Annual Status Report

October 1, 1967

TECHNIQUES OF INDUCING COOPERATION BETWEEN ADVERSARIES

Contract Number: Nonr-4294(00)

Principal Investigator: Dr. Morton Deutsch,

Teachers College, Columbia University

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Five studies are described in this report. The first study is a continuation of work described in the previous Annual Status Report; the second and third studies are replications and extensions of the study described in Technical Report #5; the last two studies are described here for the first time.

I. The Cross-National Bargaining Study.

This study is part of a larger study that was conducted at several different locations in the United States and Europe 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, Mark Mulder, Serge Moscivici, Josef Nuttin, Jr., Jaap Rabbie, and Henri Tajfel as the European members. Replications of the same bargaining experiment were completed in social psychological laboratories located in Louvain, Paris and Utrecht in Europe, and in

Hanover, Los Angeles, New York, Chapel Hill and Santa Monica in the United States.

In addition to cross-national comparisons, the larger study investigated the effects of different incentives ("money" versus "points") and relative power of the bargainers ("equal" versus "unequal"). Much of the data have been analyzed, using the Systems Development Corporation's computers which were made available as a result of Gerald Shure's benevolence. A preliminary write-up has been made by Harold Kelley. Plans have been made for further analysis and write-up at a meeting in September.

The data may be briefly summarized as indicating that:

(1) the bargainers were more cooperative when bargaining for money rather than points;

(2) in the unequal power conditions, subjects bluff somewhat more than they do in the equal power conditions;

(3) the more rewarding a contract agreement was in relation to the values available to the bargainers without an agreement, the greater the likelihood that they would come to an agreement;

(4) the differences among the sites were marked as much so among the American locations as between the locations in different nations.

II. Strategies of Inducing Cooperation: Replication and Extension

This study is a replication and extension of the study previously reported as Technical Report #5, and which appeared in the Journal of Conflict Resolution, September 1967 issue. The major

reasons for the replication were the disproportionality in the distribution of men and women among the experimental conditions in the initial experiment; the larger number of S_s who had to be discarded because their cooperative behavior did not expose them to the strategy they were assigned to experience; and the fact that one of the strategies, the Deterrent strategy, was not studied under the "Reformed Sinner" conditions. In addition, because the results of the first experiment agreed so strongly with the investigator's expectations, we tried to eliminate the possibility of "experimenter bias" by automating the experiment and reducing the experimenter's contacts with the subjects to practically nil.

The experimental procedures and the results are described in detail in Technical Report #9 which will be distributed shortly. The results, in general, are very similar to those of the initial study with one exception. The Turn the Other Cheek strategy in the "Reformed Sinner" conditions was rather less effective in inducing cooperative behavior in the second experiment than in the first one. Few differences of any significance were found in the reactions of the men as compared to the women for the different strategies.

III. Relative Power and the Effectiveness of Different Strategies in Inducing Cooperation.

This study is a continuation of the line of research described in the preceding study (II, above). The effectiveness of the Turn the Other Cheek, Nonpunitive, and Deterrent strategies are examined under conditions in which the subject has equal, less or greater

competitive power than the accomplice of the experimenter who is employing one of the predetermined strategies.

This study employs a modified version of the Deutsch-Hornstein allocation game. The modifications have been introduced so as to tempt the average subject to play competitively.

The study is currently in the data-collection stage.

IV. Penalty and Interpersonal Attraction as Factors Influencing the Decision to Help Another Person

This study was conducted by Yakov M. Epstein.

Recent dramatic instances of social responsibility and of social apathy have stimulated an interest in the psychological study of altruistic behavior. These instances have also led to a concern about courses of legal and social action which would increase socially responsible behavior. One consequence of this concern was the position taken by a group of legal scholars who proposed the formulation of a set of laws, based upon the legal codes of several European countries which would punish individuals failing to aid persons in need of help. An alternative position, taken by Epstein and Hornstein, suggested that socially responsible behavior could be evoked more readily by creating conditions which would emphasize the obligation to conform to an internalized norm of social responsibility rather than by a threat of punishment for refusal to help. They argued that the violation of an internalized norm leads to feelings of tension. This tension results from a discrepancy between what is (I have done wrong)

and what ought to be (if I have done wrong, I ought to be punished). They further argued that punishment reduces the tension associated with transgression by eliminating the discrepancy between what is and what ought to be, and frees the individual to act non-altruistically. They hypothesized and found that in comparison with a person who does not anticipate punishment, an individual who anticipates punishment for non-altruistic behavior acts less altruistically.

The results of the Epstein and Hornstein experiment were open to alternative explanations. In the experimental situation which they employed, the person in need of help was also the person empowered to punish the subject for not helping. One could argue that a person who punished was liked less and hence was considered less deserving of help than a person who did not punish. One could also argue that in comparison with subjects who did not anticipate punishment, subjects who anticipated punishment were faced with pressures to maintain face in response to the other person's threat of punishment.

The present experiment attempted to replicate the Epstein and Hornstein experiment using a revised procedure intended to eliminate explanations alternative to the original hypothesis. It also attempted to determine how the interaction between penalty and the subject's interpersonal attraction to the other person affected the subject's tendency to help the other person.

Design and hypotheses.

Subjects known as Decision Maker 1 (DM 1) participated in an impression formation and decision-making task together with two other

persons known as Decision Maker 2 (DM 2) and a Participant Observer (PO). In reality, the subject was the only participant in the experiment. The experimental task confronted the subject with a dilemma: he had to choose either to earn money while allowing DM 2 to receive an electric shock, or to forego his profit in order to prevent DM 2 from being shocked. The choice situation was represented to subjects by means of the matrix shown below.

Figure IV. 1.

DECISION MATRIX EMPLOYED IN EMPERIMENT

		Choices of Decision Maker 1 (subject)	
		Green	Red
Choices of Decision Maker 2	Green	DM 1: 0¢ DM 2: 0¢ DM 2: No shock	DM 1: 20¢ DM 2: 0¢ DM 2: Shock.
	Red	DM 1: 0¢ DM 2: 20¢ DM 2: No shock	DM 1: 0¢ DM 2: 0¢ DM 2: Shock

Before the start of the task, PO communicated a message from DM 2 to the subject. The message asked the subject to select green in order to prevent DM 2 from receiving a shock and informed the subject that DM 2 would always choose green.

Six conditions were employed in a 2 x 3 factorial design. An attempt was made to create conditions in which subjects either liked or disliked DM 2 by varying the similarity between their opinions. In addition, a control condition, referred to as "No Manipulation," was employed. Here subjects were given no information about the opinions of DM 2. Half the subjects in each of these three conditions were told by the PO that they would be punished with a loud tone if they did not choose green; the other half were told that they would not be punished.

The following hypotheses were tested:

1. Subjects in the "No Manipulation" condition who did not anticipate a penalty would act more altruistically (choose more greens) than their counterparts who anticipated a penalty for not helping DM 2.
2. Subjects in either of the "Dislike" conditions would show equally little altruistic behavior whereas subjects in the "Like" condition who did not anticipate a penalty would act more altruistically than their counterparts who anticipated a penalty.

Results

The opinion similarity manipulation produced the intended differences in liking.

The tables which follow show the mean number of altruistic (green) choices by subjects in the various conditions. These data indicate that neither of the proposed hypotheses were confirmed.

Table IV. 1.

MEAN NUMBER OF ALTRUISTIC CHOICES

IN DIFFERENT EXPERIMENTAL CONDITIONS

	Like	Dislike	No Manipulation
Penalty	10.0	6.6	9.6
No Penalty	4.8	11.5	9.8

Analysis of Variance:

Mean Number of Altruistic Choices

Source:	SS	df	MS	F	P
Penalty	0.150	1	0.150	0.004	
Interpersonal Attraction	51.100	2	25.550	0.744	
Interaction	265.900	2	132.950	3.876	$< .05$
Error	1852.100	54	34.298	-	

When these data were analyzed by means of a three-way analysis of variance which took blocks of trials into account, a significant interaction was found between conditions and blocks. A graph and an analysis of variance of these results are presented below.

Figure IV. 2.

TRENDS IN GREEN CHOICES OVER TRIALS

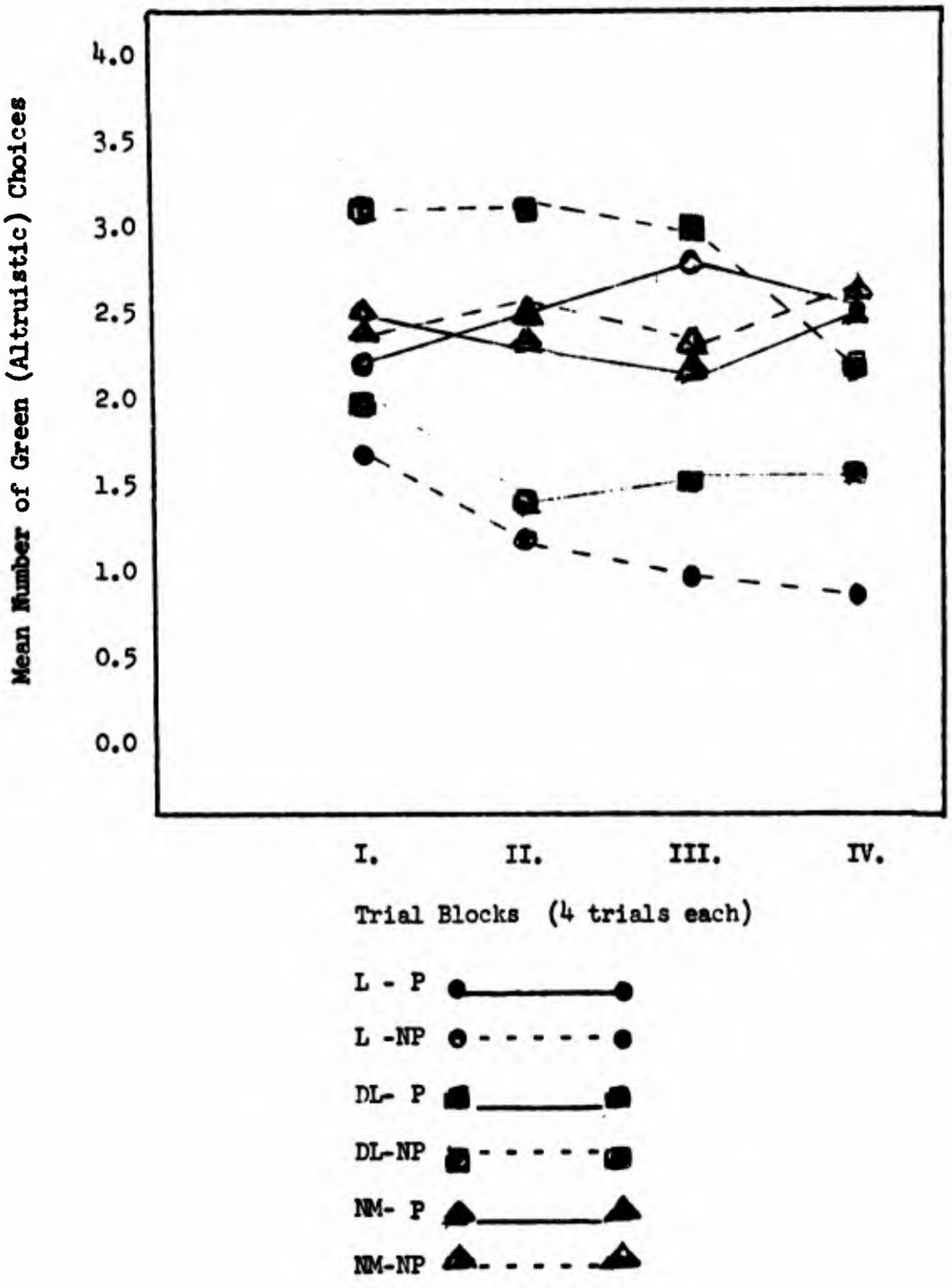

Table IV. 2.

THREE-WAY ANALYSIS OF VARIANCE OF NUMBER OF GREEN CHOICES BY TRIAL BLOCKS

Source of Variation:	SS	df	MS	F	P
Between Subjects	551.046	59			
A. Attraction	14.058	2	7.029		
B. Punishment	.004	1	.004		
A x B	63.859	2	31.929	3.644	<.05
Subject with groups	473.125	54	8.761		
Within Subjects	54.250	180			
C. Blocks	1.946	3	.648	2.551	<.10
A x C	3.342	6	.557	2.192	<.05
B x C	2.046	3	.682	2.685	<.05
A x B x C	5.741	6	.956	3.763	<.005
C x Subject with groups	41.175	162	.254		

A great deal of data not directly bearing upon the hypotheses of this study were also collected. These data are indicated in the three tables which follow. First, several interesting findings shown in these tables are summarized below:

1.a. Before the start of the task, subjects in the "Like" conditions saw DM 2 as significantly more intelligent than did subjects in the "Dislike" conditions. In addition, there was no difference in the intelligence ratings given by subjects in the "Like - Penalty" and the "Like - No-Penalty" conditions.

1.b. At the end of the task, subjects in the "Like - No-Penalty condition showed a significant decrease in their ratings of DM 2's intelligence whereas subjects in the "Like - Penalty" condition showed no such decrease.

2.a. Whereas subjects generally rated the penalty tone as moderately unpleasant, subjects in the No-Penalty conditions rated the tone (based on a sample tone which they heard) as significantly more unpleasant than did subjects in the penalty condition.

2.b. Low altruists in the Penalty conditions rated the tone as significantly more unpleasant than did high altruists in the Penalty conditions.

3. Subjects rated the Participant Observer who punished them as significantly less ethical, less reputable, less

intelligent and less cooperative than the one who did not punish them.

An explanation of the data dealing with the number of altruistic choices has been proposed based upon the above data. It was suggested that subjects in the "Like" conditions believed that the DM 2 was intelligent and could be induced to change to an alternation strategy in which both subjects would earn money. Subjects attempted to induce him to choose red and change his strategy by initially selecting red themselves. They learned, however, that in fact he continued to choose green. Subjects who had not been penalized needed to justify their behavior and did so by derogating DM 2 and continuing to choose red. Subjects who had been penalized did not feel the need to justify their behavior. Instead they changed to a green strategy and did not derogate DM 2.

Table IV. 3.

SUMMARY OF POST-EXPERIMENTAL QUESTIONNAIRE DATA

	Penalty			No Penalty			
	Like	Dislike	No Manipulation	Like	Dislike	No Manipulation	
Unpleasantness of tone[1]	43.2	38.7	34.2	21.1	45.5	34.5	**
Painfulness of D.M. 2's Shock	22.5	26.8	20.1	18.1	23.2	24.7	
Own Ethicality	18.6	28.1	17.6	34.2	23.5	14.6	
D.M. 2's Ethicality	17.8	14.7	22.0	11.2	11.7	5.0	
P.O.'s Ethicality	9.6	14.4	26.0	6.4	5.6	5.7	****
Friendliness - P.O. and D.M. 2	16.9	25.6	22.6	18.1	21.9	18.6	
Friendliness - Subject and P.O.	32.2	25.2	34.2	23.8	22.9	30.1	
Friendliness - Subject and D.M. 2	19.3	45.7	24.8	33.2	26.9	26.9	***
Tension Scale	55.3	53.9	52.6	52.8	57.6	53.0	

* = PL .05

** = P<.025

*** = P<.01

**** = P<.001

[1]Range of values for each scale.

Tone:	1 . . . . . Extremely uncomfortable	61 Not at all uncomfortable
Shock:	1 . . . . . Extremely painful	61 Not at all painful
Ethicality:	1 . . . . . Extremely ethical	61 Extremely unethical
Friendliness:	1 . . . . . Extremely friendly	61 Not at all friendly

Tension: 7 = maximum tension;

84 = minimum tension.

Table IV. 4.

IMPRESSIONS OF DECISION MAKER 2

	Penalty			No Penalty			
	Like	Dislike	No Manipulation	Like	Dislike	No Manipulation	
Pre-Intelligence[1]	18.3	27.3	35.3	17.3	33.9	21.6	****
Post-Intelligence	19.6	38.6	36.4	30.8	37.9	32.7	*
Pre-Cooperation	36.8	34.5	30.2	35.8	30.0	25.3	
Post-Cooperation	43.6	32.0	43.3	44.2	38.6	35.5	
Pre-liking	23.1	44.4	29.4	22.8	34.9	23.7	****
Post-liking	21.3	45.4	31.4	26.3	36.1	28.9	****
Pre-Reputableness	15.5	26.5	26.9	20.3	27.6	23.7	*
Post-Reputableness	20.2	17.8	24.1	19.9	17.6	16.1	
Pre-Egoism	29.7	22.2	31.2	28.7	25.4	26.6	
Post-Egoism	38.5	29.2	39.7	32.6	30.6	37.2	
Pre-Goodness	17.3	32.8	23.6	20.5	26.7	19.1	***
Post-Goodness	13.4	28.4	27.4	19.1	20.1	16.7	
Pre-Power	17.4	21.0	22.4	26.9	17.3	18.9	
Post-Power	20.9	16.1	20.5	26.9	19.0	19.2	

* = $P < .05$

** = $P < .025$

*** = $P < .01$

**** = $P < .001$

[1] Range of scale values.

Intelligence:	1 . . . . . Extremely intelligent	61 Extremely unintelligent
Cooperation:	1 . . . . . Extremely uncooperative	61 Extremely cooperative
Liking:	1 . . . . . Like very much	61 Dislike very much
Reputableness:	1 . . . . . Extremely reputable	61 Extremely disreputable
Egoism:	1 . . . . . Extremely egoistic	61 Extremely altruistic
Goodness:	1 . . . . . Extremely good	61 Extremely bad
Power:	1 . . . . . Extremely powerless	61 Extremely powerful

Table IV. 5.

IMPRESSIONS OF PARTICIPANT OBSERVER

	Penalty			No Penalty			
	Like	Dislike	No Manipulation	Like	Dislike	No Manipulation	
Pre-Intelligence[1]	16.0	20.4	22.4	13.5	13.7	11.2	**
Post-Intelligence	17.0	22.4	26.1	15.2	13.2	20.9	
Pre-Cooperation	29.7	29.5	23.4	37.1	45.2	31.8	**
Post-Cooperation	41.2	43.4	43.4	42.2	40.3	35.3	
Pre-liking	25.0	22.5	23.4	25.3	18.2	21.6	
Post-liking	27.9	24.1	31.4	18.6	22.1	28.9	
Pre-Reputableness	14.3	15.8	29.8	11.9	11.5	15.6	*
Post-Reputableness	7.2	13.0	24.1	11.9	12.9	16.1	*
Pre-Egoism	31.7	37.9	32.4	41.4	39.8	32.5	
Post-Egoism	32.6	39.6	39.7	43.6	39.7	37.2	
Pre-Goodness	15.4	18.4	26.0	12.7	15.7	15.7	
Post-Goodness	12.5	15.9	27.4	10.4	17.2	16.7	
Pre-Power	36.5	34.9	31.8	31.1	37.7	39.8	
Post-Power	37.7	30.7	30.8	32.8	38.0	31.2	

* = $P < .05$

** = $P < .025$

*** = $P < .01$

**** = $P < .001$

[1] Range of scale values.

Intelligence:	1 . . . . . 61 Extremely intelligent	Extremely unintelligent
Cooperation:	1 . . . . . 61 Extremely uncooperative	Extremely cooperative
Liking:	1 . . . . . 61 Like very much	Dislike very much
Reputableness:	1 . . . . . 61 Extremely reputable	Extremely disreputable
Egoism:	1 . . . . . 61 Extremely egoistic	Extremely altruistic
Goodness:	1 . . . . . 61 Extremely good	Extremely bad
Power:	1 . . . . . 61 Extremely powerless	Extremely powerful

Table IV. 6

MEAN INDEX OF PERCEIVED COALITION BETWEEN PARTICIPANT OBSERVER AND DECISION MAKER 2

	Like	Dislike	No Manipulation	
Penalty	75.3	59.6	50.6	*
No Penalty	69.6	61.0	59.5	

*P < .05.

Lower numbers indicate greater perceived coalition.

Subjects in the "Dislike" conditions believed that DM 2 was unintelligent and could not be induced to change his strategy. If they anticipated a penalty, they felt free to act non-altruistically. On the other hand, if they anticipated no penalty, they chose altruistically in order to avoid tension.

Subjects in the "No Manipulation - Penalty" condition saw DM 2 initially as unintelligent. They also perceived a coalition between DM 2 and PO. It is quite possible that these subjects viewed their penalty as an effort on the part of the PO to protect DM 2 rather than as an objective requirement of the situation. If this is so, it is possible to conjecture that the penalty did not serve a tension reducing function. Subjects in this condition, therefore, chose more altruistically than would have been predicted. On the other hand, subjects in the "No Manipulation - No-Penalty" condition behaved according to prediction.

This study will be distributed as Technical Report #10 shortly.

V. The Effects of Motivational Orientation on the Readiness to Reveal or Conceal Behavior

This study is being conducted by Morton Deutsch, Harvey Hornstein and Ella Lasky.

The experiment is concerned with the conditions under which a subject "P" chooses to reveal a given outcome of his task performance to another ("O", a stooge). A cooperative or competitive motivational orientation is induced in the subject by means of a bonus system. The subject is led to believe that "O" knows whether "P" is working under

a cooperative or competitive bonus system. He is also led to believe that "O" will have an opportunity to choose between the cooperative and competitive bonus systems at the end of the task. Thus "P" believes that "O's" behavior is influencable, and it is in his interests to influence "O" to behave cooperatively.

During the decision-making task, "P" engages in behavior which leads to an outcome which is mutually beneficial (cooperative), beneficial to "P" and harmful to "O" (competitive), or unrewarding to both (ineffectual). "P" and also presumably "O" are led to believe that the outcomes are determined by "P's" skill and intention, and that "P's" skills are adquate. In fact, the outcomes are programmed by the experimenter. The experiment studies the conditions under which cooperative, competitive and ineffectual outcomes are revealed to another.

"P" is told that he is working on a decision-making task with another person. The outcomes of this decision-making task have consequences for both "P" and "O". "P's" task is to determine the imperfect rule that controls a sequence of light patterns and to predict where one of the lights in the next pattern is to appear. The 9-light matrix (See Figure V. 1. below) contains three types of lights such that one row contains cooperative outcomes (C), a second row contains competitive outcomes (K), and a third row contains ineffectual outcomes (I). "P" expresses his preference for C, K, or I, and he predicts where in this matrix the light will appear by pressing one of the prediction column buttons indicated in the figure below. He then learns if his prediction was correct or incorrect and must reveal to the other what the consequence of his decision was for both of them. "P" may send any one of five

messages to "O" ("O" does not know the actual outcome of "P"). These messages indicate that "P's" behavior benefitted both; benefitted "P" and harmed "O", or was unrewarding for both; or he has no information about the outcome; or that he was merely practicing, and that the turn didn't count. Thus, he may reveal his actual outcome on any turn, or he may conceal it in any of four ways. After receiving this message, "O" makes his decisions.

EQUIPMENT PANEL FOR REVELATION

OR CONCEALMENT OF BEHAVIOR

	Preference Area	Prediction Area	Message Area
Cooperative	□	O O O	□
Competitive	□	O O O	□
Ineffectual	□	O O O	□
		□ □ □ 1 2 3	□ No Info
			□ Practice Turn

□ = button

O = light

Before beginning to work on the task itself, the S's are given a practice period in which they try to determine the rule controlling the light sequence. They have the option to end this learning period whenever they choose. This serves to create a feeling of responsibility in "P" for what happens in the task itself.

A second experiment has been superimposed on each of the conditions in the first experiment. At the close of the first experiment, "P" learns that the Other (a stooge) has done (1) much better, (2) much worse, or (3) about the same on the task as he has done. The task proceeds, with "O" sending messages to "P". In all cases, he communicates almost completely cooperative outcomes. The focus of this experiment is on the motives which "P" attributes to "O", what he perceives "O's" outcomes to be and how trusting he is of "O", given his own past behavior. There have not been any specific predictions made at this point. It is assumed that the more trustworthy "P" had been, the more trusting he will be of "O's" messages. In addition, it is thought that as the discrepancy between the outcomes of "P" and "O" increases, there will be a lesser tendency to trust "O".

These experiments are currently in the data-collection stage.