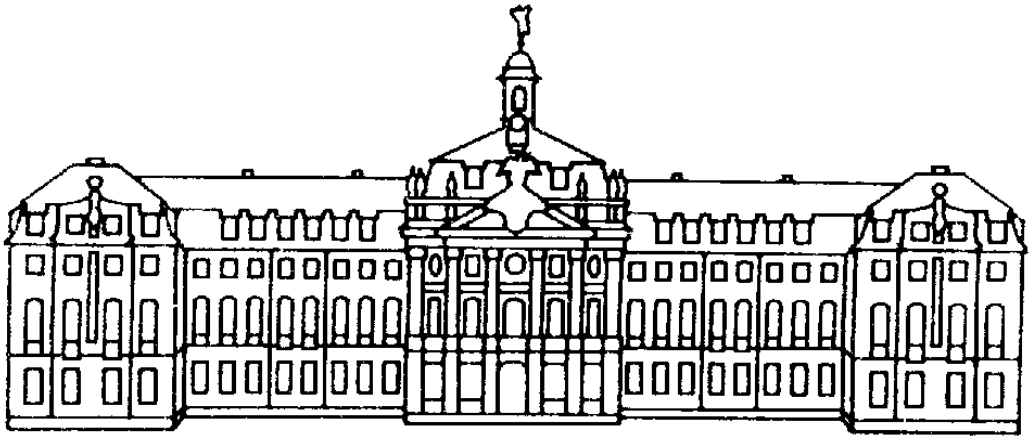

Measuring Affect in Crisis Negotiation:
An Exploratory Case Study of Hostage-Taking

Wolfgang Bilsky, Julia Müller, Anke Voss and Everhard von Groote

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Abstract

This paper starts from the assumption that the level of emotionality in hostage-negotiation differs between phases of escalation and de-escalation. Three hypotheses were derived, stating that (1) the overall-level of emotionality should be higher for a hostage-taker as compared to a negotiator; (2) for both the level of emotionality is supposed to be higher in escalating phases than in de-escalating phases; (3) the change from de-escalating to escalating phases should be more pronounced for an hostage-taker than for a negotiator. Seventeen phone calls from an authentic hostage taking, classified as escalating (10) and de-escalating (7), were analyzed to test these hypotheses. The Gottschalk-Gleser hostility scale and Rogan and Hammer's message affect were used as indicators of emotionality. Significant main effects and interactions were identified in this case study by both instruments, supporting our hypotheses. Results are discussed against the background of the present research conditions.

Crisis Negotiation belongs to the most challenging and demanding tasks within police operations. However, until today, professional handling of hostage-taking has been guided primarily by the experienced practitioners' passing on of skills and know-how to their younger colleagues; this applies likewise to in-service training and to daily duty of the police. The impact of scientific findings on daily routine, in contrast, has only been of secondary importance (Gatzke, 1996; Greenstone, 1995a,b; Groote, 2002; McMains & Mullins, 1996).

Yet, research of the past two to three decades produced quite a few findings which seem to be of considerable importance as regards the process of crisis negotiation (e.g., Donohue, Kaufmann, Smith & Ramesh, 1989; Donohue, Ramesh, Kaufmann & Smith, 1991; Rogan & Hammer, 1994; Rogan, 1997; Hammer, 2001; Rogan & Hammer, 2002). All of them are closely linked to communication research. This is not by chance, because the major part of interaction between negotiator and hostage-taker is based on oral communication. Verbal statements of the hostage-taker, usually communicated by phone, are the central basis of information that is available in that particular type of incidents.

While the explicit, manifest, and instrumental content of communication, mostly related to the perpetrators demands and their fulfillment, has always been considered a central component of negotiation, non-instrumental aspects gained considerably in importance during the past years: The role of communication in establishing a stable relationship between perpetrator and negotiator, for instance, or the dangers resulting from attacking or undermining the self-esteem of a hostage-taker received increasing attention in scientific debate. Diagnosing the emotions of a hostage-taker correctly as well as emotional changes throughout the negotiation process proved to be of vital importance in anticipating the hostage-taker's further reactions and possible outcomes of the crisis situation. Consequently,

instrumental and non-instrumental aspects of communication are considered equally important for judging and controlling the dynamics of the negotiation process, and for risk assessment today.

Grounded in a previous study of Rogan (1990) and considering findings from related research (Donohue, 1991; Donohue, Ramesh & Borchgrevink, 1991; Donohue & Roberto, 1993), Rogan and Hammer recently proposed a comprehensive model which integrates different aspects supposed to be relevant in crisis negotiation (Hammer & Rogan, 1997; Rogan, 1997; Rogan & Hammer, 1994, 1995; Hammer, 2001). The central components of this model stress the importance of four conflict issues in crisis negotiation: *substantive interests*, *attunement*, *face*, and *emotion* (see Rogan & Hammer, 2002, for an overview). Using the first letters of these components as an acronym, this model has been introduced as the *S.A.F.E.*-model of crisis negotiation in literature.

Emotion conflict issues relate to the arousal and to the stress experienced by the negotiating parties. This arousal is supposed to manifest itself in the content of verbal statements. Falling back on the work of Bowers (1963) and Donohue (1991), Rogan and Hammer (1995) assume two components to be central for its measurement - *language intensity* and *valence*.

Language intensity reflects the strength of a speaker's affect with respect to a topic or issue. In their own work, Rogan and Hammer distinguished several correlates of language intensity; these were assessed by a five-category coding scheme comprising obscure references, qualifiers, general metaphors, sex and profanity references, and death references (1995, p. 560; Rogan, 1995). Using a weighting procedure proposed by Donohue (1991) and founded on Bower's (1964) studies, they computed an overall intensity score for every coding unit. This score depends on the presence of one or more of the intensity correlates mentioned above and ranges from 0.0 (non-intensive) to 1.0 (very intensive; Rogan & Hammer, 1995).

While this language intensity measure captures attitudinal deviation from neutrality, it does not assess the positive and negative quality of message content. This is achieved by introducing message valence as a second component measure. It is measured on a 5-point scale, assigning valence values from 'extremely negative' to 'extremely positive' to every coding unit. Both components, language intensity and valence, are then integrated in one general indicator, called *message affect* (Rogan & Hammer, 1995).

The authors investigated the utility of this indicator in an exploratory study, analyzing patterns of perpetrator and negotiator message affect behavior in three actual crisis negotiation incidents. According to them, overall findings offer reliable support for their

methodological approach (Rogan & Hammer, 1995). Despite these and related findings, however, the researchers point out that much of the research exploring affect from verbal behavior is still in its infancy. Rogan (1997), for instance, states that "clear links between specific verbal content and discrete emotions have not yet been delineated; most assessments differentiate emotions at only the positive-negative level" (p. 35). As to our knowledge, this critique applies to this special type of research as well as to similar research domains. It seems worth checking, however, whether and to what extent findings from other disciplines or areas of research prove useful in filling this gap.

Thus, Gottschalk and Gleser (Gottschalk, 1995) invested considerable time and effort into research on this topic. Their collaboration in developing a method for measuring psychological *states* through the content analysis of verbal behavior at a 'molecular' level (i.e., by focusing on themes communicated in the form of a grammatical clause) started in the beginning of the sixties. Their common interest consisted in assessing the relative intensity of affect experienced during short periods of time by referring to directly observable and accessible verbal behavior, as recorded by transcripts[1]. Gottschalk and Gleser's approach assumes a systematic relation between affect on the one hand and the content of speech production on the other. With respect to theory, it can best be characterized as eclectic in that the authors "borrowed heavily from behavioral and conditioning theory, psychoanalytic clinical hypotheses, and linguistic theory" (Gottschalk, 1995, p. 10).

Much of Gottschalk and Gleser's early work was summarized in their book on "the measurement of psychological states through the content analysis of verbal behavior" (Gottschalk & Gleser, 1969). Since then, their methodological approach has been used within a broad range of applications and research settings (Battacchi, Suslow & Renna, 1996; Gottschalk, 1995; Tschuschke, 1996). Content analysis scales developed within the frame of their instrument cover *anxiety*, *hostility*, *(schizophrenic) social alienation and personal disorganization*, *cognitive and intellectual impairment*, *depression*, and *hope*. Two of these scales, the *anxiety* and the *hostility scale*, have been adapted to the German language area as early as 1973 (Schöfer, 1980); they have been used in a considerable number of investigations in the years to follow (Koch & Schöfer, 1986). As both of them are supposed to measure suddenly occurring and changing states of feeling, i.e., unstable short-term affects like those likely to show up during hostage negotiations, we suppose that the Gottschalk and Gleser approach may be successfully combined with Rogan and Hammer's general model of crisis

[1] According to these authors' terminology, affect can be distinguished from the more complex class of emotions.

negotiation (Rogan & Hammer, 2002). Whether this assumption proves tenable, is to be answered by the present article.

The Present Study

Former research has shown that, apart from the relatively low number of scientifically sound approaches to hostage negotiation, at least two other factors complicate studies in this domain: a very limited number of authentic, easily accessible cases, and a considerable amount of differences between these cases as regards case characteristics (Donohue, Ramesh & Borchgrevink, 1991; Taylor, 2002). Given these handicaps, it may be both economic and reasonable to (partly) shift the focus of interest from *between-variance* to *within-variance* of cases when investigating a theoretical approach with respect to its usefulness in describing and explaining crisis negotiation. This is what we have done in the present study.

Our research starts out from two basic presumptions: First, we suppose that negotiations in hostage-taking can be split into qualitatively different *phases* as known from conflict research (Rubin, Pruitt & Kim, 1994). More specifically, we suppose that rapport building, escalation, stale-mate, de-escalation, and problem solving are typical constituents of every crisis negotiation. Second, we assume that these phases partly differ with respect to the *level of emotionality* shown by the protagonists. Evidence for this assumption comes from both, literature and experts' experience. According to these sources, one of the central tasks of the negotiator consists in transferring negotiation from *crisis*, largely characterized by irrational and emotionally charged disputes, into a *normative* status, in which rational, structured and goal-oriented discussions facilitate problem-solving (Donohue, Ramesh & Borchgrevink, 1991). Provided these assumptions apply, diagnostic instruments conceived for assessing differences in emotionality should reliably differentiate between phases supposed to differ with respect to the amount of emotionality exhibited by the individuals involved.

As regards differences in emotionality, two of the aforementioned phases seem to be of particular interest in the context of this study - escalation and de-escalation. *Escalating* phases are characterized by the predominance of tactics like threats or irrevocable commitments (Rubin, Pruitt & Kim, 1994). Thus, hostage-takers may threaten to hurt or even kill their hostages in case that the authorities are not willing to meet their demands. Such threats are often linked to ultimatums. Although an ultimatum is not an irrevocable commitment, non-compliance with an ultimatum by the authorities causes considerable problems to the hostage-taker, both because of loss of power and loss of face. Anticipating these consequences typically causes increased aggression, stress and negative affect on the part of the hostage-taker, which, in turn, are likely to result in further escalation of the situation. *De-escalating*

phases, on the other hand, are characterized by tactics that are conducive to problem solving. Striving for compromises or integrative solutions is usually accompanied by a (relatively) lower level of stress and emotional arousal; as a consequence, threats to the health or life of hostages are considerably lower in de-escalating phases of hostage-negotiations.

With this association between type of conflict phase and level of emotionality in mind, three testable hypotheses seem reasonable. First, while crisis negotiations are stressful events for both hostage-taker and negotiator, the risks and the negative consequences likely to occur are supposed to be considerably higher for the hostage-taker. Consequently, the overall-level of affect and arousal should be higher for the hostage-taker as compared to the negotiator; this is supposed to be true independently of the respective phase of the negotiation process. Second, for both protagonists of a crisis negotiation, the level of affect is supposed to be higher in escalating phases than in deescalating phases. This assumption seems reasonable because the risk of failure and its negative consequences in crisis management are more salient for both parties in escalating as compared to de-escalating phases of the conflict. Third, the change in affect from de-escalating to escalating phases, as shown in the verbal behavior, should be more pronounced for hostage-takers than for negotiators. This is supposed to apply because it is part of the negotiator's job to control emotionality throughout the negotiation process in order to avoid any escalation that could jeopardize a peaceful and nonviolent end of the incident. Rephrasing these hypotheses more formally in terms of a 2 (hostage-taker vs. negotiator) x 2 (de-escalation vs. escalation) factorial design, we expect two main-effects and one interaction to show up in our study.

Method

Database

Data analyzed in our study originate from an incident of hostage-taking which occurred in a German prison in the late nineties and lasted for about 14 hours. During this incident, two hostage-takers had several hostages in their power, trying to blackmail authorities into guaranteeing ransom, a getaway vehicle, and free passage. They were in possession of a pistol, a knife, and patrol, and threatened to burn their hostages in case authorities were not willing to meet their claims. All in all, four hours of negotiation were tape-recorded during this incident, comprising a total of 53 phone calls. By far most of these calls were handled by only one of the hostage-takers, and by one negotiator.

All recordings were transcribed in a first step in such a way as to reflect the course of the negotiation by a sequence of talking turns, each of them assigned to the respective

speaker. Furthermore, simultaneous remarks and interjections were marked as such. Transcripts focused on manifest content, using simple forms of punctuation to preserve the structure of the spoken language. Decisions in how to transcribe the recordings were deliberately made in close correspondence to the procedures described by Rogan and Hammer (1995) and by Gottschalk-Gleser (Schöfer, 1980). However, as this latter approach is usually applied to standard text probes, rules had to be adapted to the analysis of non-standard texts with changing speakers; adaptation was accomplished in a way similar to related research (cf. Koch & Schöfer, 1986).

In a second step, transcripts were scrutinized with respect to escalation and de-escalation. *Units of analysis* were the 53 phone calls made throughout the negotiation process. Criteria applied for distinguishing between escalation and de-escalation were recruited from two different sources: literature on social conflict (e.g. Rubin, Pruitt & Kim, 1994), and interviews with negotiators from the police. While criteria from both sources clearly converged, some additional, primarily pragmatic aspects stressed by the practitioners were considered in categorizing phone calls, too. Thus, negotiators pointed out that escalations are most likely to occur directly before an ultimatum ends, and immediately after an ultimatum passed by without the demands of the hostage-taker being met. Furthermore, the probability of an escalations rises whenever there is a change from a static to a dynamic situation, e.g., when hostage-takers move, when ransom money is transferred, etc. Finally, de-escalation is likely to prevail directly after the demands of hostage-takers have been met. Three team-members applied the aforementioned criteria to the classification of the phone calls into three categories: escalation, de-escalation, and other. Classifications were made consensual; contentious calls remained unclassified (other). All in all, ten phone calls were assigned to escalation, and seven to de-escalation. Durations of calls varied considerably, with a minimum of one minute and a maximum of thirteen minutes.

In two final steps, the 17 phone calls were adjusted to the subsequent content analyses by deleting all passages that were not to be coded, and by splitting the remaining text corpus into *coding units*. This was accomplished separately for the two content analyses, closely following the advice given by Schöfer (1980) for applying the *hostility scale*, and by Rogan and Hammer (1995) for measuring the *message affect*. As criteria for preparing transcripts differ, depending on whether hostility or the message affect are to be coded, coding units submitted to analysis differ with respect to size and number (see below). Furthermore, one phone call proved to be too short for assessing hostility according to Gottschalk and Gleser's

criteria (Schöfer, 1980); so the final number of calls assigned to escalation and de-escalation for this type of analysis narrowed down to nine and six calls, respectively.

Instruments

Two content-analytic instruments were used in this study: the Gottschalk-Gleser *hostility scale* as adapted to the German language (Schöfer, 1980), and Rogan and Hammer's (1995) measure of *message affect*; this latter measure was especially adapted for us in the present study.

Hostility Scale. The Gottschalk-Gleser hostility scale consists of four subscales, each of them measuring a special form of hostility (aggressiveness): (1) the hostility outward - overt thematic categories and (2) the hostility outward - covert thematic categories, both assessing destructive injurious, critical thoughts and actions directed to others; (3) the hostility directed inward scale, measuring self-destructive and self-critical thoughts and actions and (4) the ambivalent hostility scale, covering destructive, injurious, critical thoughts and actions of others to self (Gottschalk, 1995).

Separate content analyses were accomplished for hostage-takers and for negotiators, closely following the guidelines of Gottschalk and Gleser (1969) and Schöfer (1980). In a first step, hostility codes were assigned to all grammatical clauses identified as coding units in the transcripts - whether main or subordinate clause, dependent or independent. Next, codes were aggregated to form a raw-score *R* for every unit of analysis (i.e. for every phone call) and for each of the four subscales. In a third step, hostility sub-scores *S* were calculated from these raw-scores, using formula (1) . Finally, global hostility scores *GS*, based on the four subscales, were computed for every unit of analysis according to formula (2).

$$(1) \qquad S = \sqrt{\frac{100}{words} \times (R + 0{,}5)}$$

$$(2) \qquad GS = \sqrt{\left(S_1^{\,2} + S_2^{\,2} + S_3^{\,2} + S_4^{\,2}\right) - \frac{100}{words}(0{,}5 \times 4 - 0{,}5)}$$

Coding was realized by two collaborators, both familiar with the application of the Gottschalk-Gleser content analysis to standard samples of speech. However, transcripts of hostage negotiations deviate from this standard type of verbal samples in several respects. Consequently, the coding-manuals usually employed for controlling and enhancing the performance of coders were of little use in the present context. In order to guarantee an utmost

degree of consistency in applying the hostility scale to hostage negotiation, both coders started their work, therefore, by analyzing a considerable amount of verbal data from the present case which was not intended for further analysis. Coding of this part of the transcript served as the basis for elaborating and fixing coding conventions and norms for the actual analysis; other studies of non-standard text probes served as a frame of reference for establishing these conventions (cf. Schöfer & Koch, 1986). Having concluded this task, both collaborators coded independently of one another the complete set of phone calls classified as escalation and de-escalation. As a final step, individual results were compared, and coding differences were discussed and resolved consensually.

Message Affect. Two indicators of the message affect were used in this study. The first one corresponds to the measure used by Rogan and Hammer (1995) except that intensity correlates received equal weights[2]. Thus, language intensity was computed in a first step by determining the frequency of each intensity correlate (e.g., general metaphors, death references) for each coding unit, i.e., for each uninterrupted talking turn (speech act). The unweighted frequency for each of the five categories was summed and divided by the total number of words within this unit. This intensity indicator was then multiplied by the message valence of the respective unit, resulting in a composite message affect score, ranging from - 3.0 to + 3.0 (cf. Rogan & Hammer, 1995).

One possible disadvantage of this first indicator may result from the fact that it is not the length but the number of metaphors which is related to the total number of words within a talking turn. Consequently, the more words a metaphor contains, the lower the resulting indicator of language intensity. To correct for this shortcoming, a second indicator of the message affect was calculated. This 'expanded message effect' is based on language intensity as measured by the ratio of words that constitute the metaphor(s) within a coding unit to the total number of words within that unit.

As with hostility, content analyses based on the message affect and the expanded message affect, respectively, were accomplished separately for hostage-takers and for negotiators. Accordingly, mean affect scores were computed for every unit of analysis, i.e. for every phone call.

Problems encountered when coding the transcripts for language intensity and message valence were similar to those encountered in hostility assessment. Precautions taken for guaranteeing (inter-) coder consistency parallel those taken when applying the hostility scale, therefore. As there did not exist any coding-manuals for assessing the message affect in

German samples of speech, coding conventions were elaborated and fixed by referring to the writings of Rogan and Hammer, and by analyzing those parts of the transcript not intended for further analysis. These conventions served as the basis for the subsequent coding of the seventeen phone calls classified as escalation and de-escalation, respectively. Thus, adapting, testing and applying coding rules for measuring language intensity and message valence was accomplished in an iterative way, guided by one researcher in close cooperation with another research assistant. These researchers were not involved in scoring transcripts for hostility.

Data Analysis

According to our assumptions about differences in emotionality between hostage takers and negotiators in different phases of the negotiation process, global hostility and message affect scores were analyzed within a 2 (hostage-taker vs. negotiator) x 2 (escalation vs. de-escalation) ANOVA design. The same type of analysis was applied to three of the four hostility subscales, i.e., to *hostility outward-overt* (ho-o), *hostility outward-covert* (ho-c), and to *ambivalent hostilit*y (ah). As regards *hostility directed inward* (hi), differences were not tested for significance, because the number of valid observations for the negotiator was too low to justify an overall analysis ($N < 10$).

Results

Table 1 summarizes the information about both, the design and the content analysis data of the present study. Differences in the number of words per call used for determining hostility and message affect scores are due to (slightly) different criteria of how to specify the text corpus to be coded. Phone calls vary considerably in size, ranging from 99 to 1989 words (calls 23 and 49) for hostility, and from 73 to 2033 words (calls 20 and 49) for message affect, respectively.

[2] Further research is needed to validate the impact of the language intensity correlates determined by Bowers (1964); we refrained from using any weights, therefore.

Table 1: Hostility and Message Affect-Scores of Hostage Takers and Negotiators

		design		hostility							message affect		
No.	phone call	person	phase	words	ho-o	ho-c	hi	ah	global	units of analysis	words	message affect 1	message affect 2
1	16	n	e	347	1.82	.66	.38	.38	1.90	46	377	.32	.32
2	17	n	e	450	1.16	.33	.33	.33	1.16	55	508	.34	.36
3	20	n	e							9	73	.34	.34
4	21	n	e	115	2.72	.66	.66	.66	2.72	15	135	.51	.39
5	22	n	e	282	2.11	1.26	.42	.42	2.42	32	311	.37	.35
6	23	n	e	99	1.88	.71	.71	.71	1.88	19	119	.07	.15
7	24	n	e	340	1.99	1.38	.38	1.01	2.57	43	390	.03	.10
8	29	n	e	588	1.20	.29	.29	.97	1.51	63	653	.49	.54
9	37	n	e	892	1.72	.85	.24	.63	1.99	96	1076	.29	.29
10	53	n	e	390	1.48	.80	.36	.95	1.86	32	401	.48	.61
11	16	h	e	642	3.38	1.28	.48	1.22	3.81	48	689	.02	-.47
12	17	h	e	1000	2.69	.87	.22	.67	2.89	50	1063	-.03	-.24
13	20	h	e							9	72	-.49	-1.08
14	21	h	e	125	4.43	.63	.63	.63	4.43	12	127	-.64	-1.32
15	22	h	e	388	3.35	1.56	.36	1.93	4.14	32	387	-.46	-1.28
16	23	h	e	419	4.07	1.58	.77	1.66	4.70	20	423	-.54	-1.28
17	24	h	e	644	3.49	.74	.62	1.65	3.95	37	624	-.17	-1.01
18	29	h	e	1419	3.00	.68	1.67	1.98	4.01	57	1427	-.18	-.52
19	37	h	e	1698	3.07	1.02	.66	1.54	3.63	80	1722	-.04	-.26
20	53	h	e	392	2.65	.62	.36	1.29	2.97	27	430	.59	.42
21	25	n	d	552	1.62	1.00	.30	.80	2.02	57	566	.33	.42
22	26	n	d	451	1.66	1.85	.58	.58	2.55	52	492	.33	.40
23	30	n	d	225	.47	.47	.47	.47	.47	32	243	.58	.82
24	41	n	d	563	1.76	.89	.30	1.23	2.29	65	597	.50	.56
25	47	n	d	347	1.37	.38	.38	.38	1.37	39	367	.50	.52
26	48	n	d	298	1.23	1.48	.41	.41	1.88	42	340	.84	.94
27	49	n	d	529	.92	.31	.31	.69	1.11	80	645	.72	.76
28	25	h	d	1054	2.01	.90	.22	1.13	2.46	58	1077	.30	.25
29	26	h	d	1207	2.31	.61	1.10	.54	2.66	53	1259	.20	.16
30	30	h	d	337	.39	.86	.39	1.02	1.28	32	400	.51	.52
31	41	h	d	1300	1.61	.20	.44	1.09	1.63	64	1285	.61	.56
32	47	h	d	1461	1.24	.81	.92	1.32	2.16	44	1502	.26	.29
33	48	h	d	1045	1.14	.85	1.22	.22	1.85	42	1053	.39	.41
34	49	h	d	1989	1.13	.61	.16	.82	1.51	72	2033	.27	.24

Hostility

A two-factorial ANOVA with *global hostility GS* as a dependent variable revealed significant main effects for the factors person, $F(1, 28) = 25.19$, $p < .001$, and conflict phase, $F(1, 28) = 28.42$, $p < .001$, and a significant person x phase interaction, $F(1, 28) = 14.06$, $p < .002$. Levene's test for homogeneity of variances was not statistically significant, $F(3,28) = .61$, $p = .62$. A graphical summary of these results is given in Figure 1.

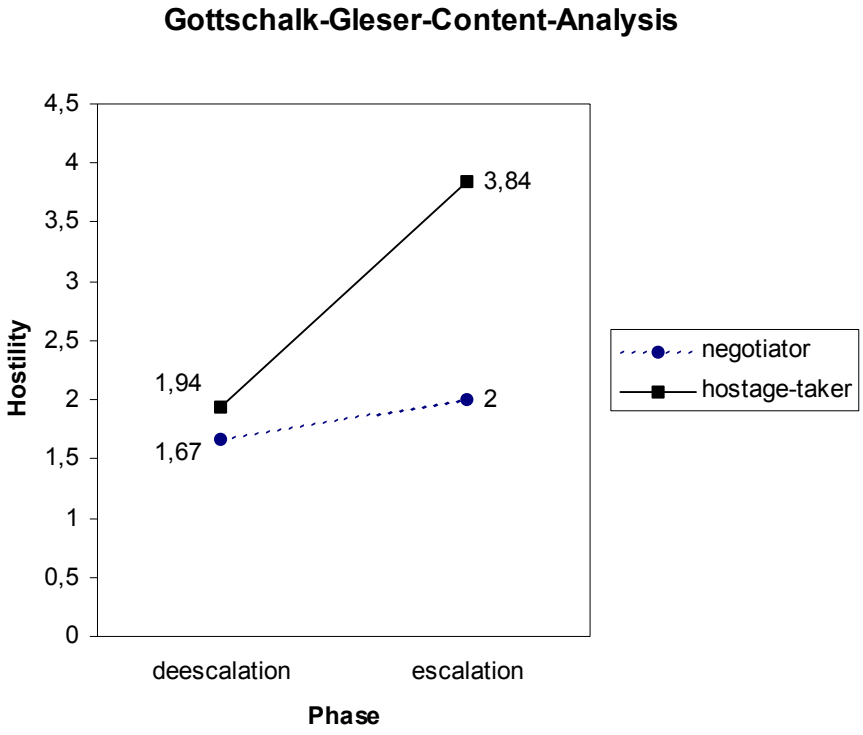

Figure 1: Mean Global Hostility Scores for Escalation and Deescalation

Separate analyses for *hostility outward-overt* and for *ambivalent hostility* yielded similar though partly less pronounced effects. Thus, the ANOVA of outward-overt scores revealed significant main effects for person, $F(1, 28) = 18.40$, $p < .001$, and for phase, $F(1, 28) = 39.03$, $p < .001$, as well as a significant person x phase interaction, $F(1, 28) = 13.72$, $p < .002$. The respective analysis of ambivalent hostility resulted in $F(1, 28) = 12.77$, $p < .002$, for person, $F(1, 28) = 4.16$, $p \leq .05$, for phase, and a marginal person x phase interaction, $F(1, 28) = 3.51$, $p < .10$. For *hostility outward-covert*, none of the effects proved significant.

Message Affect

The *message affect* score as proposed by Rogan and Hammer (1995) and the *expanded message affect* were analyzed in the same way as the hostility indicators. Both analyses yielded similar results, with the effects of the expanded message affect being a little bit more pronounced. Thus, the two-factorial ANOVA of message affect revealed a significant main effect for both, the person, $F(1, 30) = 16.92$, $p < .001$, and the conflict phase, $F(1, 30) = 20.90$, $p < .001$; the person x phase interaction, however, proved only marginally significant, $F(1, 30) = 3.97$, $p < .06$. Levene's test for homogeneity of variances was not statistically significant, $F(3,30) = 2.29$, $p = .10$. The respective statistics for the expanded message affect were $F(1, 30) = 30.03$, $p < .002$, for person, $F(1, 30) = 30.22$, $p < .000$, for phase, and $F(1, 30) = 9.88$, $p < .005$, for the person x phase interaction. In this case, however, Levene's test for homogeneity of variances was statistically significant, $F(3,30) = 11.42$, $p < .001$. The results of both analyses are summarized graphically in Figures 2 and 3.

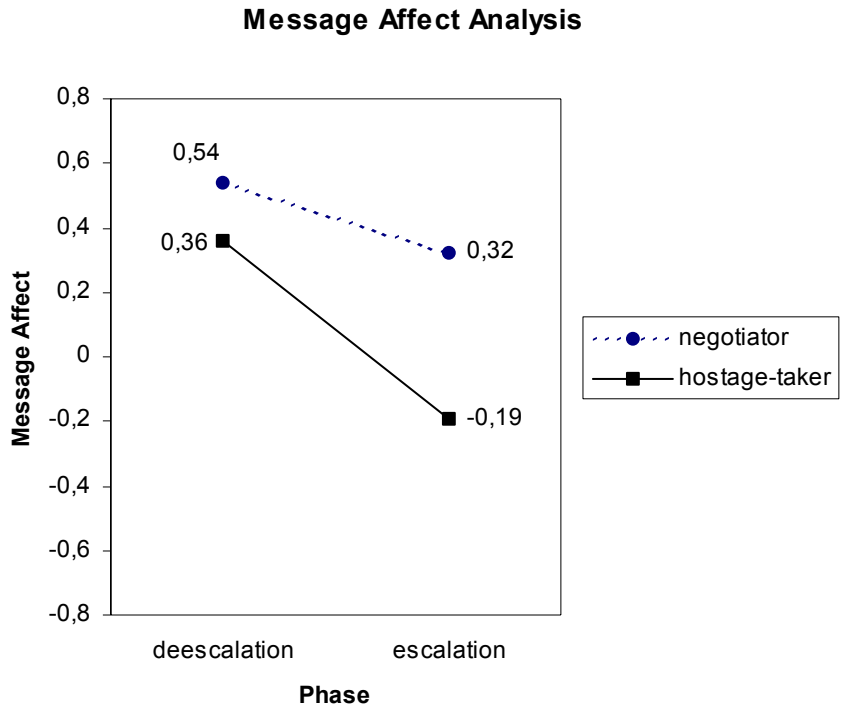

Figure 2: Mean Message Affect Scores for Escalation and Deescalation

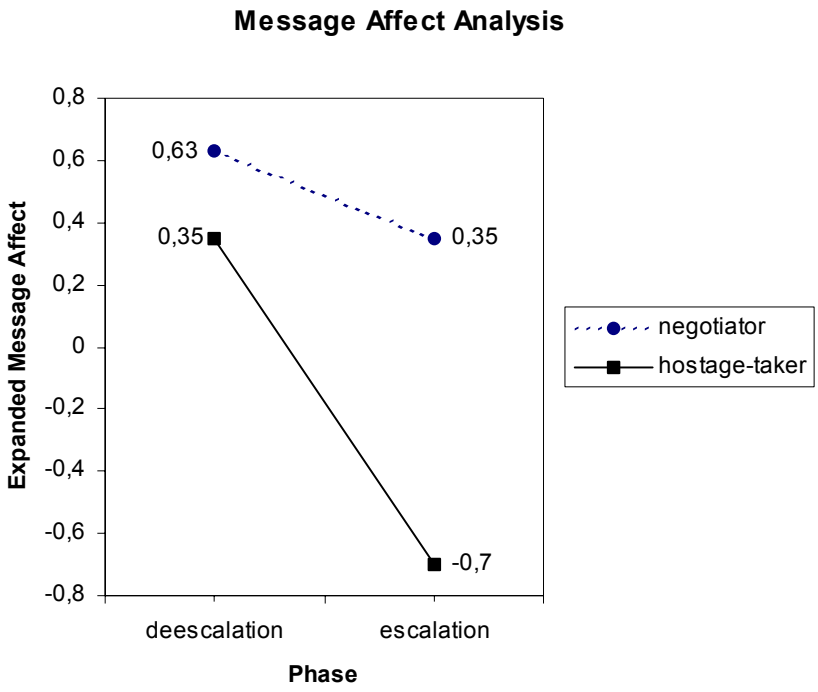

Figure 3: Mean Expanded Message Affect Score for Escalation and Deescalation

Similarity of Affect Measures

The results outlined thus far suggest that Gottschalk and Gleser's indicator for hostility and the two message affect scores used in this study overlap considerably. In order to put this impression in concrete terms, zero-order correlations between the three measures were computed. As to be expected, the correlation between the message affect score proposed by Rogan and Hammer and the expanded message affect score was close to one (r = .96). However, simple correlations between these scores and hostility were only slightly smaller, resulting in r = -.83 for Rogan and Hammer's message affect and r = -.89 for the expanded message affect.

Discussion

Interpretation of the above results should take several caveats into account. First, the Gottschalk-Gleser hostility scale has been developed for use in different research settings. So, in order to apply it in the present context, the German coding rules had to be adapted to the purpose of this exploratory study. As a consequence, and because of the fact that negotiation material is scarce, adapting, testing, and applying this instrument to negotiation data could not be separated in a way desirable for major empirical studies. Second, the process of adapting

Rogan and Hammer's measure of message affect from English to German proved to be still more complicated because using coding examples from another language is not without its problems. Consequently, we had to re-construct this measure for analyzing German transcripts from the very beginning. Because of this, applying it to our data could better be described as an iterative and interactive process of instrument construction than as the routine application of a standard procedure to verbal data. Both of these problems gave rise to a third one - the fact that we could not separate coding from hypothesis testing in a very strict sense. Although we took several precautions not to confound our results with expectations, a blindfold application of instruments to our transcripts could not be guaranteed. Finally, results presented here derive from only one case of hostage negotiation and need cross-validation, therefore.

However, with these caveats in mind, some tentative conclusions seem possible. Thus, we were able to distinguish different levels of affect on the mere basis of verbal transcripts. This is evident from the fact that the affect level assessed in our study differed between types of situation (escalation and de-escalation) and between persons involved in negotiation in the way predicted a priori to analysis. This conclusion receives further support from the fact that differences could be identified by means of all instruments employed in our analysis. Furthermore, because of the very clear effects found with both, the Gottschalk and Gleser hostility scale, and Rogan and Hammer's indicator of message affect, it is unlikely that our results are only attributable to a lack of rigorous empirical control and to methodological artifacts.

From a methodological point of view, our findings seem revealing as well. Content analyses of verbal data in general, and of hostage negotiations in particular, are usually based on only one single instrument. In the present study, however, two measures had been applied to essentially the same text corpus. Both relate to different assumptions and are rooted in different theoretical approaches. Nevertheless, our research findings proved to be very similar, and the measures employed correlate considerably. Consequently, our findings may also be interpreted in terms of a mutual validation of research instruments.

As indicated in the beginning, one serious hindrance in past research on hostage negotiation resulted from considerable problems in the accessibility of case material. Reasons for this difficulty are manifold. Besides divergent interests of practitioners and researchers, also known from other applied settings, there exists a variety of good reasons for rigidly controlling the access to negotiation data. It does not seem promising, therefore, to hope for a remarkable change in research conditions within the near future. Instead, researchers will

have to exploit existing data sets to a greater extent. One promising way to accomplish this task may result from paying more attention to variation within as opposed to between cases, and to look for lawful changes in interaction likely to occur in different settings. In our own study, we focused on two different phases that are characteristic of most, if not all negotiations, i.e., on escalation and de-escalation. However, there are lots of other social psychological topics and findings which should be helpful in explaining within variance of hostage negotiations.

Given the manifold difficulties in analyzing hostage negotiations, progress in this domain of research is supposed to remain slow. Nevertheless, past findings from negotiation research deserve careful inspection whether and to what extent they may be useful for improving present practice. Pre-service as well as in-service training of negotiators, for instance, requires valid and reliable analytical tools for analyzing past, supervising present, and ameliorating future negotiations. This is why the admittedly tentative findings of the present case study are supposed to be useful with respect to controlling - and hopefully improving - negotiation practice and competence to a certain degree.

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