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ABSTRACT

Forty female subjects were given intermittent options to transmit noncontingent promises of intent to cooperate during the course of a mixed-motive laboratory game. In a 2 x 2 experimental design, a robot target either reciprocated subjects' promise statements or concealed her behavioral intentions, and was either always cooperative or always competitive in response to the subjects' promises. Subjects sent more promises to the cooperative than to the competitive robot, and kept their promises more often when the robot reciprocated promises than when the robot used evasive replies. The results were interpreted in terms of normative considerations, with the reciprocal noncontingent promise seen as a contractual commitment tactic in dyadic conflicts. (Author)

SOME EFFECTS OF TARGET COOPERATION AND RECIPROCATED PROMISES ON CONFLICT RESOLUTION[1]

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A number of theoretical works have recently directed attention toward phenomena related to behavioral compliance (see, for example, Tedeschi, Bonoma, & Schlenker, 1972; Thibaut & Kelley, 1959). Many of these articles have examined the methods employed by an individual in "getting his way" in dyadic interaction when his goals differ from another's, and when the influence methods employed are designed to obtain overt behavior change without regard for the internal states or attitudes of the target. In the traditional analysis of the compliance situation, a dynamic source is portrayed as influencing the behavior of a relatively passive target by transmitting verbal or nonverbal messages during the conflict of interests situation. With few exceptions, this traditional "one-way" perspective has led to a conceptual and empirical focus upon the acts of the source or the particular mode of influence employed, to the exclusion of a consideration of the acts or attributes of the "passive" target. However, both Heider (1958) and Simmel (1950) have forcefully argued that behavioral compliance is a dynamic process with no "passive" recipients of influence, but only active participants; in short, a more dynamic and realistic view of the

influence process is needed. The present report is one of a series of studies focusing upon the effects of target behaviors as determinants of source actions and attributions, and the outcome of interpersonal conflicts.

In an earlier investigation, Tedeschi, Bonoma, and Lindskold (1970) employed a modified Prisoner's Dilemma game (PDG) to study a threatener's reactions to prior announcement of behavioral compliance or defiance by a target. The PDG is a two-person nonzero-sum mixed-motive conflict situation in which each participant chooses either a cooperative (Choice 1) or competitive (Choice 2) strategy alternative on each iteration of the game. Figure 1 presents a generalized matrix representation of the structure of outcomes in a PDG as well as the specific payoff values employed in the present study. If both players choose

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Insert Figure 1 about here

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cooperatively, both win (R-R payoff); if both choose competitively, both lose (P-P payoff). If one chooses cooperatively while the other chooses competitively, then the "cooperator" loses more (S-payoff) than if both had competed, and the "competitor" wins more (T-payoff) than if both had cooperated. Subjects in the Tedeschi, et al.study were given occasional opportunities to send a contingent threat to a robot target. The threat message demanded that the target make the cooperative choice (Choice 1) on the next trial of the game, or else suffer a loss of points (a negative side-payment). Subjects were empowered to enforce their threats. Four simulated target reply-and-response patterns were established. These were: (a) open defiance to the threats, in which the target said he would not comply to each threat and did not do so behaviorally; (b) concealed defiance, in which the target either refused to reveal his intentions or said he would

comply, but always behaviorally defied the threatener; (c) open compliance, in which the target said he would comply and did; and (d) concealed compliance, in which the target either refused to reveal his intentions or said he would not comply, but always complied behaviorally. The results indicated that regardless of the presence or absence of prior announcement, the compliance conditions encouraged more threat-sending than did the defiance conditions. However, the subjects' own strategy choices on the message trials were more cooperative in the open (i.e., preannounced) target compliance condition than in any of the other three conditions. The results suggested that (a) behavioral defiance rather than compliance discourages coercive influence attempts, but that (b) prior, honest announcement of conciliatory intent, a critical requirement in Osgood's (1962) Graduated Reciprocation in Tension reduction (GRIT) proposal, is a workable tactic in the strategy of conflict resolution.

The Tedeschi, et al. experiment created a disparity of power between parties and provided different communications capabilities to each. The present investigation asked if conflict resolution would be promoted by a target's preannounced cooperative behaviors in conflict situations in which participants are equals in power and have similar communications capabilities. For example, if both source and target were provided with noncontingent promises (e.g., "I will cooperate on the next trial"), would the target need to both announce his conciliatory intentions and follow through by actual cooperative responses or would conflict resolution be effected by cooperation without preannouncement? The results of the Tedeschi, et al. study would suggest that highly credible prior announcement would be a requirement for conflict resolution. However, Baldwin (1971) and Tedeschi (1970) have argued that promises are not mere complements of threats. Their reasoning suggests that, unlike threats, promises

carry normative implications, such as those involved in more formal social contracts. When a source transmits a threat, he might be more effective if he maintains high credibility by punishing noncompliance. But when a source transmits a promise, he ought to keep his word. If a target responds to a source's promise of cooperation with a similar reciprocal promise, the target has both acknowledged and indicated trust in the source's communication; hence, a type of two-way oral contract is effected and the source should be encouraged to keep his promise. It might therefore be predicted that simple target verbal reciprocation of promises would be sufficient to promote and maintain cooperative behaviors by the initiating source of promises, independent of the actual deeds of the target person. On the other hand, the cooperative or competitive responses of the target should increase or decrease the frequency with which the source commits himself to cooperative actions by verbal preannouncements.

In order to test the above hypotheses, subjects were given intermittent opportunities to send noncontingent promises in a modified PDG. A robot player responded to subjects' promises with either an identical promise of next-trial cooperation or a statement refusing to reveal the robot's strategy intentions. In addition, the robot either always or never selected the cooperative alternative following message exchanges. Thus, the 2 x 2 experimental design provided two levels of target replies to subjects' unilateral promises of cooperation (i.e., reciprocal promises or evasive replies) and two levels of target cooperation on message-relevant trials of the PDG (i.e., 0% or 100% cooperative).

Method

Subjects

Forty female subjects partially fulfilled an introductory psychology course requirement through participation in the experiment. Subjects were recruited for

the experiment in pairs, and were assigned equally to the four cells of the experimental design in their order of appearance at the laboratory. The false impression that subjects were playing a peer and not a robot target was instilled and carefully maintained throughout the experimental session.[2]

Apparatus

See Tedeschi, Bonoma, and Brown (1971) for a complete description of the fully automated Prisoner's Dilemma game equipment. The subjects' panel contained: (a) two strategy selection buttons, one for the cooperative (Choice 1) and one for the competitive (Choice 2) response alternative; (b) a 2 x 2 payoff matrix, each cell of which could be separately illuminated to display the jointly selected outcome following each iteration of the game; (c) two automatic add-subtract cumulative counters which displayed the point totals of both players at all times during the interaction; (d) two message columns (incoming and outgoing) with either a light adjacent to each printed message to indicate receipt (left-hand column) or button for transmission of the message (right-hand column); (e) a green light to indicate the start of each trial; and (f) a white light to indicate when the communications channel was open and messages could be sent and received. As determined by the fixed matrix values (see Figure 1), if both players made the cooperative choice (Choice 1),each won four points; if both made the competitive choice (Choice 2), each lost four points. For unmatched choices, the cooperator lost five points and the competitor gained five points.

Procedure

Subjects were seated individually in an experimental cubicle and were given ample time to read the dittoed instructions and explore the apparatus.[3] When the experimenter observed through a one-way mirror that the subject was no longer attending to either the instructions or apparatus, he re-entered the experimental

cubicle and reviewed the procedure by paraphrasing the written instructions. Questions were answered by referring to the appropriate part of the instructions or the relevant features of the apparatus. It was emphasized that the subject's objective in the experiment was to obtain as many game points as she could, an individualistic set. Conflict, related words, such as "game," "opponent," "cooperation," "competition," "win," "lose," or "promise" were not used in the instructions. When the experimenter was satisfied that the subject fully understood the instructions, he informed her that he would instruct the "other girl", after which the experiment would begin.

A single message was posted on the "outgoing" side of the subject's game panel. It read, "I intend to make Choice 1 on the next trial", a noncontingent promise. Subjects were instructed that each time a certain white light on the game panel illuminated they had the option of sending the message to the other person. They were not informed that 10 such options would occur over the 50 PDG trials, nor were they informed of the number of game trials which would be played. Subjects were instructed that the cue light indicating an opportunity to send the message would remain illuminated for ten seconds and that if a message was not sent during that period, they would resume making joint decisions.

Message trials were defined as those Prisoner's Dilemma trials immediately following a message transmission by a subject. The four experimental conditions were created by varying both the type of reply message used by the simulated target and the strategy choice of the robot on message trials. Two target reply messages were posted on the "incoming message" side of the subjects' game panel: (M1) "I will make Choice 1 on the next trial" and (M2) "I do not wish to reveal my intentions." Subjects were informed that the other person could transmit a message only if the subject first initiated communication on any option trial --

the simulated target could never initiate communications during the interaction. The location of the printed reply messages was systematically counterbalanced over subjects and conditions so that M2 appeared above M1 on the game panel for half the subjects in each of the four experimental treatments.

In the reciprocal-cooperation condition, the simulated target always responded to subjects' promises with M1, the reciprocal promise, and always made the cooperative (Choice 1) strategy selection on message trials. In the reciprocal-noncooperation condition, the robot responded to subjects' promises with reciprocal promises, but always made the noncooperative behavioral choice on the immediately following trial. In the evasive-cooperation condition, the simulated target always responded to a promise with the M2, but always made the cooperative strategy selection on message trials. And, in the evasive-noncooperative condition, subjects' promises were met with both consistent intentional evasion and behavioral noncooperation by the robot. On those message-option trials on which a subject chose not to send a message, the robot alternated cooperative and competitive strategy selections in abba order. Finally, a preplanned but unpatterned set of strategy selections was employed by the simulated target on all nonmessage iterations in order to maintain a proportion of 50% cooperative and 50% competitive strategy selections by the robot across all trials.

Following the game interaction, subjects were removed to separate testing cubicles, and were asked to give their impressions of the "other girl's" and their own behaviors on a shortened form of the Semantic Differential (Osgood et al., 1957). Each page of this 2-page measure (for other and for self) contained twelve polar adjectives, four for each of the three dimensions of the scale. The Evaluative dimension contained the adjectives good-bad, kind-cruel, honest-dishonest, and beneficial-harmful. The activity dimension contained the adjectives active-passive,

progressive-regressive, changeable-stable, and excitable-calm. The Potency dimension was measured by the polar opposites hard-soft, strong-weak, severe-lenient, and rash-cautious. Each item was scored from +3 to -3 and summed over each dimension. An accommodative-exploitative item was added to the other Semantic items. Finally, subjects were requested to fill out the Interpersonal Judgment Scale developed by Byrne (1961), which includes a measure of liking for the other person and ranges from a low score of 2 to a high score of 14. All subjects were debriefed and dismissed.

Results

Frequency of Promises

As predicted, subjects in interaction with a cooperative target sent more promises ($\bar{X}$ = 7.65) than did subjects who faced a noncooperative target ($\bar{X}$ = 8.58: $F = 4.362$, $df = 1/36$, $p < .044$). The frequency with which subjects sent promises was unaffected by whether the target replied evasively or with a reciprocal promise ($p > .10$) or by the interaction of the robot's behaviors and statements of intent ($p > .10$).

Credibility of Subjects' Promises

The credibility of the subjects' promises (i.e., the proportion of times subjects followed a promise to cooperate with a cooperative behavior) was affected by the reply messages of the target ($F = 5.09$, $df = 1/35$, $p < .03$) but not by her subsequent cooperative or competitive behaviors ($p > .10$). Subjects made cooperative choices on message trials proportionately more often when the target's reply was a reciprocal promise ($\bar{X}$ = 81.5%) than when the target's reply was evasive ($\bar{X}$ = 62.8%). The interaction term was not significant. None of the factors of the experiment affected the degree of cooperativeness displayed by subjects on nonmessage trials of the PDG.

Post-Game Impressions

Marginally significant effects were obtained on the attraction measure. Subjects in interaction with the behaviorally cooperative target judged her to be more attractive and as a desirable future experimental partner ($\bar{X}$ = 9.85) than did subjects in interaction with the noncooperative target ($\bar{X}$ = 8.65: F = 3.64, df = 1/36, p < .06). Similarly, the target who replied with reciprocal promises was rated as more attractive ($\bar{X}$ = 9.85) than was the robot target who replied evasively ($\bar{X}$ = 8.65: F = 3.64, df = 1/36, p < .06).

On the subscales of the Semantic Differential, significant effects of the cooperation manipulation were obtained on subjects' ratings of the Potency (F = 6.40, df = 1/35, p <.03) and Evaluation (F = 5.30, df = 1/35, p < .02) of the robot player. The behaviorally cooperative opponent was given a higher rating ($\bar{X}$ = +2.60) on the Evaluative scales than was the noncooperative opponent ($\bar{X}$ = -0.31), and the cooperative target was seen as less Potent ($\bar{X}$ = -0.95) than was the noncooperative target ($\bar{X}$ = +1.16). Finally, subjects in interaction with the robot who made reciprocal promise replies rated the target as more Accommodative ($\bar{X}$ = +0.13) than did subjects in interaction with the robot who used the evasive reply message ($\bar{X}$ = -0.85: F = 4.60, df = 1/36, p <.04). No effects were obtained on Activity ratings and there were no interaction effects on any of the post-game impressions measures.

Discussion

Both the verbal and strategic behaviors of the robot target affected the responses of subjects. If the robot target reciprocated the subjects' promises to unilaterally cooperate, subjects more often kept their promises than when the target refused to reveal his intentions in response to subjects' promises. If the robot target cooperated on the trial following the message exchange, the subjects sent more promises to him than when the target was competitive following the message exchange. Thus, the target's verbal behavior affected the subjects' strategic choices and the target's strategic behavior affected the subjects' verbal behavior.

When the target cooperated in response to the subjects' promises, the subjects won either 4 points (by cooperating) or 5 points (by competing). When the target competed in response to the subjects' promises, the subjects lost either 5 points (by cooperating) or 4 points (by competing). It is clear that subjects were reinforced for sending promises when the target was cooperative and that subjects were punished for sending promises when the target was competitive. Positive reinforcements increased the frequency with which subjects sent promises and punishments inhibited the subjects' so that they sent fewer promises.

The fact that subjects more frequently cooperated following the transmission of a promise when the target reciprocated the promise cannot easily be explained on the basis of reinforcement theory. The reciprocated promise may be interpreted as a secondary reinforcement. There are two problems with such an interpretation: (a) reciprocal promises did not increase the frequency with which subjects initiated message exchanges; and (b) reciprocal promises could not reinforce subjects' cooperative responses on message trials because such promises occurred <u>before</u> the subsequent cooperative (or competitive) responses. An alternative

explanation might be that the target's reciprocal promise to cooperate raised the subject's hopes (or subjective probability) that the target would make the rewarding cooperative response.. However, this explanation also has two problems: (a) when the reciprocal promise was never backed up with subsequent cooperation the subjects should have had less hope of reward than when the reciprocal promise was always backed up, but the evidence did not indicate such a difference; and (b) there is no prediction about why the subjects should cooperate rather than compete if they had hope for rewards as a result of receiving reciprocal promises from the target; subjects could have won more by competing than cooperating if they believed the target was going to cooperate.

The robot target's reciprocation of subjects' promises might be viewed as creating a bilateral and mutually binding (informal) contract. In effect, the target recognized the source's commitment and made the source's promise more binding by the reciprocal statement of intent to cooperate. Essentially, when the target reciprocated the source's promises with counter-promises, the effect was to increase the source's moral obligation to carry out her promise, to mire her in her own words, so to speak, through the explicit recognition and reciprocation of cooperative intent. On the other hand, when the target was intentionally evasive in her replies, she tacitly denied recognition to the source's promises and released the latter from the moral obligation to keep the promises made. Thus, subjects established higher credibility for their promises when the target reciprocated promises, regardless of the target's own credibility. When the subjects' commitment was implicitly denied by the evasive replies of the target, they kept their word less often (i.e., they cooperated less following the transmission of promises).

The fact that cooperative targets were perceived as more attractive than their noncooperative counterparts is not surprising -- we tend to like those who

reward us (Brehm, 1969), and cooperation is easily interpretable as rewarding. The marginal effect of target's cooperation on attraction ratings was buttressed by the strong effect of target cooperation on the ratings obtained on the Evaluative dimension of the Semantic Differential. The target who sent reciprocal promises was liked better than the target who sent evasive replies to subjects' promises. This result must be interpreted cautiously since it is a weak one, but it suggests that we might tend to like not only those who reward us with cooperation, but also those who only say that they intend to reward us. The observation that cooperative robot targets were judged to be less potent than were noncooperative targets extends a consistent pattern which has been associated with studies employing the modified Prisoner's Dilemma paradigm as a research tool (cf. Brown, Smith, & Tedeschi, 1972). Over a series of experiments, a cooperative or rewarding robot player has been consistently rated as more attractive but as less potent than a competitive or punishing robot player. Apparently, subjects associate positive attributes with weakness and negative attributes with strength.

Two major conclusions might be drawn from the present investigation. First, under conditions of mutual noncontingent promise capability, it is apparently not necessary that a target both reciprocally announce an intent to cooperate and then do so for cooperative amelioration of conflict to occur. The source's promises may be made credible if the target will simply announce cooperative intent, regardless of actual behaviors. It seems then, that within the constraints of the mixed-motive situation employed, a reciprocating target can manipulate an influence source by "promising her anything," using such cheaply purchased statements of intent as a potent form of counter-influence. However, it is also clear that actions speak loudly as well. Cooperative acts promote the frequent employment of available communication modes as a means of conflict resolution, a

finding which is not limited to noncontingent promises, but which holds when contingent threats are the mode of influence as well (Tedeschi, et al., 1970). Competitive reactions, on the other hand, lead to a reduction in attempted influence on the part of the source.

Secondly, it is apparently the case that noncontingent promises carry a weighting in normative or commitment value that is not present when threats are the mode of influence. If further research can more clearly delineate this contractual component associated with the use of noncontingent promises, it may be found that such benevolent modes of influence are the most expensive a source can choose to employ. For by using them, an influencer becomes committed to a course of action in an almost unilateral fashion, and in effect is contracted to perform the stipulated service without a realistic regard for the potential of manipulation and exploitation by the intended target of influence.

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Footnotes

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2. Subjects, after initially being separated, were asked if they were acquainted with the person they signed up with. If they said they were, they were informed that two other subjects had been waiting in the testing cubicles for a short time, and that in order to insure adequate experimental control, each would be in the experiment with one of these "strangers" and not with their acquaintance. In this manner, prior friendships were controlled for.

3. Copies of the instructions and post-experimental test materials can be obtained from the authors upon request.

4. All analyses were computed by multiple analysis of variance techniques (MANOVA).

Figure Caption.

Figure 1. The generalized Prisoner's Dilemma game matrix and the specific payoff values employed in the present study. Values shown represent game points.