across 41 behavioral variables. Results of a nonmetric, multidimensional scaling solution provided clear support for the hypothesized cylindrical structure of communication behavior, revealing 3 dominant levels of suspect-negotiator interaction (Avoidance, Distributive, Integrative). At each level of the structure, interactions were found to modulate around 3 thematic styles of communication (Identity, Instrumental, Relational), which reflected the underlying motivational emphasis of individuals' dialogue. Finally, the intensity of communication was found to play a polarizing role in the cylinder, with intense, functionally discrete behaviors occurring toward the boundary of the structure.*

Over the last decade the increasing pressure to resolve hostage crises through negotiation has led several government authorities to stress the importance of exploiting informed knowledge of both the psychological and communicative processes involved in interpersonal dialogue (Giebels, 1999; Justice, 1993). Early responses to this recommendation have typically depended on mental-health professionals as on-site advisors, requiring them to use previous clinical experience as a basis for drawing inferences from dialogue about hostage takers' psychological motivation, interpersonal approach, and likely future behavior. Although this approach has yielded some success (Butler, Leitenberg, & Fuselier, 1993; Fuselier, 1988), the lack of an underlying

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inductive process means that the advice given is open to error from bias and incomplete interpretation, prompting several researchers to advocate moving toward more empirically derived measures of communication behavior (Rogan, Hammer, & Van Zandt, 1997). Such a scientific approach, based on careful measurement and resulting statistical relationships, may provide a more valid framework for understanding the variations in negotiators' communication over time and the underlying concerns or goals these different emphases address.

The challenge for such a scientific approach is to develop an explanatory framework that helps negotiators and researchers understand the complex patterns of interrelationships among communication behaviors as they occur across a negotiation. A modeling of the actual variations in communication addresses an important problem in conflict negotiation research, providing a framework for exploring the way in which various emphases or modes of behavior function to allow negotiators to pursue their complex and often contradictory goals. By further mapping out how the various modes of communication emerge over the negotiation process, it becomes possible to consider how changes in behavior move negotiators through a series of interactions that allow an incident to begin, unfold, and resolve. The challenge, then, is to develop and establish a model that explicates the conceptual dimensions or facets necessary to provide a comprehensive understanding of the interrelationships among behaviors.

The current project addresses this challenge by examining the multivariate structure of crisis negotiation, the conceptual organization of communication behaviors on the basis of their similarities and differences. This approach rests on the notion, central to much communication research, that individuals differ in the messages they communicate during an interaction and that these differences reflect psychologically important aspects of the speaker. At a broad level, differences in communication behavior may reflect differences in an individual's dominant interpersonal style or approach to negotiation. At a more specific level, differences in behavior may reflect speakers' predominant interests, concerns, or goals during that particular phase of interaction. By focusing on behavioral acts, the current approach diverges from those previous conceptualizations that have tended to interpret dialogue through frameworks that combine an account of behavior with explanations of speakers' intentions or motivations. Although each of these perspectives highlights a particular variation in communication, clearly any attempt to derive a complete and objective understanding of the various modes of crisis communication requires classification of patterns among actual message behaviors as distinct from classification driven by a particular explanatory perspective.

The first stage of the current project, therefore, was to integrate the psychological, sociological, and communication-based conceptualizations

of communication behavior, arguing that each reflects a different facet necessary fully to define crisis negotiation. Although such integration should primarily be drawn from studies examining negotiation in hostage crises, the scarcity of such research means it would also be useful to elucidate the meaning of each conceptual distinction with findings from the general conflict literature. This approach ensures that model development encapsulates all potential variations in communication behavior so that subsequent analysis can determine the direct utility of each distinction in characterizing the pattern of interrelationships among behaviors. The synthesis of perspectives was advanced in a manner that enabled a clear specification of the empirical structure of crisis communication, from which testable hypotheses were formulated about both the various behavioral facets and the conceptual relations between these facets. These formal predictions were examined using a smallest space analysis (Canter, 1985; Guttman, 1968) of coded data from nine actual hostage negotiations, providing a first account of how well the theorized distinctions correspond to the actual occurrence of communication behavior during hostage crises.

## DIFFERENTIATING FORMS OF NEGOTIATION BEHAVIOR

### Levels of Negotiation Behavior

The majority of early conceptions of negotiation have focused on differentiating acts of bargaining according to a dichotomy of Integrative (cooperative) and Distributive (antagonistic) behavior (Bednar & Carington, 1983; Walton & McKersie, 1965). Other more recent research has extended this notion by incorporating additional levels of interaction (see Harris, 1996, for a review). Sillars (1980), in particular, proposed a third Avoidance (withdrawn) category, associating the movement across these three levels with increasing degrees of observed disclosiveness and competitiveness. Several comparable versions of this threefold distinction have since appeared repeatedly in the social interaction literature, both through research examining individuals' subjective rating of behaviors (Mannix, Timsley, & Bazerman, 1995; Weingart, Bennett, & Brett, 1993) and experimental studies, in which dialogue change is examined following manipulation of negotiators' strategic orientation (Donohue & Roberto, 1996; Sillars et al., 1982). Analyses using data reduction methods have also generated empirical support for the distinction, showing a match between the three levels of interaction and the underlying organization of interrelationships among communication behaviors (Putnam & Jones, 1982). All of these studies demonstrate both the empirical utility and diverse theoretical relevance of the threefold distinction, with many identifying increasing levels of cooperation as the defining relationship among categories.

The idea that increases in cooperation underlie the movement across Avoidance, Distributive, and Integrative levels of interaction fits neatly with the contemporary view of hostage negotiation as "crisis bargaining" (Donohue et al., 1991; Donohue & Roberto, 1993). This conceptualization proposes that the pronounced levels of physical, emotional, and psychological excitation associated with crisis situations have a degenerative affect on individuals' rationality; therefore, one major goal of police communication is to facilitate a movement in interactions away from low rationality (crisis) and toward a more normative, cooperative mentality. This transition may conceivably be seen to parallel movement across the levels of interaction, though clearly in mixed-motive conflict such a change occurs gradually over stages of more fluid variations in individuals' orientation. Early stages of contact will arguably involve the least amount of cooperation, with the overwhelming situation precipitating an extreme crisis or flee response (Selye, 1978) that causes hostage takers to regress from active participation in the situation (Avoidance). In realizing the inevitability of negotiation, hostage takers may show some degree of cooperation by adopting an active role in interactions, though they remain affected by the stress of crisis and resort to self-interested aggressive and coercive tactics (Distributive). As negotiations progress, hostage takers may be persuaded that both sides working together will ultimately lead to a satisfactory solution, so they place greater emphasis on normative and cooperative communication as a way of reconciling the parties' divergent interests (Integrative).

This collection of evidence indicates that the three ordered elements of Avoidance, Distributive, and Integrative behavior represent empirically and conceptually rich categories for a first level of interaction facet that depicts the inherent tension in negotiators' overall behavioral approach to interaction. However, the distinction provided by the level of interaction facet fails to allow for the possibility that very different concerns or motivations underlie an individual's overall negotiation approach. As such, the distinction ignores the potential for producing a refined specification of the level of interactions by identifying variations in the quality or mode of negotiators' behavior in each context of interactions. Both the F.I.R.E framework for understanding crisis negotiation research (Hammer, 2001) and Wilson and Putnam's (1990) discussion of interaction goals review this refinement and provide strong arguments for its inclusion in efforts to understand the negotiation process.

### Motivational Emphases of Negotiation Behavior

*Instrumental theme.* One approach to understanding negotiator motivation, derived mainly from early game-theoretical studies, conceptualizes negotiation as a relatively controlled and purposeful act in which

individuals' primary motivation is to maximize their gain of tangible commodities or wants. The importance of instrumental goals is emphasized in theories as diverse as social exchange theory (Rolloff, 1981) and the dual-concern model (Pruitt, 1983), and instrumental tactics often form a central aspect of law enforcement training programs (Greenstone, 1995; Harvey-Craig, Fisher, & Simpson, 1997). Consistent with these accounts, research has not only identified a group of behaviors that communicate instrumental concerns, but has also shown that the effectiveness of instrumental problem solving is linked to the extent to which negotiators use these behaviors during later stages of interaction (Holmes & Sykes, 1993; Natslandsmyr & Rognes, 1995; Sandler & Scott, 1987). In particular, the Avoidance of instrumental issues has been associated with a resistance of substantive discussion and a reduction in overall participation (Sillars et al., 1982). Distributive interactions, in contrast, are typically driven by more aggressive behaviors such as demands and counterdemands, threats, and the rejection of solutions involving loss (Wilson & Putnam, 1990). Finally, the communication of instrumental issues during Integrative interactions has been associated with strategies that reduce conflict spiraling and convey flexibility and agreement. Behaviors central here include the making of offers, concessions, compromises, and priority information exchange in search for win-win agreements (Donohue, Diez, & Hamilton, 1984; Olekalns & Smith, 2000; Wilson & Putnam, 1990).

These early perspectives model negotiators as rational actors, whose capacity to maximize external reward is limited only by inefficient information exchange and information processing. However, this conceptualization has emerged from a research tradition that depended heavily on restrictions set by the experimental paradigm, prompting several researchers to criticize the accounts as overly simplistic and insensitive to the high level of emotionality and uncertainty that influence negotiators' communication (Van Zandt, 1993). Indeed, several independent reviews (Rogan, Hammer, & Van Zandt, 1994; Soskis & Van Zandt, 1986) have indicated that the majority of cases encountered by law enforcement occur as a result of the mental or emotional inability of hostage takers to cope with life stressors. Such findings clearly imply that negotiators face both external (instrumental) and internal (expressive) communication challenges, with the latter representing individuals' emotional, nonsubstantive concerns (Miron & Goldstein, 1979).

*Relational theme.* Many social psychological theories have suggested that negotiators use message behaviors to develop and manipulate the relational roles between themselves and the other party. As discussed by Wilson and Putnam (1990), analyses have shown that negotiation development is significantly affected by relational elements such as power,

exerted by speakers' assertiveness and willingness to balance turn taking (Millar & Rogers, 1976), and trust, which is conveyed by speakers' expressed confidence and assurance in the other party (Powell, 1989). Authors adopting a sociological perspective have also asserted the importance of interpersonal style, demonstrating that relational roles among parties (e.g., subordinate-superior) significantly influence factors such as the dominance and formality of communication (Powell, 1989; Wish & Kaplan, 1977). The factors advocated in these studies are consistent with practitioner accounts, which report a similar emphasis on demonstrating respect and establishing trust with the hostage taker before moving to problem solving. Negotiators are advised to work toward establishing rapport through behavioral strategies, including empathic listening, paraphrasing, openness, and reflection (Fuselier, 1986; McCaffery, 1994; Strenz, 1983).

This range of relational dynamics is usefully captured in relational order theory (Donohue, 1998, 2001; Donohue, Ramesh, & Borchgrevink, 1991), which suggests that communication serves individuals' need to work through interdependence (degree to which parties assert rights and accept obligations) and affiliation (degree of emotional liking and trust) concerns. Donohue and Roberto (1993), in particular, demonstrated that communication during 10 actual hostage negotiations progressed across fairly stable patterns of development, with change concentrated around interdependence issues while affiliation remained either high or low throughout the negotiation. In the relational order framework, Avoidance of interaction is considered to be the result of low affiliation and interdependence brought about through messages of disapproval, termination, and withdrawal (Donohue, 1998). In contrast, conflict is proposed to emerge from a more aggressive assertion of rights and obligations. Consistent with this proposal, research has associated Distributive interactions with justifications, repeated interruptions, profanity, and the use of simple language and sentence structure (Rogan & Donohue, 1991). Finally, more Integrative outcomes are associated with high levels of liking and dependence, as parties encourage and reassure each other that working together is the best way forward (Donohue, 2001). Each of the approaches offered by different disciplines addresses a range of subtly distinct motivational factors, but, broadly speaking, these can help to reinforce the importance of considering message behavior that facilitates relationship development.

*Identity theme.* A third source of motivation discussed in the literature is identity concerns, the extent to which individuals' messages show concern for both the other parties' and their own self-presentation or "face" (Goffman, 1967). The communication of identity has repeatedly emerged

as central to interpersonal interaction. Studies have suggested that differences in behavior relate strongly to both individuals' confidence and perception of self (i.e., personal identity) and to people's need to achieve a positive expression of self among others (i.e., social identity, Bandura, 1977; Tajfel & Turner, 1986). In studies relating directly to crisis negotiation, individuals' concern for identity has been established as a significant determinant of overall behavior (Donohue & Kolt, 1992; Folger, Poole, & Stutman, 1993) and is a clear correlate of related factors such as interaction outcome (Brown, 1970; Hammer, 2001). Similar concerns in cross-cultural studies have demonstrated a link between communication about identity and a range of interrelated factors including individualism-collectivism, religious beliefs, and society values (Cohen, 1991; Markus & Kitayama, 1991).

Drawing on Tajfel's social interaction theory (Tajfel & Turner, 1986), one useful line of research has examined negotiation using a model of facework that classifies behavior into messages focused on maintaining face (e.g., denial), attacking face (e.g., criticism), and supporting face (e.g., compliment; Hammer, 2001; Ting-Toomey et al., 1991). Research based on this threefold framework (Rogan, 1999; Rogan & Hammer, 1994) has shown that competitive negotiations are characterized by attacking an opponents' identity through insults and criticisms, whereas defending personal face through behaviors such as denial, commitment, and boasting. In contrast, cooperative interactions are the result of face-honoring behaviors such as empathizing, complimenting, and expressing commonality between the other party and self. Given the personally threatening outcome of hostage crises (e.g., jail), it is not surprising that several theoretical and empirical accounts have emphasized identity as having an important role in understanding patterns of communication behavior.

The predominant concerns presented above comprise a second motivational facet that classifies communication behavior into three distinct themes of interaction. In comparison to the transitivity proposed across the level of interaction facet, there is no inherent order predicted across the three motivational themes, which reflect the various concerns or goals that may predominate individuals' current approach to the crisis. Negotiators adopting an Avoidance, Distributive, or Integrative approach to interactions can focus on a range of concerns, suggesting that this second facet may be evident at each of the three levels of interaction. For example, within cooperative interactions, negotiators may focus on empathizing and supporting each other's identity, whereas in distributive interactions they may resort to criticisms and insults that denunciate the other's personal worth. Thus, this second classification elucidates the overall definition of communication by distinguishing the qualitative focus of negotiators' communication at each of the three levels of interaction.

## Intensity of Negotiation Behavior

A final distinction that has surfaced in interpersonal research, implied by the notion of behavior serving several distinguishable functions, is the possibility that differences may emerge in the extent or degree to which negotiators evince a particular mode of behavior (e.g., Eysenck, 1965; Lorr, 1996). This premise suggests that behaviors serve various purposes to different degrees, such that certain behaviors are central to all aspects of communication, whereas others function specifically to convey a strong interest in resolving a particular concern. Studies in conflict negotiation have conceptualized language intensity as a measure of a range of factors including emotional stress (Bradac, Bowers, & Courtright, 1979), relational affect (Donohue, 2001), and more instrumental factors such as persuasion or threat conviction (Hamilton & Stewart, 1993). These studies have linked the degree to which a speaker's attitude toward a concept deviates from neutrality to more frequent use of obscure metaphors, profanity, and dramatic changes in intonation (Bowers, 1963; Donohue, 1981; Lewicki, Saunders, & Minton, 1999). The use of such intense behaviors has typically been shown to have a detrimental impact on negotiation, increasing the tendency for conflict to escalate and for negotiations to break down (Lewicki et al., 1999). For example, Allred et al. (1997) have shown that negotiators expressing high levels of anger and little compassion achieve significantly fewer joint gains and have less desire to work together in future interactions. At the very least, intense language moves negotiators away from the normal bargaining process, reducing the chance that the negotiation will progress toward a resolution (Bowers, 1963; Burgoon & King, 1974).

The concept of behavioral intensity has also been operationalized in a number of studies that examine the patterns of perpetrator and negotiator message affect across the progression of negotiation in hostage crises. For instance, in an examination of three actual hostage incidents, Rogan and Hammer (1995) established that hostage taker's affect at initial confrontation is extremely negatively intense, subsiding as negotiators begin to develop interdependence, but may revert to an increasing negative progression if problem solving is ineffective in generating agreement. Similarly, variation in communication intensity is embodied in all research that conceptualizes behavior as variations along several high-low dimensions (Donohue & Roberto, 1993) or classifies dialogue using scores on an interval-based scale (Donohue & Roberto, 1996). In all these frameworks, unsuccessful interactions are associated with higher scores on the predictor scales, particularly when scores persist or increase over time (Sarna, 1997). These findings show that a third intensity facet may provide a useful construct for understanding how behavior allows negotiators to differ in the extent to which they pursue a particular goal, with high intensity relating to less common, extreme communication.

## The Present Study

The variety of different explanations articulated in the literature illustrates the potential for identifying a comprehensive range of modes of interaction in crisis communication. Because each theoretical perspective supposes a distinct behavioral approach to communication (i.e., a set of behaviors), each mode of interaction would be expected to have an observable counterpart in the dialogue communicated during actual negotiations. A number of hypotheses can, therefore, be derived from previous research about the likely co-occurrence of communication behaviors during periods of interaction, given that all of the proposed facets may potentially occur during the negotiation process. Evidence showing the constant occurrence of any such subset of conceptually related behaviors would support the related theoretical perspective, whereas a completely random combination of behaviors would suggest that there is no coherent support for the proposed differences. However, support for the complete eclectic model also requires the similarities and differences between these behavioral subgroups to correspond with the structural relationships specified by theory. The greater the conceptual similarity between two modes of interaction, the more related their behavioral counterparts should be empirically, and hence the more likely they are to co-occur in a single communication episode. The elements of crisis negotiation and their theoretical relations may, therefore, be formalized in terms of specific hypotheses about the pattern of interrelationships among communication behaviors.

### Hypothesis 1: Levels of Interaction

At the broadest level, research has differentiated negotiators' approach to interactions according to a threefold distinction of Avoidance (withdrawn), Distributive (antagonistic), and Integrative (cooperative) behavior (Sillars, 1980). This distinction is often understood in terms of an underlying dimension of increasing cooperation that, given the parallels with movement from crisis to normative bargaining, suggests it would be prudent to conceptualize these processes not as purely qualitative variations, but as a hierarchy of behavioral approaches each ordered in relation to the others by differing degrees of cooperation.

H1: Subsets of conceptually related behaviors will consistently occur together in the previously defined levels of Avoidance, Distributive, and Integrative, according to a linear order of increasing cooperation.

An empirical finding demonstrating that meaningful subgroups of negotiation behaviors consistently co-occur will provide support for that particular orientation to interaction.

## Hypothesis 2: Motivational Variations in Behavior

In order to explicate the content of each level of interaction, it is necessary to generate a classification scheme that identifies meaningful qualitative differences in negotiators' overall approach. A negotiator adopting a particular approach to interaction may do so for a range of goals that essentially can be divided into interactions with predominantly instrumental (external) and expressive (internal) concerns (Harvey-Craig, Fisher, & Simpson, 1997; Miron & Goldstein, 1979). On closer examination, it is apparent that affective elements of communication are clarified conceptually if divided into those focused on the style or underlying relational development of the interactions, and those dealing with negotiators' identity-related concerns (Hammer, 2001; Wilson & Putnam, 1990).

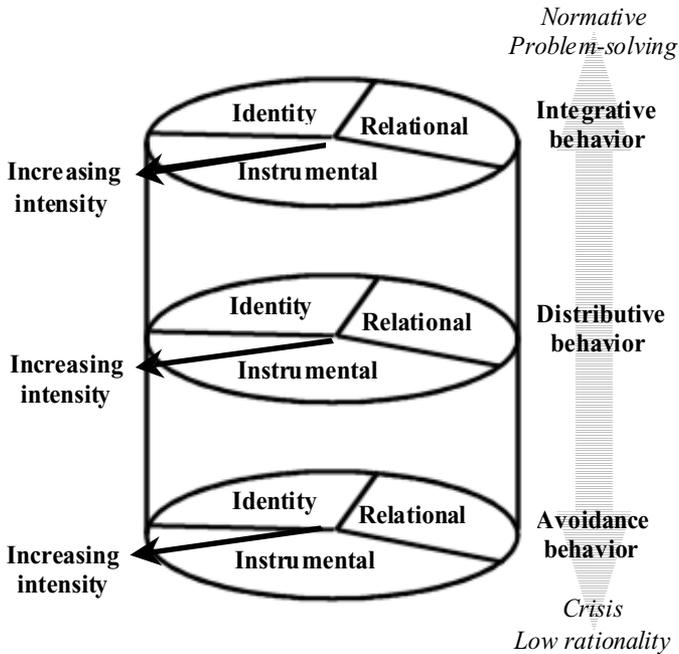
H2: Each level of interaction may be differentiated according to identity, instrumental, and relational themes in which each is exemplified by qualitatively different subsets of behavior.

Any such grouping of communication behaviors would support that particular emphasis as important to understanding the pattern of co-occurrences among behaviors. For example, although various attempts at focusing on identity were quite independent of each other, if different forms of instrumental behavior co-occurred, then there would be support for instrumental concerns but not identity concerns as a coherent, salient aspect of crisis negotiation. In effect, such a result would reduce the number of empirically distinct explanations available for understanding the patterns of behavior in negotiators' dialogue.

## Hypothesis 3: Variations in Intensity

The possibility of identifying qualitative differences in negotiation behavior suggests that there may also exist a quantitative difference in the degree that negotiators express a mode of interaction (Lewicki et al., 1999; Rogan & Hammer, 1995). The intensity of communication, therefore, reflects differences in the way negotiators express their predominant concerns or goals, such that degrees of intensity are distinguished by different behaviors within a single motivational theme.

H3: Negotiators communicate behaviors of both high and low intensity, where the degree of intensity modifies the three different motivational emphases of interaction.



**Figure 1.** Schematic Representation of the Proposed Cylindrical Structure of Negotiation Behavior

### A Cylindrical Model of Communication Behavior in Crisis Negotiation

The distinctions and structural relations asserted by the three hypothesized facets generate a conceptualization of negotiation behavior that can be modeled graphically as a cylinder. A schematic representation of the hypothesized cylinder is presented in Figure 1. This empirical structure enables a clear conceptualization of the proposed facets, as well as the relationships among the intersecting partitions formed by each facet. The level of interaction facet assumes an axial role in the cylinder, dividing the geometric structure into three levels that correspond with an ordered sequence of Avoidance, Distributive, and Integrative behavior. At each level of interaction, the motivational facet creates three qualitatively different themes of behavior that emanate from a common origin to partition the space into wedge-like regions. Finally, the level of intensity facet

recognizes that points do not fall equidistant from the cylinder's origin; it operates as a modifier of the three qualities of interaction so that degrees of behavior subsist for each motivational theme. Thus, the polarizing facet of motivation combines with the modulating intensity facet to yield the three circular faces of the structure, which combine with the orthogonal axis formed by the level of interaction facet to produce a cylinder. The hypothesis of an empirical structure that corresponds to previous theory and research is open to the same form of direct test as conducted in other areas of social research (e.g., Donald, 1985; Levy & Guttman, 1975).

## METHOD

### Transcription Sample

The data examined were detailed chronological transcripts of negotiations across nine actual hostage incidents, collected from the archives of various U.S. police departments. These transcripts were generated from original audiotape recordings of an incident using a procedure that closely conformed to Jefferson's standardized guidelines for parsing interactive dialogue (see Schenkein, 1978). The final transcripts represented a diverse group of hostage crises, from incidents with a criminal focus, in which an individual negotiates to extort money or gain some other personal benefit, to those centered on psychological or domestic issues, where the hostage taker's focus is on attracting empathic attention for a personal cause. This range of settings was broad enough to embody what previous research has shown reflects police officers' perceptions regarding the distinguishing goals and orientations of hostage takers (Donohue & Roberto, 1993). Table 1 details the characteristics of the nine transcripts, together with a decomposition of talk frequencies for each negotiating party.

### Transcript Coding Procedure

*Partitioning of the transcripts.* The nine transcripts were initially divided into episodes of continuous dialogue in an effort to ensure that analysis was not merely based on the overall occurrence of behaviors, but that it embodied the important changing pattern of occurrences across different periods of interaction (Holmes, 1992). Specifically, the episode divisions were intended to keep up with the dominant perspective of negotiation as a process, a series of interactions that allow negotiators and hostage takers to progress from a conflict-triggering event through to a conclusion. In this view, each episode is a coherent period of interaction defined by a particular constellation of communication acts. Examining the behavioral content of each constellation permitted identification of the types of issues or themes that predominate the various periods of dialogue. In

**TABLE 1**  
**Summary of Crisis Situation Scenario and Length in Thought Units as a Function of Speaker**

Case	<i>Length (thought units)</i>			
	<i>Hostage taker(s)</i>	<i>Negotiator(s)</i>	<i>Other party(s)</i>	
Criminal case A	437 (40%) <sup>a</sup>	652 (59%)	13 (1%)	A single, armed individual negotiated with two law enforcement officers after taking a female bank clerk hostage to mitigate an unsuccessful robbery.
Criminal case B	233 (44%)	261 (50%)	32 (6%)	An armed male seized an elderly couple hostage in their home after fleeing police arrest for shooting an officer during attempted bank robbery.
Criminal case C	1405 (42%)	911 (28%)	975 (30%)	An armed male-female couple held a female manager hostage after being caught while attempting a bank robbery.
Criminal case D	190 (43%)	225 (50%)	32 (7%)	A male hostage taker demanded a substantial financial reward in exchange for the negotiator's son.
Criminal case E	2421 (44%)	2663 (49%)	357 (7%)	An armed, emotional individual barricaded himself at home after extreme provocation caused him to shoot and critically injure a family member.
Domestic case F	911 (40%)	889 (39%)	461 (21%)	A single male held his 6-month-old daughter hostage at the family home in an attempt to persuade the child's mother to retry life as a family.
Domestic case G	667 (45%)	635 (42%)	198 (13%)	A plane was hijacked by an unarmed male who held two pilots hostage in order to speak with his girlfriend and get adequate help for drug rehabilitation.
Political case H	2142 (48%)	2366 (52%)	0 (0%)	A prison incident in which inmates took hostage several guards to negotiate for better living standards.
Political case I	217 (64%)	47 (14%)	72 (22%)	An armed male-female couple hijacked a local bus to publicize a religious cult and commit suicide in accordance with prophecy.

<sup>a</sup>Percentage frequency of total thought units for that case.

further examining the interrelationships across the sequence of episodes, it became possible to understand how the various constellations of behavior enable negotiators to move from conflict to agreement.

The transcripts were subjected to a rhetorical structure analysis, a procedure designed to identify discrete, constituent (nuclear) periods of dialogue across the interactions (Garner, 1997; Kumpf, 1986). These episodic stages represent nonoverlapping segments of interaction during which negotiators communicate regarding a single, clearly distinguishable issue, without significant deviation (dialogue movement, Mann & Thompson, 1988) away from that issue. In the current study, dialogue movement was often characterized by changes in the person or object of focus during communication (e.g., "So how's Norma doin'?"), or when the scope of interactions shifted between general abstract discussion and specific issues or concerns (e.g., "Let's deal with your first problem"). Similarly, a large proportion of movement across different issues occurred following a break in contact among the parties, especially if a different negotiator or the hostage taker's friend initiated the subsequent communication.

The rhetorical structure analysis identified 189 episodes across the 9 transcripts ( $M = 24.0$ ,  $SD = 12.7$ , Range = 8 – 41), with a mean frequency of 103.0 thought units in each episode ( $SD = 47.8$ , Range = 14 – 233). Such a wide variation in the number of units constructing an episode, and of episodes representing each transcript, might arguably have an adverse effect on analysis by modifying the number of potential occurrences of behavior across the interactions. However, it was considered important to include this factor because it reflects the naturally occurring variation in communicators' dialogues. Furthermore, any attempt to equalize the composition of each interaction episode by using divisions more precise than nuclear spans would have reduced the number of behaviors occurring during each episode to an unacceptably low level. Indeed, this episode-based form of apportionment represents a useful methodological alternative to the temporal divisions used in previous research (e.g., Donohue & Roberto, 1996; Rogan & Hammer, 1995), because it establishes dialogue boundaries at clear shifts in the relational focus of a negotiation. Because the division of transcripts was achieved prior to assigning any interaction coding scheme, this technique avoids problems created by coding biases and subjective rule-based definitions of stages, both of which potentially trouble research using partitions identified through flexible phase mapping techniques (e.g., Donohue & Roberto, 1993; Holmes, 1992). The use of episodic partitioning may also have advantages from an operational standpoint because changes in the relational focus of interactions are likely to represent the period during which police negotiators possess sufficient time to evaluate a negotiation's progress. This is important, because research is only of value to police negotiators if it may be realistically implemented in the context of law enforcement operations.

Reliability of the rhetorical structure analysis was tested by an independent coder trained in the technique through the presentation of conceptual and operational definitions combined with examples from unused materials. The coder applied rhetorical structure analysis to all nine transcripts and achieved a unitizing reliability of .07 (Guetzkow, 1950), indicating discordance in about 7% of all identified episodes. This reliability is reasonable, given the quantity of the data, and so supports the episode-based divisions as an effective way of adopting a process approach to examining the interrelationships among behaviors.

*Unitizing the transcripts.* The 189 interaction episodes were further parsed into thought units (Gottman, 1979) to enable the coding and analysis of dialogue to focus on differences in the occurrence of single communication behaviors. A thought unit conceptually depicts a complete idea that a person wishes to express, whereas operationally the unit is an independent clause with a subject and an object (e.g., "I agree with you"). It therefore represents the level at which analysis isolates single communicative acts, and so avoids the danger of overlooking smaller, but potentially significant components of negotiators' behavior. Indeed, the mean number of thought units per utterance was 1.98 ( $SD = 0.73$ , Range = 1 – 24), leaving clear latitude for more than one behavior to be elicited during a single speaking turn. Two coders, briefly trained using example dialogues, independently unitized a continuous sample of approximately 10% of the data (477 utterances). Coding achieved a unitizing reliability of .04 (Guetzkow, 1950), indicating that about 4% of the unitizing divisions were in error. All disagreements in unitizing were addressed before the transcripts were coded.

*Content analysis of the transcripts.* A content analysis of the thought units by the author identified a comprehensive set of 59 variables that related directly to the behavior of negotiators during each episode. These variables were derived through a typical grounded approach to categorizing dialogue (Glaser & Strauss, 1967; Holsti, 1969; Krippendorff, 1980), which entailed iterative refinement and modification of the content dictionary until it clearly reflected the content of verbal acts across all transcription data. Although many of the final categories paralleled those used in previous coding schemes, development of the coding dictionary in this manner ensured that variables provided an exhaustive coverage of behaviors characteristic of hostage crises, and that definitions were easily understood, unambiguous descriptions of communicative acts rather than more abstract categories.

The coding scheme was applied to hostage taker, police negotiator, and third party (e.g., relatives and friends) dialogues to allow an examination of crisis as an interaction in which the interrelationship among all parties' verbal messages determines the nature of unfolding events (Donohue & Ramesh, 1992). Coding involved a considered application of the formal-

ized scheme to the behavioral content of each thought unit, as it occurred in the sequential flow of dialogue. Because analysis intended to focus on relationships among behaviors, it was acceptable for more than one category to be applied to each thought unit. However, with the exception of the variable Profanity, the restricted nature of the thought unit yielded a one-code to one-unit correspondence without exception. Reliability of the transcript coding was assessed by two independent judges who were experienced in the content analysis procedure but remained blind to the research hypotheses. As an initial examination of validity, the content dictionaries were discussed in detail to refine the definitions of each variable and minimize the extent to which the categories reflected the researcher's personal priorities and biases. Following this initial familiarization, reliability was assessed through independent coding of speech extracts from both criminal and psychological-domestic negotiations. The reliability of coding, measured at the thought unit level with Cohen's kappa (Cohen, 1960) was .74, with 75% agreement for speech taken from the criminal incidents and .66, with 67% agreement for speech from the domestic incidents. According to Fleiss (1981), a Cohen's kappa of .40 to .60 is fair, .60 to .75 is good, and greater than .75 is excellent. Thus, these results indicate that the content dictionary possesses reasonably good construct validity and reliability as a measure of negotiation behavior, especially with the large number of possible coding categories. Approximately 2% of all thought units, mainly incomplete sentences, contained no objective information about individuals' behavior and were left uncoded.

The complete procedure generated a two-way data matrix whose elements were the sum frequency of occurrence of thought units coded into a particular behavioral category, for each of the interaction episodes. Eighteen of the variables were excluded from the current analysis as they represented predominantly functional aspects of dialogue, from initiations and salutations (e.g., "hello"), to explicative acknowledgments or interjections (e.g., "uh-huh"), to questions and answers used only to facilitate the basic conversational turn taking (e.g., "nah, really?"). As has been argued (Donohue & Roberto, 1996; Olekalns & Smith, 2000), these fundamental building blocks of negotiation simply reflect the general exchange of information among individuals, and do not in themselves contain any overt psychological motivation. The sum frequency of occurrences (cell value) for the remaining 41 communication variables (columns), across the 189 interaction episodes (rows), provided the data matrix on which subsequent analysis was conducted. The appendix shows each of the 41 variables together with a brief coding definition and example.

### Analysis of Communication Behavior

The data were analyzed using a nonmetric multidimensional scaling procedure known as Smallest Space Analysis (SSA-I; Lingoes, 1973). Small-

est Space Analysis is based on the assumption that any underlying structure or common theme in behavior will be most readily appreciated by examining the relationship each variable has with every other variable. These relationships are measured using association coefficients, the rank order of which is visually represented as distances in geometric space. The representation is such that the higher the association between any two variables, the closer together the points representing them will appear on the spatial plot. In the current study, associations between pairs of behaviors (variables) were measured using Pearson's correlation coefficient, calculated by comparing the frequency of occurrence of one variable with another variable across all 189 episodes. This resulted in a symmetrical correlation matrix containing 1,640 (41 variables  $\times$  40 variables) different comparisons measuring the extent to which any two behaviors co-occurred.

In order to maximize how well the rank order of distances in the configuration matches the rank order of original correlations, SSA-I adopts an iterative process in which the distances between variable points are adjusted to reduce a measure of "stress" known as the coefficient of alienation (Borg & Shye, 1995). The smaller the coefficient of alienation, the better the plot depicts or fits the original correlation matrix. The SSA-I procedure continues to make iterative adjustments to the distances between points in the space until it reaches the smallest possible coefficient of alienation and, consequently, the most representative configuration of points. At this stage, the coefficient of alienation provides a general indication of the degree to which the concomitant relationships among communication behaviors are accurately depicted by their variables corresponding spatial distances in the solution space. However, it is not possible to make a single judgment regarding the accuracy of the representation in terms of "good" or "bad." This question depends on a complex combination of the number of variables, the amount of error in the data, and the logical strength of the interpretation framework (Canter, 1985).

The final spatial pattern of behaviors enables a direct test of the three facets identified in the literature because the configuration is developed with respect to the interrelationships among variables rather than from the variables' relationship to any imposed orthogonal dimensions or extrinsic probabilistic qualities of the data. An empirical examination of the spatial configuration is based on the regionality hypothesis (Shye, 1978), which states that behaviors with a common facet element, and, therefore, a similar interpersonal emphasis, will be found in the same region of the SSA-I space. Such facet-identified regions should not be viewed as mutually exclusive categories and are used only to bring clarity to the overall pattern of interrelations among behavioral variables. Yet, any evidence for such contiguous regionality in a multidimensional space is a quite specific identification of a facet element, provided that a clear statement

can be made about the common feature of all communication behaviors in that region.

This statement of a rationale for associating variable points with a particular facet is an important component of the regionality approach because it forces the researcher to extend "significance" testing beyond purely statistical criteria to considerations of the correspondence between conceptual distinctions, previous research evidence, and the current observations. Regionality requires empirical (correlational) and substantive (theoretical) proximity as a necessary condition for statistical dependence or "significance." In the current analysis, testing the proposed cylindrical model is not based on an elaborate reporting of single differences between variables, but is a holistic endeavor in which each communication behavior is considered within the context of occurrence with all other behaviors. So, although this approach does not avoid the possibility (associated with all analyses) that behaviors serve a variety of functions, examining the overall regional patterning of data does allow for meaningful statements to be made about the predominant interpersonal function or emphasis (as well as the distinctiveness of this emphasis) served by each behavior, again in the inclusive context of interrelationships among all behaviors. Thus, partitionability of the SSA-I space may be regarded as a particularly useful statistic, whose "values" are judged on criteria of both empirical and theoretical clarity, and whose "meaning" relates to the pattern of occurrences among behaviors during each negotiation episode. (For extended commentaries on this methodological approach, see Borg & Shye, 1995; Canter, 1985; Shye, 1978).

## RESULTS

An SSA-I in three dimensions was found to have a coefficient of alienation of .20 in 22 iterations, indicating that the variable intercorrelations are reasonably well represented by their corresponding spatial distance in the derived configuration. Figure 2 shows a projection of the first and second dimensions of the resulting three-dimensional solution in which each point represents a variable describing communication behavior. The labels associated with each point correspond to 1 of the 41 negotiation-related variables defined in the appendix.

### Hypothesis 1: Levels of Interaction

A first stage in examining the structure of the SSA-I configuration is to determine whether the conceptual emphases of the level of interaction facet can be identified in the pattern of co-occurrences depicted in the solution space. In accordance with the regionality hypothesis, Figure 3

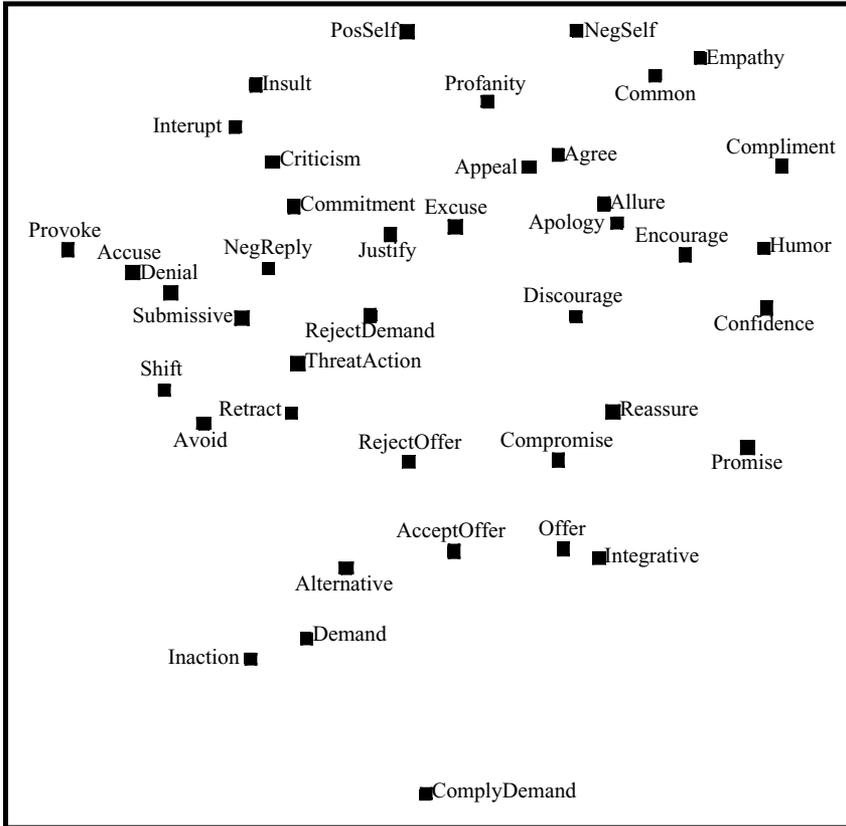


Figure 2. Smallest Space Analysis of Negotiation Behavior Across 189 Interaction Stages  
NOTE: Coefficient of Alienation = 0.20 in 22 iterations.

shows the same SSA-I configuration overlaid with a thematic interpretation relating to Avoidance, Distributive, and Integrative levels of interaction predicted by Hypothesis 1. As mentioned previously, such identified regions should not be viewed as discrete categories or clusters, but rather as indications of the changing emphases of communication behavior across the pattern of co-occurrences.

Those behaviors located toward the left region of the configuration clearly depict a withdrawal from interaction (Avoid<sup>1</sup>, Inaction) and a refusal to acknowledge responsibility for the hostage crisis (Denial, NegReply). This standoff is reinforced through challenges in the form of provocation and accusations (Accuse, Provoke), as well as explicit attempts to retract from previous agreement (Retract). In comparison, interactions focused on the middle third of the configuration have a highly antagonis-

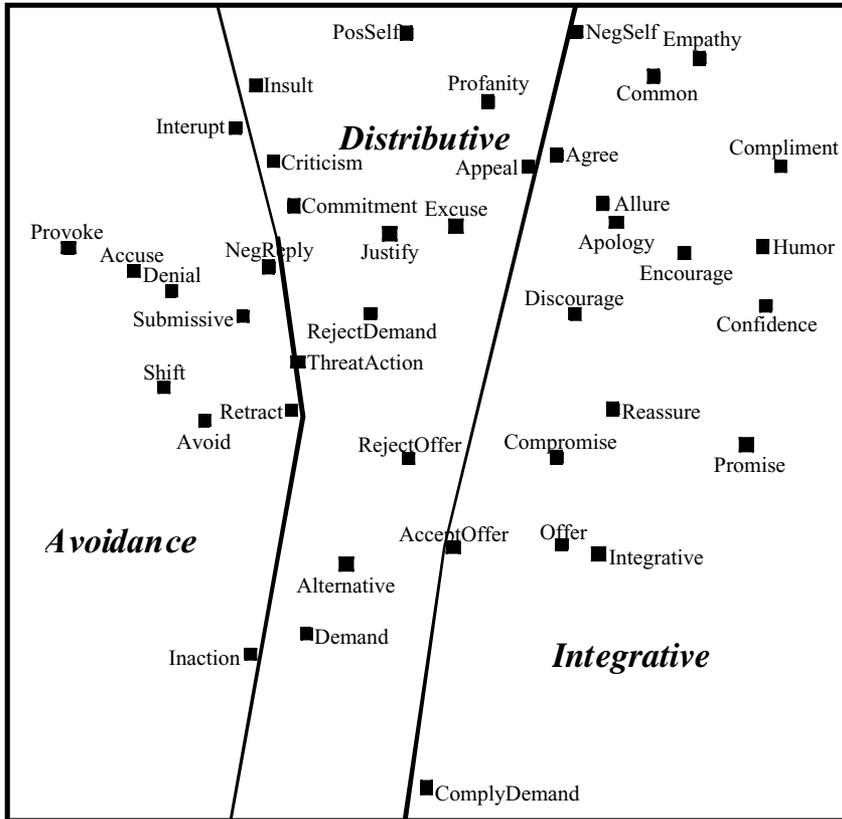


Figure 3. Smallest Space Analysis of Negotiation Behavior Across 189 Interaction Stages With Regional Interpretations Showing Avoidance, Distributive, and Integrative Levels of Interaction

tic emphasis involving both derogating criticism and insults (Criticism, Insult), and demands often reinforced by threats of action (Demand, ThreatAction). This Distributive level of interaction is further characterized by a rigid, unyielding approach to communication, with parties reinforcing their current position through expressions of commitment (Commitment), suggestions of unreasonable alternatives (Alternative) and rejection of the other party's offers (RejectOffer). Finally, behaviors located in the right-hand region of the configuration clearly relate to a cooperative approach that focuses on developing a jointly acceptable conclusion to the interactions. In this region are behavioral variables that depict negotiators' willingness to comply with demands (ComplyDemand) and address the disagreement through proposing offers or integrative solu-

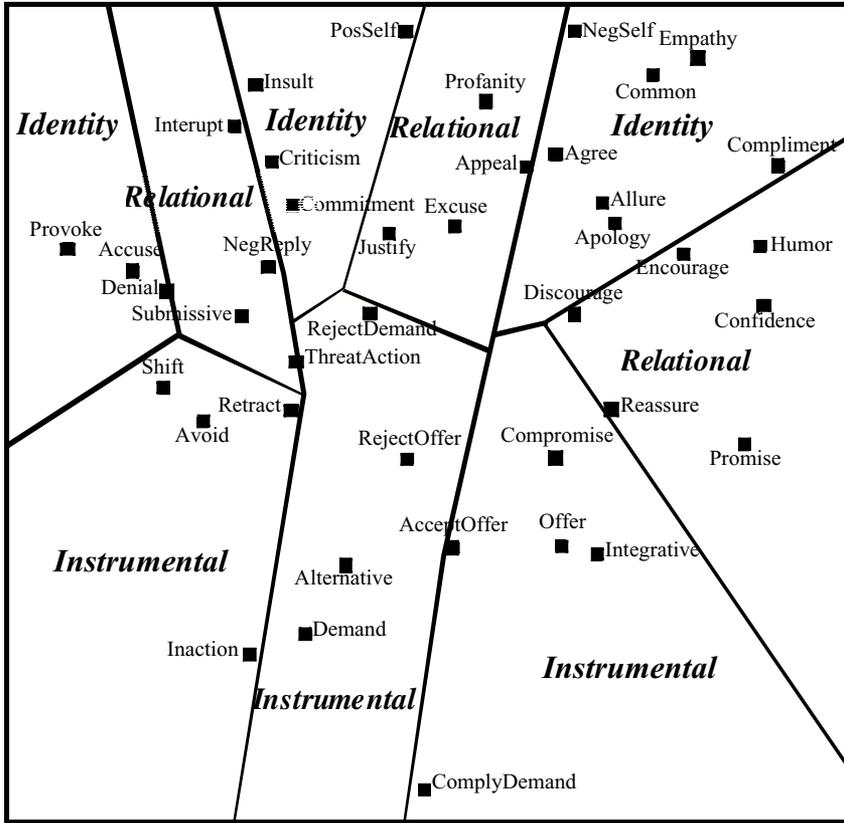


Figure 4. Smallest Space Analysis of Negotiation Behavior Across 189 Interaction Stages With Regional Interpretations Showing Identity, Instrumental, and Relational Motivational Themes

tions (Integrative, Offer). Negotiators communicating in this way may also express an understanding of the others' situation (Empathy), show a willingness to except personal responsibility (Apology, NegSelf), and make repeated efforts to develop interdependence and trust (Promise, Reassure).

The pattern of interrelationships among behaviors, summarized by the regional interpretation imposed on the SSA-I plot, also supports the hypothesized order of cooperation across the three levels of interaction with movements from left to right of the space associated with an increasing normative, problem-solving emphasis. This broad interpretable pattern depicts the important role of Avoidance, Distributive, and Integrative levels of interaction, suggesting further that different orientations can dominate particular periods of dialogue, with "paths" of behaviors moving

from dissensus to engagement to mutual problem solving. Because there is an interpretable structure to speakers' overall interpersonal approach, it is appropriate to consider the possibility of finding variations in the motivational concern and intensity of behavior across the three approaches.

### Hypothesis 2: Motivational (Qualitative) Variations in Behavior

Hypothesis 2 proposed that each level of interaction would be differentiated by three qualitatively distinct subgroups of behavior that exemplify the major themes of Identity, Instrumental, and Relational concerns. Figure 4 displays the same SSA-I configuration superimposed with regions denoting an underlying thematic structure to negotiators' behavior at all three levels of interaction. In this projection, the axial role of the level of interaction facet in relation to the thematic variations in negotiation behavior may clearly be seen, creating three regions of behavior in the left (Avoidance), middle (Distributive), and far right (Integrative) sections of the plot. More importantly, the radial (polarizing) form of this threefold motivational theme may also be observed, with wedges of themes of interaction emerging in different directions from the center of the Avoidance, Distributive, and Integrative regions. These wedge-shaped regions reflect the three hypothesized motivational themes of communication, and were labeled within each level of interaction as Identity, Instrumental, and Relational. For instance, the region situated at the top-left of the SSA-I configuration (Avoidance-Identity) reflects an Avoidance of interactions focused particularly on identity concerns. Negotiators communicating in this way deny personal responsibility for the crisis (Denial) and avoid constructive interaction by attacking the other party's credibility as a negotiator (Accuse, Provoke). In contrast to this emphasis, the occurrence of variables such as Alternative, Demand, and ThreatAction within a region of the space (Distributive-Instrumental) suggests that these behaviors have a rather different application, functioning almost exclusively to maximize personal gain of tangible goals. This focus on external issues is also evident in the region partitioned toward the bottom-right of the solution space (Integrative-Instrumental), but behaviors here reflect a predominantly cooperative approach to interaction. Negotiators show a willingness to generate mutually satisfactory agreements (Integrative), to conciliate with the other party's demands (ComplyDemand), and to propose equally attractive offers (Offer). Finally, other groups of behaviors in the solution space form congruent regions that emphasize the relational element of suspect-negotiator interaction. For example, this emphasis is salient to behaviors associated with the Distributive-Relational region whose dominant characteristic is the assertion, often through repeated justifications (Justify) and excuses (Excuse), of personal reliability and relative need within the interaction.

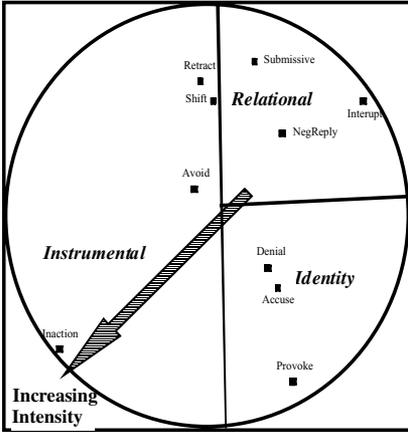


Figure 5a: Dimensions 2 and 3 of the SSA-I Configuration Showing the Motivation Facet and the Modulating Intensity Facet for the Avoidance Level of Interaction

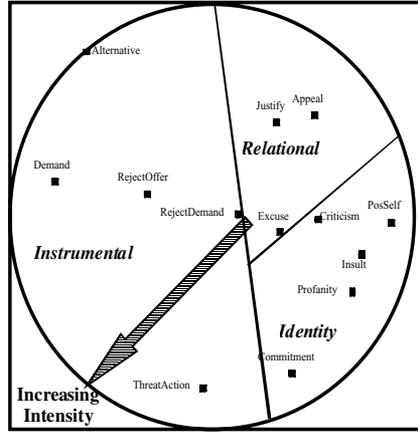


Figure 5b: Dimensions 2 and 3 of the SSA-I Configuration Showing the Motivation Facet and the Modulating Intensity Facet for the Distributive Level of Interaction

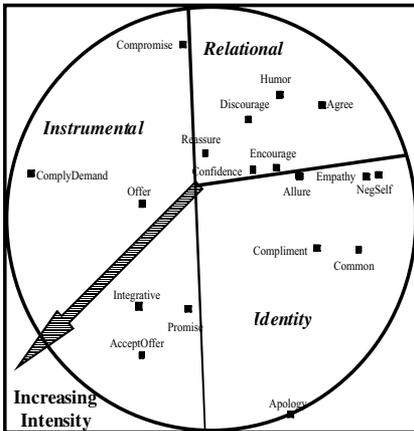


Figure 5c: Dimensions 2 and 3 of the SSA-I Configuration Showing the Motivation Facet and the Modulating Intensity Facet for the Integrative Level of Interaction

These nine regions represent the fundamental modes of behavior that occur across the episodes of the crisis negotiations, and are discussed at length in the subsequent sections. However, to allow a full description of the patterns among behaviors and further elaboration of each mode of

interaction, it is necessary to first consider the role of intensity in structuring the solution space.

### Hypothesis 3: Variations in Intensity

A two-dimensional projection of the second and third dimensions of the resulting configuration are shown in Figures 5a, 5b, and 5c, which for clarity's sake have separated the Avoidance, Distributive, and Integrative levels of interaction. The three configurations are superimposed with partitions formed by the motivational facet, together with schematic arrows portraying the direction of increasing intensity from low to high. The regionality lawfulness remains virtually invariant between this and the previously discussed configuration, with only the variables denoting Profanity and Promise in different regions of the solution space. These projections enable the polarizing nature of the motivation facet to be seen more clearly, with qualitatively distinct themes of interactions emerging in different directions from the origin. More interestingly, these projections highlight a major distinction between the Instrumental regions and the Identity and Relational regions, with the distinction between Identity and Relational appearing as a subdivision of the relatively major partition. This regioning substantiates the widely held assumption that communication is comprised of both instrumental and expressive acts, with the latter formed by identity and relational issues (Wilson & Putnam, 1990).

The distribution of behaviors shown by the SSA-I configurations also enables clear identification of the proposed modulating intensity facet (H3), which may be interpreted as reflecting increasing intensity with radiation out toward the edges of the configurations. For example, the bottom-right quadrant of the plot for Integrative interactions (Identity region) depicts increasingly intense efforts to support the other negotiator's face, moving from expression of confidence in the other's ability (Confidence), through to direct compliments and repeated attempts to consolidate the other's self-image using empathy (Compliment, Empathy). Interestingly, the variable Apology is located nearest to the high intensity, outer edge of the cylinder, suggesting that negotiators may eventually shift to admitting the inappropriateness of their own actions as a way of supporting the other party's self-perception. In a similar manner, intensity modulations are evident in Distributive-Instrumental interactions, which involve increasingly direct attempts to force the other into conciliation as the behaviors escalate from rejection of demands, to statements of commitment, through to direct threats of action (Commit, RejectDemand, and ThreatAction).

More interestingly, it is the nature of an SSA-I configuration that those communication variables located toward the center of each circular (radial) level are the ones that, empirically, have most in common with all

other behaviors. In contrast, those at the periphery are the most functionally discrete, making distinctions among the various themes of interaction clearest at the outer periphery of each level. In the current results, therefore, as behavioral intensity increases, communication behaviors become more representative of a particular style or theme of interaction. This means that behaviors occurring in the central core of the SSA-I configuration occur in the majority of interactions and so provide a behavioral definition of that level of interaction, whereas other behaviors offer a more specific emphasis, giving any particular interpersonal episode its specific characteristics.

For example, the activities found as central to an Avoidance orientation to interaction represent indirect attempts to avoid important issues (Avoid) and a refusal to accept blame for events of the hostage crises (Denial, NegReply). More intense attempts to avoid interaction are afforded by behaviors that either disrupt the interpersonal process (Interrupt, Provoke) or withdraw from the process entirely (Inaction). In contrast, the behavioral core of the Distributive level, most highly correlated with each of the various emphases, relates to competitive rejection of the other party's proposals (Excuse, RejectDemand). As behaviors begin to differ in their reference to this common core, they reflect increasingly coercive efforts to force the other party to adopt a personal viewpoint about either an expressive or instrumental issue (PosSelf, ThreatAction). Finally, the three variables, Confidence, Offer, and Reassurance, are particularly central to an Integrative approach, with other behaviors differing in their reference to this common focus of generating a cooperative and supportive interaction. Compromising, accepting offers, and conciliating to the others' demands (AcceptOffer, ComplyDemand, and Comprise) all emphasize a desire to focus discussion on generating a mutually beneficial outcome to instrumental issues. Similarly, encouraging, agreeing, and joking (Agree, Encourage, and Humor) with the other party represent acts focused on developing rapport, whereas apologizing, identifying commonalities, and admitting personal weaknesses (Apology, Common, and NegSelf) are behaviors that suggest negotiators' prominent concern is for the other party's self-confidence. Likewise, this aspect of the configuration can provide an important understanding of how conflict behaviors in each region vary in their centrality and functional distinction. They are addressed in the discussion of the nine regions.

#### A CYLINDRICAL MODEL OF CRISIS COMMUNICATION

The SSA-I configuration shows clear support for the hypothesized facets of communication, indicating that three motivational themes of inter-



elaborates both of these areas for each of the model's nine regions. For simplicity's sake, the regions are reported separately, though different periods of interaction will only be predominated (i.e., not exclusively) by a combination of behaviors from one particular theme.

#### Avoidance Level of Interaction

*Identity theme.* The behavioral variables associated with this form of negotiation reflect interactions that involve direct attempts to fully dissociate self from any degree of responsibility or even knowledge of events in the crisis (Denial). More specific emphasis in this region is associated with accusations (Accuse) and provocations (Provoke), suggesting that these potentially aggressive behaviors are used primarily to refocus communication on the other party and elude any constructive form of instrumental problem solving. However, this region does not encompass any aggressive activities against self, or support considering Avoidance of interactions as a marker for self-destructive behavior (Abbott, 1986). Indeed, the emphasis of behaviors in this region has clear parallels with the defend self-face element of the facework model (Rogan & Hammer, 1994), reflecting an individual who adopts a protective orientation aimed at qualifying self-image while shifting responsibility to the other party.

*Relational theme.* These behaviors clearly indicate withdrawn, ineffective communication in which negotiators choose not to assert rights and respond unwillingly to any attempt at developing a mutual relationship. The interactions most commonly involve negative retorts (NegReply), but this antipathy toward communicating with the other party is further emphasized through submissive statements (Submissive). Finally, continuous interruptions (Interrupt) of the other party particularly function to center interactions on this aspect of concern, with the behavior allowing a speaker to explicitly demonstrate their reluctance to even relate through passive listening to the other party. The variables associated with the Avoidance-Relational theme, then, are in accordance with those accounts that take a sociopsychological perspective, covering interactions involving low degrees of affiliation (Donohue et al., 1991) and trust (Powell, 1989).

*Instrumental theme.* In contrast to those aspects of dialogue that reflect unwillingness to maintain personal (expressive) involvement, variables identified as relating to the Avoidance-Instrumental theme emphasize interactions involving tactics designed to minimize any problem-oriented discussion of the conflict. In these interactions, negotiators are typically quick to terminate constructive communication through both deliberate attempts to avoid considering substantive issues (Avoidance) and more subtle attempts to shift the focus of conversation (Shift). Negotiators may

also show little commitment to previous agreements (Retract), and this reluctance to engage in normative problem solving may intensify into complete unresponsiveness (Inaction). The collection of behaviors in this region, therefore, instantiates the "inaction" strategy of the dual-concern model (Pruitt, 1983), with negotiators showing little interest in either the other party's or their own concerns.

Overall, the three motivational regions that form the Avoidance level of interaction correspond with perspectives suggesting that negotiators may adopt a regressive (Donohue, 1981) or Avoidance (Sillars et al., 1982) orientation to negotiation. The collective variables have some parallels with the "moving away" element of relational development (Donohue & Roberto, 1993) in which negotiators bolster their own position and credibility and utilize messages about termination and withdrawal. Thus, the Avoidance level of interaction illustrates how the substantial emotional excitation created by crisis may yield a primitive "flight" response (i.e., "fight or flight," Selye, 1978), where negotiators actively avoid taking any role in the interactions.

#### Distributive Level of Interaction

*Identity theme.* These interactions typically involve highly emotional, often immoderate criticisms of the other party's actions (Criticism) that may subsequently intensify into direct insults (Insults) as individuals vent their frustration. The negotiators may also express commitment (Commitment) to their current proposal and communicate exaggerated views of personal ability (PosSelf), these behaviors serving particularly to demonstrate their personal superiority over the other party. Thus, this set of behaviors accords well with the explanatory arguments of Strentz (1983) that suppose hostage takers respond to the face-threatening nature of a crisis by escalating their behaviors with more competitiveness and aggressiveness. Similarly, in terms of a facework model of negotiations, this mode of behavior represents an "attack other" approach to interactions in which negotiators use insults and humiliation to reduce the other party's identity and sense of self-worth (Rogan & Hammer, 1994).

*Relational theme.* Sociopsychological discussions of negotiation often emphasize that both parties can accept an active role in the interactions, but may use relationship development as a device for pursuing and arguing the importance of personal goals (Excuse, Justify). The boundary location of the Excuse variable relative to the Justify variable in this region is logical in that negotiators competitively protect self-face during excuses that lack the admission of accountability associated with justifications. The need to dominate the relationship is most clearly achieved through pleas and appeals (Appeal), which are potentially aimed at persuading the other party to adopt the negotiator's "correct" point of view.

The variable Profanity is also worth noticing in this region, supporting the notion that high levels of swearing are used as a means to assert power and dominance within a relationship (Patrick, 1901). As a whole, these behaviors characterize interactions that retain the low levels of immediacy and resistance to role obligations, but they also incorporate attempts to dominate the relationship and “move against” (Donohue & Roberto, 1993) the opposing party.

*Instrumental theme.* The seven behaviors associated with this mode of negotiation have a highly antagonistic emphasis often involving the assertion of several immoderate demands (Demand) that meet with equally hostile rejections (RejectDemand) in an increasingly antipathic impasse. The emphasis is on the establishment and embellishment of a maximal position as negotiators avoid direct consideration of the other party’s suggestions (RejectOffer) and propose alternatives biased toward personal rewards (Alternative). A particularly intense focus on this aspect of interaction involves the reinforcement of demands and alternatives by threatening to punish the other party for failing to make a concession (ThreatAction). For this mode of interaction, the behavior of negotiators is consistent with the proposals of bargaining and exchange theories (Rolloff, 1981); negotiators seek to maximize the achievement of personal rewards with little concern for the other party.

Collectively, the regions composing the Distributive level of interactions clearly reflect an offensive (Putnam & Jones, 1982), win-lose mentality toward negotiation. The behaviors can be seen as synonymous with the contentious approach to interactions embodied in early dual-concern and game-theoretical models, with negotiators determined to maximize personal gain. This region may also be conceptualized as the antithesis of behaviors instantiating a flight response to negotiations, with actions indicating a primitive “fight” response rather than a more rational problem-solving approach to interactions.

### Integrative Level of Interaction

*Identity theme.* A coherent region of seven behaviors, in particular, supports the possibility that communication may play a highly supportive role that mitigates the threatening nature of the hostage crisis. This mode of negotiation typically involves direct attempts to enhance communicators’ emotional esteem through both uncritical agreement with the other’s perspective (Agree) and compliments regarding his or her ability or personal composure (Compliment). This region also contains variables indicating that negotiators frequently show empathy for the other’s situation (Empathy), which they often support with reassurances about the benefits of interaction for personal satisfaction (Allure). At a more intense level, negotiators may reveal personal information regarding their posi-

tion (Common, NegSelf) and even apologize for their previous actions (Apology), possibly in an effort to generate increased affiliation and understanding regarding the extenuating factors responsible for the hostage crisis. The pattern of behaviors within this region can, therefore, be seen to exemplify prescribed law enforcement strategies for negotiating crisis incidents because police negotiators are trained to help hostage takers gain emotional stability, to develop a positive sense of self, and to feel less overwhelmed by the presence of law enforcement personnel (Donohue et al., 1991). The region also corresponds with the restore-other-face component of the facework model (Rogan & Hammer, 1994), as negotiators show concern for others' emotional identity and make clear attempts to restore their sense of self-worth.

*Relational theme.* This thematic region, located toward the far right of the SSA-I plot, depicts interactions in which a negotiator utilizes supportive messages and self-reflection to foster the mutual affiliation required for a successful Integrative solution. Negotiators communicating in this way typically stress the advantages of maintaining a cooperative orientation to interactions (Encourage) and may encourage such an approach by expressing confidence in the other's ability (Confidence) while making reassurances and promises about personal behaviors (Promise, Reassure). The association of this region with the variable Humor is also consistent with this interpretation; such behavior potentially enables negotiators to indirectly communicate a common understanding of the major issues and share temporary release from the tensions inherent in the crisis (Foot, 1997). The location of the variable Discourage in this region is particularly interesting because it implies that a level of honesty or sincerity is often central to developing Integrative agreements. As a result, this behavioral theme portrays interactions that involve a high level of interpersonal intimacy (Burgoon & Hale, 1987), as negotiators jointly encourage each other to accept some level of personal accountability for resolving the hostage crisis.

*Instrumental theme.* The variables in this region emphasize the use of congenial strategies that openly provide information regarding acceptable losses with the purpose of constructing provisional offers and forming jointly acceptable agreements (Integrative, Offer). The negotiations also tend to involve behaviors that promote compromise and flexibility across a multiple number of issues (Comprise, Promise). In this region, the more intense outer edge of the cylinder is associated with the variables AcceptOffer and ComplyDemand. These may arguably be interpreted as extreme behaviors because they reflect negotiators' willingness to accept a proposed solution and give up the possibility of bargaining for further concessions. Thus, this region has clear parallels with traditional bargaining models of negotiation that posit rational discourse be-

tween contending parties in the form of cost-benefit analysis or constructive conflict management (Pruitt, 1983).

These three regions collectively form the Integrative level of interaction in which negotiators adopt a cooperative (Putnam & Jones, 1982), problem-solving orientation to resolving the hostage crisis. As efforts are divided equally among both parties' concerns, negotiators adopt a "moving toward" orientation (Donohue & Roberto, 1993) as they demonstrate a high level of approval and positive affect for one another and are prepared to spend time identifying issues of high interdependence for mutual gain.

## DISCUSSION

The present results demonstrate that variations in actual interpersonal behavior during episodes of crisis negotiations may be meaningfully conceptualized using a multidimensional cylindrical model. This empirically supported structure reveals that negotiators utilize communication behaviors that reflect withdrawn (Avoidance), highly emotional (Distributive), and more rational (Integrative) orientations to bargaining (H1). In each of these three levels of interaction, negotiators' communication was further shown to unfold around three qualitative themes of concern that functioned to resolve both the objective (Instrumental) and expressive (Identity, Relationship) issues generated during the conflict (H2). In addition, each of the behavioral themes was found to vary in level of intensity, reflecting the important role of escalatory and de-escalatory processes in understanding progressive sequences of interactions (H3). The model's clarity and precision in combining these behavioral distinctions illustrate the effectiveness of examining interpersonal communication directly through units of speech, with this approach allowing both identification of the actual message behaviors that relate to different modes of interaction and specification of the relations among these communication modes. The coordination of behavioral components enables development of more elegant and general models that offer a uniform theoretical basis for understanding major psychological differences and similarities in interpersonal communication behavior.

One major implication of the derived cylindrical structure is to assert the principal (axial) role of the level of interaction facet in delineating negotiators' dominant orientation to interactions. Specifically, the analysis shows that interrelationships among behaviors allow negotiators to move among three broad approaches to interactions (Avoidance, Distributive, and Integrative). These levels of interaction are characterized by a linear dimension of increasing cooperation that runs from extreme withdrawal on the one hand, to constructive problem solving on the other. As

such, the results lend support to the previously advocated distinction between crisis-oriented and more normative approaches to bargaining, implying that one major goal of effective communication is to facilitate movement along the ordered axis, thereby supplanting coercion with cooperation and creating the possibility for a mutually satisfactory solution to the hostage crisis (Donohue et al., 1991).

The current results also elucidate this major distinction by showing that negotiators communicate across three qualitatively separable concerns that represent different emphases of the same behavioral orientation, rather than positions along any ordered dimension. This absence of interaction between the three motivational themes that give rise to the "plan" of the cylinder and the levels of interaction that make up the cylinder's sections implies that negotiators may progress across several motivational concerns without influencing their overall predominant approaches to negotiations. More importantly, however, the current results elucidate this distinction by demonstrating that the various qualitative modes of behaviors are most closely associated (correlated) with the corresponding mode of behavior at other interaction levels. There is no inevitable methodological reason that this pattern should emerge from the Smallest Space Analysis, and so regional relationships evident in the plot are consequently of particular substantive, theoretical interest.

In particular, the relationships allow explicit identification of behaviors that might potentially induce *entrainment* (McGrath & Kelly, 1986), where the adjustment of negotiators' activity patterns causes similar synchronized shifts in the approach adopted by the hostage taker. Entrainment is important in the crisis context because it may prove a useful way of bringing the hostage taker to a more rational, problem-solving orientation to interaction. Because communication behaviors in adjacent regions are more likely to occur together, they are, empirically, most likely to produce a change in an individual's behavioral orientation (i.e., entrainment). The model, therefore, indicates that any attempt to generate entrainment and induce movement away from a particular mode of communication should focus on behaviors associated with an adjoining region, rather than the region characterizing the ultimately desired orientation. In the current model, the behavioral transitions most likely to generate reciprocation relate to movement across either a single interaction level or a different motivational theme, but not to any simultaneous change in interaction level and motivation. This interpretation highlights an important practical application of the cylindrical model as a clear heuristic summary of the behaviors most likely to achieve reciprocation in an attempt to shift the focus of interactions. Such information can easily be adapted to construct an instrument that enables negotiators to rapidly comprehend a hostage taker's current behavioral focus or judge the extent to which negotiations have progressed toward a less volatile, normative

context. For the researcher, the model provides a framework that might help uncover the types of behavioral sequences that lead to abrupt shifts or turning points in the focus of interactions. For example, overall shifts between Integrative and Distributive bargaining are likely to occur across the same motivational theme, such as a misunderstood compliment (Integrative-Identity) that is responded to using defensive criticisms and positive statements about self (Distributive-Identity). Such turning points might be more common across some motivational themes than others, and this prevalence may well vary according to factors such as negotiators' personality.

The results, further, lend support to the various perspectives advocated in crisis negotiation research, suggesting that each explanation may be construed as relating to a different emphasis of the communication process. Indeed, the current study increases the validity of previous approaches because findings are derived from the inherent structure of the data, as opposed to being "proven" by extrinsic formal testing of the data. As the framework is based on behavioral indicators rather than inferred motivations or intentions, the emerging themes of interaction are not the arbitrary post hoc interpretations of behavior that shape typological frameworks, but instead reflect actual differences in interpersonal communication. Indeed, the derived cylindrical structure makes explicit the relationships among various definitional systems of previous research, such that qualitatively similar, interlocking (Borg & Shye, 1995) components of the different perspectives are depicted by approximately the same region of the solution space (e.g., "fight," Selye, 1978; "attack-face," Rogan & Hammer, 1994).

A final implication to emerge from the present model concerns support for several recent authorities that have argued against adopting taxonomic frameworks in which communication behaviors are viewed in terms of mutually exclusive categories (Hammer & Rogan, 1997). One of the major strengths of the current model is that communicated concerns are not parceled into discrete components, but conceptualized as interrelated modes of communication within a single framework. Although a negotiator may focus communication on one particular mode of interaction during a single episode, it is important to recognize that the model is derived from all modes of the cylindrical model with the assumption that each interaction is defined by a composite of behaviors. Similarly, the current model does not fall prey to the shortcomings of early static, style-based frameworks because the model enables a researcher directly to consider the changing pattern of communication behavior across the complete negotiation process. In the derived cylindrical model, therefore, it is not only possible to examine transitions in communication among the identified modes of behaviors, but it is also feasible to examine both the type of changes that occur and the process by which they materialize.

### Future Research

The distinct nature of the identified patterns in negotiator's behaviors and the cylindrical model they support have a number of implications for future empirical research. It would certainly be significant to try to replicate the findings while taking account of potentially influential variables, such as gender (Pruitt, Carnevale, Forcey, & VanSlyck, 1986) or time pressure (Carnevale & Lawler, 1987). The findings that emerge from replications with larger, more varied data will allow conclusions regarding the generalizability of the current model in different negotiation contexts. This, in turn, may be used as a basis for refining the interpreted structure and provide an improved representation of individuals' behaviors during a particular subgroup of hostage crises. An extension of this kind will result in a portfolio of empirically based models that provide a more accurate representation of the complexities inherent to communication within particular situations. Similarly, attempts to explicate the negotiation models should also consider the possibility that each of the nine communication themes has the potential of correlating with different sets of perpetrator characteristics or criminal history. Examining these relationships will, at a more general level, add new fuel to studies attempting to link interpersonal communication with measures of personality or psychiatric diagnosis (Mintu-Wimsatt & Lozada, 1999). These studies will provide a firmer basis for informing law enforcement about the likely future behavior and major concerns of a particular hostage taker. Consideration may be given to a range of factors, though a focus on intercultural issues should perhaps be of initial priority, given the increasingly common cultural differences between negotiators and hostage takers in law enforcement practice (Hammer, 1997).

### CONCLUSIONS

The findings of this empirical study have demonstrated the utility of a multivariate-behavioral approach to differentiating the major underlying structure of communication during hostage crises. The derived graphical model not only permits a clear appreciation of the behavioral modes inherent in negotiators' communication during different periods of negotiation, but it also allows an appreciation of both the actual communication behaviors that compose these modes and the interconnections among these modes over the course of interactions. A negotiator's evident capacity to adopt qualitatively distinct behavior as negotiations progress suggests that it may not be wise to develop models peculiar to only one specific explanation of interactants' behaviors. Instead, the current evi-

dence supports a conceptualization that advocates a more eclectic approach in which a diversity of perspectives, across a range of independent research areas, can be shown to complement one another within a single framework. The application of communication research to the study of crisis negotiation may now move rapidly forward, drawing on and systematically exploring elements of the derived model to yield knowledge about the construction and relationships among the behavioral facets of communication.

## APPENDIX

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Definitions of coding variables for crisis communication behavior derived from content analysis of crisis negotiation transcripts. The variables are listed by the level of interaction to which they were assigned as a result of the SSA-I analysis, and not from any a priori categorization. Variables were coded as present if the behavior was communicated during interaction. The sum frequency of thought units across the 189 episodes that were coded as a particular behavioral category is given in parentheses following the variable name.

<i>Variable</i>	<i>Definition</i>	<i>Example</i>
Avoidance statements		
Accuse (352)	Challenge an assertion made by the opposing party, or fault the other party for performing (or not performing) a particular action.	"Well you're never going to be ready"
Avoid (179)	Attempt to move interaction away from the current issue, through either a direct request or a more subtle change to the focus of discussion.	"I don't want to talk about that"
Denial (180)	Refusal to accept an accusation made by the other party. Such denials are not accompanied by an explanation of why the individual should be exonerated.	"No, no, you're lying. I didn't touch the girl"
Inaction (18)	Failure to enter dialogue despite opportunity. Scored when an individual failed to respond to the other on three consecutive occasions.	
Interrupt (39)	Continuous disruption of the opposing party. Scored as positive only after occurring twice over consecutive dialogue.	

NegReply (301)	Short retorts that have a negative or uncaring tone but were not necessarily in response to the other party's demands or offers.	"Nah"
Provoke (108)	An overt attempt to aggravate the opposing party into taking some aversive action.	"Take your damn choice Frank"
Retract (59)	Clear withdrawal from a previously acknowledged agreement, regardless as to whether or not the speaker provides an explanation for their change in attitude.	"Actually, no, I don't wanna do that"
Shift (88)	Termination of the discussion by communicating an issue different from that spoken in the previous utterance.	"Well did you ask about the cigarettes?"
Submissive (175)	Show apathy, a lack of understanding, or an inability to cope with the events of the hostage crisis.	"I don't know if they shot the cops or not"
Distributive statements		
Alternative (55)	Proposal of a concession or solution that has not previously been considered during the negotiation.	"We can't concede to those terms, but perhaps instead"
Appeal (476)	Sincere request for the other party to reconsider altering his/her current attitude to comply with the individual's desire, with no suggestion of personal sacrifice.	"Please, please, don't do anything stupid"
Commitment (62)	Expresses a commitment to a particular issue or position.	"I'm sticking to my guns, they are not gonna recuperate me"
Criticism (460)	Criticism of the opposing party's behavior or ability, where an explanation is given for the evaluation.	"we can't get no change outta you all man"
Demand (1017)	Forceful expression of a favor or concession wanted from the opposing party.	"I want to talk to my wife"
Excuse (417)	Acceptance of wrongdoing that involves a pleading for forgiveness from the other party on account of extenuating circumstances. The negotiator may recognize that their behavior is negative, but denies ultimate responsibility for the event.	"We, we tried Bill already, and ah, Bill doesn't have a phone and he's not at the house"
Profanity (361)	The use of obscene swearing or other indecent language.	"Shit"

Insult (21)	Degrading comment or scornful abuse directed at the opposing party.	"you sound a little bit immature to me"
Justify (524)	Explanation of a previous or future action. This variable was coded when the negotiator admits responsibility, but rejects the idea that the behavior is negative. Note that justify and excuse are opposites in terms of admitting responsibility.	"I'm not real sure can get that through the window. That's a pretty big bag"
PosSelf (201)	Overt bragging about the superiority of personal ability or current situation in comparison to the ability of the other party.	"I haven't lied to you yet"
RejectDemand (146)	Refusal to comply with the other party's demands.	"I am not going to do that"
RejectOffer	Complete rejection of the other party's offer without considering an Integrative compromise or alternative.	"No, No, I don't want that"
ThreatAction (212)	Threat to take punitive action if the opposing party does not comply. This variable was scored as present even if the threat was actuated.	"I'll shoot another hostage if you don't comply in 45 minutes"
Integrative statements		
AcceptOffer (89)	Acceptance of a conciliatory offer from the opposing party.	"Okay. Let me try workin' on that"
Agree (414)	Express agreement with a statement made by the opposing party. Excluded statements of personal assurance (Promise) or compliance (ComplyDemand).	"well that's—you're right there"
Allure (266)	Attempts to highlight how complying with demands will please other people, such as family members, and so lead to an increase in self-worth or personal satisfaction.	"you don't just hurt yourself, you hurt all those that love you"
Apology (40)	Direct regretful acknowledgement of previous actions.	"I'm sorry—I'm sorry, I really and truly didn't hear you"
Common (56)	Allude to a similarity between self and the other party in terms of attitude, beliefs, or behavior.	"at least we know that same way"
Compliment (111)	Praise for the opposing party's attitude or behavior. This differed from the agreement	"You're doin' a good job, too"

	variable as the behavior explicitly commended the other party.	
ComplyDemand (307)	Active concession to the other party's demands or requests.	"Yeah, ok, I'll get you the food you want"
Compromise (61)	Suggestion of a particular set of mutual concession as an alternative to directly accommodating the opposing party's offers or demands.	"I'm lettin' seven off, and then I'll let seven afterwards"
Confidence (37)	Expressions of trust in the others' ability to perform a particular action.	"I don't have to ask him, I know you for you"
Discourage (154)	Attempts to discourage the other party from adopting a particular viewpoint or performing a particular action.	"There's no real crime if you don't do that"
Empathy (264)	Sympathetic understanding for the explanations or feelings presented by the opposing party about their current situation.	"I know you're tired you've been up for awhile huh"
Encourage (678)	Active encouragement of the opposing party to adopt a particular perspective or take a discussed action.	"you're gonna get three square meals a day, you'd be warm"
Humor (33)	Attempts to use humor to lighten the tone of the negotiations.	
Integrative (40)	Proposition of a solution or approach to interaction that is beneficial to both parties.	"I'll let the woman go if you get me some beer and cigarettes"
NegSelf (177)	A reflective criticism of personal behavior or ability. Often shown as an indirect realization of personal wrongdoing.	"I've fouled it up"
Offer (527)	Offering of goods or sentiments that precedes any request.	"Do you want me to see if I can get you an oxygen tank?"
Promise (56)	Explicit and sincere assurance that a previous statement was valid, especially concerning the performance of a particular action.	"I promise that are intention is not to harm the hostages"
Reassurance (1019)	Attempts to restore the other party's confidence or to confirm again a particular opinion or questionable fact about the current situation.	"Helicopter will be here in just a few minutes"

## NOTE

1. Names in parentheses refer to the variable label representing the occurring communication behavior as it appears on the SSA-I configuration.

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