

# The Structure of Communication Behavior in Simulated and Actual Crisis Negotiations

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*This research extends recent efforts to differentiate communication in crisis negotiations (Taylor, 2002) by examining how negotiators' behavior differs across context. Data were 108 interaction episodes transcribed from 12 simulated crisis negotiations and coded at the level of thought units across 41 behavioral variables. Results of a smallest space analysis supported the hypothesized differentiation of communication behavior over 3 facets: overall orientation (Avoidance, Distributive, Integrative), motivational concern (Identity, Instrumental, Relational), and intensity (High to Low). This solution was used as a framework for identifying differences in behavior across simulated and actual negotiations. Analyses showed a systematic pattern of variations in behavior use, with simulated negotiations involving relatively more avoidance-relational and distributive-instrumental behavior than actual negotiations. Predictable differences were also observed in the purpose or function of behavior, with highly-intense behaviors showing greater uniformity in function across contexts compared to low-intensity behaviors.*

**B**y shaping dynamics such as goals, perceptions, and interdependence, the context in which a negotiation takes place plays a significant role in determining the behaviors that negotiators use (Kelley, 1997). Nevertheless, while context has been shown to modify negotiators' aggregate behavior (Folger, Poole, & Stutman, 1993), less is known about how context influences negotiators use of different behaviors to pursue different goals at different times. This dynamic aspect of communication is likely affected by the context of interaction in distinctive but predictable ways. In this article, we use a framework for conceptualizing patterns in negotiators' behavior to examine two potential context effects.

The first effect we consider is whether or not context affects the behaviors negotiators use to move through the interaction. For example, hostage

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negotiators and husbands in divorce mediation may both tackle substantive issues through similar problem-solving behaviors, but they may adopt very different approaches to handling relational dynamics. While such differences in occurrence have received some attention in the literature (Donohue & Roberto, 1996), pertinent questions remain about the relationship between such changes and the underlying interpersonal dimensions that structure the negotiation process. Our second consideration is whether context may influence the interpersonal concern or goal a behavior primarily addresses (i.e., the behavior's purpose or function). For example, the use of demands may serve a predominantly instrumental function during buyer-seller negotiations but take on a more relational role in terms of exerting power and influence during hostage crises. Understanding this effect, which relates to the interrelationships among behaviors over time, should offer novel insights into the way negotiators organize their behavior to pursue their goals.

To explore these possibilities, we respond to calls in this journal for cumulative research (Boster, 2002) and refine a model that integrates theoretical perspectives into a multivariate conceptualization of the possible ways negotiators use communication behavior (Taylor, 2002). This model is then used as a framework for organizing predictions about differences in behavior among actual and simulated hostage negotiations. We examine these predictions using a smallest space analysis (Guttman, 1968) of coded data from 12 simulated crisis negotiations, and the evident structure serves as a context for testing predictions about differences between simulated and actual negotiations.

#### Cylindrical Model of Communication Behavior

To study the effects of context on behavior, it is first necessary to model the major psychological dimensions over which behaviors differ. Several frameworks for discriminating behavior are available; most consider variations in behavior through the eyes of one particular explanation of speakers' intentions or motivations. For example, the facework perspective, commonly used to interpret conflict interactions (Oetzel et al., 2001; Rogan & Hammer, 1994), assumes that all communication behavior serves to defend or attack individuals' self-identity or face (Goffman, 1967). This perspective contrasts with the view that negotiators use behaviors rationally to solve specific problems (Weingart, Prietula, Hyder, & Genovese, 1999) or the assertion by relational order theory that communication serves to develop and manipulate the affiliation between parties (Donohue, 1998, 2001). The distinction proposed by each of these perspectives, as a consequence, emphasizes one important difference among behaviors and not the various dimensions over which context might affect behavior. In an attempt to combine the various perspectives into a more complete

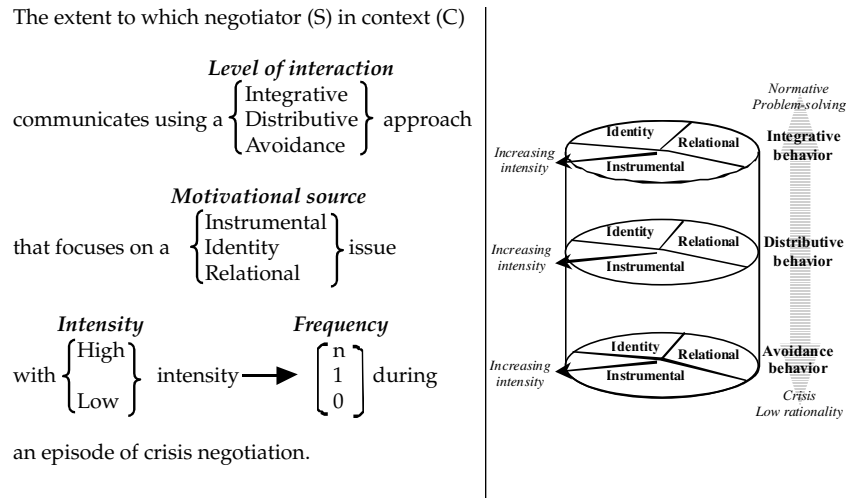


Figure 1. Mapping Sentence and Schematic Representation of the Cylindrical Structure of Negotiation Behavior

conceptualization of the similarities and differences among behaviors, Taylor (2002) proposed a cylinder model of communication.

As an introduction to Taylor's (2002) approach, the left-hand panel in Figure 1 expresses the proposed distinctions using the formal proposition of a mapping sentence (Borg & Shye, 1995; Shapira, 1976). In this sentence, each conceptual distinction or facet is given by the alternatives in parentheses. Thus, the cylinder model classifies behavior according to three facets: level of interaction, motivational source, and intensity. The types of communication formed by these distinctions may be obtained by taking one element from each facet to form a set of ordinary sentences. Each sentence describes one framing of communication or mode of interaction (Drake & Donohue, 1996). Each mode is predicted to be instantiated by a group of highly co-occurring behaviors whose substantive meanings correspond to that described by the sentence. These predictions result from previous theory and research, as described in detail by Taylor (2002).

*Level of Interaction*

Many studies of conflict negotiation have differentiated negotiators' behavior as reflecting either an Avoidance (withdrawn), Distributive (competitive), or Integrative (cooperative) approach to interaction (Donohue, Diez, & Hamilton, 1984; Donohue & Roberto, 1996; Fitzpatrick, Falls, & Vance, 1980; Sillars, 1980; Sillars, Coletti, Parry, & Rogers, 1982). In the cylinder model, these categories are viewed along a dimension of

increasing cooperation running from Avoidance to Distributive to Integrative behavior. This ordering aims to reflect the conceptualization of hostage negotiation as crisis bargaining, where the dynamic is one of supplanting coercive and emotional behavior with a more composed, problem-solving approach to interaction (Donohue, Ramesh, Kaufmann, & Smith, 1991). According to this perspective, the threatening nature of crisis induces a psychological reaction that heightens negotiators' focus on power differences and reduces their ability to engage in rational problem-solving. The result is either an Avoidance response, in which negotiators refuse to acknowledge the crisis and withdraw from participation (Donohue, 1998; Sillars et al., 1982), or a Distributive response, wherein negotiators attack the other party (e.g., demands, insults) and use self-supporting messages to restore personal credibility (Wilson & Putnam, 1990). Because such interactions often lead to poor outcomes, negotiators wanting to resolve a crisis (e.g., law enforcement negotiators) will focus on Integrative communication that expresses a concern for the other party's goals (Rubin, Pruitt, & Kim, 1994). This cooperative approach is associated with behaviors that show a willingness to make concessions, express confidence in the other's ability, and display a desire to build trust and affiliation (Donohue & Roberto, 1996; Olekalns & Smith, 2000; Putnam & Jones, 1982).

#### *Motivational Source*

Negotiators adopting a particular approach to interactions may do so to pursue a variety of different concerns or goals. Consistent with other theoretical accounts (Rogan, 1999; Wilson & Putnam, 1990), the cylinder model proposes that negotiators' communication at any one time can be usefully understood as emphasizing one of three major motivations: Instrumental, Relational, and Identity. An Instrumental motivation emerges prominently when a negotiator's principal goal is to maximize the gain of tangible commodities or wants (Pruitt, 1983; Roloff, 1981). In contrast, a Relational motivation relates to the extent negotiators' use message behaviors to develop and manipulate interpersonal dynamics such as power (Millar & Rogers, 1976), trust (Powell, 1989), and affiliation (Donohue, 1998, 2001). Negotiators manipulate relational distance from the other party through a range of strategies that attempt to highlight personal need while asserting influence through various directive statements. Finally, negotiators who focus on Identity issues are predominantly concerned with the other parties' and personal self-presentation or "face" (Goffman, 1967). Dialogue with this emphasis may be used to address negotiators' personal identity (e.g., confidence) or their need to express a range of social identities including religious beliefs, in-group affiliations, and cultural values (Bandura, 1977; Markus & Kitayama, 1991).

One key proposition of the cylinder model is that negotiators can pursue each of the motivational concerns while adopting an Avoidance, Distributive, or Integrative orientation. For example, negotiators may avoid Instrumental issues by retracting from previous agreements and making repeated attempts to avoid substantive discussion (Sillars et al., 1982). Later in the negotiation, however, they may adopt an Integrative-Instrumental approach by making offers, suggesting compromises, and engaging in priority information exchange (Donohue, Diez, & Hamilton, 1984; Olekalns & Smith, 2000; Wilson & Putnam, 1990). Still other behaviors, such as demands, the rejection of offers, and threats of retaliation, would reflect a Distributive period in which a negotiator behaves aggressively to make Instrumental gains. This interlacing of the levels of interaction and motivational source facets is also predicted for behaviors emphasizing relational and identity dynamics. For example, Distributive interactions focused on relational issues are predicted to be associated with more aggressive assertions such as justifications, repeated interruptions, profanity, and the use of simple language and sentence structure (Rogan & Donohue, 1991). In contrast, an Integrative-Relational emphasis is associated with behaviors that encourage and reassure the other party that working together is the best way forward (Donohue, 2001).

### *Intensity*

The final distinction of the cylinder model is that negotiators will differ in the Intensity with which they pursue particular goals or concerns. This facet suggests that behaviors will vary in the extent to which they focus on the three motivations, with certain behaviors emphasizing all aspects of communication while other, functionally discrete behaviors convey a desire to focus on a single issue. Dialogue with a specific function is typically characterized by a range of extreme, less common communication behaviors (Bolton, 1984). For example, intense emotional affect has been associated with the frequent use of acute messages such as profanity, obscure metaphors, directed statements, and dramatic shifts in intonation (Bowers, 1963; Donohue, 1981). Similarly, while an antagonistic negotiator may be critical of the other party's position throughout a negotiation, a particular focus on the other party's identity is facilitated through direct insults and boasting about personal superiority (Taylor, 2002). Indeed, the notion of message intensity is embodied in all research that classifies dialogue using scores on an interval-based scale (Donohue & Roberto, 1996) or conceptualizes behavior as variations along several high-low dimensions (Donohue & Roberto, 1993). Studies utilizing these measures often report escalating and deescalating spirals of interaction as negotiators' negative affect encourages polarization, reinforces existing

attitudes, and makes it more difficult to move towards agreement (Holmes & Fletcher-Bergland, 1995).

The relationships among the three facets in the mapping sentence produce a model of crisis communication that may be portrayed graphically as a cylinder. A representation of the cylinder is presented in the right-hand panel of Figure 1. The regions formed by the intersecting facets depict the various emphases or modes of communication a negotiator may adopt during an interaction. The model is therefore a descriptive account that maps out the ways in which negotiators bring together their behaviors to move through interaction. In providing this account, the model makes no prediction about the selection of behavior in terms of whether negotiators adopt a level of interaction to pursue various motivations—or whether, in contrast, their overall motivation drives choices of level of interaction and behavioral intensity. Similarly, the model predicts the interrelationships among modes of interaction but makes no prediction about the order in which negotiators move through the underlying levels of interaction and motivational emphases. Negotiators are expected to use the modes of interaction in unique but organized ways as they address new issues, redefine their goals, and even return to unresolved issues. What the cylinder model predicts is the overall structure of this organization, the predominant emphases that negotiators' dialogue can take at any one point in time as reflected by the co-occurrences of their behavior.

Because each mode of interaction in the model relates to a different way of communicating, each would be expected to have a group of behavioral counterparts that occur together consistently in negotiators' dialogue. In other words, if the proposed modes do reflect the different ways negotiators frame dialogue over time, then behaviors instantiating the same mode would be expected to occur together more frequently in a period of interaction than behaviors associated with different modes. Support for the complete cylinder model, however, also requires that the subgroups themselves interrelate in a manner that corresponds to the cylinder structure. For example, the behaviors predicted to instantiate avoidance interaction should co-occur more frequently with those denoting distributive interaction than those associated with integrative interaction, because this is consistent with the linear ordering of the orientations. In general, therefore, support for the cylinder model requires a positive relationship between the conceptual similarity of two modes of interaction and the co-occurrence of their behavioral counterparts in a single period of communication.

Given the findings of previous research, particularly Taylor (2002), it is possible to make specific hypotheses about the behaviors associated with different modes of interaction. Table 1 provides the hypothesized correspondence between regions of the cylinder model and actual communication behaviors. The first three columns of Table 1 correspond to the

**TABLE 1**  
**Predicted Correspondences Between the Cylinder Model**  
**and 37 Communication Behaviors**

<i>Facets of communication behavior</i>					
<i>Orientation</i>	<i>Motivation</i>	<i>Intensity</i>	<i>Behavior</i>	<i>Description</i>	
Integrative	Instrumental	1	Offer	An offer of sentiments or goods that precedes any request.	
		2	Integrative	Proposition of a solution or approach to interaction that is beneficial to both parties.	
		3	Compromise	Suggestion of a mutual concession as a substitute to directly conciliating to the other's demand.	
		4	ComplyDemand	Concession to a demand or request made by the other party.	
		5	Promise	Explicit assurance that a previous message was valid, such as the sincerity of a previous action or the performance of a future action.	
		6	AcceptOffer	Acceptance of a conciliatory offer from the other party.	
	Identity		1	Allure	Effort to highlight how complying with personal requests will gratify other people, such as family members, and so lead to an increase in self-worth or personal satisfaction.
			2	Compliment	Explicit praise or approval for the opposing party's attitude or behavior.
			3	Empathy	Expression of sympathetic understanding for the circumstances, explanations or feelings presented by the other party.
			4	NegSelf	A reflective criticism of personal behavior or ability.
			5	Apology	Explicit remorse for a previous action.
			6	Common	Allude to a similarity between self and the other party in terms of attitude, behavior, or beliefs.
	Relational		1	Reassure	Attempt to play down troublesome aspects of the situation or confirm a fact about the situation.
			2	Confidence	Conveyance of trust or belief in the other party's ability to perform a particular action.
			3	Encourage	Active persuasion to take a particular action or adopt a viewpoint.
			4	Discourage	Reasoned argument aimed at pointing out the negatives of a particular viewpoint or performing a particular action.
			5	Humor	Attempt to use humor or make a joke
			6	Agree	Express agreement with a statement made by the other party without explicitly offering praise (Compliment) or complying with the statement (e.g., ComplyDemand).
Distributive	Instrumental	1	RejectDemand	Refusal to comply with a demand of the other party.	
		2	ThreatAction	Threat to take retaliatory action if the other party does not comply with a demand or promise.	
		3	RejectOffer	Considered rejection of the other party's offer without suggestion of an Integrative agreement, Compromise or Alternative.	
		4	Demand	Forceful expression of a concession wanted from the other party.	
		5	Alternative	Proposal of a concession or solution that involves something not previously considered.	

**TABLE 1 (continued)**  
**Predicted Correspondences Between the Cylinder Model**  
**and 37 Communication Behaviors**

<i>Facets of communication behavior</i>				
<i>Orientation</i>	<i>Motivation</i>	<i>Intensity</i>	<i>Behavior</i>	<i>Description</i>
		1	Criticism	Condemnation of the other party's behavior or ability where an explanation is given for the evaluation.
	Identity	2	Commitment	Express dedication to a particular issue, statement or attitude.
		3	Insult	Abusive or humiliating comment directed at the opposing party.
		4	Profanity	The use of obscene swearing or other indecent language.
		5	PosSelf	Boasting about personal superiority over the other party in terms of ability or situation.
		1	Excuse	Explanations of an action in which the speaker admits responsibility and accepts it as wrong, but suggests there are exonerating circumstances.
	Relational	2	Justify	Explanation of a previous or future action in which the speaker admits responsibility but rejects the notion that the behavior is negative.
		3	Appeal	Request for the other party to consider altering his or her attitude to comply with the individual's desire, with no suggestion of personal sacrifice.
Avoidance		1	Avoid	Attempt to avoid any substantive interaction through either a direct request or subtle withdrawal from interaction.
		2	Shift	The termination of dialogue by using a message that communicates about an unrelated issue.
	Instrumental	3	Retract	Renunciation from a previously acknowledged agreement or decision, regardless of whether the speaker gives an explanation for the action.
		4	Inaction	Failure to enter dialogue despite having the opportunity. Scored when a negotiator failed to respond on three consecutive occasions.
	Identity	1	Denial	Refusal to accept or acknowledge an accusation made by the other party.
		2	Accuse	Challenge the other party's assertion or fault them for performing (or not performing) a desired action.
		3	Provoke	An overt attempt to aggravate the other party into taking some aversive action.
	Relational	1	NegReply	Short retorts that have an unenthusiastic or uncaring tone.
		2	Submissive	Statement that express apathy or a lack of appreciation for the events of the conflict.
		3	Interrupt	Continuous disruption of the opposing party, scored as positive after occurring consecutively on two occasions.



three facets in Figure 1. The first column relates to the main axis of the cylinder model and differentiates behavior according to avoidance, distributive, and integrative levels of interaction. The second column relates to the motivation facet and reflects the fact that negotiators can focus on identity, instrumental, or relational issues when adopting a particular level of interaction. This qualitative differentiation of behavior appears in the cylinder model as unordered, wedge-like regions that emanate from the center of each level of interaction. Finally, the third column relates to the intensity facet, which recognizes that points do not fall equidistant from the cylinder's origin and so creates degrees of behavior for each type of motivation. Table 1 gives these variations by ranking for each region the intensity of behaviors as found in Taylor (2002). A higher ranking indicates a relatively more intense behavior. Taken together, the various columns of Table 1 outline the predictions of the cylinder model:

*H1:* Subsets of conceptually related behaviors will consistently occur together according to the groupings outlined in Table 1.

#### Comparisons Across Simulated and Actual Crisis Negotiations

To understand fully the psychological dynamics that underlie dialogue, it is important to consider how negotiators' behavior is shaped by differences in context. Negotiators may behave consistently across some contexts and display distinctive patterns of variation in behavior over others. These differences in behavior may vary systematically across certain facets of the cylinder model, and uncovering these connections will lead to a better understanding of how the various distinctions shape the negotiation process. For example, if context influences only the overall orientation that negotiators adopt, then orientation would be seen as particularly central to understanding differences in behavior across contexts. Should differences over contexts not fit meaningfully into the proposed cylindrical structure, then one would question whether the original conceptualization is effective in differentiating the ways negotiators use behavior. Thus, in general, it should be possible to demonstrate within the cylindrical model systematic differences in the occurrences of behaviors across two or more contexts.

#### *Variations in Behavior Use*

One important possibility is that context may affect the type of behaviors negotiators use to deal with the conflict. This possibility does not

detract from the notion of a single model of behavior use, but suggests that interactions in different contexts may depend principally on different aspects of the communication model. For example, clinical professionals report focusing on less competitive and more accommodating aspects of communication than business executives (Shell, 2001). More importantly, these individuals often report that the approach they adopt to communication is dependent on the context of interaction and their relationship to the other party (Miller, Boster, Roloff, & Seibold, 1977; Wish & Kaplan, 1977). As these examples illustrate, the variations in behavior that are of particular importance relate not to individual acts but to differences in the broader patterns or emphases of behavior use.

One of the most important contextual comparisons, with clear theoretical and practical implications, is between real-world and simulated negotiations. For the practitioner, comparing communication across actual and simulated negotiations provides details that can help improve negotiator training. At a theoretical level, this comparison addresses the often hidden inferential leap from dialogue in the experimental setting to dialogue in actual conflicts. Such generalizations make the assumption, open to empirical test, that the nature of the crises is unimportant and that there is essentially no variation in the extent to which negotiators in both contexts use communication behaviors. In this regard, hostage crises represent a useful comparison, because they embody many of the dynamics found in other types of conflict negotiation (Donohue & Taylor, 2003). Moreover, because simulations enacted by police officers are arguably more realistic than conflicts negotiated by students (Holmes & Fletcher-Bergland, 1995), any disparities identified between real and simulated hostage negotiations may well be exaggerated in their student-based counterparts (Donohue & Taylor, 2003).

As argued by several authors (Donohue et al., 1991; Holmes & Sykes, 1993), a number of situational factors make it likely that actual crisis negotiations will involve different patterns of behavior compared with simulated negotiations. Actual hostage crises are associated with tremendous uncertainties regarding the reliability of current information and the direction of future developments. The typical response to such uncertainties is to feel insecure or frustrated, which are factors that move individuals away from a rational problem-orientated response and towards a more aggressive approach (Golan, 1978). The higher stakes associated with actual hostage crises (e.g., jail) are likely to add to this reaction by increasing negotiators' willingness to take extreme actions and their desire to compete for a satisfactory outcome (Donohue et al., 1991). A final reason to believe that attacking tactics will be more frequent in actual negotiations is that speakers who are personally bound by an outcome are less likely to make sacrifices or accept compromises. Empirical work suggests

that negotiators accountable for their actions are more likely to shift away from unfavorable issues (Benton & Druckman, 1973), insist on role obligations (Donohue, 2001), and engage in more contentious bargaining behaviors than those not held accountable (Ben-Yoav & Pruitt, 1984). For example, Donohue, Diez, and Hamilton (1984) showed that actual labor-management negotiations involve the assertion of more proposals, the denial of accusations, and more substantiation compared with simulations. Similarly, in a study of eight hostage crises, Donohue and Roberto (1996) found some evidence to suggest that authentic negotiations involve more use of demands, rejections, and commitments to a personal position compared with simulated incidents. These findings suggest the second hypothesis that actual hostage crises will involve more frequent use of avoidance and distributive behaviors than simulated negotiations, regardless of the motivational focus. To retain our focus on simulated negotiations, we rephrase this hypothesis as:

*H2: Simulated negotiations will involve less frequent use of avoidance and distributive behaviors in comparison to actual negotiations.*

Certain aspects of the dynamics particular to actual and simulated negotiations enable a refinement of this general prediction. Perhaps the most influential difference is that simulated negotiations are typically designed to follow scenarios that illustrate key features and test particular skills. According to most police models, early stages of a negotiation should emphasize the development of trust and interdependence with the perpetrator, while later stages should focus on problem elaboration and resolution (Donohue et al., 1991; Holmes, 1992). Consequently, compared with actual negotiations, simulations would be expected to involve more frequent use of relational behaviors at the beginning of the interaction and instrumental behaviors during the later stages of dialogue. Because early stages are typically predominated by avoidance messages, simulated negotiations would be expected to show a relatively higher use of avoidance-relational behaviors. Findings showing that simulated negotiations demonstrate a more coherent focus on relationship development in the early stages of dialogue compared with actual negotiations support this prediction (Holmes & Sykes, 1993).

Following a similar argument, simulations designed to involve a focus on substantive issues would be expected to focus on instrumental behaviors during the later stages of interaction. Simulated negotiations, however, are often constrained in the length of time available for interaction (Holmes & Sykes, 1993), because negotiators arguably have less chance of developing an integrative orientation to instrumental issues. Consequently,

simulated hostage negotiations would be expected to involve more frequent use of distributive-instrumental behaviors than actual hostage negotiations, but not necessarily more integrative-instrumental behavior. This prediction is consistent with research showing that negotiators under time pressure are more aggressive in resolving problem-issues and generally search only for win-loose outcomes (Carnevale & Lawler, 1987). Indeed, research has shown that greater competitiveness, firmer aspirations, and reduced information exchange are particularly pronounced when negotiators adopt an individualistic orientation, the orientation which typically results from exposure to a threatening conflict (Stuhlmacher, Gillespie, & Champagne, 1998). These observations lead to the following predictions:

*H3:* Simulated negotiations will involve more frequent use of avoidance-relational behaviors compared with actual negotiations.

*H4:* Simulated negotiations will involve more frequent use of distributive-instrumental behaviors compared with actual negotiations.

#### *Consistency in the Function of Behavior*

The context of a crisis negotiation may change not only the behavioral focus of negotiators' dialogue; it may also affect the interrelationships among the behaviors themselves. Differences at this more fundamental level relate to changes in the strategic or psychological function of behavior. In theoretical terms, psychological function refers to the interpersonal goal or objective a negotiator is principally trying to pursue when using the behavior (i.e., the behavior's predominant frame; Drake & Donohue, 1996). In analytical terms, psychological function is defined by the interrelationships a particular behavior holds with all of the other behaviors (Kinsch, 2002), with changes in function relating to systematic changes in the structure of the relations. For example, demands may serve a predominantly instrumental function during buyer-seller negotiations, but they may take on a more relational role in terms of exerting power and influence during divorce mediation. Such changes in function are likely to be tied to the cognitive frames that speakers use to simplify the problem of interpreting dialogue (Solomon, Dillard, & Anderson, 2002). As with differences in behavior use, changes in function are unlikely to be concentrated on single behaviors, but rather related to general patterns of differences among the modes of interaction.

Many authors have defined the meaning of a message by the substance of closely occurring behaviors (Kinsch, 2002), while there have been very few systematic predictions of how such interrelationships will change

according to context. One informative suggestion comes from research on personality coherence, which expects distinctive and stable patterns of behavioral variability across contexts (Shoda, Mischel, & Wright, 1993). According to this view, some behaviors will be stable in their function across different contexts while others will show more flexibility in their function. Such variations are evident in factor-analytic results showing that some behaviors load almost exclusively on a single factor (i.e., are functionally uniform) while others produce a more even distribution of loadings (i.e., serve many different functions). For example, Marwell and Schmitt (1967) showed that "making promises" and "threatening action" are associated almost exclusively with a single factor, while other behaviors such as "express a debt" and "casting ideas in an alternative way" load evenly across several different factors. In a similar way, Falbo (1977) showed that some behaviors relate closely to particular interpersonal dimensions while others regress equally across several different dimensions.

Interestingly, these findings correspond with studies of language intensity, which associate very specific communication behaviors (e.g., death metaphors) with high levels of message affect or intensity (Bowers, 1963; Donohue, 1991; Rogan, 1995; Rogan & Hammer, 1995). Behaviors that load exclusively on a single factor, such as threatening action and boasting about personal superiority, are typically those associated with high message intensity (Gayle & Preiss, 1999; Rogan, 1995; Taylor, 2002). Such findings tentatively suggest the intensity facet as the dimension along which the function of behavior will systematically vary when examined over contexts. In particular, behaviors of low intensity would be expected to be flexible in their function, since these less emotion-driven acts do not focus on a single prominent alternative and refrain from direct attribution of blame (Donohue et al., 1991). They include behaviors such as making offers, avoiding particular topics, reassuring the other party, and generally sharing information. In contrast, high intensity behaviors are characterized by unambiguous language that emphasizes specific issues or concerns and, consequently, serves a relatively homogenous function. Behaviors predicted to be higher in functionality include refusing to interact, threatening action if a demand is not met, insulting the other party, and apologizing for personal behavior. In the context of the cylinder model, therefore, as intensity increases, so behaviors become more functionally discrete, making distinctions between the various themes of interaction clearest at the outer-periphery of each level. This leads to the final hypothesis:

*H5: Movement toward the periphery of the cylinder faces will be associated with an increase in the functional discreteness of communication behaviors.*

## A TEST OF THE CYLINDER MODEL OF COMMUNICATION BEHAVIOR

### Method

#### *Transcription Sample*

Data were negotiation transcripts from 12 hostage negotiator training sessions, produced from the original audiotape recordings of several U.S. police forces. Sessions were a realistic simulation of conditions typical of a crisis incident and involved a single police negotiator interacting with one or more hostage takers and, in the case of four incidents, some of the hostages. Both hostage takers and hostages were impersonated by knowledgeable actors provided with a scenario and personality information to maximize the realism of the interactions. The sessions varied in scenario, from suicide intervention to criminal-barricade incidents, and were a good representation of the situations frequently encountered by police officers (Donohue & Roberto, 1996). Table 2 gives a description of the scenario used in each training session together with a decomposition of talk frequencies for each negotiating party.

#### *Transcript Coding Procedure*

To ensure comparability between the data sets, the 12 transcripts were subjected to the three-stage coding procedure described in Taylor (2002). This procedure involves dividing a transcript into a series of interaction episodes (Mann & Thompson, 1988) to capture the variation in dialogue across different periods of the negotiation. These episodes are then divided and coded into single behavioral acts, which is the level of analysis necessary to derive an eclectic classification of communication behavior that is not restricted to a particular explanatory approach.

*Rhetorical structure analysis.* The episodes of dialogue were identified using a rhetorical structure analysis. This approach regards episodes as nonoverlapping, coherent periods of dialogue in which speakers communicate about a single, clearly distinguishable issue without significant deviation from that issue (Mann & Thompson, 1988). An episode concludes (and the next episode begins) when dialogue shows a definite and sustained transition in its focus from one issue to a different issue. Brief interjections that did not initiate a sustained shift of discussion (e.g., letting the hostage taker know the time) are not considered separate episodes. The analysis identified 108 episodes across the 12 transcripts ( $M = 9.0$ ,  $SD = 5.5$ , range = 4–24), with a mean frequency of 80.0 thought units in each episode ( $SD = 45.4$ , range = 11–277). The episodes were characterized by regular interaction between the negotiators, containing an average of 34.4 exchanges ( $SD = 19.6$ , range = 1–122) that were generally

**TABLE 2**  
**Summary of Simulation Scenario and Length in Thought Units**  
**as a Function of Speaker**

<i>Case</i>	<i>Length (thought units)</i>			<i>Scenario</i>
	<i>Hostage taker(s)</i>	<i>Negotiator(s)</i>	<i>Other party(s)</i>	
Criminal case 1	415 (50%)	416 (50%)	0 (0%)	An armed male with a criminal record holds restaurant patrons hostage after he shoots an employee for failing to provide what he considered sufficient service.
Criminal case 2	479 (63%)	279 (37%)	2 (1%)	
Criminal case 3	474 (58%)	341 (42%)	0 (0%)	
Criminal case 4	395 (37%)	537 (51%)	124 (12%)	Two armed males are barricaded in a bar together with numerous hostages. They are intent on getting drunk before going to jail.
Domestic case 5	120 (32%)	257 (68%)	0 (0%)	A young female with clinical depression and drug dependency is barricaded in her apartment. She threatens suicide as the only way to relieve her father of the constant worry and embarrassment of a daughter who is unable to overcome her drugs habit.
Domestic case 6	190 (49%)	198 (51%)	0 (0%)	
Domestic case 7	120 (54%)	103 (46%)	0 (0%)	
Domestic case 8	246 (51%)	241 (49%)	0 (0%)	
Domestic case 9	179 (55%)	148 (45%)	0 (0%)	A single armed male holds his daughter hostage at the family home following a custody hearing that he feels unjustly ordered the mother guardianship.
Domestic case 10	273 (57%)	208 (43%)	0 (0%)	Two male students hold technicians hostage in a university laboratory to protest about the continued use of animal testing.
Political case 11	1231 (57%)	886 (41%)	45 (2%)	
Political case 12	300 (42%)	170 (24%)	242 (34%)	

distributed evenly between the two speakers (see Table 2). The boundaries among episodes were either associated with a shift in interaction between general and more specific issues (41%), a break in contact between the parties (31%), or a change in the person or object of focus (28%). Episodes were typically initiated by a hostage taker (48%) or police

negotiator (44%), with third party dialogue (e.g., hostages) rarely initiating interactions (8%).

Reliability of the episode partitioning was tested by an independent coder who was trained in rhetorical structure analysis through practice with unused materials. The coder applied rhetorical structure analysis to all 12 transcripts and achieved a unitizing reliability of .08 (Guetzkow, 1950), indicating disagreement in the existence or positioning of 8% of the episodes. Of the episode boundaries identified by the coder, 94% were matched in position to those in the original coding, suggesting that discordance was mainly due to disagreements about the number rather than the placement of boundaries. All disagreements were resolved through discussion and mutual agreement prior to partitioning into thought units.

*Partitioning into thought units.* The 108 interaction episodes were further divided into thought units (Gottman, 1979) to enable the subsequent coding to capture the relative use of single behaviors within each interaction. A thought unit conceptually relates to a complete idea that a speaker wishes to express and occurs in actual speech as an independent clause with a subject and an object (e.g., "I want to get out of here"). Coding at this level therefore comes closest to isolating single communication acts and so minimizes the possibility of analysis overlooking smaller, but psychologically meaningful, components of dialogue. The unitizing reliability was assessed by having two coders who were experienced in parsing dialogue unitize Case 1. Coders agreed on the placement of over 99% of the thought units and achieved a unitizing reliability of 0.004 (Guetzkow, 1950), indicating that less than 1% of the unitizing divisions were in error. All errors in unitizing were addressed before the transcripts were coded.

*Coding of thought units.* We used the coding scheme developed in Taylor (2002) to content analyze the thought units occurring in each episode. Four behaviors (humor, inaction, integrative, and interrupt) did not occur in the simulated negotiations and so were removed from the original coding scheme. This resulted in a set of 56 variables that related directly to the behavior of negotiators during each episode. Coding involved a considered application of this formalized scheme to the content of hostage taker, police negotiator, and third party thought units as they occurred in the sequential flow of dialogue. More than one category could potentially be assigned to a single thought unit; however, the restricted nature of the unit easily allowed a one-code to one-unit correspondence. An exception was the variable profanity, which by definition relates to single words rather than an entire thought unit and so was coded in addition to the units' overall code.

Reliability of the coding was assessed by having an independent judge, experienced in the content analysis procedure and trained on unrelated material, code approximately 5% of speech extracts from the incidents. The reliability of coding, measured at the thought unit level with Cohen's



kappa (Cohen, 1960), was .70 with 71% agreement. 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 good reliability as a measure of negotiation behavior, especially given the large number of coding categories. Approximately 2% of all thought units, mainly incomplete sentences, contained no objective information about negotiators' behavior and were left uncoded.

The coded transcripts were used to produce a two-way data matrix whose cells contained the number of thought units in an episode that were assigned to a particular behavioral category. As in previous research (Olekalns & Smith, 2000; Taylor, 2002), variables that represented functional aspects of dialogue were excluded from the matrix, because they simply allow general message exchange and do not in themselves contain any overt psychological information. These included explicative acknowledgements or interjections (e.g., "uh-huh"), initiations and salutations (e.g., "bye-bye"), and questions or answers that facilitated either conversational turn taking (e.g., "nah, really?") or basic information exchange (e.g., "could you say that again?"). Such behaviors are important to an unfolding dialogue; however, they work only to enable negotiators to move through the main substance of the interaction such that their inclusion is likely to reduce the clarity of analysis. Thus, analysis was conducted on a matrix of 37 communication variables (columns) by 108 interaction episodes (rows), with cell values reflecting the sum frequency of thought units coded as one of the behavioral variables. Table 1 shows each of the 37 variables together with a brief coding definition.

#### *Analysis of Communication Behavior*

The predictions derived from the cylinder model fit those of traditional factorial approaches to research design (Fisher, 1935). The independent variables are the three facets that appear in braces on the mapping sentence outlined in Figure 1. The dependent variables are the frequency of occurrence of each communication behavior across the various factors of the model, as shown by the parentheses that occur after the arrow in Figure 1. The design is factorial, because predictions have been made about the occurrence of behaviors representing all possible combinations of facets. The hypotheses could, therefore, be tested using a traditional approach of studying variance, but ANOVA is not suitable, since it does not consider the overall pattern of interrelationships among behavioral variables. More suitable is the multi-dimensional scaling technique of Smallest Space Analysis (SSA-I; Lingoes, 1973), which represents the interrelationships among variables in an intrinsic manner as points arranged in a geometric space. The underlying organization of the variables can then be compared to the similarities and differences predicted by the cylinder model.

SSA-I begins by measuring the relationship of each variable with every other variable. In the current analysis, the associations among pairs of behaviors (variables) were calculated using Pearson's correlation coefficient and resulted in a symmetrical matrix containing 1332 (37 variables  $\times$  36 variables) separate comparisons measuring the extent to which any two behaviors co-occurred. The rank order of these correlation coefficients is used by SSA-I to arrange the variables' representative points in a geometric space. The higher the correlation between two variables the closer together their representing points will appear in the spatial plot. In order to maximize how well the rank order of distances in the configuration matches the rank order of original correlation coefficients, 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). A smaller coefficient of alienation indicates a greater correspondence between the relative distances among variables on the plot and the original rank order of values in the correlation matrix. SSA-I derives the most representative configuration by continuing to make iterative adjustments to the distances among points until it reaches the smallest possible coefficient of alienation. At this stage, the coefficient of alienation provides a general indication of the degree to which the interrelationships among communication behaviors are accurately depicted by their variables' corresponding spatial distances in the solution space.

The configuration depicts only the interrelationships among variables, not the variables' relationship to some given dimension or extrinsic probability. As a result, the final spatial pattern of behaviors can be examined directly to test the predicted facets of the cylinder model. An 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. Support for a particular facet comes from evidence that behaviors predicted in Table 1 to exemplify each distinction of the facet may be partitioned into a discrete region of the SSA-I space. Support for the complete cylinder model emerges if there is evidence for all three facets, where the relationships among the regions formed by each facet support the regions hypothesized in Figure 1. Thus, the regionality approach looks for a correspondence between the predicted substantive framework and the empirically observed interrelationships among behaviors, providing that a clear rationale for such a correspondence can be determined from previous theory and research. (For extended commentaries on this methodological approach, see Borg & Shye, 1995; Shye, 1978; Taylor, 2002).

## Results

The SSA-I in three dimensions had a coefficient of alienation of .22 in 21 iterations, indicating that the resulting configuration is an acceptable

representation of the correlation coefficients. In accordance with the regionality hypothesis, the pattern of behavioral points can be examined for evidence of coherent regions that are consistent with the predictions made in Table 1. In the text that follows, we refer to occurring behaviors by reporting in parentheses the relevant behavioral point as it appears on the SSA-I configuration.

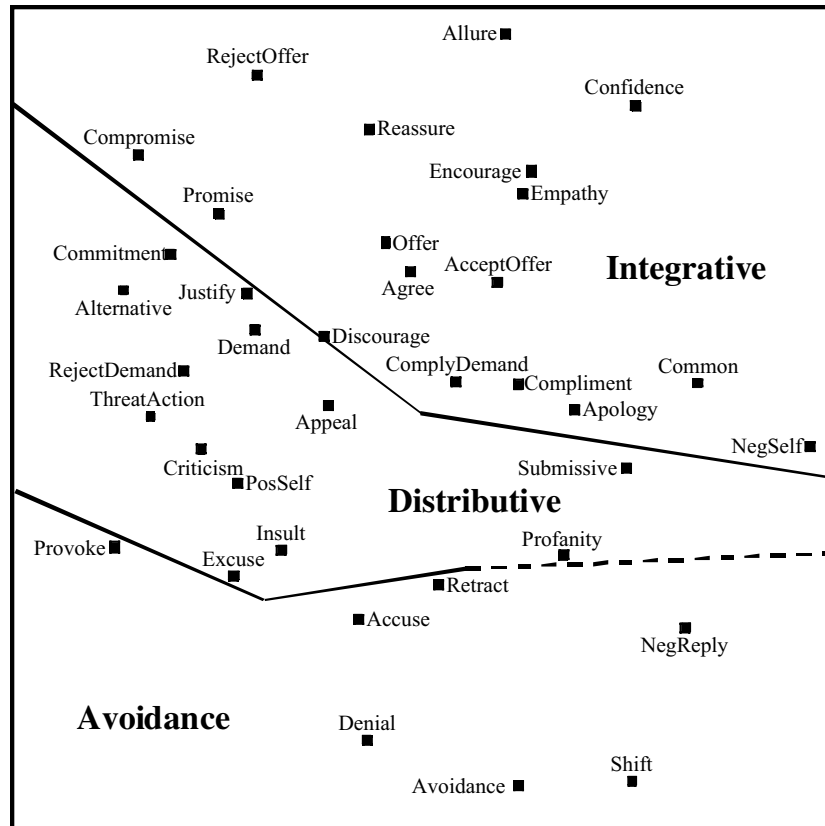
#### *Levels of Interaction*

Figure 2 shows dimensions 1 and 2 of the three-dimensional solution. The partitions on the space correspond to the predicted Avoidance, Distributive, and Integrative levels of interaction, ordered from bottom to top of the plot according to an increasing cooperative emphasis. The six behavioral variables in the bottom region support the prediction that, on some occasions, negotiators communicate a reluctance to take an active role in interactions (Avoid, Denial), explicitly retract from any previous developments (Retract), and reinforce this withdrawal through disruptions (NegReply, Shift) and irrelevant challenges (Accuse, Provoke). By comparison, behaviors in the middle region have a highly distributive emphasis, with negotiators combining aggressive bargaining (Demands, RejectOffers) with threats (ThreatAction), statements of self-satisfaction (Commitment, PosSelf), and derogation of the other party (Criticism, Insult). Finally, behaviors located in the top region correspond to a more cooperative approach to interaction. Negotiators communicate an awareness of the others' situation (Encourage, Empathy), a willingness to accept personal responsibility (Apology, NegSelf), and a desire to address jointly the disagreement by proposing solutions (Integrative, Offer) and making sacrifices (ComplyDemand, Promise).

The placement of behaviors on the SSA-I is consistent with the predictions outlined in Table 1, with the exceptions of the variables RejectOffer and Submissive, which are located in different regions than hypothesized. The position of the variable Submissive is particularly interesting because it results from a degrading of the partition between the Avoidance and Distributive regions, as shown by the dotted line towards the right-hand side of Figure 2. This indicates that the Avoidance and Distributive levels of interaction are more integrated than found in actual negotiations (Taylor, 2002), suggesting that negotiators do not withdraw from interaction for an extended period without also utilizing competitive behaviors.

#### *Motivational Source*

The distinctions hypothesized by the motivational source facet relate to differences on the circular faces of the cylinder and so should be clearly evident when adopting a birds-eye view of the space. Dimensions 2 and 3 of the SSA-I configuration are shown in Figure 3, which for clarity



**Figure 2. Smallest Space Analysis of Negotiation Behavior Across 108 Interaction Stages with Regional Interpretations Showing Avoidance, Distributive and Integrative Levels of Interaction**

NOTE: Coefficient of Alienation = 0.22 in 21 iterations.

presents the Avoidance, Distributive, and Integrative levels of interaction separately. The configurations have been partitioned in relation to the motivation facet and the regions have accordingly been labeled as Identity, Instrumental, and Relational. For example, the left region of the plot for Integrative interactions (Integrative-Instrumental region) contains messages focused almost exclusively on substantive problem solving by means of both conciliation (Accept Offer, ComplyDemand) and proposal development (Integrative, Offer). In contrast, the occurrence of variables such as encourage, compliment, and confidence within a region situated towards the bottom right of the plot (Integrative-Identity) suggests that these behaviors have a rather different application, focusing on supporting the other party's identity and self-esteem. This focus on internal issues is also evident in the region partitioned towards the top right of the

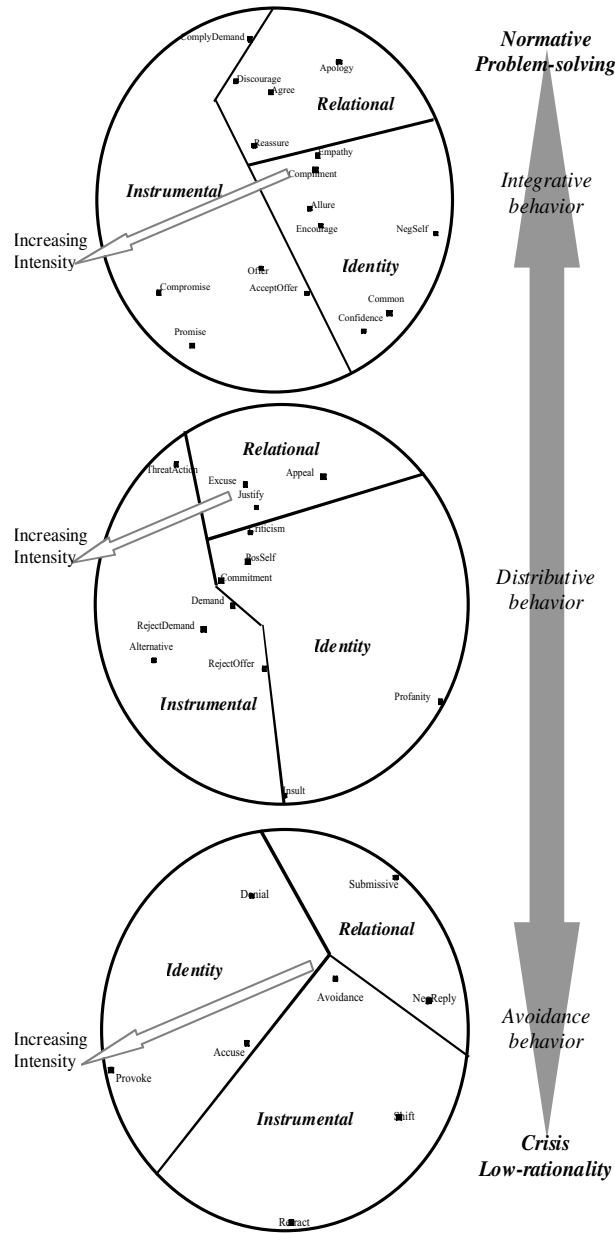


Figure 3. Dimensions 2 and 3 of the SSA-I Configuration Showing Instrumental, Relational and Identity Regions of the Motivational Facet and the Modulating Intensity Facet  
 NOTE: The configuration is divided into the avoidance (bottom), distributive (middle) and integrative (top) levels of interaction.

Integrative space (Integrative–Relational), but the behaviors here relate more to maintaining high levels of affiliation and trust between the parties.

These partitions support the predicted polarizing role of the motivation facet, with qualitatively distinct wedge-shaped regions emerging in different directions from the origin of each level. Of the predictions made in Table 1, only three behaviors, all from the Integrative level of interaction, are found in different regions than hypothesized. These variations are due to behaviors switching between the Identity and Relational regions, suggesting that there is less of a distinction among these motivations in the integrative dialogue of simulated hostage negotiations. The overall structure of the regions is also consistent with the hypothesized cylinder, although the positioning of the two expressive groups of behavior (Identity and Relational) were unexpectedly transposed at the Avoidance level. As noted by Shye (1985), however, one may expect such fluctuations when the variables do not actually cover all the meanings of a particular region but only represent a summary of its content. Indeed, both the discrepancies in behavior placement and the structure of regions serve to highlight a major distinction between instrumental behaviors (the Instrumental region) and expressive behaviors (the Identity and Relational regions), which is consistent with previous research (Wilson & Putnam, 1990).

### *Intensity*

The schematic arrows on Figure 3 indicate the distribution of the Intensity facet, which may be interpreted as reflecting increasing intensity with radiation out towards the edges of the configurations. Support for this facet comes from the clear changes in substantive meaning that occurs with movement towards the outside edges of the plots and the high correspondence between the current plots and the findings of Taylor (2002). For example, intensity modulations are evident in Integrative–Identity interactions, which may spiral from expressions of empathy (Empathy, Encourage) and assurances (Allure) through to messages that reveal personal similarities with the other party (Common) or admit personal weaknesses (NegSelf). Similarly, the bottom region of the plot for Avoidance interactions (Instrumental region) shows increasingly intense efforts to terminate constructive discussion, moving from withdrawal (Avoidance), to subtle shifts away from the current focus (Shift), through to direct revocations against previous progress (Retract). This ordering of behaviors matches that found in Taylor (2002) but for the additional intense behavior inaction, which would presumably have appeared on the edge of the Avoidance–Instrumental region had it occurred in the simulated negotiations.

As a further test of the intensity facet, we measured the distance of the variable points to the origin of the regions, and correlated for each region

**TABLE 3**  
**Correlations Between Predicted Behavioral Intensity Ranks**  
**and Distance Away from the Central Intersection of the**  
**Motivational Facet as a Function of Level of Interaction**

<i>Level of Interaction</i>	<i>Motivational Focus</i>		
	<i>Instrumental</i>	<i>Identity</i>	<i>Relational</i>
Integrative	0.64	0.81	0.13
Distributive	0.40	0.71	0.60
Avoidance	1.00	1.00	-1.00

the rank order of these distances to the ranks predicted in Table 1. This is a very stringent test of the intensity facet that is indifferent to variations in the motivational qualities of behavior. If, however, intensity does play a modulating role in the space, then there should be a positive correspondence between the predicted ranks and movement toward the outer edges of the plots. The relationships between predicted and actual ranks were tested using monotonic (nonmetric) correlation coefficients, calculated for each of the nine regions of the cylinder model and given in Table 3. As can be seen in Table 3, all but one of the coefficients were positive, thereby supporting the predicted relationship between intensity and distance from the origin. The exception is the coefficient for the Avoidance–Relational region, which was calculated on only two variable points and so may be attributed to insufficient data or coding error. The positive direction of these coefficients indicates that, in comparing two behaviors from the same region, the behavior more distant from the origin was typically more intense than the behavior less distant from the origin. This supports the Intensity facet as an explanation for the varying locations of behaviors over the three levels of interaction. The fact that the order of distances in most regions was not identical to that predicted (i.e., most coefficients are not 1.00) reaffirms the notion that intensity only modifies negotiators' motivational goal.

#### COMPARISONS ACROSS SIMULATED AND ACTUAL NEGOTIATIONS

##### Method and Results

##### *Comparison Sample*

Comparison data were transcripts of negotiations from nine actual hostage incidents involving a similar diverse range of scenarios. These transcripts were coded in previous research (Taylor, 2002) using the procedure

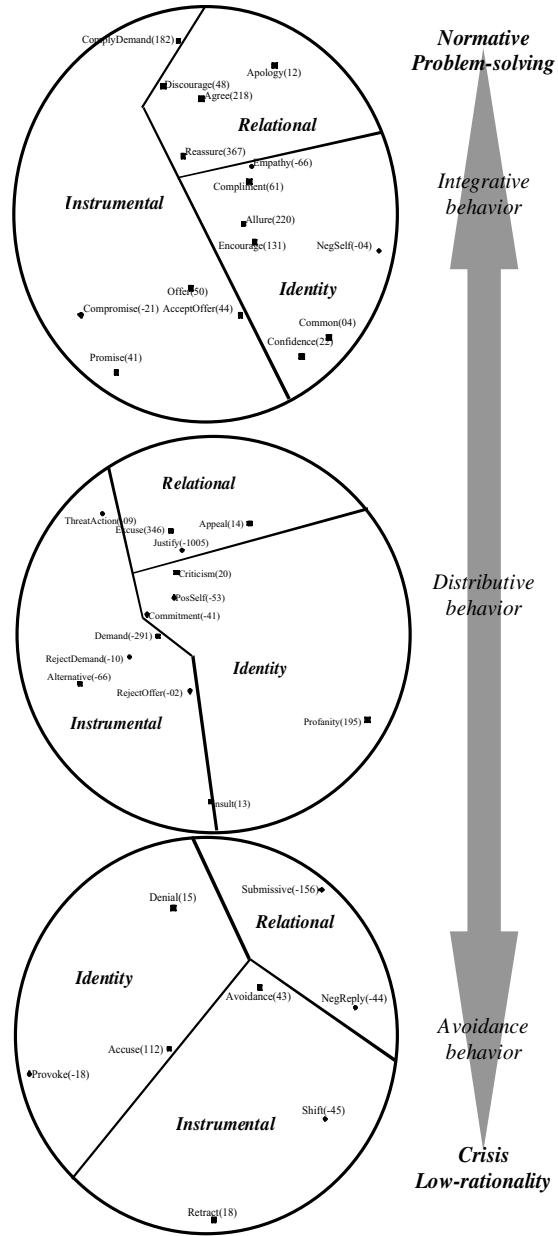
described above. The final data matrix recorded the number of times that the 41 communication behaviors defined in Table 1 occurred across 189 episodes of interaction. For more information about the actual negotiation data and the coding reliabilities, see Taylor (2002, pp. 21–22).

#### *Variation in Frequency of Behavioral Use*

To test whether simulated and actual conflict negotiations involved different patterns of behavior use, the relative occurrence of each behavioral variable was compared across the two contexts. Specifically, for each context, we calculated the sum frequency of occurrence of each behavioral variable and converted these frequencies into percentages of the total dialogue for that context. Then, for each behavioral variable, the percentage of occurrence associated with simulated negotiations was subtracted from the percentage of occurrence associated with actual negotiations to yield a single score. The sign of this score indicates whether the behavior was more related to actual or simulated hostage crises, while the value depicted the magnitude of this discrepancy. For instance, insulting the other party occurred in 0.20% (21 times) of actual negotiations and .06% (3 times) of simulated negotiations, and so was classified as predominantly relating to actual hostage crises. This simple criterion enabled a holistic examination between actual and simulated negotiations, with differences shown as overall trends in behavior use across the SSA-I plot rather than absolute item-to-item differences between the two contexts. This approach therefore minimized the possibility that dissimilarities in occurrence are isolated chance variations or disparities caused by some other factor, rather than meaningful patterns of differences across contexts.

Figure 4 shows the same three faces of the cylinder model as Figure 3, but scores have been added to denote the relative percentage of occurrence of each variable. The symbol marking each point has also been changed to indicate whether the variable is more frequently associated with simulated (◆) or actual (■) negotiations. As shown in the middle and bottom panel of Figure 4, there is only partial evidence for the prediction that actual negotiations will involve more frequent use of avoidance and distributive behaviors in comparison to simulated negotiations (H2). At the avoidance level of interaction (bottom panel), behaviors most associated with actual negotiations reflect dialogue aimed at exonerating self from responsibility through acts that deny any personal involvement (Denial), place blame on the other party (Accuse), and avoid any substantive commitment (Avoid, Retract). Even though simulated negotiations also involve some focus on these motivations (Provoke, Shift), the predominant focus of these interactions is on relinquishing personal role through detached negative responses (NegReply, Submissive).





**Figure 4. Dimensions 2 and 3 of the SSA-I Configuration Showing, for Each Behavior, the Proportion of Occurrence in Actual Negotiations Minus the Proportion of Occurrence in Simulated Negotiations (Decimal Point Omitted)**  
 NOTE: The configuration is divided into the avoidance (bottom), distributive (middle) and integrative (top) levels of interaction.

This relatively higher frequency of occurrence of Avoidance–Relational behaviors in simulated negotiations compared to actual negotiations supports H3.

Examining H4, the middle panel of Figure 4 shows that eight of the distributive behaviors (62%) occur more frequently in simulated negotiations than actual negotiations. In particular, simulated negotiations are associated with behaviors that represent a competitive approach to problem solving (i.e., Distributive–Instrumental region), as instantiated by repeated statements of demands and counterdemands (Demand) and the proposal of unreasonable alternatives (Alternative). This predicted emphasis on instrumental success is further reflected by the predominance of commitments (Commitments) and justifications (Justify) during simulated negotiations, with such actions reaffirming the need for the other party to make concessions. A contrasting emphasis is evident for actual negotiations, which typically combine a continuing refusal to accept responsibility for the situation (Appeal, Excuse) with attacks of the other party's face (Criticism, Insult). These actions are focused on more expressive personal issues, suggesting that actual negotiations involve a more prolonged struggle over identity and relational issues than simulated incidents.

Finally, the top panel of Figure 4 shows that almost all integrative behaviors occur more frequently in actual negotiations than simulated negotiations. Compared with simulated negotiations, actual negotiations typically involve more use of low intensity relationship preservation (Agree, Reassurance) and a greater emphasis on boosting the other party's sense of self-worth (Compliment, Confidence, Encouragement). This emphasis combines with an interest in addressing the crises through reasoned problem-solving (AcceptOffer, Offer) and various forms of conciliation (ComplyDemand, Promise). The relative use of Integrative behaviors in actual negotiations is so extensive that only three behaviors were used more often in simulated negotiations (i.e., Compromise, Empathy, and NegSelf), and these occurred in different regions of the Integrative level.

#### *Consistency in the Function of Behavior*

By defining the function of a behavior by the context of messages in which it occurs, it is possible to use the co-occurrences of a behavior with other behaviors as an indication of meaning and, consequently, as a measure of a behavior's typical function. The consistency of a behavior's function may then be measured by the extent to which the co-occurrences of the behavior with other behaviors stay consistent across two contexts. Specifically, for each behavior, we measured consistency by computing the rank order of the behavior's correlation with all other behaviors in actual negotiations and correlated this ranking to the same rank ordering

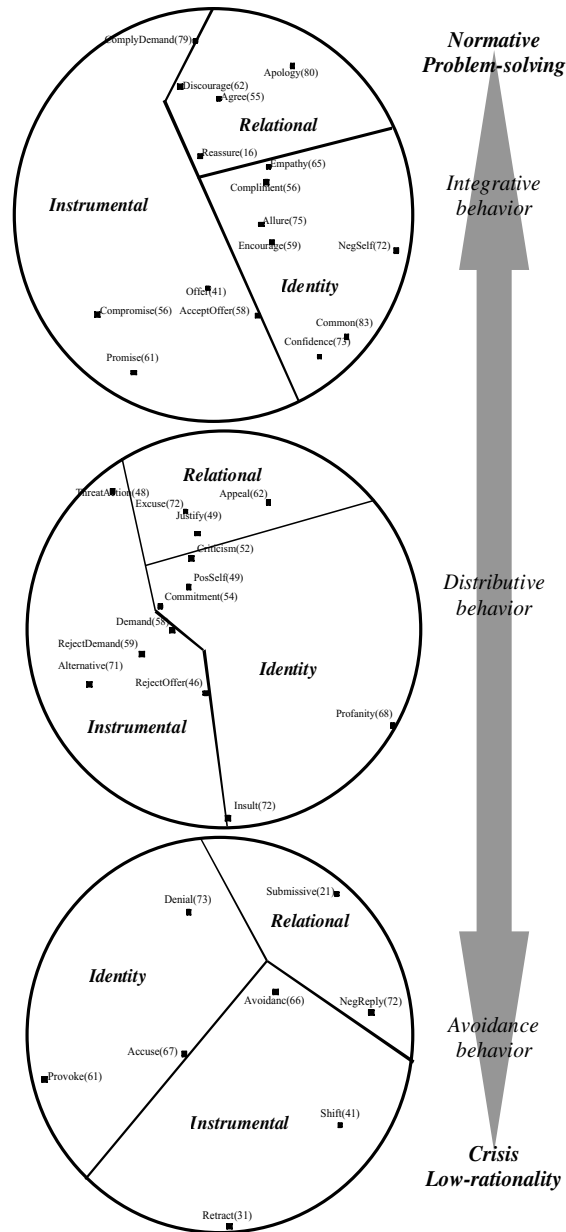
**TABLE 4**  
**Correlations Between Functional Distinction and Distance**  
**Away from the Intersection of the Motivational Facet, as a**  
**Function of Level of Interaction**

<i>Level of Interaction</i>	<i>Motivational Focus</i>		
	<i>Instrumental</i>	<i>Identity</i>	<i>Relational</i>
Integrative	0.50	0.92	0.96
Distributive	0.47	0.75	0.60
Avoidance	-1.00	-1.00	1.00

of correlations in simulated negotiations. Behaviors that retain a similar function across contexts would be expected to have a similar pattern of interrelationships with other variables between the contexts, and so they would achieve a higher correlation than a behavior whose function is contextually driven.

Figure 5 presents the plots shown previously in Figure 3, but labeled with the monotonic correlation of the rank orders across simulated and actual negotiations. An inspection of these correlations reveals substantial variation in the consistency of function ( $M = .72$ ,  $SD = .16$ , range = .19–.93), with some behaviors showing high levels of flexibility (e.g., Reassurance) while others remain virtually invariant across contexts (e.g., Common). More importantly, the patterning of values across the plot supports the predicted increase in functional distinction with movement towards the outer edge of the cylinder faces. For example, the Distributive–Identity region shown in the bottom panel of Figure 5 is characterized by an increase in discreteness from PosSelf (.49) and Criticism (.52), through to Profanity (.68) and Insult (.72). This finding suggests that negotiators may use criticisms not only to challenge the other party’s ability, but also to manipulate relational boundaries or reinforce an instrumental position. In contrast, insulting the other party is more likely to serve the single function of attacking the other party’s identity.

Table 4 gives a systematic analysis of these patterns of correlations, showing for each region the association between each behavior’s correlation value and distance from the central intersection of the regions. The Distributive and Integrative levels of interaction achieve high positive correlations, supporting the predicted relationship between the degree of functional distinction and distance from the origin. More interestingly, this relationship seems to be inverted at the level of Avoidance behavior, with movement toward the edge of the plot associated with increased flexibility in the meaning of behavior. Because the average correlation at this level (.65) is similar to that at the Distributive (.74) and Integrative (.74) levels, this shift in direction cannot be explained readily as an artifact of lower stability at the avoidance level of interaction.



**Figure 5. Dimensions 2 and 3 of the SSA-I Configuration Showing, for Each Behavior, the Degree of Functional Distinction (Decimal Point Omitted)**  
 NOTE: The configuration is divided into the avoidance (bottom), distributive (middle) and integrative (top) levels of interaction.

## Discussion

This research sought to understand further the ways in which negotiators use communication behaviors over time in crisis negotiations. Consistent with previous research (Taylor, 2002), we showed that a cylinder model meaningfully conceptualized the interrelationships among behaviors during police simulations. Negotiators' dialogue could be differentiated as relating to withdrawn, highly emotional, and more rational orientations (Avoidance, Distributive, Integrative) that address three types of issues (Identity, Instrumental, Relational) with various degrees of intensity (Low to High). The imagery associated with the cylinder model is one of mapping out the complete communication process (rather than examining components of the process); therefore, the model offers a uniform theoretical basis for understanding the major psychological similarities and differences in communication behavior. In doing so, the model enabled further analyses to show systematic quantitative and qualitative variations in behavior across simulated and actual negotiation contexts. At a quantitative level, we found simulated negotiations to be relatively more restricted in the number of different occurring behaviors and in the type of motivations pursued. At a qualitative level, we found that behaviors toward the periphery of each level of interaction had a more homogeneous function across contexts compared with behaviors toward the center of each level.

### *A Cylindrical Model of Communication Behavior*

The pattern of interrelationships among behaviors in simulated negotiations provided overwhelming support for the various distinctions proposed by the mapping sentence in Figure 1. The major distinction among behaviors reflects differences in negotiators' overall interpersonal style, with movement along the ordered axis of the cylinder running from extreme withdrawal (Avoidance) to emotional aggression (Distributive) through to constructive problem solving (Integrative). At each level 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. Even though a negotiator may possess many different concerns during a single episode of negotiation, the current results support the proposal that negotiators frame dialogue by focusing on a particular mode of communication at any one time (Drake & Donohue, 1996; Rogan, 1999). The extent they pursue a single frame is denoted by the intensity of behavior, with some behaviors found to adopt a central role in dialogue while others function specifically to convey a strong interest in resolving a particular concern.

A limited number of variables were located in regions other than hypothesized. Even though this may reasonably be explained by chance variation, the systematic nature of the differences deserves some consideration. One important difference is the integration of the avoidance and distributive orientations toward the right side of the plot in Figure 2. This reflects a breakdown in the directness with which negotiators disclose perceptions or feelings (Sillars et al., 1982). Such confusion is likely to be the result, at least in part, of negotiators' reluctance to use sustained withdrawal from interaction within a time-limited training situation. A second consideration is the blending of identity and relational components of negotiation at the integrative level of interaction. The possibility of identifying instances in which certain dynamics of interaction merge with other dynamics is unique to an examination of communication through units of speech, where findings are derived from the inherent structure of the data, rather than indirectly by imposing a statistical framework. In the current case, this amalgamation of behaviors suggests that simulations oriented toward cooperative problem solving will focus broadly on expressive issues that support the other party's face and maintain high affiliation.

One exciting aspect of the cylinder model is the clarity with which diverse explanations of communication motivation are shown to interrelate within a single framework. This evidence not only increases the validity of previous perspectives, but it also allows researchers to understand how these factors interrelate to structure the negotiation process. For example, Selye's (1978) early distinction between "flight" and "fight" responses to threat correspond with the crisis-oriented avoidance and distributive approaches to dialogue. Similarly, regions of the current SSA-I configuration support aspects of the F.I.R.E. model of crisis negotiation (Rogan, 1999; relabeled recently as S.A.F.E., Rogan & Hammer, 2002), although it remains unclear how the model's emotion factor relates to the facets of the cylinder model. The most likely relationship would be a strong positive association between degree of emotion and degree of intensity. One might usefully test the existence of this relationship by correlating the intensity of behaviors as observed in the cylinder model to the emotionality of behaviors as reported by judges rating each of the behaviors. Evidence of a significant positive correlation would support this proposal and suggest that emotion plays a pivotal role in negotiators' willingness to use functionally adaptive and neutral behaviors, which is consistent with the frequently asserted need to reduce conflict spiraling to ensure a negotiation progresses (Holmes & Fletcher-Bergland, 1995).

#### *Variation in Frequency of Behavioral Use*

Consistent with the predicted contextual variations, the findings indicated that simulated negotiations involved a more specialized use

of behaviors than actual negotiations. Much of this specialization may be convincingly explained as adherence to negotiator training and prescribed crisis intervention models. For example, during simulated negotiations, dialogue stemming from an avoidance orientation focused almost exclusively on relational issues, which matched the proposal that early stages of interaction should focus on generating the trust and affiliation needed to engage in problem solving (Donohue et al., 1991). Similarly, distributive periods of simulated negotiations were characterized by dialogue focused almost entirely on instrumental issues, which was consistent with a prescribed focus on problem solving during later stages when time constraints make it less likely that negotiators will evolve an integrative orientation. These examples translate at a more general level to much less variability in the types of behaviors used in simulated negotiations compared to actual negotiations. For example, justifications and demands are used 1.5 times as much in simulated negotiations compared to actual negotiations, while 10% more of the dialogue in simulated than actual negotiations involves only five main behaviors (four of these behaviors—Demand, Encourage, Justify, and Reassure—were the same across contexts). These observations might lead research to question whether the circumstances of actual conflicts cause negotiators to draw on wider lexicons than they do in simulations. Perhaps the higher stakes attached to real world incidents leaves negotiators more willing to try different approaches to the same problem.

#### *Consistency in the Function of Behavior*

The final implication to emerge from the current results concerns the varying flexibility of function for different behaviors. As predicted, results indicated that the number of different functions a behavior may play in dialogue decreased with increasing behavioral intensity, such that high intensity behaviors were found to be functionally discrete. These findings reinforce the interpretation of the cylinder structure, because behaviors situated towards the center of each level are both conceptually and empirically more related to the other behavioral regions, whereas those towards the periphery are isolated into a single region. Of equal interest was the exception to this association, a negative relationship between intensity and the functional discreteness of avoidance behaviors. This finding may tentatively be explained by arguing that low intensity avoidance behaviors perform the single function of withdrawing from any form of interaction, while high intensity behaviors, because they focus on a particular aspect of interaction, are more flexible in the sense that they seek to avoid only one particular issue or aspect of the interaction.

In a more general sense, the evident variations in function are consistent with the increasingly influential conceptualization of personality as

behavioral dispositions specific to particular situations (Shoda & Mischel, 2000). Those behaviors with high functional distinctiveness may be considered contextually independent and would be expected to show high levels of consistency over different situations. In contrast, those situated toward the center of the cylinder's levels seem more likely to serve different purposes across situations, and so would not emerge as a consistent measure of any sort of personality trait or dimension. Because the relative importance of situation and traits on behavior may be manipulated by experimental design (Buss, Gomes, Higgins, & Lauterbach, 1987), this form of relationship between behavioral disposition and negotiation behavior is open to empirical test.

#### *Future Research*

The mapping sentence given in Figure 1 provides an ideal basis for developing the systematic study of communication in crisis negotiation. Three extensions of the mapping sentence given in Figure 1 highlight important areas for future development and cumulative research. It would certainly be useful to explore the stability of the cylinder structure across variations in the other background facet of speaker "S". Explorations of the differences in dialogue among speakers will identify if there are systematic differences in the way police negotiators and hostage takers orient to the process of crisis communication. Studies explicating this second speaker facet will also add new fuel to studies attempting to link interpersonal communication with measures of personality or psychiatric diagnosis (Mintu-Wimsatt & Lozada, 1999), or with differences over cultures (Tinsley, 2001). Studies that combine an analysis of different speakers with variation in context will yield particularly important results, testing the extent to which the cross-situational account of behavioral consistency provides a convincing explanation of negotiators' communication behavior.

A second important distinction can be inserted into the mapping sentence directly after the context facet, by conceptualizing the phrase "communication behavior" as one of a number of different possible units of observation. For example, further research may find it useful to attend to negotiators' intuitive judgments regarding the other party's motivation and the implicit theories of behavior and motivation that guide their judgments. Identifying differences between the dynamics of crisis negotiation and negotiators' implicit judgments may not only highlight potential reasons for the various outcomes generated by negotiation; they may also shed light on the characteristics of cognitive frames and heuristics within the negotiation process. Indeed, the methodology used to answer questions of consistency in functioning may also provide a way of testing the hypothesis that similarity of structure between two cognitive fields



increases the efficacy of communication between them (Runkel, 1956, 1963). Because the effects of a communication depend on the manner in which it meshes with an existing cognitive map, it is reasonable to entertain the notion that these effects will take place more readily when the cognitive maps of the negotiators are similar in structure. The degree of similarity in the structure of different negotiators' behavior may therefore provide a way to operationalize at a global level the notion of cognitive similarity.

A final development of the mapping sentence in Figure 1 is to refine the differentiation of behavior by extending current facets or adding new facets. Developing a fruitful facet design for content is an evolutionary process, and there is always room for corroboration, correction, and extension of the cylinder model by systematically testing possibilities. Some of the facets would be expected to be appropriate to all types of communication studies, some to a large class of negotiation, and some specific to the study of crisis negotiation. Should researchers find that all existing tests have in fact held these additional facets constant, then an extended conceptualization to express the full differences according to these facets will probably require a dimensionality higher than three. The cylinder would then be but a special case of a more complex structure of communication behavior.

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