Annual Status Report - October 1, 1966
"Techniques of Inducing Cooperation Between Adversaries"

Contract Number: Nonr-4294(00)
Principal Investigator: Dr. Morton Deutsch, Teachers College, Columbia University

Six studies are described in this report. The first three are continuations of studies which have been mentioned in the previous Annual Status Report, the last three are described here for the first time.

I. The Use of Role-Reversal in Intergroup Competition

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It was an investigation of some of the conditions which influence the effectiveness of role-reversal as a procedure for reducing interpersonal conflict. We assumed that role-reversal may eliminate distortion and misunderstanding but we hypothesized that if the basic positions of the conflicting parties are incompatible rather than compatible, role-reversal may enhance rather than reduce conflict by removing some benevolent misunderstandings.

A brief outline of the experimental procedure follows. First, each subject was told that he was participating as one of a group of four persons, that would have 30 minutes to develop a defense of the group's position on a court case involving a civic law-suit. He was then told that half of the group would be in Room 1 and half of the group would be in Room 2 in order to study group coordination. Actually, he was then placed in one of the two rooms with a confederate of the experimenter and listened to a tape recording of the two fictitious members of their group. It was arranged so that the subject was elected to be his group's

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Second, the two subjects were placed in the same room for the negotiations. The negotiations consisted of three stages:

| ROLE-REVERSAL | SELF PRESENTATION | |
|---|---|---|
| 1. Presentation of own group's position | Same | 5 min. each |
| 2. Role-reversal | Rebuttal | 5 min. each |
| 3. Negotiations with role-reversal | Free Negotiations | 30 min. each |

During the negotiations of the two confederates, the experimenter rated the subjects in terms of their (1) involvement, (2) sincerity, and (3) adequacy during the presentation of their group's position and their role-reversal or rebuttal. This gave three independent ratings of their behavior during the negotiations. At the end of the negotiations the experimental instrument was administered.

Two situations were studied. The first situation studied was one where the two positions were actually incompatible (i.e., mutually exclusive). The second situation studied was one where the two solutions were actually compatible (i.e., non-mutually exclusive).

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The perceived incompatibility was induced by three sources. First, the instructions stated that the competing group represented an opposite point of view on the court case. Second, the tape of half of the group stated that the position of the other group was opposite and incompatible with own groups position. Third, the confederate of the experimenter stated that the other group represented an opposite and incompatible point of view.

The actual incompatibility was based on the following. Where the two positions were actually incompatible the two positions represented opposite poles on a single dimension. This means that both positions could not be true at the same time. Where the two positions were actually compatible they represented poles of the two different dimensions; this means that they both could be true at the same time.

This can be represented in the following figure:

<u>Group 1</u>

$A_1$ ---------- $A_2$ - Actually incompatible

$A_1$ ----------
---------- $B_2$ - Actually compatible

The design of the study can be summarized as follows: (subjects in each condition were divided into "high" and "low" skill conditions based on ratings of their performance during the discussion).

Figure 1

| | | Role-reversal | | Self-presentation | |
|---|---|---|---|---|---|
| | | Hi Skill | Lo Skill | Hi Skill | Lo Skill |
| Positions | Compatible | | | | |
| | Incompatible | | | | |

Ten subjects were run in each of the eight cells. The subjects were high school and college males.

A summary of the results follows.

The first hypothesis of this study stated that the use of role-reversal in a competitive situation would result in more understanding of the opponent's position and of one's own position than would the use of self-presentation without role-reversal. No support was found for this hypothesis on the measure of the subjects' understanding of their own position. The subjects who were rated as high on the adequacy of their discussion, however, knew their own position (and their opponent's position) better than the subjects who were rated low.

Although the hypothesis was not supported for "understanding of one's own position," it was supported for "understanding of the opponent's position"; role-reversal subjects knew their opponent's position better than did self-presentation subjects. Nevertheless, this greater understanding of the opponent's position resulting from role-reversal was not communicated to the opponent in the incompatible

conditions. When the positions of the negotiators were incompatible, role-reversal inhibited perceived opponent's understanding of one's position while it enhanced perceived opponent's understanding when the positions were compatible. This finding illustrates the need to take into account the impact of the compatibility or incompatibility of the negotiators' positions on the effectiveness of role-reversal.

Furthermore, subjects who were rated as high on involvement thought their opponents understood them better than those who were rated as low in involvement. There is also evidence that when positions are incompatible, a high degree of involvement in role-reversal inhibits perceived understanding, while it enhances perceived understanding when they are compatible. Finally, it was seen that highly involved self-presentation subjects perceived their opponent as better understanding their position than did the less involved self-presentation subjects.

The need to take into consideration the incompatibility or compatibility of negotiators' positions in considering the effectiveness of role-reversal was seen in "perceived opponent's understanding of one's position." The interaction effect found in that data give support to the validity of the second hypothesis of this study. Hypothesis Two stated that in the incompatible conditions, role-reversal would be less effective than would self-presentation, while in the compatible conditions role-reversal would be more effective than would self-presentation. When one looks only at the subjects rated high in involvement or adequacy, this hypothesis was supported on (1) private attitude change, (2) perception of own and opponent's positions as similar, and (3) perception of self and opponent as similar as people. The hypothesis was not supported, however, on (1) number of aggreements reached, (2) willingness of the negotiators to compromise, (3) the change in position during negotiations, (4) the evaluation of the negotiations, (5) perceived similarity of self and opponent in the basic beliefs, (6) the evaluation of the opponent, and (7) the evaluation of the self.

There is evidence, however, that role-reversal competence is related to (1) reaching an agreement, (2) perceiving the opponent as being willing to compromise, and (3) private attitude change. Furthermore, the data indicate that public change of position was related to compatibility of positions, not discussion technique. Finally, for highly involved subjects, self-presentation led to more perceived similarity between self and opponent in the incompatible conditions than in the compatible conditions; and high adequacy in self-presentation resulted in more favorable a self-evaluation than low adequacy in self-presentation.

A technical report of this study has been prepared and will soon be distributed.

## II. Further Research With The Prisoner's Dilemma

This study was conducted by Miss Miriam Keiffer and Miss Barbara Benedict under Dr. Morton Deutsch's supervision.

The experiments were divided into four conditions. (Figure 2 presents the matrices employed in the experiment.) Each condition will be described separately. However, the subjects within each condition were given four different treatments during the participation in the game. Subjects played 120 trials in each prisoner dilemma game and these 120 trials were divided into four series of 30 trials. Each series was a different treatment in which the subject was paired with a different player than in the preceding treatments. The order of the four treatments was decided by a Latin Square design. Subjects were assigned randomly to a treatment-order group. The four treatments were: (1) Unconditional benevolence - whatever

the subject's response, a stooge gave him a cooperative response; (2) Conditional benevolence - the stooge gave the subject the same response that the subject had made on the previous trial, (tit for tat); (3) Unconditonal malevolence - the subject was given a non-cooperative response by the stooge no matter what his response was; and (4) Natural - the subject actually played another player and the responses given to him were the responses the other player made.

Game 1: Three-Person Prisoner's Dilemma Game - This was a three-person prisoner's dilemma game with a payoff matrix which was made equivalent to a two-person prisoner's dilemma game in terms of the utilities for each player. The interest in this game was to see whether a three-person game leads to more cooperation or less cooperation.

Game 2: Two-Person Prisoner's Dilemma Game - This was a regular two-person prisoner's dilemma game run as a control for the other conditions. It was also of interest in terms of a comparison of past prisoner's dilemma research (Section 1) using the same payoff matrix but a game playing orientation in the instructions.

Games 3-5: Two-Person Prisoner's Dilemma Game with Decomposed Matrices - These games, which were suggested by the work of Dean Pruitt, consisted of the same matrix used in the two-person game but with the payoff presented in a different way. In the decomposed matrix conditions, subjects were given information relevant to their own payoff for their choice of the cooperative (green) or non-cooperative (red) color, and also information relevant to what the other subject's payoff was in terms of their choice. They were also told that the other subject had the same information. In order for them to see the matrix as the same as the matrix used in Game 2 (which was the matrix used to generate the decomposed matrix) they would have had to put the relevant information together.

Game 6: Two-Group Prisoner's Dilemma Game: In this condition the subjects were given the same payoff matrix as in Game 2. However, instead of it being a two-person game, it was a two-group game. Each group consisted of three individuals and each decision had to be a group decision. Of primary interest in this condition was the group process leading to every decision and to see whether or not groups were more cooperative or less cooperative than individuals. The group discussions were taped and interesting information relating to not only group process but game playing behavior in the prisoner's dilemma game is expected to be obtained from the analysis of these tapes. The data from this investigations are not yet analyzed.

Some summary results are presented in Figures 3 and 4. The results may be described as follows.

1. The Effects of Different Strategies. Statistical analyses indicate that there are significant effects of the strategy employed by the stooges but, also, that the effects of the strategies interact with the "type of game" and "trial block". The results indicate that subjects are most likely to make cooperative choices if exposed to "Conditional Benevolence". The subjects exposed to "Unconditional Benevolence" only make more cooperative choices in Game 5 than those exposed to "Conditional Benevolence". The subjects exposed to the playing of other real subjects make more cooperative choices than those exposed to "Unconditional Benevolence" except in Games 2 and 5. Decreases in the frequency of cooperative choices occurs consistently in all games under "Unconditional Malevolence" but is very much affected by the game employed with the other strategies.

Figure 2

Game 1: THREE-PERSON PRISONER'S DILEMMA GAME

G = green R = red

| Person: | | | Payoff to: | | |
|---|---|---|---|---|---|
| A | B | C | A | B | C |
| G | G | G | +10 | +10 | +10 |
| G | G | R | - 5 | - 5 | +20 |
| G | R | G | - 5 | +20 | - 5 |
| G | R | R | -20 | + 5 | + 5 |
| R | G | G | +20 | - 5 | - 5 |
| R | G | R | + 5 | -20 | + 5 |
| R | R | G | + 5 | + 5 | -20 |
| R | R | R | -10 | -10 | -10 |

Games 2 and 6: TWO-PERSON PRISONER'S DILEMMA GAME

| Person: | | Payoff to: | |
|---|---|---|---|
| A | B | A | B |
| G | G | +10 | +10 |
| G | R | -20 | +20 |
| R | G | +20 | -20 |
| R | R | -10 | -10 |

Figure 2 (continued)

Game 3: TWO-PERSON PRISONER'S DILEMMA GAME WITH DECOMPOSED MATRIX

Summary

| My Choice | My Gain | Other's Gain |
|---|---|---|
| G | 0 | +10 |
| R | +10 | -10 |

Game 4: TWO-PERSON PRISONER'S DILEMMA GAME WITH DECOMPOSED MATRIX

Summary

| My Choice | My Gain | Other's Gain |
|---|---|---|
| G | -10 | 20 |
| R | 0 | -10 |

Game 5: TWO-PERSON PRISONER'S DILEMMA GAME WITH DECOMPOSED MATRIX

Summary

| My choice | My Gain | Other's Gain |
|---|---|---|
| G | +10 | 0 |
| R | +20 | -30 |

X # OF COOPERATIVE CHOICES BY TRIAL BLOCK

KEY: +--+= 2 person P.D.G.
#--#= 2 person D. P.D.G.

| | U | O |
|---|---|---|
| G | 0 | +10 |
| R | +10 | -20 |

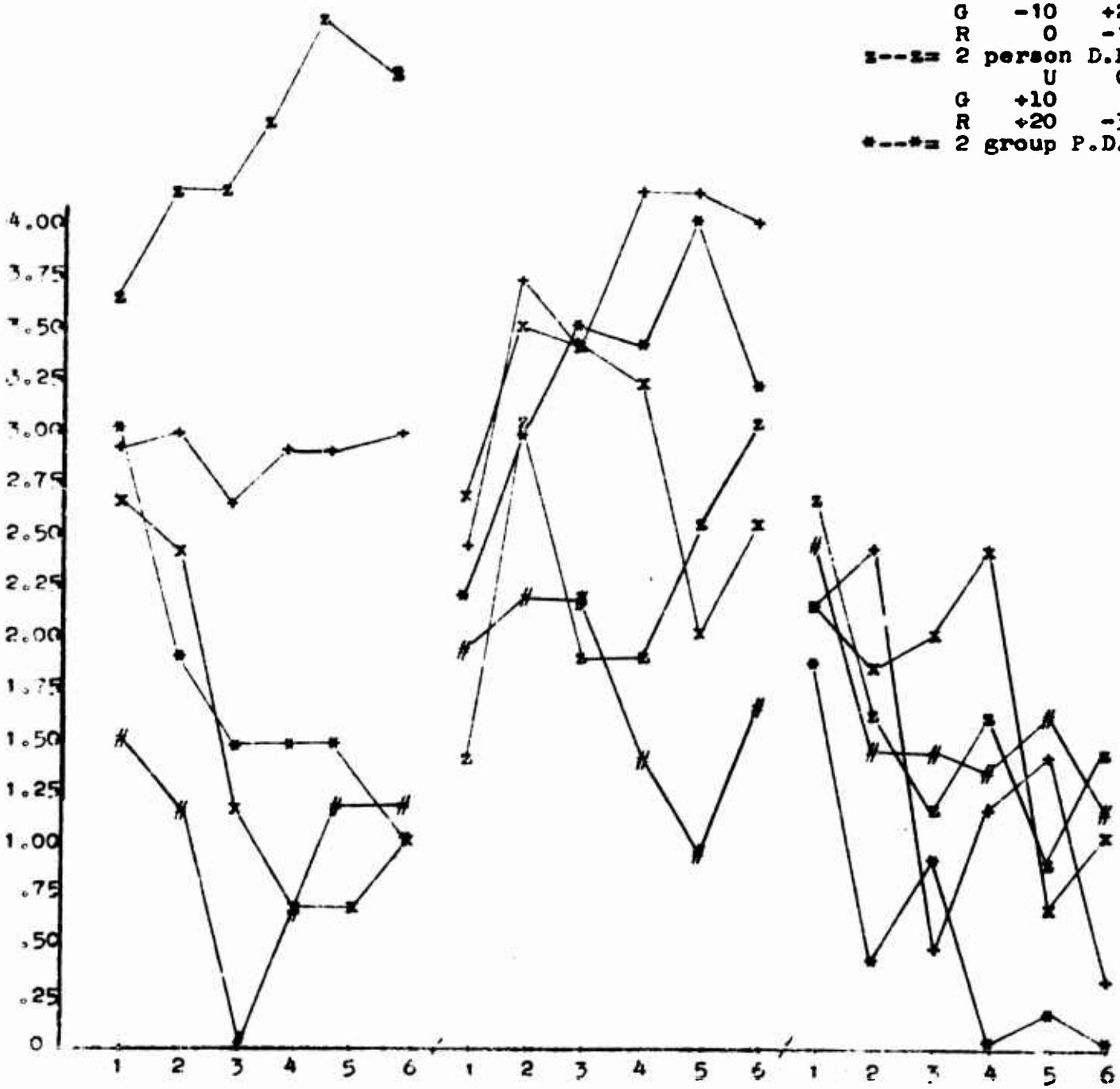
x--x= 2 person D.P.D.G.

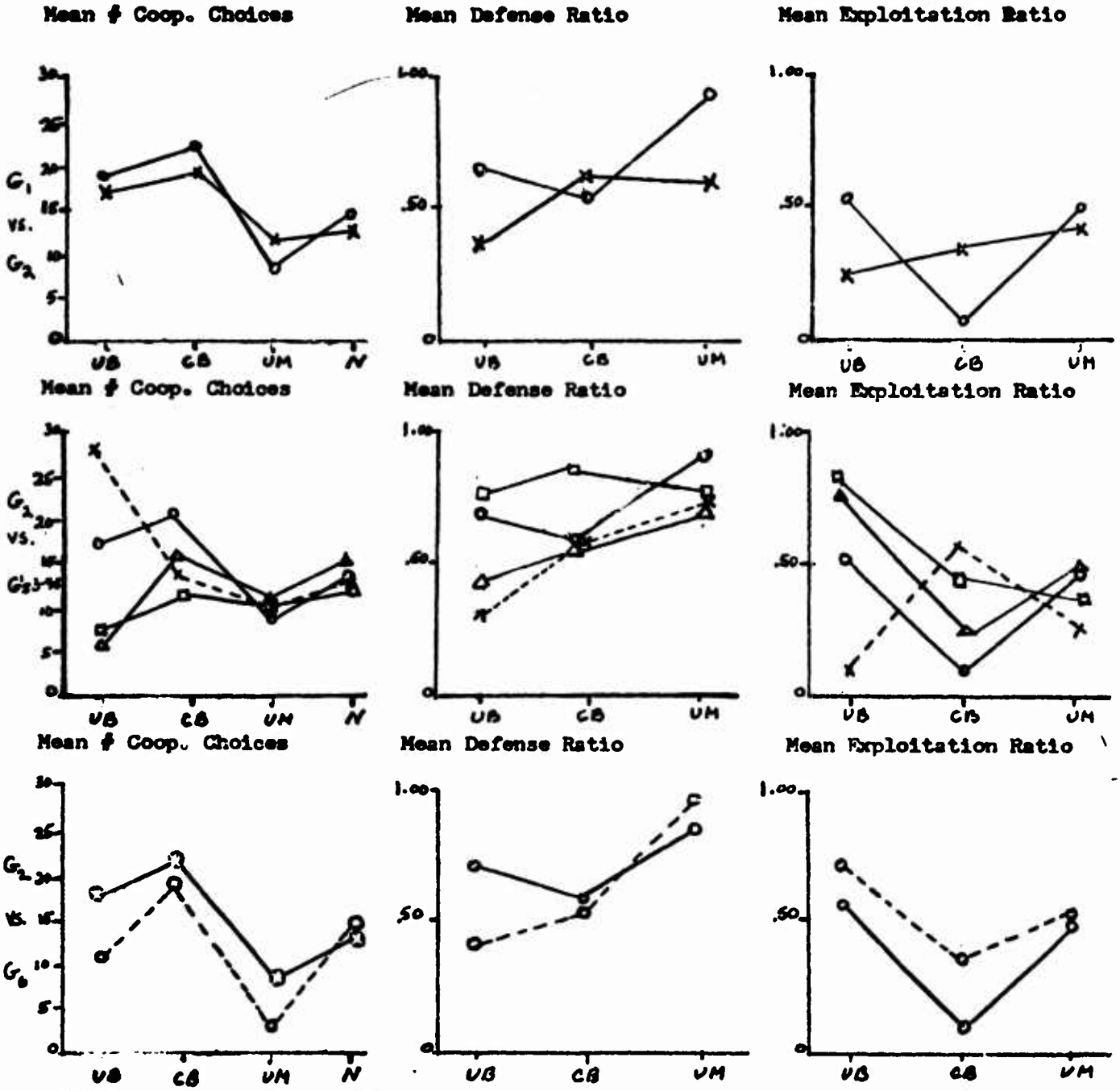
| | U | O |
|---|---|---|
| G | -10 | +20 |
| R | 0 | -10 |

z--z= 2 person D.P.D.G.

| | U | O |
|---|---|---|
| G | +10 | 0 |
| R | +20 | -30 |

*--*= 2 group P.D.G.






KEY: $G_1$ x-x = 3 Person P.D.G.
$G_2$ o-o = 2 Person P.D.G.
$G_3$ □-□ = 2 Person D.P.D.G. (G: U=0, O=+10; R: U=+10, O=-20)
$G_4$ △-△ = 2 Person D.P.D.G. (G: U=-10, O=+20; R: U=0, O=-10)
$G_5$ x--x = 2 Person D.P.D.G. (G: U=+10, O=0; R: U=+20, O=-30)
$G_6$ o--o = 2 Group P.D.G.

2. Groups versus Individuals. A comparison of games 2 and 6 enables us to see whether it makes any difference if the decision-making unit is a group or an individual. The data indicate that the frequency of non-cooperative choice and the tendency to exploit (i.e., to choose non-cooperatively when expecting the other to cooperate) is somewhat greater for the groups than the individuals.

3. A Comparison of the 3-person and 2-person Prisoner Dilemma Game. We find no significant differences in the results between the two types of games.

4. The Effects of the Decomposed Matrices. There is a significant interaction effect between type of game matrix, strategy, and trial blocks. Game 5 seems to be particularly effective in eliciting cooperation if an Unconditionally Benevolent strategy is employed. On the other hand, games 3 and 4 are least likely to elicit cooperation under such a strategy. Under Unconditional Malevolence and with two real subjects, the games differ little in the types of behavior elicited. It is evident that, while the form of presentation of a given matrix may effect game-playing behavior, the effects will be altered by the strategy employed by the accomplice of the experimenter.

## III. Still Further Research With the Prisoner's Dilemma

These studies were conducted by Mr. Yakov Epstein and Mr. Peter Gumpert under Dr. Deutsch's direction.

They are an improvement of studies reported in the prior Annual Reports. As we attempted to write up these previously reported studies, some gaps in their designs were unearthed and, as a result, additional groups of subjects were run. The central findings are described below:

1. The Effects of Magnitude of Payoffs upon Behavior. In this study, a basic matrix was multiplied by 1¢, 5¢, 10¢ or 100¢ so as to alter the payoff magnitudes without affecting any of the ratios of values within the matrix. The basic matrix was:

Figure III-1

| | | Player I | |
|---|---|---|---|
| | | R | G |
| Player II | R | +1, +1 | -2, +2 |
| | G | +2, -2 | -2, -1 |

Thus, when the matrix was multiplied by 100¢, the payoff for each trial was in real dollars; when it was multiplied by 1¢, the payoff was in real pennies. (The game was played for 20 trials and, at the end of the game, the subjects retained any money they won or were given a standard minimum payment for participating in the experiment if they lost more money than they had been given initially.) In addition to varying the amount of money at stake, we studied the effects of "imaginary" versus "real" money by comparing the situation in which real dollars were used with a situation in which "imaginary dollars" were employed.

The results, presented in Table III-1, clearly indicate a difference in behavior as the result of "real" versus "imaginary" money. When playing for real rather than imaginary dollars, the subjects were more competitive and lost more money. These results do not fit the assumption made by Kelley, Gallo, and others that competitive behavior in experimental games is more likely under the "weak

incentive" conditions of imaginary money. However, they do support the view that behavior may differ as a function of the "reality" of the money involved.

Table III-1

The Effects of Real Versus Imaginary Dollars

| | Real Dollars | Imaginary Dollars | |
|---|---|---|---|
| Mean # cooperative choices | 9.2 | 6.3 | t=2.30, p<.025 |
| Mean # mutual cooperative choices | 4.0 | 1.8 | t=2.26, p<.025 |
| Mean # mutual competitive choices | [illegible].0 | 9.2 | t=1.85, p<.05 |
| Mean payoff | $-3.0 | $-14.80 | t=2.39, p<.025 |

Table III-2 presents a comparison of the effects of different magnitudes of real money. Statistical analysis reveals no significant trends. In fact, the results for 5¢/10¢, 10¢/20¢, and $1.00/$2.00 are remarkably similar to one another. Only the results for the minimal real payoff conditions seem different and these results are similar to the ones obtained in the imaginary payoff condition. One cannot tell, from these findings, whether trivial sums of money are conceived of as being tokens and, thus, similar to imaginary money in symbolic significance or whether imaginary money is considered to be a trivial amount of money.

Table III-2

Effects of Magnitude of Payoffs

| | 1¢/2¢ | 5¢/10¢ | 10¢/20¢ | $1/$2 |
|---|---|---|---|---|
| Mean # cooperative choices | 7.70 | 6.25 | 6.35 | 6.30 |
| Mean # mutual cooperative choices | 4.2 | 2.4 | 1.7 | 1.8 |
| Mean # mutual competitive choices | 8.6 | 9.8 | 9.0 | 9.2 |
| Mean payoff* | -8.80 | -14.80 | -14.60 | -14.80 |

* Payoffs are adjusted to correct for the differences in payoff magnitudes among the matrices.

2. The Effects of Multiples. Employing the basic matrix of Figure III-1, a series of conditions were run in which subjects could multiply either their own values or the other's values in the matrix by any number from 1 to 10. In half of the conditions, the multiple selected by each player was communicated to the other and, in the other half, it was not communicated. The resulting design is pictured below:

| | | Multiple Communicated | |
|---|---|---|---|
| | | Yes | No |
| Multiple affects: | Self | | |
| | Other | | |

The results indicate small but significant effects such that the number of cooperative choices, the number of mutual cooperative choices, and the size of the multiple selected was greater when the multiple was communicated as compared to when it was not. No significant effects were obtained as a function of whether the multiple affected oneself or the other.

We interpret these results to indicate that the subjects were not sufficiently skilled to use the multiples in terms of some possibilities that the experimenters had envisaged - e.g., as a gradual commitment device which would enable trust to be built up gradually, or as a control device to prevent the other from profiting from uncooperative behavior.

3. The Predictive Power of Expectations. An analysis was made of the effectiveness of different items of information, in isolation and in combination, in predicting the subject's choice in the Prisoner's Dilemma Game. The following items were examined: (1) the subject's own choice on the immediately preceding trial; (2) the other's choice on the immediately preceding trial; and (3) the subject's expectation about how the other would choose on the next trial. We were particularly interested in seeing how much improvement in predictability of the subject's choice results from knowing his expectation.

Table III-3

Percent of Predictions of Subjects' Choices Which Would Be Correct if the Experimenter Made a Given Prediction Knowing the Specified Items of Information

| Prior Choice of Subject | Prior Choice of Other | Subject's Expectations | Prediction of Subject's Choice | |
|---|---|---|---|---|
| | | | C | K |
| Unknown | Unknown | Unknown | .34 | .66 |
| C | " | " | .46 | .54 |
| K | " | " | .23 | .77 |
| Unknown | C | " | .46 | .54 |
| " | K | " | .23 | .77 |
| " | Unknown | C | .51 | .49 |
| " | " | K | .22 | .78 |
| C | C | Unknown | .55 | .45 |
| C | K | " | .29 | .71 |
| K | C | " | .29 | .71 |
| K | K | " | .21 | .79 |
| C | Unknown | C | .65 | .35 |
| C | " | K | .28 | .72 |
| K | " | C | .35 | .65 |
| K | " | K | .17 | .83 |
| Unknown | C | C | .68 | .32 |
| " | C | K | .27 | .73 |
| " | K | C | .33 | .67 |
| " | K | K | .18 | .82 |

Table III-3 (continued)

| Prior Choice of Subject | Prior Choice of Other | Subject's Expectations | Prediction of Subject's Choice C | Prediction of Subject's Choice K |
|---|---|---|---|---|
| C | C | C | .77 | .23 |
| C | C | K | .32 | .68 |
| C | K | C | .38 | .62 |
| C | K | K | .23 | .77 |
| K | C | C | .45 | .55 |
| K | C | K | .19 | .81 |
| K | K | C | .30 | .70 |
| K | K | K | .16 | .84 |

It is evident from Table III-3 that each item of information by itself and in combination improves the predictability of the subject's choice. Knowledge of the subject's expectation provides information not already contained in the knowledge of the choices by the two players on the previous trial. Moreover, knowledge of the subject's expectation, as a rule, improves predictions more than either of the other two items of information.

## IV. Strategies of Inducing Cooperation*

This study was conducted by Mr. Yakov Epstein, Miss Donnah Canavan, and Mr. Peter Gumpert under the direction of Dr. Morton Deutsch.

The experiment reported here studied five behavioral strategies to see which is most effective in eliciting cooperation from someone whose behavior is not initially and persistently cooperative. The effectiveness of the strategies were investigated in a two-person laboratory game which permits players to act altruistically, cooperatively, individualistically, defensively, or aggressively toward one another. One of the players in each game was always an accomplice of the experimenter; he followed a predetermined strategy in response to the true subject's behavior in the game. The true subject, of course, did not know that he was playing with the experimenter's accomplice.

One strategy, termed Turn The Other Cheek, had the accomplice respond to attacks or threats by altruistic behavior (doing something that rewarded the other) and with cooperative behavior otherwise. The Nonpunitive strategy had the accomplice react self-protectively rather than with counter threats or counter attacks when the subject threatened or attacked; otherwise he reciprocated the subject's behaviors. The Deterrent strategy had the accomplice respond threateningly to any noncooperative acts of the subject and also had him counter attack when attacked; he responded cooperatively to any cooperative behavior from the subject. The two remaining strategies are different types of Reformed Sinner strategies. In both types, the accomplice played in a very threatening and aggressive manner during the first 15 trials of the game but then dramatically changed his behavior by disarming on the sixteenth trial. In one form of the Reformed Sinner, the accomplice followed a Turn the Other Cheek strategy after the sixteenth trial; in the other, he followed a Nonpunitive strategy.

*This study was supported in part by funds from NSF grant, GS-302.

The methodology and results of the experiment are described in a Technical Report which has been completed and will be distributed shortly.

V. The "International Card Game" Study

This study was conducted by Mr. Jeffrey Rubin under the direction of Dr. Morton Deutsch, as part of a larger study being conducted throughout this country and in several European countries as a cooperative project by a number of social psychologists interested in conflict resolution. This group includes Harold Kelley, John Lanzetta, Dean Pruitt, Gerald Shure, John Thibaut, and Morton Deutsch as the American members and Claude Faucheux, Claude Flament, Mauk Mulder, Serge Moscivici, Josef Nuttin, Jr., Jaap Rabbie, and Henri Tajfel as the European members.

In addition to cross-national effects, this study attempts to investigate the effects of tangible versus intangible incentives and of relative power on face-to-face bargaining. These were varied in a 2 X 2 factorial design.

Pairs of male undergraduate subjects, placed in a room with the experimenter, were instructed to attempt to make as much money (or points, according to condition) as they possibly could "regardless of how the other player did". They were told there were two ways in which they could do this: First, by reaching agreement on the split of a contract value (an odd-number of points determined by the suit of a playing card turned over by the experimenter from his deck of cards on each trial of the game); second, by taking their independent value (a specified number of points determined by the suit of a playing card over by each of the subjects on each of the 30 bargaining problems). Subjects were told that on each problem either subject could refuse to agree to divide the contract. If that happened, each of them would automatically receive the number of points assigned to them as their independent value for the problem. Subjects were further told that if they agreed on a split of the contract for five consecutive times, the values (both contract and independent) would all increase. They were told they would be allowed to stay on this schedule of higher values (Schedule 2) as long as they continued to have contract agreements, but once either of them took their independent value, they would break the string of consecutive agreements, would be back again at the schedule of lower values (Schedule 1), and would need five consecutive schedule 1 contract agreements before being permitted to return to Schedule 2. Subjects were not permitted to show their independent value cards to each other at any time during the game. They were told, however, they could say anything they wanted about these cards, true or false, to the other player. Subjects were told they could take as long as they wanted to freely discuss a problem. A problem was considered finished when the pair had either agreed on a division of the contract or one member of the pair had taken his independent value. Experimenter then turned up a new card indicating the contract value for the next problem and subjects turned up new cards to indicate their new independent values. Subjects did not know how many problems they would be working on - they were simply told it would be a predetermined sizeable number.

At the end of every ten trials, subjects were instructed to add up their scores on the previous ten trials, calculate their averages, and compare these averages with their answers on an earlier questionnaire in which they estimated the average number of points they could expect to gain by going about things in different ways. In half the conditions, each subject was then given a slip of paper indicating the number of points he had accumulated in the preceding ten trials (these subjects knew nothing of the basis on which they would be paid at the termination of the experiment). In the other conditions, subjects were told they would be paid at a

rate of two cents a point, and that their cash earnings would be counted out to each of them after every ten trials.

In order to control for the order of presentation of contract and independent values, each of the three decks of playing cards used was "rigged" such that the same ordering of cards appeared for each of the 10 pairs of subjects per condition. By predetermining the order of the cards, the experimenter was also able to manipulate relative power (in half the conditions, $S_2$'s independent values tended on the average, to be higher than those of $S_1$; in the other conditions, the mean independent values of $S_1$ and $S_2$ were equal).

The dependent variables in this experiment may be grouped as follows:

1. Bargainers' Attitudes Toward Themselves and Their Bargaining Partners. This information was obtained primarily from subjects' ratings of themselves and the other player on pre- and post-experimental "semantic differential" scales.

2. Bargaining Effectiveness Measures. We measured such variables as joint payoff (in points), number of contracts, absolute payoff difference between $S_1$ and $S_2$ (in points), number of times one or both members of a pair did not bargain on a problem but immediately took their independent values, and number of one or more consecutive Schedule 1 contract agreements which did not result in 1 or more Schedule 2 contract agreements.

3. Bargaining "Intensity" Measures. We measured such variables as number of threats, and number of times one or both members of a pair misrepresented his independent value.

In addition to the above measure, tape recordings were made of each of the bargaining sessions.

Results: Thus far, only the bargaining effectiveness and "intensity" data have been subjected to analysis; the subjects' attitudes toward one another and the tape recording will be analyzed in the context of the cross-national replications.

Bargaining Effectiveness. It was found that pairs in the money conditions (a) showed no differences in magnitude of joint pay; (b) divided a greater number of contracts ($p < .05$); (c) had a smaller payoff difference between pair members ($p < .05$); (d) had fewer occasions in which one or both members of a pair did not bargain ($p < .01$); and (e) had fewer occasions in which one or more consecutive Schedule 1 contract agreements did not result in 1 or more Schedule 2 contract agreements ($p < .05$). Overall, there was a (nonsignificant) tendency for pairs in the unequal dependence-money condition to be the most effective bargainers - and for the pairs in the unequal dependence-points condition to be the least effective bargainers - in terms of the above indices.

Bargaining "Intensity". It was found that while there were no differences in the total number of times pairs misrepresented their independent values, when $S_1$ alone was considered (in the unequal dependence treatment, $S_1$ was the pair member with the lower independent values), $S_1$ tended to misrepresent his independent values significantly more often in unequal than in equal dependence conditions ( $< .05$). Threats by both bargainers tended to be most frequent in the equal dependence-money and the unequal dependence-points conditions (interaction $p < .10$). When number of threats by $S_2$ alone was considered, this interaction effect was found to be strengthened ($p < .05$).

The results can be briefly summarized as follows: The use of an immediately tangible incentive (money) seems to increase the effectiveness of bargaining in the experiment. Furthermore, the effectiveness tends to be greatest when tangible incentive is combined with greater power difference. However, in the bargaining pairs in which "point" incentives were combined with unequal power, bargaining effectiveness seems lowest. Finally, it should be noted that pair members with low relative power (in unequal dependence pairs) tend to bargain with greater "intensity" than do pair members with power equal to that of their partners (equal dependence pairs). When the unequal dependence pairs have a tangible incentive (money) this "intensity" seems to be related in some way to effective bargaining; while when unequal dependence pairs have "point" incentives, this "intensity" seems to be related to relatively less effective bargaining behavior.

VI. Compliance to Threats Directed Against Self and Against An Innocent Third Person

This study was conducted by Dr. Harvey Hornstein, Miss Barbara Benedict, and Dr. Morton Deutsch.

The present experiment was concerned with comparing compliance to two types of threat: (1) alter threatens to harm ego if ego does not comply with alter's wishes; and, (2) alter threatens to harm a third party if ego does not comply with alter's wishes. We reasoned that the latter type threat activates social responsibility motives and, consequently, produces relatively more compliance.

The experiment employed a 2 x 5 experimental design. Sex, one of the two variables, was systematically varied over five different threat conditions: In two conditions the innocent third party's losses for non-compliance were varied in the context of a 3-person game; the last condition allowed us to compare conditions in which the magnitude of loss was constant but the third party's presence or absence varied.

The data do not support the hypothesis. We suspect that the intensity of social responsibility forces is affected by conditions that affect the degree to which the other is perceived as having the right to expect help.