

THE DEVELOPMENT, AND THE EFFECTS
UPON BARGAINING, OF TRUST AND SUSPICION

by

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ABSTRACT

This study was concerned with (i) experiential factors which affect the development of trust and suspicion, and (ii) the effects of trust and suspicion upon bargaining and negotiations. Essentially, the experiment consisted of an orthogonal $2 \times 2 \times 3$ factorial design with one control group. Altogether, 112 male undergraduates comprised the final sample.

Particular emphasis was placed upon developing an approach that could overcome some of the methodological problems that have been inherent in previous attempts to study trust and suspicion. To this end, the experiment was designed to allow (on the basis of the observation of the subjects' responses) valid inferences about trust and suspicion. For example, subjective trust and suspicion were distinguished from manifest trust and suspicion, and were measured on the basis of responses related to a one-trial sequentially-played game. Moreover, the game involved a payoff matrix that was meaningful to the subjects insofar as it was possible for the subjects to incur real losses of their own money apparently as a result of the untrustworthy behavior of one of the other subjects.

With respect to the development of trust and suspicion as a function of previous experience, it was found that:

(1) previous trustworthiness engendered trust whereas

previous untrustworthiness generated suspicion; (2) suspicion was established more easily than trust; however, (3) where previously the incentive to betray had been high, trust was greater especially if the other person (O) had resisted the lucrative temptation to betray. Of methodological interest was a related finding that the tendency to manifest trust or suspicion was closely related to the underlying (subjective) state of trust or suspicion. The nature of this relationship in terms of certainty and uncertainty was, however, more clear-cut for those who manifested suspicion than for those who manifested trust. While the former were certain that O would be untrustworthy, the latter manifested trust toward O even though they were uncertain as to whether O would be trustworthy or not.

In the second part of the study, both trust and suspicion were found to be important in influencing bargaining and negotiations in a number of respects. With regard to the duration of bargaining, the trust group required less time to reach agreements than did the suspicion group. Several reasons for this finding were evident. First, subjects in the suspicion group made initial offers that were more extreme than the initial offers made by the subjects in the trust group. Secondly, subjects in the suspicion group appeared to be more concerned with the objective of modifying each other's utilities. This was reflected in the

finding that the communications of the suspicion group (compared with the trust group) were characterized more by lies, threats, and ultimatums, and less by genuine and sincere attempts to exchange information; also, subjects in the suspicion group made more checks on each other and made more refusals to bargain than did the subjects in the trust group.

In relation to the nature (location) of the solution, trust and suspicion appeared to have no overall effect upon whether settlements were made at equality or equity. There was, however, a prevalence of settlements at equality (regardless of whether trust or suspicion was operating). The interesting feature about this result was that the equality that was obtained in a context of suspicion was hard-earned over a prolonged period of time, whereas the equality that was agreed upon in the context of trust was relatively easily achieved. It was therefore concluded that even if the nature of the solution were not affected by suspicion, bargaining under a certain amount of trust would be preferable to bargaining under a high degree of suspicion; for under extreme suspicion, task-oriented behavior becomes easily disrupted and reduced to time-consuming conflict.

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THE DEVELOPMENT, AND THE EFFECTS
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Trust and suspicion, because they appear to underlie many social interactions, occupy an important role in many efforts to explain or describe various human relationships. Knowledge about the nature of these concepts remains, however, at a speculative and relatively primitive level because of a lack of theoretical and methodological development. Not only have some relevant variables been inadequately investigated or even completely neglected, but also the experimental techniques employed have often been inappropriately applied. This paper is therefore devoted to a systematic examination of trust and suspicion. It will involve two related objectives: (i) to attempt to overcome some of the methodological difficulties in studying trust and suspicion, and (ii) to obtain some theoretically-important empirical evidence about both the development and the effects of trust and suspicion.

This dissertation will be organized into eight chapters. In the first four chapters, the conceptual framework for the hypotheses and the methodological basis for the experiment to test these hypotheses will be presented. Then, in the next three chapters (Chapters Five, Six, and Seven), the experiment itself will be reported

and discussed. Finally, in Chapter Eight, the major conclusions of the study will be outlined in the context of a resumé of the results.

CHAPTER ONE: GENERAL INTRODUCTION

A. Defining and Conceptualizing Trust and Suspicion:

Explicit definitions of trust and suspicion are, on one hand, conspicuously scarce. On the other hand, a diverse variety of terms is frequently used synonymously with trust and suspicion. Cooperation, faith, confidence, are often used synonymously with trust, while competition, resistance, defensiveness, are sometimes used interchangeably with suspicion. Existing definitions of trust and suspicion are rather limited and almost peculiar to particular studies. This is understandable if one considers some of the problems in defining trust and suspicion.

Popular notions -- however vague or unspecified -- and more sophisticated notions of trust and suspicion seem to enter into a gamut of relationships ranging from the intra-personal to the interpersonal, and from primitive inter-tribal relationships to contemporary inter-national contexts. However, the precise connotations implied when the terms trust and suspicion are employed in these various instances are not identical from one instance to the next. For example, a mother is said to "trust" the baby-sitter just as a parishioner is said to "trust" the priest during confession. Similarly, the Akka pygmies of Africa may be said to "trust" the neighboring agricultural

tribes in their silent trade relationships just as Britain may usually be said to "trust" the United States in their political and economic relationships. Yet, the exact notion of trust involved in each of these examples is different. If there is some thread of communality running through the range of such diverse applications, then it is necessary that adequate definitions attempt to extract or specify the common dimensions or elements that characterize trust and suspicion in those diverse applications.

Another problem in defining trust and suspicion concerns, to a certain extent, the problem of how trust and suspicion are conceptualized. For example, is only one dimension involved in which trust and suspicion represent the extremes of a continuum? And is distrust the "opposite" of trust, or are distrust and suspicion in fact the same?

It is tempting to regard trust and suspicion as polar opposites; but in terms of function, this is not so easily the case. Ordinarily, trust is regarded as having positive, desirable consequences, while suspicion is depicted as having disruptive, dysfunctional effects. However, extreme trust -- what Deutsch calls "pathological trust," and characterized by such terms as "gullible" and "credulous" (Deutsch, 1958, p. 278) -- may also be dysfunctional just as extreme suspicion -- a sort of paranoid state -- may be

dysfunctional. On the other hand, Deutsch does not acknowledge the possibility that a slight amount of suspicion (however that is determined) -- a kind of alert but not distracting guardedness -- may be facilitative. It is evident that trust and suspicion are complex concepts which probably require a considerable amount of qualification.

In order to facilitate the definition of trust and suspicion, those features which distinguish some situations from others as involving trust and suspicion will first be identified. In the simplest and perhaps the most common case, a trust situation involves two parties that are to a certain extent interdependent with respect to the outcomes defined by their joint choices, and one of the parties (P) is confronted with the choice between trusting or not trusting the other (O). If P's choice is to manifest trust toward O, then O, in turn, has the choice of being either trustworthy or untrustworthy. However, P's choice not to manifest trust toward O will preclude betrayal, leaving O usually with no further option with respect to the particular situation. It is important to note that both P and O are cognizant of the risk to which P exposes himself in his decision to trust O. ("Risk" here refers to the possibility that O can -- but not that he necessarily will -- betray P's trust.)

That is, P knows Q can betray him and Q knows that P has extended his (P's) trust even in the face of that risk. Therefore, even where the risk is perceived to be negligible, the situation still involves trust, as long as the possibility of betrayal by Q exists.

So far, statements about trust and suspicion have referred to manifest behaviors but not to the underlying theoretical states. This distinction, rarely made explicit in other studies, is extremely important for two reasons, both of which relate to the fact that observed choice behavior in the Prisoner's Dilemma Game (PDG) has been almost the only means by which trust and suspicion have been inferred, defined, and measured. First, the choice behavior in the simultaneous-play PDG is not solely attributable to the concepts of trust and suspicion, but is subject to other interpretations that do not necessarily involve trust and suspicion. Secondly, the dichotomous choice behavior presently utilized is not sensitive to theoretically-important variations in the subjective state. While both of these assertions will be developed more extensively in the next chapter, the nature and the role of the underlying states will now be specified in greater detail in the process of defining trust and suspicion.

Subjective trust and suspicion can be defined in terms of P's certainty or uncertainty about Q's trustworthiness.

Certainty might be measured, for example, by P's subjective probability that Q will be trustworthy or untrustworthy, given that P has already made a trusting choice. The greater P's certainty that Q will be trustworthy, i.e., the more P trusts Q, the greater the likelihood that P will commit himself to the act of trusting Q; the greater P's certainty that Q will be untrustworthy, i.e., the more P suspects Q, the greater the likelihood that P will choose not to trust Q.

This analysis raises the possibility that there is a point or threshold at which subjective trust (i.e., the degree to which P is certain that Q will be trustworthy) becomes manifest as an act of trust. It would be interesting to determine the factors that influence the level of this threshold -- for example, whether or not the threshold varies in a consistent way between individuals, or if it varies according to situational factors such as incentive. This sort of information would obviously be inaccessible without a measure of the underlying constructs.

The way in which trust and suspicion are basically conceptualized is depicted in Figure 1. It is suggested that in addition to the factors associated with previous experience (corresponding to (a) of Figure 1) most of the independent variables can be grouped into two other broad categories: structural and situational factors (corresponding

Independent Variables

Hypothetical Intervening States

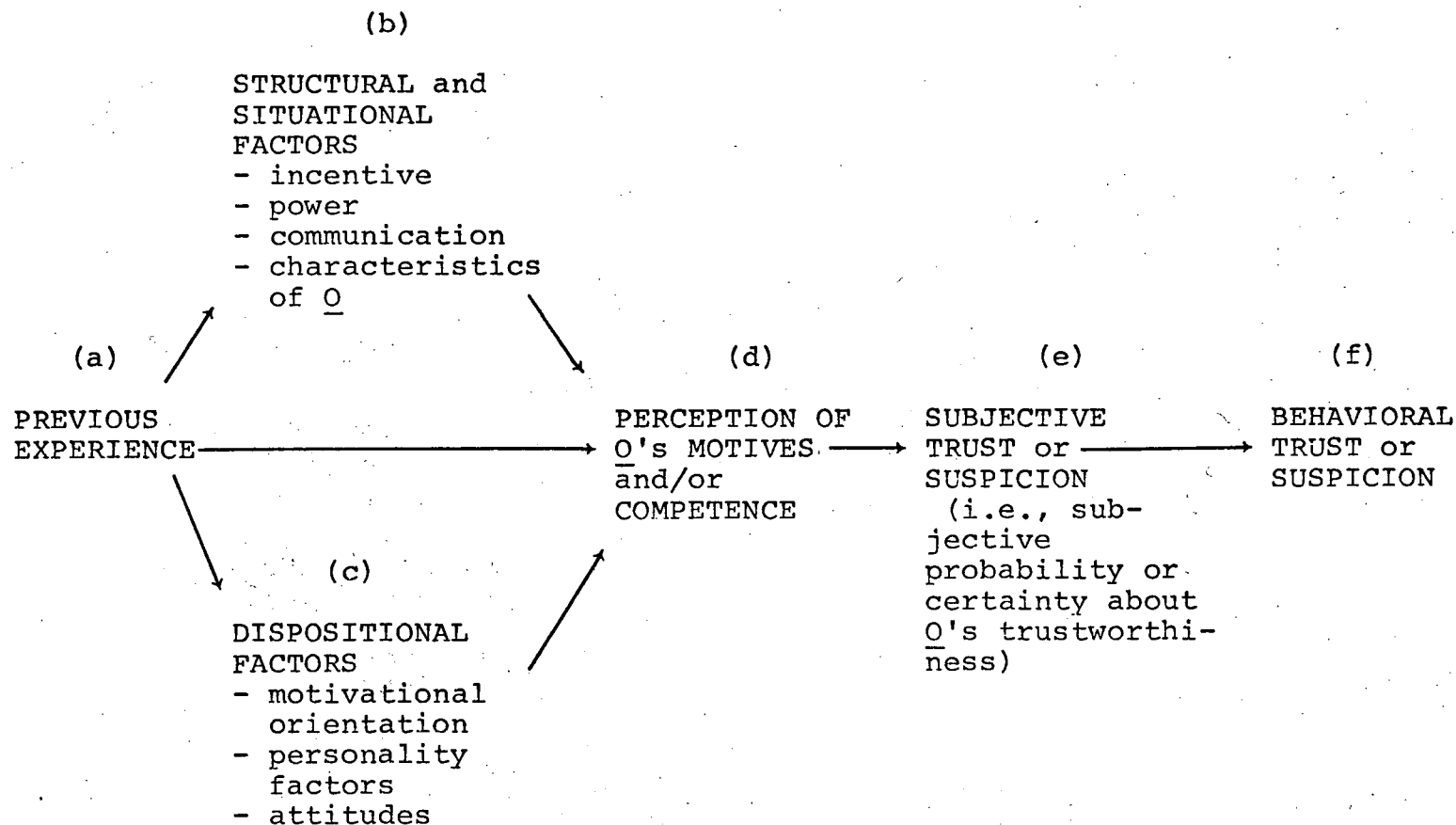


Figure 1. Basic conceptualization of trust and suspicion. (The factors represented above pertain to P's trust or suspicion vis-a-vis O.)

to (b) of Figure 1) and dispositional factors (corresponding to (c) of Figure 1). It is important to note that in addition to acting directly to influence P's perception of Q's motives and/or competence (corresponding to (d) of Figure 1), previous experience itself can influence the structural and dispositional factors.

Each of the three classes of independent variables may act directly to influence P's perception of Q's motives and/or competence. Then, depending on how P does perceive Q's motives and/or competence, P will experience some corresponding degree of subjective trust (or suspicion) which may or may not be manifest as trust (or suspicion). Essentially, the effects of such observable "inputs" as incentive and power upon the observable "output" of manifest trust or suspicion are therefore mediated by two hypothetical states -- first, P's perception of Q's motives and/or competence and secondly P's certainty or uncertainty about Q's untrustworthiness. In the next two chapters, it will become evident that this conceptualization of trust and suspicion has certain important methodological implications.

B. The Method Traditionally Employed to Study Trust and Suspicion:¹

Before reviewing some of the relevant literature, a description of the methodology generally employed in most of the experiments on trust and suspicion will first be presented. A more detailed critique of this methodology will be reserved for the next chapter.

Most studies of trust and suspicion are characterized by the use of a replicated, simultaneously-played, dichotomous choice PDG² as the means by which trust and suspicion are manipulated or measured. A typical PDG payoff matrix is illustrated in Figure 2. There are usually two players (P and O) with two choices each (p_1 or p_2 and o_1 or o_2) and four resulting choice-combinations that indicate the possible payoffs for each player. The choices p_1 and o_1 are usually labelled as being "cooperative" choices while p_2 and o_2 are usually labelled as being "competitive". The outcomes (choice-combinations) are such that if both select their second

¹For the remainder of this paper, P and O will refer, in the general case to the members of a dyad. In addition, P and O will also refer to the two players in a Prisoner's Dilemma Game.

²It is acknowledged that because the game is replicated, the designation 'Prisoner's Dilemma' no longer truly applies. Nevertheless, the terms will be used in this study more as a matter of convention than of appropriateness.

		<u>0</u>	
		o_1	o_2
<u>P</u>	p_1	3 , 3	0 , 5
	p_2	5 , 0	1 , 1

Subject P chooses between the rows p_1 and p_2 and subject 0 chooses between the columns o_1 and o_2 . The payoffs for P are indicated by the first number in each cell while 0's payoffs are indicated by the second number in each cell.

Figure 2. Payoff matrix of a typical Prisoner's Dilemma Game.

alternative (p_2, o_2) , i.e., if both compete, both receive only the small payoff indicated in the lower right quadrant of Figure 2. On the other hand, if both select the first alternative (p_1, o_1) , i.e., if both cooperate, both receive the relatively larger, but nevertheless moderate amount indicated in the upper left quadrant of Figure 2. However, where one competes while the other cooperates, the one who competes receives the largest payoff while the one who cooperates receives the smallest, as is evident in either the upper right or the lower left quadrants in Figure 2. There may be, then, a temptation to choose competitively in the hope that the other will choose cooperatively.

In a one-trial simultaneous-play game, the prescribed solution (vide Luce & Raiffa, 1957, p. 96) is for both players to choose competitively in order to minimize potential loss. The dilemma lies in a number of considerations: First, mutual cooperation (i.e., both choose cooperatively) seems to be the most reasonable solution since it is obvious that both players cannot receive the maximum payoff on a given trial. But, in choosing cooperatively, the way is left open for the other player to choose competitively. Hence, since there is only one trial, both players are "forced" into a paradoxically self-defeating outcome for which the payoff is lower than

if both had cooperated. In the words of Messé and Sawyer (1966), "reasonable men must choose in a way that produces an unreasonable outcome" (Messé & Sawyer, 1966, p. 1).

In an iterated game with simultaneous play, mutual cooperation, being to the advantage and benefit of both players in the long run, is the solution usually prescribed (vide Luce & Raiffa, 1957, p. 101). However, it is possible to argue that the selection of the competitive choice is "rational" (in one's own best interest) on the last few trials or the last trial itself (Luce & Raiffa, 1957, p. 100). Such a consideration renders the mutually cooperative state, if it occurs, unstable, i.e., subject to defection and a consequent escalation of conflict, especially if the players do not know the exact number of trials in the game or if they "pre-empt" by competing too early in the game. For this reason, the "Nash solution" of mutual competition in an iterated game is also plausible (vide Rapoport, 1959, p. 58).

To account for the underlying motivation to cooperate, Deutsch postulates the notion of trust.

The essential psychological feature of the game is that there is no possibility for "rational" individual behavior in it unless the conditions for mutual trust exist. If each player chooses to obtain either maximum gain or minimum loss for himself, each will lose. But it makes no sense to choose the other alternative, which could result in maximum loss, unless one can trust the other player. If one cannot trust, it is, of course, safer to choose so as

to suffer minimum rather than maximum loss, but it is even better not to play the game. If one cannot avoid playing the game and if one cannot trust, there may be no reasonable alternative except to choose "the lesser of two evils" and/or attempt to develop the conditions that will permit mutual trust. (Deutsch, 1962, p. 309).

In effect, Deutsch is inferring trust and suspicion from the observation of cooperation and competition, respectively, in the PDG. However, the validity of such an approach is quite tenuous. The reasons for this objection will be considered in the next chapter.

CHAPTER TWO: METHODOLOGICAL CONSIDERATIONS

Earlier, it was noted that most attempts to investigate trust and suspicion have employed a replicated, simultaneously-played, dichotomous choice PDG. However, there are a number of important reasons why such a use of the PDG or most other non-zero sum games, is not entirely satisfactory. Since these objections have important implications for the sorts of inferences which might be made about trust and suspicion from observing game behavior, a careful examination of certain methodological questions is highly warranted. This examination will concern three methodological questions in particular: (A) Meaningfulness of Incentives and Payoffs, (B) Validity of Inferences, and (C) Defining and Measuring Trust and Suspicion.

A. Meaningfulness of Incentives and Payoffs:

One of the distinguishing aspects of real-life situations involving trust and suspicion is that there is something at stake, and in many cases, the stakes are incalculable. Yet, most of the laboratory studies that have purportedly dealt with trust and suspicion have employed points or imaginary money as the payoff units. It is possible, however, that real and more meaningfully large amounts of money might have yielded different results. As Messé and Sawyer (1966) reason,

When rewards are smaller, and their motivating ability less, other motivations more easily enter Small rewards do not make behavior unlawful, of course; they simply multiply the potential causes, making it more difficult to verify theories based upon responses to the rewards themselves (and hence more difficult to understand altogether).

(Messé & Sawyer, 1966, p. 16).

Evidence for this position has been found in recent studies by Gallo (1966), Knox and Douglas (1968), McClintock and McNeel (1966), Messé and Sawyer (1966), and Oskamp and Perlman (1965).

Although these studies are not conclusive, they do leave many of the existing conclusions about cooperation and trust (e.g., Deutsch's) open to criticism. The principal concern here is not so much with the strictly monetary aspects of the larger payoffs, but with the fact that we are interested in behavior (in this case, the behavior which trust and suspicion underlie) in which the stakes, whether materially large or small, are meaningful. As Deutsch himself notes, "There have been few studies where large amounts of money have been used" (Deutsch, 1966, p. 47). Essentially, the problem of meaningfulness reduces to a problem of utilities, and in this respect, implies that perhaps other sorts of utility units, e.g., prestige, might be studied. It is difficult, however, to scale other possible units. Nevertheless, it might be profitable to

explore other possibilities, even if the manipulations are rather gross and can only be placed on an ordinal scale.

As an alternative to monetary payoffs, shock might be used. Unfortunately, the results from the isolated attempts to employ shock (Bixenstine & O'Reilly, 1966, and Douglas, 1967) have not been very different from the results of studies using monetary payoffs. Another alternative is suggested by the fact that in true-life situations involving trust and suspicion, meaningfulness is usually derived from a considerable amount of personal investment and involvement on the part of the participants. If subjects could, for example, be made to perceive that they were actually losing their own money (and if such a procedure were ethical), then the situation would be more apt to take on a different and more meaningful perspective.

B. Validity of Inferences:

Validity is one of the most important considerations of any experimental undertaking. Here, it deals with the question of whether or not the PDG can be used to study trust and suspicion. If the PDG is a valid tool for the study of these concepts, then ideally, it ought to be possible to make reasonably unambiguous inferences about trust and suspicion on the basis of behavior observed in the PDG. For all intents and purposes, Deutsch and others equate the observation of cooperation with trust and the

observation of competition with the occurrence of suspicion. But as will be evident from the remainder of this section, a strong case may be mounted against such an equation.

There are two related questions which express possible approaches to this particular problem of validity. First, in what important respects does the PDG fail to represent real-life trust situations? Secondly, can other factors (in addition to trust and suspicion) be inferred from the observation of cooperation and competition in the PDG?

A moment's reflection upon the temporal aspects of acts involving trust and suspicion suggests that the majority of those situations are characterized by a sequence of events. The party that manifests trust or wants to demonstrate trust makes his move first and in effect places his own fate, to the extent that he trusts, squarely in the hands of the other. P, in the act of trusting Q, leaves himself vulnerable to Q, and both are usually aware of this vulnerability. Where P suspects Q, i.e., P has a strong expectation of an undesirable outcome that results from Q's choice, then P moves first so as to preclude or at least reduce the possibility of the negative outcome. The contention here then is that acts involving trust and suspicion are usually sequential in nature.

If this analysis is accurate and fairly general, then it would be necessary that the element of sequentialness be represented in an experimental situation designed to study trust and suspicion. There is, however, another reason for asserting that the notion of sequentialness is important, and this reason relates directly to the game situations used to study trust and suspicion.

When P makes a competitive choice in a condition of simultaneous play, it is difficult to know if his choice arises out of suspicion, i.e., an attempt to guard against the worst outcome, or if he is in fact trying to maximize his own payoff in the event that Q chooses cooperatively. Although the observed choice is the same, the underlying reasons are different. In a sequential play situation, the maximization explanation is ruled out and it is more likely, but not necessary, that P's choice can be attributed to the concept of suspicion.

With regard to a cooperative choice in this discussion of sequential versus simultaneous play, the focus shifts to Q's selection when Q is either certain or uncertain about P's choice. In simultaneous play, he is uncertain, while in sequential play, he is certain. In sequential play, there is no doubt that when P is first and chooses cooperatively, Q may be characterized as being either

trustworthy, if he also chooses cooperatively knowing that P is vulnerable, or untrustworthy, if he chooses competitively and takes advantage of P's vulnerability. In contrast, such imputations about Q's behavior in the simultaneous play situation are more ambiguous.

This discussion of simultaneity has anticipated somewhat the question as to whether other motives might underlie manifest cooperative and competitive choices. According to McClintock and others, there are at least three motives that influence a subject's response in the PDG: 1) Maximization of one's own gain (MOG) regardless of the other person's outcome, which is more or less equivalent to what Deutsch has called an individualistic motivational orientation, 2) Maximization of joint gain (MJG), i.e., the total gain for both oneself and the other, which is approximately equivalent to a cooperative orientation, and 3) Maximization of the difference between one's own gain and the other person's outcome, (MD) which is roughly equivalent to a competitive orientation (Becker & McClintock, 1967; McClintock & McNeel, 1966; McClintock & Messick, 1967; and Minas, Scodel, Marlowe & Rawson, 1960).

There may, of course, be other motives. For example, a punishment or "vindictiveness" motive may be operating, wherein the subject wants to minimize the other person's

payoff at any cost to himself. Or, there may also be a motive to outwit the other person. This would not involve the pattern of solely competitive responses observed for a competitive orientation, but might consist of a series of cooperative responses that would set the stage for periodic or eventual defection. Such a motive might be salient where, for example, the esteem of a third party or onlooker, such as a prestigious experimenter, is valued.

It has been argued in this section that a problem exists with respect to the validity of inferences which might be made on the basis of the present use of the PDG. It is necessary to conclude that because subjects may perceive and be motivated by factors other than those related to trust and suspicion, caution must be exercised in making inferences about these concepts on the basis of observed cooperation and competition. This is not to say that the PDG is invalid for the study of trust and suspicion, but rather that a more refined and qualified application of the PDG is necessary.

C. Defining and Measuring Trust and Suspicion:

Related to the question of inferences is the problem of defining and measuring trust and suspicion. It was earlier postulated that in situations that call for a

decision to trust or not (herein termed "test situations"), there is (1) an observed behavior that is usually of a dichotomous nature -- P manifests trust toward Q or he doesn't -- and (2) a hypothetical concomitant subjective state of trust or suspicion that may be assumed to be of a continuous nature. If this is the case, then the dependent variable measure afforded by the dichotomous-choice game is not adequate for a particular test situation. Perhaps replicated PDG trials provide an experimental analogue only of replicated test situations or possibly of the steps that precede a test situation and do not allow for an estimate or measure of P's subjective state. The subjective state (measured, for example, by P's subjective probability that Q will be trustworthy or untrustworthy, given that P has already made a trusting choice) is important since it would be of interest to know at which point or threshold subjective trust becomes manifest as behavioral trust, i.e., to what extent P must "feel" that he trusts Q before he will in fact make a trusting decision. What makes the determination of such a threshold even more interesting is that undoubtedly the threshold will vary with a variety of situational, structural, and/or dispositional factors, e.g., incentives or P's own trustworthiness.

It would therefore appear that if the PDG or some other non-zero game is to be used in the study of trust and suspicion, it ought to be a sequentially-played game for meaningful stakes and should either itself provide or be supplemented with, a continuous measure. With these caveats in mind, it is now possible to proceed with the discussion of the specific independent variables with which this study is primarily concerned.

CHAPTER THREE: THE DEVELOPMENT OF TRUST AND SUSPICION

The specific research upon which this paper is focused deals with two questions about the nature of trust and suspicion. This chapter is addressed to a discussion of the first question -- What are some of the factors that influence the development of trust and suspicion? The second question, as to what some of the consequences or effects of trust and suspicion are upon behavior, will be considered in the next chapter. In regard to the first question, it is proposed that the development of trust and suspicion is influenced not only by factors operating in the immediate situation, e.g., structural and dispositional factors, but also by relevant previous experience.¹

Previous experience is important since it provides P with a basis on which to make inferences about O's trustworthiness. For example, it is to a certain extent obvious that an individual P may or may not trust another individual O, depending on whether O was trustworthy or untrustworthy on one or more previous occasions. However, this somewhat simplified view of the genesis of trust and suspicion needs to be qualified considerably. It would be important, for instance, to determine if trust and suspicion develop at

¹A particular "previous experience" has, of course, usually been subject to situational and dispositional factors itself.

similar or different rates as a function of the number of previous experiences. On one hand, it is intuitively reasonable that suspicion can be aroused on the basis of a single and usually powerful or dramatic betrayal. Yet, on the other hand, it is rare when "complete trust" can be established on the basis of merely one previous experience, depending, of course, upon the nature of the previous experience. Rather, it seems more likely that the establishment of trust involves a process or processes that are to some extent more time-demanding than the process or processes by which suspicion is aroused.

Insofar as it is possible that all of these observations might be qualified by specifying the nature of the previous experience, it is also possible that a factor like the stakes associated with the choices (especially to betray or not) is of considerable importance. It would be worthwhile, for example, to determine if suspicion might be greater or less where previous betrayal occurred under high incentive to betray. While betrayal for high incentives might be perceived to be more "justifiable" and therefore not result in the arousal of suspicion, it might also provoke both resentment and suspicion. On the other hand, even greater resentment might occur when the incentives to betray are relatively low or trivial.

Altogether, the foregoing observations provide a basis for experimentally-testable propositions about the development of trust and suspicion within the framework of a factorial design involving three independent variables:

(A) O's trustworthiness, (B) magnitude of the incentive to betray, and (C) the number of exposures to trustworthy or untrustworthy acts. But before making the hypotheses explicit, a detailed discussion of the three factors will first be presented.

A. O's Trustworthiness:

Although it may at first seem obvious that O's trustworthiness will promote trust in P whereas his untrustworthiness will engender suspicion, it is less apparent as to whether as few as one or two trustworthy responses are sufficient to give rise to behavioral trust in a test situation, i.e., in a situation where the risk of betrayal is quite high. The importance of this factor (O's trustworthiness) therefore lies primarily in the possibility of an interactive effect with the "number of exposures" factor.

The experimental manipulation of O's trustworthiness is relatively straight-forward; but it can be effected only if the experimental situation is structured sequentially such that P must first trust O before O can

demonstrate if he is trustworthy or not. Yet, perhaps because of the seemingly obvious sorts of predictions which might be made, few studies have attempted to establish the exact relationship between Q's trustworthiness and P's trust, and between Q's untrustworthiness and P's suspicion.

Although there are three studies that are relevant at this point, only two (Swinth, 1967, and Messé & Sawyer, 1966) will be discussed now; the other, by Komorita and Mechling (1967), will be considered later in conjunction with the discussion of the incentive variable.

In an interesting study, Swinth (1967) utilized the programmed choices of "Q" to establish trust. Trust was defined in terms of cooperative choice on a "test" matrix (see Figure 3). Swinth hypothesized and found that trust could be established if Q communicated a desire to establish trust by exposing himself to the risk of payoff reduction, i.e., trusting, when choosing first, and foregoing personal gain, i.e., being trustworthy, when second.

This is an interesting finding which ought to be explored further for a number of reasons. First, it is necessary to note that Swinth's study involved a series of trials in which P (the real subject) and Q (a matching program) alternated with regard to who chose first. Thus it was impossible to assess the relative contribution of Q's trust and Q's trustworthiness to the induction of trust

	A		B		-----	E	
X	10, 10	8, 11	10, 10	6, 12	-----	10, 10	0, 18
Y	11, 8	10, 10	12, 6	10, 10		18, 0	10, 10

T	
75, 75	-100, 100
100, -100	50, 50

Figure 3. Matrices employed by Swinth (1967).

NOTE: Matrices A, B...E are the sequentially-played "commitment" matrices whereby O (the program) can communicate his desire to establish trust by risking progressively greater reductions in payoffs, i.e., choosing row X when first, and by himself resisting progressively greater temptations to betray, i.e., being trust-worthy by choosing X when second provided that the subject initially does trust O. Matrix T is the simultaneously-played "test" matrix on which the dependent variable is measured.

in P. Perhaps the most important reason is that there was no demonstration of the nature of the relationship between P's trust and O's trust and trustworthiness. Finally, the development of suspicion was not studied by Swinth.

Some indication of the nature of the development of suspicion is rendered in a study by Messé and Sawyer (1966), which dealt with the resolution of experimentally-induced conflict. What makes their study interesting in relation to this paper is the manner in which conflict was generated. Paired subjects (actually a subject paired with O, a confederate) were given a task -- essentially a continuous choice PDG -- in which bargaining between the subject and O about the final outcome (payoffs) preceded the actual choices. Moves were simultaneous¹ and communication was accomplished by means of a number of standard messages. Thus, it was possible to create conflict by having O move in a deliberately treacherous manner, i.e., in such a direction as to attempt to betray the subject, rather than in the direction he (O) originally indicated during bargaining. Over the span of ten trials, such betrayals were effective in reducing the percentage of cooperation from above 50% to about 25%. However, it is noteworthy

¹For the sake of simplicity, a more elaborate procedure actually used by Messé and Sawyer is not described here.

that even in the face of such flagrant untrustworthiness, the various modes of resolution, i.e., matching, initiating, or natural strategies on the part of O, subsequently produced a relatively rapid recovery of cooperation.

B. Magnitude of Incentive to Betray:

There are two aspects to this variable. The one with which this study is concerned is how P's subjective probability of being betrayed in a given situation is affected by previous experiences in which O, under a high (or a low) incentive to betray, was trustworthy (or untrustworthy). The other aspect -- perhaps the most common -- relates to how the incentive (to betray) in the immediate situation affects the probability of betrayal in that same situation. Although these two aspects are related, it is theoretically and experimentally possible to differentiate between their effects.

Studies of the incentive variable have typically been concerned with the latter aspect and have sought to determine the effects of the manipulation of the parameter Y (see Figure 4) upon the level of cooperation in a simultaneous game.

The consistent result has been that cooperation decreases with increases in Y (Bixenstine & Blundell, 1966; Lave, 1965; Rapoport & Chammah, 1965). Consideration of the

		<u>O</u>	
		"cooperate"	"compete"
<u>P</u>	"cooperate"	W, W	X, Y
	"compete"	Y, X	Z, Z

Figure 4. A general matrix comprised of four parameters W, X, Y, and Z. The matrix is a PDG when the following constraints hold:

- (i) $Y > W > Z > X$
- (ii) $2W > X + Y$

(Rapoport and Chammah, 1965, p. 34)

results of these studies must, of course, be tempered by the arguments advanced earlier, that in simultaneous games, the competitive or suspicious choice by either subject may actually be a function of the difference between the values of the parameters X and Y . Thus, increased "suspicion" (i.e., increased selection of the competitive response) in simultaneous games may in effect be a function of the increase in the difference between X and Y rather than a function of only the increase in Y .

In contrast to the findings just cited, it is possible that different results might be found where the effects of previous experience are concerned. To repeat the example used earlier, we might ask what degree of suspicion is generated by betrayal under low incentive. It is possible that the amount of suspicion is greater than in the condition of betrayal under high incentive since betrayal may seem to be less justifiable under conditions of low incentive.

Komorita and Mechling (1967) made precisely that prediction in their study of betrayal and reconciliation. In order to vary experience, they manipulated three factors: (i) temptation to defect (i.e., $Y=6$ or 9), (ii) loss incurred when betrayed (i.e., $X=0$ or -5), and (iii) expectation of a cooperative response (i.e., either 4 or 10 cooperative trials from the program before betrayal). Subjects, in fact playing

against the experimenter, were more or less instructed to respond cooperatively in the dichotomous choice PDG. Following the 4 or 10 trials of cooperation by which subjects were led to believe that a state of mutual cooperation had been achieved with O (the experimenter), O made two successive competitive choices. Although the game was played with simultaneous choices, the two competitive responses by O were defined as "betrayal". (Such a definition would have been justified only if the instructions and the initial trials of cooperation were effective in creating the belief in subjects that a state of mutual cooperation had actually been achieved.)

The dependent variable measure of the effects of the various conditions of betrayal (e.g., betrayal under high or low temptation, etc.) was the number of trials to reconciliation. Reconciliation was defined as five consecutive cooperative responses by a subject subsequent to betrayal. It was predicted that for reconciliation to occur, more trials would be required in the following conditions: (1) when temptation was small rather than large, (2) the greater the harm experienced when betrayed, and (3) the greater a subject's expectation of a cooperative response from O. Each of the main effects was significant. However, the direction of the difference for both temptation and the expectation factors was counter to the prediction.

Although the direction of the difference for the temptation factor was the reverse of what had been predicted, it was nevertheless consistent with the results of some of the studies previously mentioned (Bixenstine & Blundell, 1966; Lave, 1965; Rapoport & Chammah, 1965). This suggests that perhaps Komorita and Mechling succeeded only in replicating the results of those other studies and did not provide a real test of their own hypothesis. They assumed that it was sufficient simply to vary Y and that the betrayed subjects would perceive the high value of Y as actually being high or the low value of Y as being low. But the subjects were given no standard by which they could assess or gauge the payoff of nine points as being "high" (or at least higher than six) or the payoff of six as being "low" (or at least lower than nine). In fact, there was little reason why the subjects should not have perceived the nine points as being low. One way of circumventing this difficulty would be to demonstrate independently that the subjects do perceive the incentive levels appropriately. A more satisfactory method, however, would be to employ both the high and low Y matrices in order to draw to the attention of the subjects the relative meaning of the different Y values. The procedure that will be adopted in this study follows the second alternative.

C. Number of Exposures:

An important theoretical problem resides in the nature of the relationship between the number of times a person has experienced trustworthiness or betrayal and the development of subjective and behavioral trust or suspicion. An extension of this question to a comparison of the rates of development of trust and suspicion as a function of the number of exposures is also of primary interest. In this respect, certain observations suggest a possible prediction. On one hand, it is plausible that very few experiences of betrayal -- possibly only one -- are sufficient to arouse suspicion (and perhaps this might depend upon the magnitude of incentive to betray). On the other hand, there is also evidence that the establishment of trust involves a more prolonged process (Swinth, 1967). It would therefore be predicted that the rate of increase of trust or suspicion as a function of the number of previous exposures is greater for suspicion than for trust.

Two studies are peripherally relevant, although as is generally the case, no studies have actually attempted to investigate the variable of number of exposures. In their study of betrayal and reconciliation, Komorita and Mechling (1967) utilized two programs that differed only in the number of initial cooperative responses during simultaneous plays of a number of PDGs. These programs are outlined in Table 1. The most interesting results in rela-

Table 1. Programs used by Komorita and Mechling (1967).

INTENDED EFFECT OF MANIPULATION	PROGRAM 1	PROGRAM 2
"expectation"	-4 cooperative trials	10 cooperative trials
"betrayal"	-2 competitive trials	2 competitive trials
	-3 cooperative trials	3 cooperative trials
(dependent variable measure: trials to criterion)	conditional cooperation	conditional cooperation

tion to this part of the discussion are the mean proportions of cooperative choices immediately after the first of the two consecutive "betrayals". Although the level of cooperation is still quite high after the first "betrayal", it drops precipitously from .76 to .36 after the second "betrayal". The effect does not seem to be very durable, however, since recovery is rapid and a mean of only ten trials is needed to reinstate cooperation.

With the exception of the initial cooperative trials, the Komorita and Mechling programs (2 competitive then 3 cooperative responses and finally conditional cooperation) are much like the "reformed sinner" program used by Harford and Solomon (1967). (See Table 2.) As in the Komorita and

Table 2. "Reformed sinner" program used by Harford and Solomon (1967).

<u>INTENDED EFFECT OF MANIPULATION</u>	<u>PROGRAMMED CHOICES (in a simultaneous PDG)</u>
"Sinner"	3 competitive trials
"Reform"	3 cooperative trials
(dependent measure: proportion of co- operative choices in a fixed number of trials)	conditional cooperation for the remainder of the trials.

Mechling study, the level of cooperation dropped from .4 to 0 within the two trials immediately after the first betrayal.¹ However, it is somewhat puzzling to note that on the fourth trial, i.e., immediately following the three consecutive competitive responses, the level of cooperation rose to almost .20. Thereafter, recovery was rapid and the succeeding levels of cooperation eventually exceeded the initial level.

D. Hypotheses Pertaining to the Development of Trust and Suspicion:

To conclude this chapter, the explicit hypotheses related to the foregoing will now be presented. The basic proposition underlying these three hypotheses is that the development of both trust and suspicion is a function of previous experience. More specifically, it is hypothesized that:

(1) P is more likely to trust O where O was previously trustworthy. On the other hand, P will not trust O, i.e., will be suspicious of O, where O was previously untrustworthy.

(2) Suspicion is more easily established than trust. Here, "established" will refer to a significant difference

¹It is interesting that the extent of the declines was similar in both studies even though the initial levels were different; the initial difference in level of cooperation is probably accounted for by the series of cooperative trials with which Komorita and Mechling's programs began.

in the amount of trust or suspicion between a group that is exposed to either a trustworthy or an untrustworthy O and a group (a control group) that is not exposed to either a trustworthy or an untrustworthy O. Relative ease (i.e., "more easily") will refer to a comparison of trust- and suspicion-induced groups with respect to the number of exposures required to establish trust and suspicion.

(3) The development of trust is influenced by the magnitude of the incentive (to betray) under which O was nevertheless trustworthy. Also, the development of suspicion is influenced by the magnitude of incentive under which O was untrustworthy.

The experimental test of these hypotheses comprises only the first half of the research to be reported in this thesis. A discussion of the remaining hypotheses and the background for those hypotheses will be presented in the next chapter.

CHAPTER FOUR: BARGAINING AND NEGOTIATIONS

Bargaining and negotiations are means by which conflict is often resolved. To a large extent, their importance resides in the fact that they occur almost universally as aspects of relationships not only between individuals, but also between groups and between nations.

It is not surprising then, that a considerable amount of attention has been directed to the topic of bargaining and negotiations in the form of extensive discussions of proposed models and reviews of research (Fouraker & Siegel, 1963; McGrath, 1966; Sawyer & Guetzgow, 1965; Siegel & Fouraker, 1960; Stevens, 1963; and Walton & McKersie, 1965). Specific studies have investigated such relevant variables as role behavior (Bass, 1966; Druckman, 1967; and McGrath & Vidmar, 1966), communication (Deutsch, 1966; Deutsch & Krauss, 1962), threat (Deutsch & Krauss, 1960 and 1962; Kelley, 1965), prenegotiation experience and personality (Druckman, 1967), various kinds of attitudes (Krauss, 1966; Morgan & Sawyer, 1967), level of aspiration and amount of information (Fouraker & Siegel, 1963; Siegel & Fouraker, 1960), and other aspects of bargaining and negotiations (Kelley, 1966).

Of interest here are the effects of experimentally induced trust and suspicion upon bargaining and negotiations. Their relevance has recently been speculated upon in articles

by Kelley (1966), Hoedemaker (1968), and Walton and McKersie (1965); but more commonly, the importance of trust and suspicion in influencing bargaining and negotiations has been emphasized almost daily in the various mass media by many informed observers. The validity of their observations has hardly been irrefutably established, however, since their observations about the effects of trust and suspicion have been made primarily on a casual basis. Precisely what are the effects -- if any -- of trust and suspicion upon bargaining and negotiations?

This chapter is devoted to a consideration of two possible types of effects of trust and suspicion upon bargaining and negotiations. One concerns the possible effects upon the process of bargaining. Aspects of the bargaining process would include, for example, the degree or the type of communication that occurs during bargaining. The other concerns the effects of trust and suspicion upon the nature of the outcome. This would involve, for example, the qualitative nature of the final settlement. In order to cast the hypotheses in more specific terms, the bargaining concepts that will be extensively employed will be discussed first.

A. Process-Related Concepts: Minimum disposition, bargaining range, initial offer:

Many of the basic features of bargaining and negotiations have been incorporated into the model of political negotia-

tion proposed by Iklé and Leites (1962).¹ In their analysis, which provides part of the initial framework of this section, an issue is represented by an ordering of all of the possible outcomes. It is assumed that each outcome has a certain utility for each negotiator at a given time and that on this basis, an ordering of preferences for each side is possible. That conflict exists is represented by the ordering of one side's preferences in the exact reverse of the other side's preferences (see Figure 5). What is most preferred by the one side (P) is least preferred by Q.

The actual minimum disposition is a point² which divides the range of preferences for any one side into two groups of outcomes: (a) those that are acceptable (ranging from being minimally acceptable to being highly preferred), and (b) those that are unacceptable. The relative positioning of the actual minimum disposition for each side is important. On one hand, an overlapping

¹The analyses of Kelley (1966), Stevens (1963), Walton and McKersie (1965), and others are also relevant for this discussion. However, in the interest of conciseness, reference will be made only to Iklé and Leites (1962) since all of these analyses utilize essentially the same sorts of concepts.

²For the sake of simplicity, it will be assumed that the minimum disposition is a point rather than an interval.

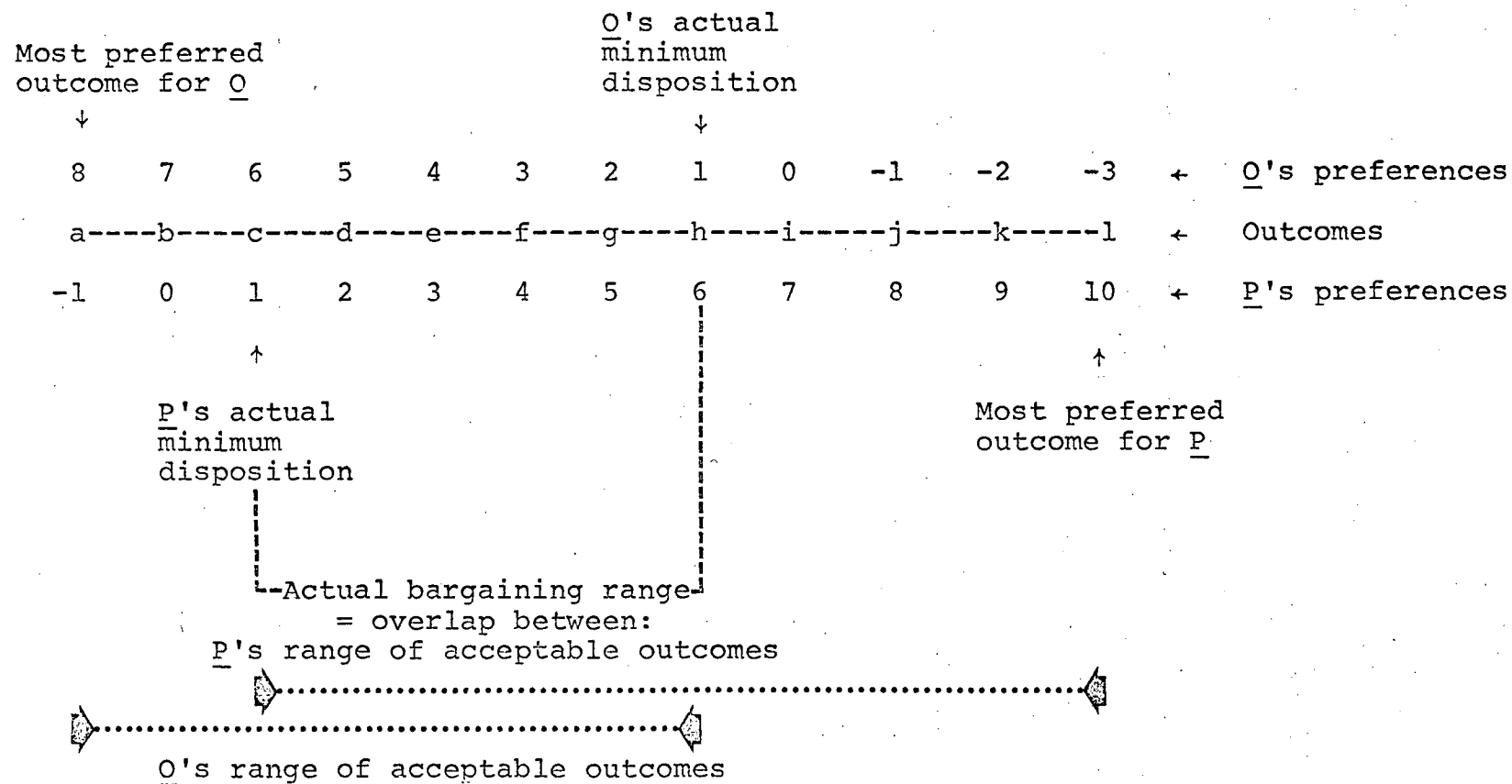


Figure 5. Representation of a bargaining situation (adapted from Iklé and Leites, 1962).

of the ranges of unacceptable outcomes might preclude any possibility of settlement. On the other hand, an overlapping of the ranges of acceptable outcomes would appear to define a region of viable contracts within which the final agreement is quite likely to fall. Iklé and Leites (1962) call this the actual bargaining range and it is represented in Figure 5 by the interval c - h.

Knowledge about O's minimum disposition is important since it allows P to "drive a harder bargain", providing, of course, that O does not in return know P's minimum disposition. However, such precise information, not only about the other's minimum disposition, but more generally about his entire range of utilities, is rarely possessed by either side at the outset of negotiations. Thus, one of the major functions of bargaining is to estimate what the other side's utilities and preferences are for certain outcomes (especially his minimum disposition). In addition to estimation, bargaining has at least two other related functions. One is to inform O about one's own utilities. The other is to attempt to modify either O's utilities and preferences or O's perception of one's own utilities and preferences; Iklé and Leites (1962) have dealt almost exclusively with this latter function of modification in their analysis of political negotiations.

Bargaining tactics refer to means by which negotiators often attempt to modify each other's utilities. Included are such devices as strikes, threats, concessions, extreme demands or offers, and lies. The role of such tactics is apparent at the commencement of negotiations, when the initial offer or demand is made. For example, a negotiator might adopt the general strategy or style of beginning with a spuriously high demand (or low offer) in order to allow a latitude for what will in fact be false concessions. An inflated initial demand is in fact prescribed in a number of discussions of bargaining strategy (e.g., Kelley, 1966, and Stevens, 1963). However, if generally practiced, such a prescription would merely seem to bring the problem around "full circle" to a costly and time-consuming situation where both negotiators must begin with extreme and deceptive demands, knowing that the other will do the same. Our interest lies in the possibility that trust and suspicion influence the use of tactics. It would be interesting to determine if, for example, trust or suspicion affects the extremity of the initial position, or if more lies are communicated where suspicion is operating.

B. Outcome-Related Concepts: equality and equity:

In an informal sense, equality and equity refer to two ways in which settlements can be interpreted as being "fair".

More formally, equality and equity refer to two of the possible set of solutions to a bargaining problem in which the payoffs are asymmetric. Asymmetry can be represented where the utility function (or, assuming that the utility of money is linear with money, the range of payoffs) of one of the bargainers is increased or decreased in a linear transformation. Thus, as indicated in Figure 6, one side's payoff potential, i.e., the most he can get, is greater than the other side's payoff potential (150 versus 30).

Equality ("f" in Figure 6) occurs when the alternative agreed upon by both sides yields exactly the same payoff for both. On the other hand, equity ("d" in Figure 6) occurs when the unequal payoff potential is taken into account. While the side with the higher payoff potential receives an amount that is in absolute terms more than the absolute amount received by the other side, i.e., 75 versus 15, each side, relative to its own payoff potential, receives proportionally the same, i.e., $\frac{75}{150} = \frac{15}{30}$. At the point of equity, the product of the utilities (75 times 15) is maximized.

Reference to such notions of fairness as equality and equity is quite common, even in the larger context apart from bargaining and negotiations. It is noteworthy that equality seems to be preferred or demanded in some cases

150	125	100	75	50	25	0	←	One Side's Payoffs
a	b	c	d	e	f	g	←	Solutions or Outcomes
0	5	10	15	20	25	30	←	The Other Side's Payoffs
			↑		↑			
			EQUITY		EQUALITY			

Figure 6. Illustration of equity and equality in a bargaining problem
(from Morgan and Sawyer, 1967).

whereas equity is preferred in others. Such differential preferences bring up the important question as to what conditions influence the choice of one over the other. Our interests lie, of course, in the variables of trust and suspicion. However, predictions as to what the exact effects might be are not immediately apparent.

Under the assumptions that bargainers are rational and that they have complete information about each other's utility functions, many game theorists, e.g., Nash, Zeuthen, and in some cases, Raiffa (all cited in Bishop, 1963) prescribe settlement at equity. But descriptively, the solution of equality might also be expected since in many circumstances, other factors may operate to supercede or detract from considerations of rationality. Morgan and Sawyer (1967), for example, hypothesized that knowledge of the other's bargaining range (i.e., the interval between the most he expected and his minimum disposition) would influence the nature of the outcome, depending upon whether or not the bargainers were friends. Friends, they reasoned, would "conform less to the model of rational bargainers" (Morgan & Sawyer, 1967, p. 140) than non-friends. Thus they predicted that with knowledge of the other's bargaining range, nonfriends would tend to reach equitable solutions (as prescribed for rational bargainers in game theory) whereas friends would tend more to agree to equality.

Trust and friendship are often highly related, at least insofar as trust (both manifest and subjective) is more likely to exist between friends than between non-friends. To the extent that trust gives rise to the same reasons for non-rationality as does friendship (e.g., in the case of extreme trust), so is it possible that trust relationships might also be characterized by a tendency toward solutions of equality. However, it might also be argued that trust promotes rationality (and therefore equitable outcomes), while suspicion results in departures from rationality (and therefore in non-equitable, but not necessarily equal, outcomes). This latter contention seems intuitively more plausible.

This discussion has raised many possibilities, making it evident that many complexities are involved in making predictions about bargaining outcomes. To a certain extent, this will be reflected in the remaining section, in which the specific hypotheses and other possible experimental outcomes will be presented.

C. Hypotheses and Possible Outcomes Pertaining to the Effects of Trust and Suspicion Upon Bargaining and Negotiations:

The examination of the effects of trust and suspicion will be made in terms of (a) the process and (b) the outcome of bargaining and negotiations. The intention will be not

only to determine what the effects of trust and suspicion are upon bargaining and negotiations, but also to infer possible reasons as to why the effects do occur. For example, it will be hypothesized that suspicion has a detrimental effect upon bargaining insofar as it will be more difficult, i.e., more time will be required, to arrive at mutually accepted solutions. But in addition to time, a number of other dependent variables will be measured and recorded. Thus, if suspicion is found to extend the time to solution, it will also be possible to infer if this result is related, for instance, to more-extreme initial positions, or perhaps to increased tendencies to engage in false or threatening communication.

Before presentation of the hypotheses related to bargaining, two points require clarification. First it will be assumed that the experimental manipulations will be effective in (i) creating trust and suspicion, and (ii) influencing bargaining and negotiations. Essentially, this is expressed in the postulate that the relationship between the experimental manipulations and the dependent variable measures is mediated by the intervening constructs of trust and suspicion. Thus, it will be possible to refer to "the effects of trust and suspicion" (as we have been doing) where we will be dealing, ostensibly, with only the effects of the experimental manipulations.

The second point of clarification concerns the actual statement of the hypotheses. Although a number of dependent variable measures will be recorded, formal hypotheses will be advanced only for a few of them. For the other dependent variable measures (which, as previously stated, will be possible sources of information as to why effects do occur), the nature of the possible effects of trust and suspicion will be largely exploratory questions and will therefore not be cast in formal terms.

The Hypotheses and Other Possible Outcomes: It is anticipated that there will be at least three ways in which trust and suspicion can influence bargaining and negotiations. Accordingly, it is hypothesized that:

(1) Trust and suspicion will differentially influence the nature of the final settlement. However, whether trust or suspicion promotes equality or equity is largely an empirical question.

(2) Trust facilitates, whereas suspicion impedes bargaining and negotiations insofar as agreements will be more difficult to achieve, i.e., more time will be required to reach agreement, when suspicion, rather than trust, is operating.

(3a) Trust and suspicion will affect the amount of communication.

(3b) Furthermore, both trust and suspicion will affect the qualitative nature of communication during bargaining,

especially those communications concerned with tactics.

This will be evident in the frequency with which one or more of the following types of communication are employed:

- (i) those communications that are obviously directed toward the function of modification, including threats, refusals to bargain (analogous to strikes and lockouts), and task-irrelevant, aggression-provoking statements (e.g., insults),
- (ii) those communications that are intended primarily to inform or to obtain information rather than to modify,
- (iii) those communications that give false information (lies); although lies might also be grouped in the first category, they are analyzed separately since they are less-obvious means by which utilities can be modified.

Among the other possibilities that will be examined (but not formally advanced as hypotheses) are those concerning the effects of trust and suspicion upon:

- (a) one's own actual initial range, i.e., the range between the highest one really hopes to get and his actual minimum disposition at the beginning of bargaining;

- (b) the extremity of the initial offer (both in absolute terms and relative to the mid-point of the one's own actual initial range);

- (c) the degree to which bargaining ranges will constrict over the course of bargaining, i.e., the difference between

the actual initial bargaining range and the final bargaining range; and

(d) interpersonal evaluation (as measured on seven evaluative scales on the semantic differential).

CHAPTER FIVE: METHOD

To test the hypotheses set forth at the conclusion of Chapters Three and Four, a three-stage experiment was conducted. Although the design and each of the three stages will subsequently be described in complete detail, an overview of the entire experiment will first be presented. In the first stage -- the induction stage during which "previous experience" was manipulated -- the independent variables discussed in Chapter Three were combined in a completely-crossed factorial design. Thus, in the first stage, subjects were exposed 1, 3, or 5 times to either a trustworthy or an untrustworthy O and the level of the incentive for the O to have been untrustworthy was either high or low. In the second or the measurement stage, the effects of the manipulations in the induction stage upon two measures of trust and suspicion were recorded. In the final stage, the effects of trust and suspicion upon performance in a bargaining and negotiation task were also recorded.

In addition to the experimental groups, a control group was conducted; this group was given the instructions for the induction stage, but proceeded directly to the second and third stages without exposure to any of the experimental manipulations of stage I. In other words, the only difference between the control and the treatment groups was that

the treatment groups experienced trustworthiness or betrayal on the part of O, whereas the control group did not have any previous experience with O during stage I. Essentially, the control group provided base-line behavior with which the behavior of the treatment groups could be compared. In the measurement stage, this consisted of an estimate of the existing or pre-treatment level of trust and suspicion in the population from which the sample was drawn. In the bargaining stage, the responses of the control group provided an indication of the base-line levels of both the bargaining process and the outcomes of bargaining.

A. Subjects and Design:

Altogether, there were 112 volunteer subjects, 96 of whom were in the experimental groups and 16 in the control group. Except for one oriental, all of the subjects were white, and all were male university students belonging to or living in one of the campus fraternities.

The basic design of the experiment was a completely crossed $2 \times 2 \times 3$ factorial with eight subjects in each cell. Each subject participated in only one session. A session usually lasted for two hours and always involved a group of four subjects, each one representing a different fraternity.

Special Considerations and the Recruitment of the Subjects: For the first two stages, the experimental tasks were designed to make it possible for the subjects either to

win or to lose money, apparently depending upon whether the other group members were trustworthy or not. All of the potential subjects were therefore requested to volunteer under the complete understanding that even though they could win up to \$5.00, there was also a genuine risk of losing up to \$2.50 of their own money. They were, in fact, required to bring \$2.50 in cash before being allowed to participate. Any losses that were incurred during the experiment were doubly reimbursed at the conclusion of the session although, of course, no one was informed of this beforehand.

To facilitate recruitment, an arrangement was made with the president of the Inter-Fraternity Council (IFC) whereby the experiment could be conducted through the IFC under the guise of an inter-fraternity competition. At stake was a substantial sum of money (\$50.00). The winning fraternity was determined by a formula combining (i) performance by the fraternity as a whole during the experiment, and (ii) the number (in proportion to the total membership) of volunteers that participated. Thus, there was an incentive for each fraternity to supply volunteers. In addition, there was, for each individual, an incentive not only to do well for himself (or at least, not to lose his own money), but also to do well for the sake of earning more points (or not losing them) toward the prize for the fraternity.

B. Procedure:

All four of the subjects were seated at desks in four separate cubicles. The cubicles were arranged so that during the induction stage and the instruction periods, each subject could see the experimenter, but not the other subjects. During the measurement and the bargaining stages however, portable opaque partitions enabled the experimenter to close the cubicles off entirely. Thus, even the experimenter could not be seen by the subjects. On each desk were: a pencil; a dittoed outline of the instructions for the first stage; two small signs, one with "COOPERATE" printed on both sides, and one with "SELF" printed on both sides; and a cardboard container for loose change.

At the beginning of the session, all subjects were asked to produce \$2.50. While this amount was being changed for quarters, the experimenter identified aloud each participant by name and fraternity. A brief introductory statement was then read instructing the subjects to be neither completely cooperative nor completely competitive. It also reminded them that the better they did individually, the better it would be for the fraternity.

In an effort to facilitate the transition from stage I to stage II, and as well, to maintain the interest of the subjects, task instructions were interspersed with either the tasks themselves or task-related activities. Moreover,

in the first two stages, the tasks were not always immediately preceded by the related instructions.

The detailed procedure described herein will not follow the exact chronological order of events carried out in the experiment. Instead, each stage will be described as a unit, as though the instructions and the related tasks had been contiguous. The actual chronological order of events will be summarized at the conclusion of the chapter.

STAGE I: INDUCTION:

The purpose of this stage was to manipulate the three factors (O's trustworthiness, incentive to betray, and number of exposures) discussed previously in Chapter Three. This was accomplished in the context of a 4-person game in which each subject was confronted with the problem of whether or not to manifest trust toward one of the other members of the group. All of the subjects were led to believe that they were interacting with each other; but in fact, the responses of the "others" were all completely controlled by the experimenter. The game was structured in such a way that each subject perceived that he had a choice, i.e., that his choice to trust O or not was entirely of his own volition; but actually, the subjects were virtually forced to trust "O" -- i.e., trust the experimenter. Thus, it was possible for the experimenter to manipulate not only

"O's" trustworthiness, i.e., programming "O" either to fulfill or betray the subjects' trust, but also the incentive to betray and the number of times trust was either fulfilled or betrayed.

Instructions and examples for this stage were given entirely by means of an eight minute videotape recording. This technique was employed in order to maintain the strict attention of the subjects, to facilitate their comprehension of the task, and to make the subsequent manipulations highly credible. A dittoed outline supplementing these instructions was available at all times for easy reference.

The game, as presented to the subjects: By means of a draw, the subjects were numbered from one to four. Each one knew only his own number, but not the numbers drawn by the other three. Each subject was required to ante 25¢ and then in succession according to the number drawn, each voted either "self" or "cooperate" by pointing to one of the signs on the desk. The way in which each person voted was immediately tallied on the blackboard so that the entire group could keep track of each vote as it was being made. Three outcomes were defined, and the subjects were completely informed of each outcome and its social implications: (i) If all vote "cooperate", then all receive 50¢, i.e., their 25¢ antes returned plus an additional 25¢. (ii) If only one votes "self", then all but that one individual lose their

antes. The one individual who votes "self" receives 50¢ (the amount he would have received if he had voted "co-operate") plus an additional 5¢ or 50¢ (depending on whether he is in a high or low incentive group); in other words, he was getting either 5¢ or 50¢ more than if he had voted "cooperate". (iii) Lastly, if two or more vote "self", then all lose their 25¢ antes; in addition, the first person to vote "self" loses another 75¢ making his total loss \$1.00.

Rationale: In the actual experiment, the draw for the position numbers was rigged¹ so that all of the subjects were assigned position 3. When the "vote" of each person was apparently being tallied, the experimenter was in fact "filling in" the votes for the non-existent numbers 1, 2, and 4. In all groups, the votes for numbers 1 and 2 were always "cooperate". Thus each subject (since all had the number 3) was confronted with the decision of either voting "self", and inviting outcome (iii) on his own, or voting "cooperate", and in effect being the last to allow number

¹Elaborate precautions were adopted to ensure that subjects would not detect the deception. These steps were justified by the assertion that anonymity (at least insofar as no one knew who had drawn the other numbers) would encourage less-inhibited responding. For example, when the votes were apparently being tallied, the experimenter scanned all four cubicles to prevent the subjects from detecting the person upon whom he was focussing. Similar measures were adopted when payoffs were being made or when penalties were being collected.

4 to determine the outcome for himself and the rest of the group. Almost invariably, the subjects voted to "co-operate".¹

By virtue of his position, number 4 (the experimenter) had a considerable amount of power. It was his vote which ultimately decided if the rest of the group won or lost. In essence, this constituted a "forced trust" situation which reduced to the matrix shown in Figure 7. The important feature of this situation was that although number 3 was virtually forced to trust number 4 by voting "cooperate", number 4 could nevertheless be characterized as being trustworthy or untrustworthy according to how he chose. This was possible because number 4 had a choice and could -- but did not necessarily have to -- exercise his power to exploit the vulnerability of the others.

The manipulations: (a) To induce trust, the experimenter simply tallied number 4's vote as being the fourth to "cooperate", i.e., number 4 was trustworthy. To induce suspicion, he tallied number 4's vote as being the only "self" vote, i.e., number 4 was untrustworthy. (b) The

¹Individual subjects voted "self" in only a few cases: once in a group in which trust was induced and four times in groups in which suspicion was induced, always on the last trial of a series of three or five trials. In these cases, the experimenter could not and did not tally the vote for number 3 on the board. Instead, he explained that since number 4 had had such an advantage, he (the experimenter) would now deprive number 4 of the information of how number 3 had voted. The experimenter then apparently took number 4's vote.

		Group (Numbers 1, 2, and 3)			
		Trusting		Suspicious	
Number 4	Trustworthy	25¢	25¢	-25¢	-25¢*
	Untrustworthy	(5¢ 25¢+(50¢	-25¢	-25¢	-25¢**

*except for the only one to vote "self" -- he receives 25¢ plus 5¢ or 50¢.

**except for the first one to vote "self" -- he loses \$1.00 altogether.

FIGURE 7. Matrix representation of the Induction game in which number 4 chooses last. Number four's payoff is the first entry in each cell. The second entry is the payoff for any one member of the group.

manipulation of the incentive factor has already been described. In order to permit the comparison between the incentive levels and therefore to allow the assumption that the subjects perceived the incentive levels as intended, the subjects were told that by means of another draw, the "bonus" to the single individual who voted "self" would be one of two values, 5¢ or 50¢. This draw was bona fide so that assignment to the incentive condition was random. (c) The number of trials (i.e., the number of times the subjects made an ante and voted) constituted the number of exposures to either a trustworthy or an untrustworthy other (number 4). In this experiment, the three levels of the number of exposures factor were 1, 3, and 5. However, the subjects were never informed of exactly how many trials there would be, although a range of from one to twenty was mentioned if anyone asked.

Summary: In the context of a four-person game, all subjects were confronted with the choice of trusting O or not; trusting entailed risking one's own money. The game was structured so that each subject was virtually forced to make the trusting choice. It was therefore possible to manipulate not only O's trustworthiness (Factor A), but also the incentive for O to be untrustworthy (Factor B), and the number of times O was trustworthy or untrustworthy

(Factor C). In the trust conditions (in which O was trustworthy) the subjects all won money; but in the suspicion conditions (in which O was untrustworthy), the subjects all lost their own money. As soon as the manipulations were complete, the experimenter proceeded directly to the stage II tasks. These are described in the following section.

STAGE II: MEASUREMENT:

In this stage, two measurements were taken of the effects of the stage I manipulations. The first was simply a response on the one-trial, sequential-choice PDG matrix shown in Figure 8. The second was a measure of subjective

+\$0.50	+\$0.50	-\$1.00	+\$1.00
+\$1.00	-\$1.00	0	0

FIGURE 8. PDG matrix used to measure trust and suspicion in a one-trial, sequential-play game.

probability -- the extent to which a subject felt certain that O would be trustworthy or untrustworthy, given that he (the subject) had already extended his trust to O.

Preliminary instructions and the PDG task: Partitions were set up to permit the experimenter to pass and collect response sheets at ease without revealing any of the decep-

tions that were employed. PDG response sheets designed to facilitate comprehension were then distributed, one to each subject. An example of one of these sheets is included in Appendix A.

Each group was informed that it would be arbitrarily divided into pairs. While the subjects were led to believe that there was no special reason for the particular pairings, it was intentionally arranged that subject number 1 would definitely be paired with number 2 and number 3 would definitely be paired with number 4. (It should be emphasized that this was announced before the subjects had even drawn their numbers.) They were then told that within each pair, one would be designated "Red" and the other "Green", and that these designations would be determined by cutting a deck of cards.

Red's task was simply to choose first by drawing a horizontal line across either the top or the bottom row of the matrix. The sheet was then to be delivered to Green, who would therefore know what Red had already chosen. Green's task was simply to draw a vertical line down either the left- or the right-hand column of the matrix to intersect with Red's line.

Payoffs were to be determined by the intersection of the lines drawn by Red and Green. Red's payoffs were printed in red and Green's payoffs were printed in green to

facilitate comprehension. Each of the outcomes was carefully explained and as well, the dilemma, especially for Red, was fully verbalized. The subjects were informed that there would be only one trial, and they were also reminded that the payoff entries in the matrix represented real sums of money that would be won or lost. No indication was given that there would be another task, i.e., the measure of subjective probability.

Rationale: Once again, the draw was "fixed", this time so that each subject was designated Red. In effect, each subject was led to believe that: (a) he had drawn the number 3 (stage I); (b) he was paired with number 4 (who was previously trustworthy or untrustworthy, etc.); (c) he was now designated Red and therefore had to choose first in the one-trial sequential choice PDG.¹ As in the first stage, subjects were in this stage confronted with the choice of trusting 0 or not. This time, however, each

¹As was mentioned previously (see Footnote 1, page 60), a number of precautions were taken to enhance credibility. In addition to the precautions outlined before, the experimenter directed specific instructions to 'Green' even though none of the subjects had in fact been designated as Green; furthermore, the cards used in the draws were always shuffled thoroughly while the subjects observed, and the subjects were even allowed either to cut or to draw the cards when the numbers and colors were being designated. At the conclusion of the experiment, the success of these efforts was assessed in an informal manner. In the debriefing period, the experimenter told the subjects that others had found the manipulations to be unconvincing and obviously contrived. The intention was, of course, to encourage the subjects to verbalize any of their suspicions about the experiment. Only two subjects did so, and therefore none of the data from either of their groups was included in any part of this report.

subject knew that there would be only one trial. On the other hand, each subject was now truly free to choose; furthermore, he was able to base his choice upon previous experience. Thus, the use of the subjects' responses on the PDG as one of the measures of trust and suspicion was justified.

Subjective probability: instructions and the task:

In this part of stage II, it was necessary for the experimenter to distribute the subjective probability response sheets and to administer the appropriate instructions, all while maintaining the subjects' impression that they were still interacting with each other. After collecting the PDG response sheets, the experimenter announced that the subjects who were designated Red would receive yet another type of response sheet. These were distributed presumably as the two PDG response sheets were being delivered from the two Red subjects to the two Green subjects. A brief pause was allowed ostensibly to give the two Green subjects time to make their responses. Actually, the pause was given to permit the subjects to read the instructions on the new forms. Then, the experimenter proceeded to explain the subjective probability response task.

Because the subjective probability response sheets were largely self-explanatory, few instructions were required.

An example of the response sheet is presented in Figure 9. Subjects designated Red, i.e., all of the subjects, were asked to suppose that they did choose the top row regardless of what they actually chose. That is, subjects were to suppose they had trusted the other person. Their task was to indicate the extent to which they felt certain that the other person (number 4) would be trustworthy or untrustworthy given that they had already extended their trust to him. Operationally, subjective probability, i.e., certainty or uncertainty, was the extent to which a subject's response (a mark on the scale illustrated in Figure 9) deviated from the mid-point of the scale. Complete certainty was indicated by a response at either of the extreme ends whereas maximum uncertainty was indicated by a response at the mid-point of the scale.

As soon as all of the subjects had made their responses, the experimenter collected the sheets. The partitions were then removed for a short coffee break. Queries regarding the outcomes of stage II were not, of course, answered at this time.

Summary: During stage I, three variables hypothesized as being relevant to the development of trust and suspicion were systematically varied. In stage II, the effects of these manipulations upon two measures of trust and suspicion were determined. The first measure was the response made by

Figure 9. Response scale used to measure subjective trust and suspicion.

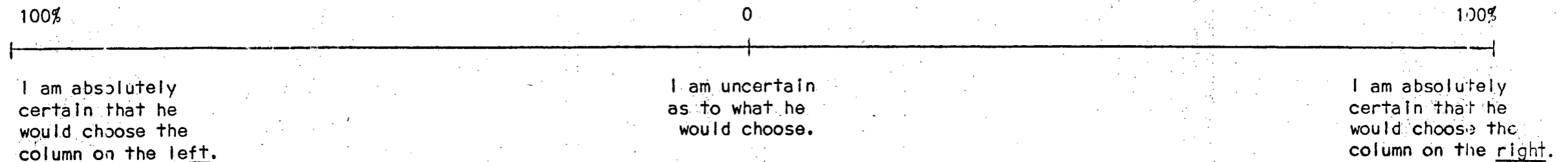
SP FORM for RED

(1) Regardless of what you actually chose on the PD Form just previously, suppose that you chose the upper row; i.e.,

		left	right
suppose you chose \longrightarrow	upper	+ \$0.50 + \$0.50	- \$1.00 + \$1.00
	lower	+ \$1.00 - \$1.00	0 0

(ii) Which column do you think the other person would choose if you chose the upper row, and how certain are you that he would make such a choice?

(ANSWER BY MAKING ONLY ONE MARK ANYWHERE ON EITHER THE LEFT OR THE RIGHT HALF OF THE LINE BELOW, TO THE EXTENT THAT YOU FEEL HE WOULD MAKE SUCH A CHOICE.)



a subject on a one-trial dichotomous-choice PDG in which the subject chose first. The second measure was a measure of subjective probability -- the extent to which a subject felt certain that O would be trustworthy or untrustworthy given that he (the subject) had already made a decision to trust O.

STAGE III: BARGAINING AND NEGOTIATIONS:

Because all of the subjects thought that they were still paired with number 4 in this part of the experiment, it was plausible that the effects of trust and suspicion upon a bargaining and negotiations task could be determined in this stage. There was, however, no further deception by the experimenter, and all bargaining was completely bona fide. Some of the principal features of the experimental task adopted for this stage will be outlined first. Subsequently, the procedural details will be explained more fully.

Subjects were arbitrarily paired for the bargaining task and given only their own scales (i.e., their own side of the payoff schedule). The payoff schedule for the bargaining problem employed is presented in Figure 10. It was emphasized to the subjects that the payoffs indicated on the scales represented real amounts of money that they would receive (or have deducted) at the conclusion of the session. Bargaining was conducted by means of written

Figure 10. Payoff schedules received by the subjects.

communications only. Although printed standard messages were supplied, there was in effect no restriction upon either the quantity or the content of the communication. Partitions prevented the subjects from seeing the person to whom the messages were being delivered. Time was a factor inasmuch as time bonuses or penalties were added to or subtracted from the final payoff. There was, however, no specified time limit given to the subjects although bargaining was discontinued after thirty minutes.

Initial instructions and the payoff schedule: To facilitate understanding of the task, two handouts were distributed. One was a detailed outline of the procedure and the rules of the bargaining task (see Appendix B). The other was an example sheet with payoff schedules for two different bargaining problems (see Appendix C).

In order to give the bargaining task a more familiar frame of reference, a used car buyer-dealer analogy was employed. By this means, it was possible to illustrate effectively the way in which payoff schedules would be used to represent such aspects of bargaining situations as the conflicting ordering of the preferences held by each side or the attempts by bargainers to discover and to modify each other's utilities or preferences.

In the payoff schedule actually used (see Figure 10) one side's scale ranged from - 7¢ to \$3.36 over twenty-four

alternatives and increased by multiples of 16, whereas the other side's scale ranged from - 4¢ to 87¢ and increased by multiples of 4.¹

Except for the lowest payoff, no information was given about the other side's scale beyond the fact that his (the other side's) payoffs were ordered in the opposite direction. The lowest payoff was given in order to provide some standard for the initial offer. In the absence of such a standard, the most extreme initial offer would have been somewhat justified.

Communication: Written messages constituted the only medium of communication between the subjects. Copies of all the different types of note forms used can be found in Appendix D. Different colors made the distinction between the various types easier. There were two types of inter-subject messages: first, there were "standard" messages which were neither binding nor necessarily truthful. Standard messages consisted of six items, any one of which could be easily completed by the subject. The nature of these items ranged from purely informational sorts of communications, e.g., "What do you get at _____?", to

¹Regularities in the increments were disguised by adding or subtracting 1 to or from each side's payoffs at some of the alternatives. This was done in order to reduce prominence of a solution based upon early detection of the principle upon which the scales were constructed.

communications in which one bargainer could threaten the other. A seventh completely open item was also possible in which the subject could write any message he wanted. There was therefore virtually no restriction upon the content of the messages. However, for the purposes of analysis, four content categories were distinguished:

(1) messages geared strictly toward the exchange of information; (2) messages geared obviously toward the function of modification, including, for example, threats, ultimatums, and strikes; (3) messages which, in conveying false information were less obviously geared toward modification; and (4) messages which were primarily concerned with time and payoff bonuses. The subjects were told that the standard messages were more or less a substitute for vocal communication and could not be used to finalize contracts.

On the other hand, the second type of form -- the "decision" message -- was binding, but not necessarily truthful. Decision messages were used primarily in order to arrive at final contracts or to make definite unilateral commitments. Thus, while threats could be made and offers could be tentatively proposed on the standard messages, final actions were actually executed only on the decision messages. The decision messages could also be categorized according to one of the four classifications previously outlined.

There was no restriction upon the number or the type of messages sent or upon the duration of the interval between messages. (At times, however, there was either some unintentional delay in delivery because of a sudden influx, or an intentional delay to prevent the subjects from knowing to whom a message was being delivered.)

It was mandatory that each message, whether standard or decision, be accompanied by a "statement". Statements were separate printed forms on which subjects were supposed to have truthfully indicated their minimum and their maximum dispositions. These forms were, of course, always retained by the experimenter, and the subjects were assured that information from the statements would never be divulged to their partners. Without a corresponding statement, no message was delivered. Statements provided the means by which the veracity of some of the messages (especially the informational ones) could be determined in the analysis. In addition, measures of such intervals as the actual initial bargaining range and one's own bargaining range were obtained from the statements.

Time and strikes: A system of time bonuses and penalties was instituted to place, in effect, a kind of a time limit upon the duration of bargaining. A detailed description of this system is included in Appendix B. The principal intention of this arrangement was to make time a salient

consideration during bargaining, as often occurs in real-life situations in which ultimatums are given and "end-gaming" is practiced. Furthermore, it provided a basis for instituting the tactic of refusal to bargain, comparable to a strike or a lock-out. P's refusal to bargain with O was tantamount to going on strike against O. While both sides were losing time, O, the party "struck", lost at twice the rate that P was losing during the specified period. The reasoning involved in using this tactic is somewhat similar to that in a real strike: "It's hurting me, but it's costing you more than it's costing me."

Checking: Checking was a way by which a bargainer could determine precisely the other person's payoff at any given alternative. In order to check, a bargainer had only to submit a "check slip" to the experimenter. This slip indicated the alternative that the bargainer wanted checked and was returned with the requested information by the experimenter as soon as possible. Although there was no limit to the number of times one could check, a charge of 5% of one's maximum possible payoff was levied for each check. This amounted to about 17-1/2¢ for the person with the higher scale, and about 3-1/2¢ for the person with the lower scale. Using such highly disparate scales for the bargaining problem probably made the bargaining situation more inherently conflictful. But as well, bargaining might consequently have become less meaningful because of the

increased tendency either to lie to the other person or to disbelieve him.

Thus, some means of verifying O's communications had to be introduced. Not only could such a checking device exert a stabilizing influence (so that at least, bargaining would not necessarily degenerate into a lying contest), but also it provided an additional index of suspicion.

Semantic Differential: At the conclusion of bargaining (i.e., when both dyads were finished bargaining), subjects were asked to evaluate the person with whom they had been bargaining. Evaluations were made on a seven item Semantic Differential. (A copy of the response sheet is included as Appendix E.) Scores from 1 to 7 could be obtained on each item, with a higher score indicating a more positive evaluation. The total score on each evaluation could therefore range from 7 (completely negative) through 28 (completely neutral) to 49 (completely positive). Essentially, the Semantic Differential provided a global indication of the effect of the experiment as a whole. It was influenced not only by the stage I manipulations, but also the events and the outcomes of bargaining and negotiations.

Summary outline of stage III procedure: Upon completion of the instructions, the scales for the bargaining

problem were distributed. The subjects were then reminded that they were still paired, number 1 with number 2 and number 3 with number 4. After a brief pause in which the subjects were given time to study their scales, all subjects were required to submit a standard message (neither binding nor necessarily truthful) suggesting an alternative at which they would settle. These messages, defined as the initial offers, were delivered simultaneously. From then on, the only restriction imposed upon the messages occurred where reference was made to the number or color which one or the other of the bargainers had drawn, e.g., "You were number 4 last time . . .". Messages that jeopardized the experimental deception were never delivered. Agreement was reached when one side made a binding offer on a decision message, and the other side accepted, also on a binding decision message. Finally, with the bargaining finished, the subjects were asked to evaluate the person with whom they had been bargaining on seven bipolar scales from the semantic differential.

CHAPTER SUMMARY:

A three-stage experiment was conducted in order to test the hypotheses advanced in Chapters Three and Four. Data were obtained during two hour sessions in which subjects participated in groups of four. Each session involved basically the same three-stage procedure. In the first

stage, the following factors were manipulated in the context of a four-person game: (a) O's trustworthiness, (b) incentive for O to betray, (c) number of exposures to either a trustworthy or an untrustworthy O. In the second stage, the effects of the stage I manipulations upon two measures of trust and suspicion were determined. These measures were (i) choice behavior in a one-trial, sequential choice PDG in which the subjects chose first; (ii) the subjective probability that O would be trustworthy or untrustworthy, given that trust had already been extended to O. Finally, in the third stage, the effects of trust and suspicion (resulting from the stage I manipulations) upon a bargaining and negotiations task were determined.

To facilitate transition between the stages and to maintain the interest of the subjects, task instructions were interspersed with the tasks themselves and other task-related activities. The exact chronological order of events as they occurred in the experiment was as follows:

- (1) instructions for stage I on videotape,
- (2) PDG instructions for stage II,
- (3) draw for numbers,
- (4) stage I task,
- (5) draw for colors,
- (6) stage II task: PDG,

- (7) instructions for subjective probability task
of stage II,
- (8) stage II task: subjective probability,
- (9) coffee break,
- (10) instructions for stage III,
- (11) stage III task: bargaining and negotiations, and
- (12) evaluation of O on semantic differential.

At the conclusion of the experiment, a complete explanation of the experiment itself and of the deceptions employed was revealed to the subjects. A strong plea was made by the experimenter asking the subjects not to divulge information about the experiment to any of their acquaintances. Informal queries as long as two months after the experiment had been completed indicated that the plea was highly successful and that the integrity of the experimental manipulations was in fact never endangered.

CHAPTER SIX: RESULTS

In all of the analyses, unless otherwise noted, the same basic statistical procedures will be adopted. Therefore, to expedite presentation, a number of conventions will be observed. First, the terms "analysis of variance" (ANOVA) will be used instead of a more complete description of the basic analysis actually employed. In most of the cases, this will consist of a completely-crossed $2 \times 2 \times 3$ ANOVA (fixed effects model). Secondly, the usual tables summarizing these ANOVAs will not be presented in the text of this chapter, but will instead be included in Appendix F. Thirdly, a number of statistical measures to remove extraneous sources of variation will be described. However, repeated reference to these steps will not be made, even though the variation due to these sources will be automatically removed in as many of the analyses as possible. Finally, in many instances, comparisons between the control group and one or more of the cells from the factorial design will be made according to a method suggested by Winer (1962, p. 264). These comparisons will usually be made where a significant difference or interaction is obtained. However, an explanation of the procedures involved will not be presented each time a comparison is made. In the analysis of the data relevant to the development of trust and suspicion (i.e., the data obtained during the measurement

stage), all of the control vs. treatment group comparisons will involve one-tailed tests of significance. In the analysis of the bargaining data, however, the control vs. treatment group comparisons will involve two-tailed tests since directional hypotheses have not been made with respect to the control group.

A. The Development of Trust and Suspicion as a Function of Previous Experience:

Although analyses were conducted on both the subjective probability and the PDG response measures of trust and suspicion, the principal tests of the hypotheses were made on the basis of the analyses of the subjective probability measure; these were supplemented by the analyses of the PDG response measure. The selection of the subjective probability measure for major emphasis was governed by two reasons: first, the subjective state, which has direct consequences for the manifest behavior, is more sensitive to variations in the independent variables; secondly, the subjective probability measure is amenable to more powerful parametric analyses whereas the PDG response measure is not. Accordingly, in the ensuing presentation of the results, references to the hypotheses and the relation of the results to the hypotheses will pertain primarily to the subjective probability measure.

To reiterate, the three factors manipulated in the first stage were: (A) O's trustworthiness, (B) previous incentive for O to betray, and (C) number of exposures.

It was hypothesized that:

1. P is more likely to trust O where O was previously trustworthy. On the other hand, P will not trust O, i.e. will be suspicious of O, where O was previously untrustworthy.
2. Suspicion is more easily established than trust.
3. The development of trust is influenced by the magnitude of the incentive (to betray) under which O was nevertheless trustworthy. Also, the development of suspicion is influenced by the magnitude of incentive under which O was untrustworthy.

According to the first hypothesis, a main effect difference would be predicted for Factor A such that a trustworthy O would engender subjective trust whereas an untrustworthy O would engender subjective suspicion. Subjects indicated the extent of their subjective trust or suspicion by making a mark across a 30 cm. line that was verbally anchored at the mid-point and at both of the extremes. (See Figure 9, p. 69). Subjective trust and suspicion were defined in terms of measured deviations (in centimeters) from the mid-point of the line. For the purposes of analysis, the mid-point, representing complete uncertainty, had a value of zero. Deviations in the direction of extreme trust

were recorded as positive values while deviations in the direction of extreme suspicion were recorded as negative values. Thus, the subjective probability scale ranged from complete trust (+15.0 cm.) through complete uncertainty (0 cm.) to complete suspicion (- 15.0 cm.).

Hypothesis Two requires a comparison between the control group and each of the six cells constituting the interaction between O's trustworthiness and the number of exposures. Here, trust is defined as being established when the difference between the control group and a particular trust group (at one of the three levels of exposure) is significant, and the mean of the subjective probability measure for the trust group is a positive number. Analogously, suspicion is defined as being established when the difference between the control group and a particular suspicion group is significant and the mean of the subjective probability measure for the suspicion group is negative. On the basis of the second hypothesis, therefore, it is predicted that compared to the establishment of trust, suspicion will be established at a smaller level of C (number of exposures). That is, the establishment of suspicion will require fewer exposures than will the establishment of trust.

According to the third hypothesis, trust and suspicion will be influenced by the magnitude of the incentive under

which Q was previously trustworthy or untrustworthy.

However, a directional prediction will not be advanced.

On the basis of previous findings, e.g., those of Komorita and Mechling (1967), it could be predicted that the greater the incentive when Q was untrustworthy, the greater the suspicion. However, a more intuitively satisfying prediction (as proposed earlier) is that P will be more suspicious where Q was previously untrustworthy and the incentive to betray was low. Furthermore, P will be more likely to trust Q where Q was previously trustworthy even though the incentive to betray was high; however, P will be much less certain about trusting Q where Q was trustworthy, but the incentive to betray was low.

Because the measures may have been affected in some unique way from session to session, e.g., the particular circumstances under which a group was run or the particular composition of a certain group, the variation due to "sessions" was removed from the treatment variation.

With regard to Q's trustworthiness (Factor A), the mean of the group that was exposed to the trustworthy Q was (on the subjective probability measure of trust and suspicion) 6.13, whereas the mean of the group exposed to the untrustworthy Q was -9.43. These means were found to be significantly different from each other in the ANOVA ($p < .0001$); furthermore, in the individual comparisons of

the control group with the treatment groups, the control group mean of 0.16 was significantly different from the means of both the trust group ($p < .01$) and the suspicion group ($p < .0001$).

Similar results were obtained in the analysis of the PDG response measure. In the trust group, 40 out of 48 subjects manifested trust toward O while only 13 out of 48 subjects in the suspicion group manifested trust in the PDG. In the control group, 10 out of 16 subjects manifested trust toward O in the PDG. Tests of the differences between these proportions indicated that the trust group was significantly different from the suspicion group ($z = 9.5$, $p < .0001$) and that the control group was significantly different from both the trust group ($z = 2.7$, $p < .01$) and the suspicion group ($z = 6.8$, $p < .0001$).

In Table 3, the column totals represent the degrees of subjective trust and suspicion elicited by the high and the low levels of incentive to betray (Factor B). The difference between these means approached significance ($p = .06$) suggesting that there was a tendency for the high incentive to engender greater trust than the low incentive. However, an examination of the four A x B means (O's trustworthiness by incentive to betray) in Table 3 indicated that this tendency was attributable primarily to the groups where O was trustworthy. That is, subjects displayed subjective trust

Table 3. Degrees of trust, suspicion, or uncertainty generated under various conditions of previous experience.

	Incentive	
	High	Low
Trustworthy <u>O</u>	8.0	4.3
Untrustworthy <u>O</u>	-8.4	-10.4
Column Totals	-0.4	- 6.1

(In the above table, +15 represents complete certainty that O will be trustworthy; whereas -15 represents complete certainty that O will be untrustworthy; 0 (zero) represents complete uncertainty.)

where O had previously been trustworthy even though there had been a high incentive for O to betray; however, they were less certain, though still somewhat trusting, where O had been previously trustworthy, but the incentive to betray had been low. On the other hand, it was interesting that incentive had little effect upon the degree of suspicion that was generated through betrayal by O.

The interaction between O's trustworthiness and the number of exposures (A x C) was also significant ($p < .02$). However, in relation to hypothesis Two, the importance of the means of the A x C interaction lay in the comparisons of the means with the control group. In Figure 11, the treatment means that were significantly different from the control group are represented by asterisks, with the number of asterisks indicating the significance of the difference. It is evident that suspicion was established with only one exposure to betrayal whereas trust was not established until the subjects had experienced five exposures to the trustworthy O.

Evidence from the PDG response measure pertaining to the establishment of trust and suspicion was not as clear-cut as from the subjective probability measure. Table 4 presents the frequencies of the subjects who chose to trust O in the PDG. It is evident that neither trust nor suspicion was established until the five exposure level of C

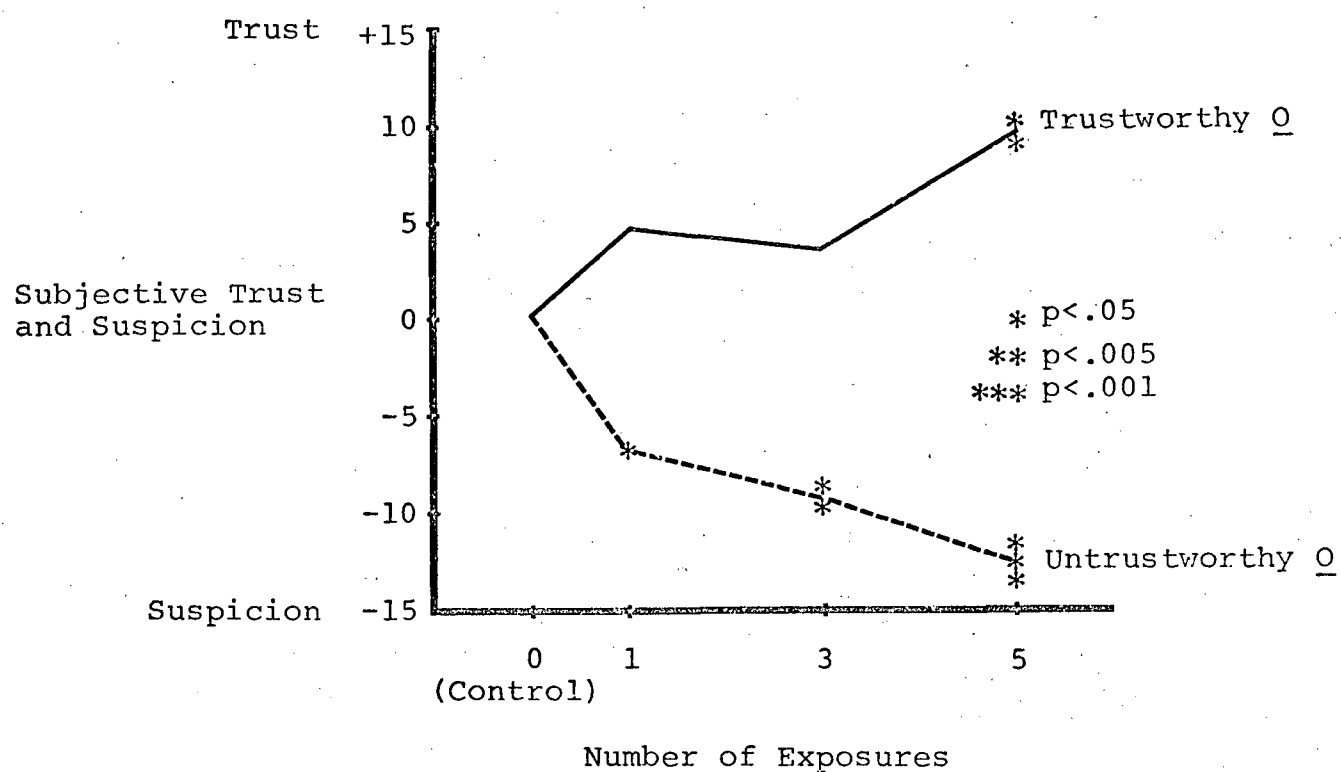


Figure 11. Subjective trust and suspicion as a function of the number of exposures to a trustworthy or an untrustworthy O.

Table 4. Frequencies of subjects who chose to trust O in the PDG.

		Number of Exposures			
		control	1	3	5
Trustworthy <u>O</u>	10		13	12	15
Untrustworthy <u>O</u>			6	6	1

(number of exposures). At the one exposure level of C, the difference in frequencies between the control group and the trust groups was 3, whereas the difference between the control group and the suspicion group was only 4; moreover, at the three exposure level of C, neither manifest trust nor manifest suspicion developed any further.¹

In addition to the foregoing analyses, two other aspects of the data were examined. First, whether or not there was a relationship between (a) the dichotomous choice PDG measure, and (b) the continuous measure of subjective trust or suspicion, was determined by means of a point-biserial correlation. Including the control group, the r_{pb} for the entire sample of 112 subjects was .88 ($p < .001$), indicating that the two measures were highly related. That is, subjects who trusted O in the PDG also tended to

¹Because the dependent measure was dichotomous, it was difficult to apply an appropriate statistical technique that would permit inferences about the establishment of manifest trust and suspicion.

indicate subjective trust, whereas, subjects who did not trust O in the PDG indicated subjective suspicion.

Related to this finding was a second aspect of the data. This concerned the question of the nature of the relationship between the two measures. Figure 12 depicts two frequency distributions over the range of the subjective trust and suspicion scale: one distribution for the 63 (out of 112) subjects who trusted O in the PDG and one for the other 49 subjects who did not manifest this trust toward O. It is evident from Figure 12 that these two distributions are quite different from each other in a number of respects.

For purposes of comparison, the distributions were considered in terms of certainty and uncertainty, i.e., in terms of absolute deviations from the mid-point of the scale. This can perhaps be better conceptualized by imagining that the scale represented in Figure 12 is folded over at its mid-point, yielding the distributions¹ shown in Figure 13.

To test the difference between the two distributions with respect to central tendency, the Mann-Whitney U

¹Six subjects manifested trust in O even though they felt that he was to some extent untrustworthy. However, their scores were not actually folded over. Instead, their scores were classified in the "completely uncertain" category since we were interested in the group of subjects who either (i) chose to trust O even in the face of uncertainty about O's trustworthiness, or (ii) chose to trust O even though they expected O to be untrustworthy.

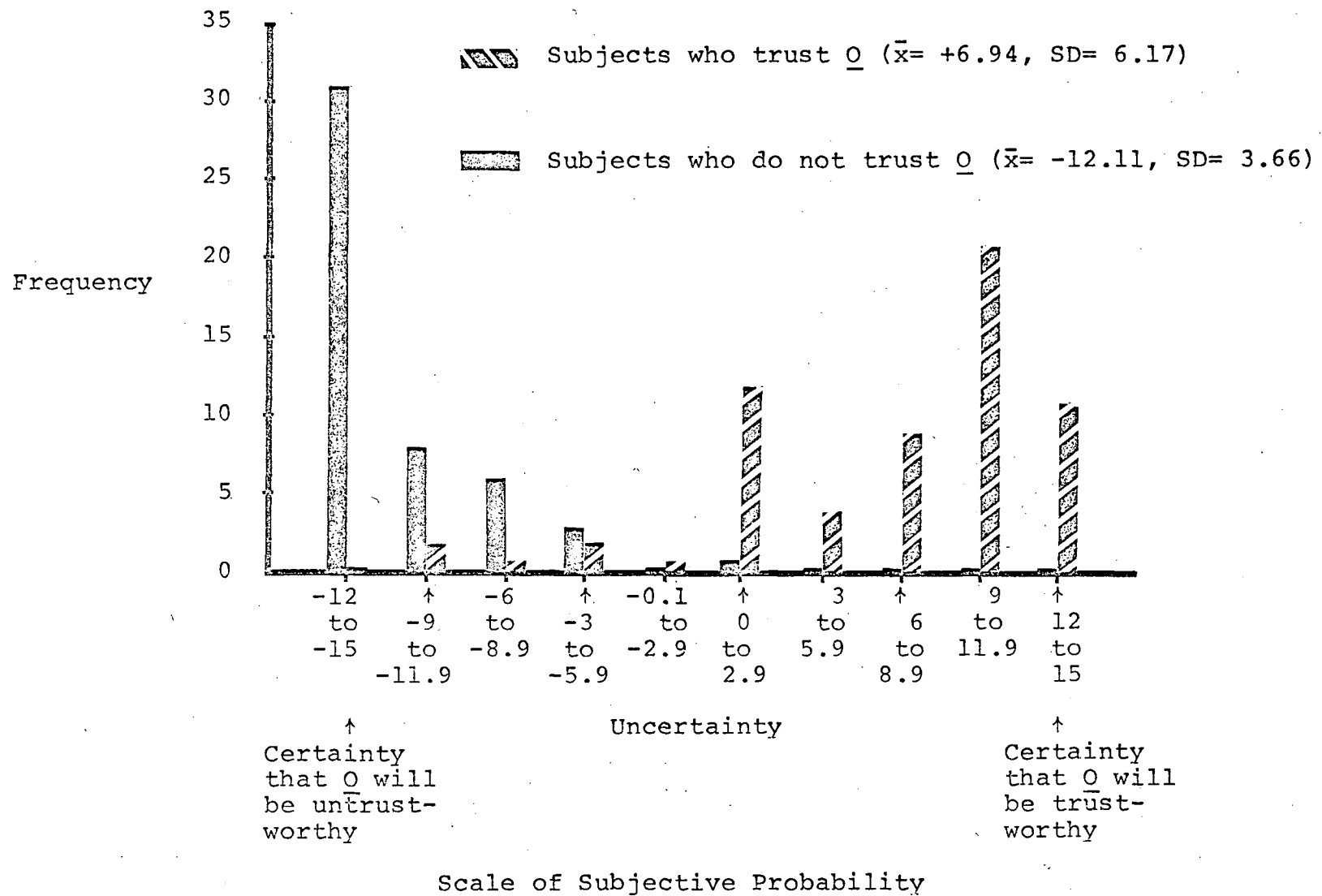


Figure 12. Frequency distributions of subjects who trusted or did not trust \underline{O} .

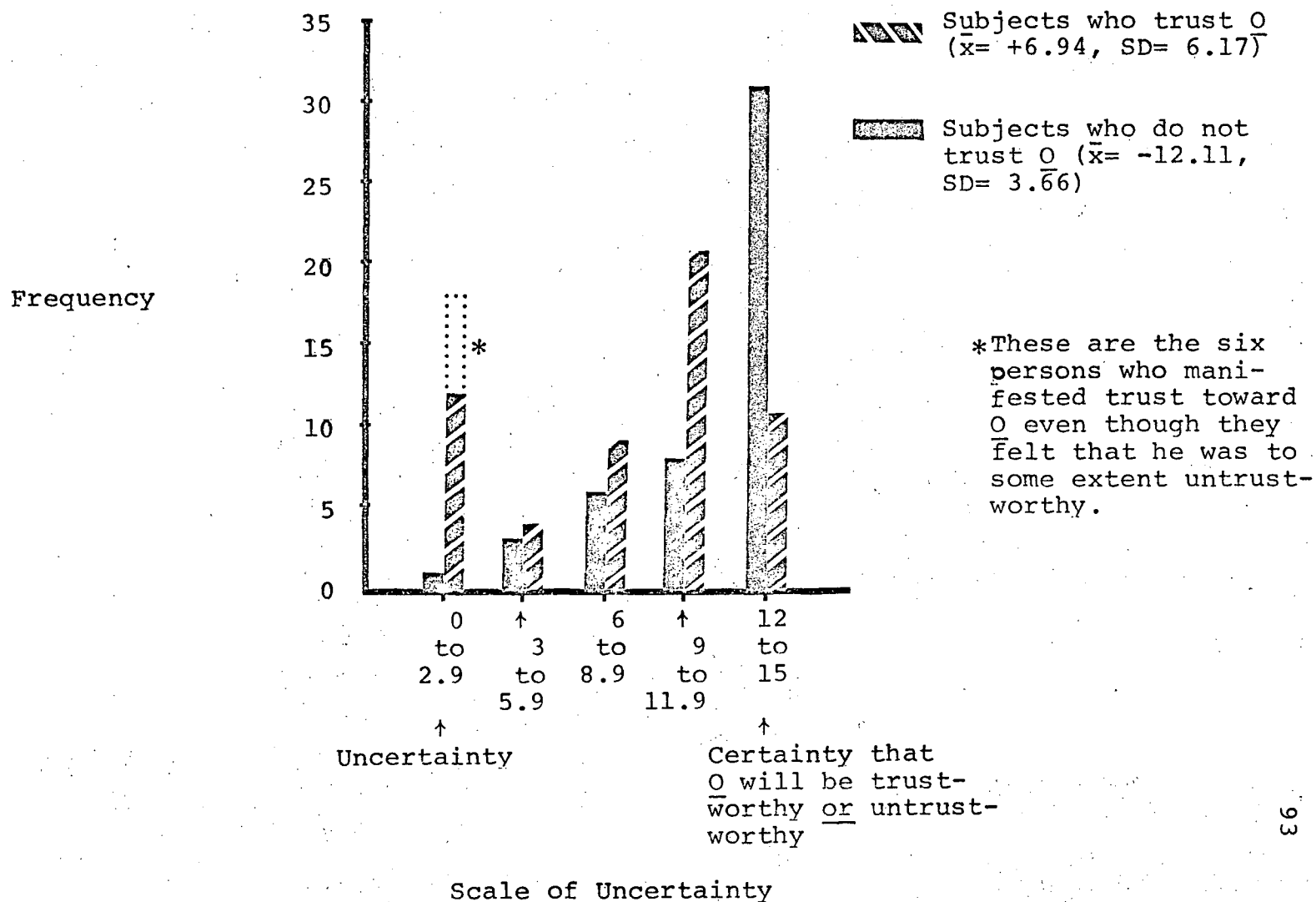


Figure 13. Comparison of frequency distributions of subjects who trusted or did not trust O.

statistic was calculated. The resulting z value of 5.14 was highly significant ($p < .0001$). Inspection of the distributions indicates that most of the subjects who did not trust O in the PDG were quite certain that he (O) would be untrustworthy. However, subjects who did trust O in the PDG often did so in the face of uncertainty about O's trustworthiness. In fact, in the 6 cases mentioned previously (see Footnote 1, page 91), the subjects trusted O even though they were to some extent certain that O would be untrustworthy. These findings seem to indicate that for this group of subjects at least, there is an approximate point (somewhere in the region between -6 to -11.9 on the subjective probability scale) at which subjective suspicion is likely to become manifest as an act of suspicion (see Figure 12). However, such a point does not seem to be as easily identifiable for those who chose to trust O in the PDG since there does not seem to be any simple and regular relationship between the frequency of subjects who did trust O in the PDG and subjective trust as it increases toward certainty that O will be trustworthy.

B. Effects of Trust and Suspicion Upon the Outcomes of Bargaining and Negotiations:

Nature of the final settlement: equality vs equity:

For the purposes of analysis, numbers (1 to 24) were assigned

to the ordered set of possible outcomes. Equity, where each received proportionally the same relative to the maximum payoff possible on his own scale, was located at 12. Equality, where the payoffs were absolutely equal, was located at 18. In the eight cases in which the bargainers failed to reach an agreement before the 30 minute deadline, the mid-point of the interval between the minimum dispositions of the bargainers at the 30 minute mark was taken to be the solution. In the ANOVA of the numbers (corresponding to the solutions) from the 48 bargaining dyads, only the interaction between O's trustworthiness and number of exposures (A x C) was significant ($p < .04$). However, as is evident from Table 5, the nature of this

Table 5. Nature of the final settlement as a function of O's trustworthiness and the number of exposures.

control	Number of Exposures			
	1	3	5	
16.25	17.00	15.00	14.25	Trustworthy <u>O</u>
	15.00	15.38	17.00	Untrustworthy <u>O</u>

(equity = 12.00; equality = 18.00)

interaction was extremely complex. With only one exposure to the trustworthy O, settlements were made close to equality. With the increased number of exposures to the

trustworthy O (i.e., with increasing trust), the settlements became more equitable. On the other hand, the suspicion group at the level of one exposure to the untrustworthy O made settlements that tended toward equity; and with increased exposures to the untrustworthy O (i.e., with increasing suspicion), the solutions approached equality.

The complexity of this interaction was even more pronounced when the control group was taken into consideration. While the mean of the control group (which fell between the two c_1 means) was not itself significantly different from any of the six $A \times C$ means, the control group "effect" appeared to be similar to the effects of both one exposure to a trustworthy O and five exposures to an untrustworthy O. (In addition, three exposures to a trustworthy O appeared to have the same effect as one exposure to an untrustworthy O.) It was therefore extremely difficult to offer an interpretation of these particular results.

Time to solution: Times ranged from 4 minutes to 30 minutes, the latter being the time assigned when the subjects failed to reach agreement. Of the eight dyads that did not reach a settlement, six were in the suspicion condition, one was in the trust condition, and one was in the control group. This was reflected in the ANOVA. Here, as hypothesized, the suspicion group, with a mean time of

19.5 minutes, required significantly more time to arrive at a solution than did the trust group, which had a mean time of 14.3 minutes ($p < .03$). Because the inclusion of the control group data increased the error variance, the mean of the control group, 20.1 minutes, did not differ significantly from either the trust or the suspicion group mean.

C. Effects of Trust and Suspicion Upon the Process of Bargaining and Negotiations:

Extremity of the initial offer: Two types of extremity were analyzed. Absolute extremity was taken to be the number of alternatives between the alternative proposed in the initial offer and the most extreme alternative at the "low" end of one's own payoff scale, i.e., where one's lowest payoff was located.

One possible source of variability in the initial offers was in the scales themselves, e.g., the range or the magnitude of the payoffs comprising the scales.¹ Thus, the variation due to scales was removed in addition to removing the variation due to sessions. Because the initial offers were made simultaneously and independently, it was

¹In the bargaining problem employed, one side received a scale of payoffs that ranged from -7¢ to \$3.36 while the other side received a scale that ranged only from -4¢ to 87¢.

possible to analyze the extremity scores for all of the 96 subjects in the ANOVA. The mean of the absolute extremity scores of the initial offers from the trust group, 16.5, was found to be significantly different from the suspicion group mean of 18.4 ($p < .01$). (More extreme offers had higher scores.) The control group mean (17.6) was not significantly different from either the trust or the suspicion group mean.

It was possible that a subject's offer would not necessarily be absolutely extreme, but extreme relative to his own actual initial range, i.e., the range between his initial minimum and his initial maximum dispositions. In such a case, an offer at the alternative where one hoped to get the most (maximum disposition) would constitute an extreme offer. Therefore, relative extremity was defined as the number of alternatives between the initial offer and the mid-point of a subject's actual initial range. As in the previous analysis, it was found that the mean of the trust group, 3.6, was significantly different from the suspicion group mean of 5.2 ($p < .03$). The control group group mean of 3.8 was not, however, significantly different from either the trust or the suspicion group mean. Conceivably, the difference between the trust and the suspicion group might have been attributable merely to existing differences between the mid-points of the actual

initial ranges of the subjects. However, an ANOVA of the mid-points eliminated this as a possible explanation.

Actual initial range: This was defined as the number of alternatives between the actual minimum disposition and the actual maximum disposition. These dispositions were indicated on the statement that accompanied the initial offer. In the ANOVA of the range scores, only the main effect for the exposures factor (Factor C) was significant ($p < .05$). The means of the actual initial ranges of the control group and of each exposure level were: control, 7.8; one exposure, 10.9; three exposures, 5.6; and five exposures, 8.1. The implication of this result was, however, difficult to explain.

Communication: It was previously hypothesized that trust and suspicion would affect (a) the amount of communication, and (b) the qualitative nature of communication. With regard to the amount of communication, the measure used was the total number of messages sent per minute within a dyad.¹ In the ANOVA of this measure however, neither main effect differences nor interactions were found.

¹The total number of messages alone could not be used as a measure since the amount of communication would be confounded with the time required to reach an agreement. Furthermore, because the messages sent by one bargainer were not independent of the messages sent by the other bargainer, the totals for the dyad had to be used. Hence the measures were the totals for the dyad divided by the time taken by the dyad to reach a settlement.

Concerning the qualitative nature of communication, each message was classified into one of four categories: (1) information messages -- geared strictly toward the exchange of information; (2) modification messages -- which included threats, ultimatums, and strikes; (3) lies -- defined by any discrepancy between what was communicated to the other bargainer and what was in fact the case, e.g., with respect to payoffs or minimum dispositions; and (4) time-bonus messages -- concerned primarily with either avoiding a penalty or obtaining a bonus. The basic measure employed was the total (for the dyad) of the number of messages in each category. However, two variations of this measure were analyzed in the ANOVA. On one hand, each category total was divided by the time required by the group to reach agreement. On the other hand, each category total was taken as a proportion of the total number of messages sent during bargaining, i.e., each category total was divided by the total number of messages sent during bargaining.¹

Table 6 summarizes the effects, the associated significance levels, and the directions of the effects obtained for both variations of the measures. (No interactions were

¹It is acknowledged that the analyses of the messages may not be completely independent. However, since the two variations convey a different meaning, the analyses were nevertheless conducted.

Table 6. Summary of analyses of communications.

	Rate: <u>Category Total</u> Time		Proportion: <u>Category Total</u> Total		Direction
	Main Effects	p	Main Effects	p	
Information	A	<.03	A	.01	T > S*
Modification	A	.09	A	<.02	S > T
Lies			A	.07	S > T
Time-Bonus	B	.04	B	<.04	Hi > Lo

*T = Trust
 S = Suspicion
 Hi = High
 Lo = Low

found to be significant in any of these analyses.) It is evident that the effects are consistent regardless of which variation is employed. Groups in which suspicion was engendered tended to send (1) fewer information messages, (2) more modification messages, and (3) more lies. In addition, subjects who were previously in the high incentive groups seemed to be more concerned about payoffs insofar as they sent more time-bonus messages. Comparisons were also made between control group means and the corresponding means of levels that were found to be significantly or almost significantly different. All of these means are presented in Table 7; the cases in which the control group differs significantly from the treatment are indicated by a line between the means.

Checks: In addition to the messages that were sent during bargaining, subjects were able to submit "checks". These enabled the subjects to determine exactly the payoff that the other person would receive at a particular alternative. An ANOVA of the number of checks indicated that there was a tendency for the subjects in the trust group to make fewer checks than the subjects in the suspicion group ($p < .07$). The difference between the mean of the control group (1.86) and the mean of either the trust group (0.92) or the suspicion group (1.86) did not approach conventional levels of significance.

Table 7. Control and treatment means corresponding to significant main effects found in the analyses of the communications.

	Rate: <u>Category Total</u> Time		Proportion: <u>Category Total</u> Total	
	Control	Treatment	Control	Treatment
Information	0.85	Trust 1.16	0.77	Trust 0.73
		Suspicion 0.85		Suspicion 0.59
Modification	0.07	Trust 0.08	0.06	Trust 0.05
		Suspicion 0.13		Suspicion 0.10
Lies			0.07	Trust 0.18
				Suspicion 0.26
Time Bonus	0.10	High 0.09	0.10	High 0.06
		Low 0.04		Low 0.03

Changes in the bargaining range: One other aspect of the bargaining data was the extent to which a subject's minimum disposition might change between the initial offer and the final agreement. In this case, the measure was the difference between the initial bargaining range, i.e., the overlap between actual initial minimum dispositions, and the final bargaining range. The final range was defined as the range just before settlement since many subjects gave, in effect, no range at the conclusion of bargaining. For example, a subject would make a "final offer" to settle at "Q" and indicate that both his minimum and his maximum dispositions were also at "Q". An ANOVA of the measure of change indicated that there were no differences or interactions due to any of the three treatment factors.

Interpersonal evaluation: the Semantic Differential: In the ANOVA of the Semantic Differential scores, two effects were significant. First, there was a main effect wherein the subjects in the trust group evaluated Q more favorably than did the subjects in both the suspicion group ($p < .0001$) and the control group ($p < .05$). (See Table 8(a).) Secondly, there was a significant interaction ($p < .02$) between Q's trustworthiness and incentive to betray ($A \times B$); the means comprising this interaction are presented in Table 8(b).

Table 8(a). Means of the Semantic Differential evaluations made by the control and treatment groups. (A completely neutral evaluation = 28.00.)

<u>GROUPS</u>	CONTROL	TRUST	SUSPICION
<u>MEANS</u>	32.8	35.1	27.9

8(b). Means comprising the significant A x B interaction.

	Incentive	
	High	Low
Trust	32.6	37.6
Suspicion	29.3	26.4

It is evident from Table 8(a) that the subjects in the trust group generally evaluated 0 quite positively; however, relative to the control group, this effect appears to be primarily attributable to the low incentive group (Table 8(b)).

D. Summary:

Primarily by means of a 2 x 2 x 3 ANOVA with one control group, hypotheses about the development and the effects of trust and suspicion were examined. To summarize the results of the analyses, Table 9 is presented, indicating (i) the dependent variable analyzed, (ii) the significant differences

Table 9. Summary of results from the principal analyses. (See Appendix F for detailed ANOVA tables).

Dependent Variable (Method of analysis: ANOVA except where indicated)	Significant Factor or Statistic	$p\bar{z}$	Description or Interpretation
1.(a) subjective trust and suspicion	A	.0001	- a previously trustworthy <u>O</u> engendered trust; a previously untrustworthy <u>O</u> engendered suspicion.
	B	.07	- greater trust where incentive to betray was high, especially where <u>O</u> was trustworthy.
(comparisons with the control group)	A x C	.02	- suspicion is established more readily than trust.
(b) subjective probability and choice behavior in PDG (point-biserial)	$r_{pb} = .88$.001	- a person's tendency to manifest trust or suspicion was highly related to the reported subjective state.
(c) subjective probability and choice behavior in PDG (Mann-Whitney)	$z = 5.14$.0001	- those who did <u>not</u> trust <u>O</u> in the PDG were <u>certain</u> that he would be untrustworthy. However, those who <u>did</u> trust <u>O</u> were <u>uncertain</u> that he would be trustworthy.

Table 9 continued.

Dependent Variable (Method of analysis: ANOVA except where indicated)	Significant Factor or Statistic	p ²	Description or Interpretation
2.(a) location of the settlement	A x C	.04	- the greater the number of exposures to a trustworthy <u>O</u> , the greater the tendency to a more equitable solution; the greater the number of exposures to an untrustworthy <u>O</u> , the greater the tendency to equality.
(b) time to agreement	A	.03	- trust groups required less time than the suspicion groups to reach an agreement.
3.(a) (i) absolute extremity	A	.01	- initial offers made by the suspicion group were more extreme.
(ii) relative extremity	A	.03	
(b) actual initial range	C	.05	-
(c) (i) amount of communication	-	-	-
(ii) nature of communication	(See Table 6)		
(d) number of checks	A	.07	- tendency for the suspicion group to check more.

Table 9 continued.

Dependent Variable (Method of analysis: ANOVA except where indicated)	Significant Factor or Statistic	$p < \bar{F}$	Description or Interpretation
(e) constriction of bargaining range	-	-	-
(f) evaluation of <u>O</u> on the Semantic Differential	A	.0001	- trust group evaluated <u>O</u> positively whereas suspicion group gave a neutral evaluation of <u>O</u> .
	A x B	.05	- the most favorable evaluations were made where <u>O</u> had been trustworthy despite a low incentive to betray. The lowest evaluations were made where <u>O</u> betrayed <u>P</u> for a low incentive.

or interactions that were found, (iii) the corresponding level of significance, and (iv) a brief description of the nature of the interaction or the direction of the difference.

CHAPTER SEVEN: DISCUSSION

A. Factors Affecting the Development of Trust and Suspicion:

Interpersonal trust is influenced by a variety of factors. This study was concerned with factors that relate to previous experience. In other words, this study was concerned with the way in which the nature of a previous encounter affects an individual's trust or suspicion in the present situation. Specifically, three independent variables were of interest: (A) O's trustworthiness, (B) incentive to betray, and (C) number of exposures. These variables were combined in a factorial design to determine their effects upon two measures of trust and suspicion.

Both trust and suspicion were found to be functions of previous experience. Fulfilled trust (where an individual trusted another person who, in turn, was trustworthy) engendered both subjective and manifest trust on subsequent occasions. Betrayed trust (where the other person was untrustworthy) gave rise to both subjective and manifest suspicion on subsequent occasions.

The incentive conditions under which an individual experienced previous trustworthiness or untrustworthiness were also important in influencing the development of trust and suspicion. In this experiment, greater trust was found to occur where, in the previous situation, the incentive

to be untrustworthy was high; however, it was observed that this effect was primarily attributable to groups in which trust had been induced, i.e., where O was trustworthy. In the suspicion-induced groups where O was untrustworthy, the effect of the previous incentive conditions was small. (As a matter of convenience, Table 10 reproduces the four A x B means presented previously in Table 3.)

These results, for the most part, are consistent not only with the intuitive interpretation advanced earlier (p. 85), but also with Heider's analysis of power relations that involve benefit and harm (Heider, 1958, pp. 258-263). In a sequential situation such as that employed in both the induction and the measurement stage, it can be said that the person who chooses last (during induction, this was subject number 4) has power if the person who chooses first makes a trusting choice. That is, the person who has extended his trust is vulnerable, and the person to whom trust has been extended is in a position of power insofar as he can benefit or harm the trusting person by being trustworthy or untrustworthy. According to Heider,

. . . the power of O is an important determinant of P's general evaluation and reaction to an act of harm or benefit. Not only will P's perception of who is responsible for the act be influenced, but also his understanding of the reasons motivating the act.

Table 10. Degrees of trust, suspicion, or uncertainty generated under various conditions of previous experience.

	Incentive	
	High	Low
Trustworthy <u>O</u>	8.0	4.3
Untrustworthy <u>O</u>	-8.4	-10.4
Column totals	-0.4	- 6.1

(In the above table, +15 represents complete certainty that O will be trustworthy; whereas -15 represents complete certainty that O will be untrustworthy; 0 (zero) represents complete uncertainty.)

. . . Power relations also play a part in still deeper levels of attribution, levels that answer the question why O wanted to harm or benefit P. In this way power relations are an important determinant of P's acceptance or rejection of the act.

(Heider, 1958, pp. 259-260).

Heider's observations lead to an interpretation of the effects of incentive similar to the interpretation advanced earlier.

Essentially, the intuitive interpretation proposed earlier supposes that trust and suspicion are products of an inferential-evaluative process and that the critical information required for the process is derived in part from previous experience. Incentive in this scheme is important insofar as it influences the degree of trust or suspicion that is generated.

For example, whether a high degree or a low degree of trust is elicited by O's previous trustworthiness would seem to depend upon the level of the incentive that was forgone by O. Under a condition of low incentive, there is still room for doubt or uncertainty to occur during the process in which P makes inferences about, and evaluates, O's motives. O may have been trustworthy not because he was genuinely so, but simply because he had little to gain by being untrustworthy. In contrast, trustworthiness despite a high incentive leaves less room for doubt, communicating a relatively greater degree of trustworthiness,

especially if O's decision is perceived as being a steadfast refusal to betray.

Conceivably, the evaluation of previous untrustworthiness is also differentially affected by the level of incentive. Here, the condition of low incentive is likely to elicit a relatively greater degree of suspicion (i.e., less trust). This happens because betrayal for a low incentive is likely to be perceived as being less justifiable (at least on monetary grounds) than betrayal for a high incentive. Whereas the high incentive is itself a tangible reason for O's untrustworthiness, the low incentive does not provide sufficient basis for rationalizing the previous betrayal.

One of the more important findings was that the way in which subjective trust developed as a function of previous experience was different from the way in which subjective suspicion developed. Among the groups in which trust was induced, only the group that was exposed five times to a trustworthy O indicated significantly increased subjective trust. In contrast, all of the groups in which suspicion was induced indicated significantly increased subjective suspicion, even where there was only one exposure to an untrustworthy O. It was therefore apparent that subjective trust was more difficult to establish than subjective suspicion. This difference, however, was not

clearly reflected in the PDG responses. That is, for any one level of C, the tendency of the suspicion-induced groups to manifest suspicion was not substantially greater than the tendency of the trust-induced groups to manifest trust. This seemed to indicate that manifest trust was somewhat, but not much more, difficult to establish than manifest suspicion. However, it is possible that the results obtained represent an overestimate of manifest trust. Without such an overestimation the results would be consistent with those obtained for the measures of subjective trust and suspicion, indicating that both manifest and subjective trust are more difficult to establish than manifest and subjective suspicion.

Two reasons can be presented to support this interpretation. The first is based upon the finding that many subjects decided to trust O in the PDG despite their own uncertainty and lack of subjective trust. Since this outcome was intuitively unexpected, the question naturally arises as to why these subjects would make such a choice. It can be argued that in a given situation, members of a cohesive in-group, compared with complete strangers, are more likely to give each other "the benefit of the doubt" in the anticipation of post-experimental interaction. In other words, in-group members (like the members of the highly selected fraternity population from which the sample

was drawn) expect to encounter each other outside the experiment. Thus, they are probably more willing to accept the risk of extending their trust even if they do not subjectively trust O, as long as O is also a member of the in-group. Complete strangers, on the other hand, with little chance that they would have to interact with O outside of the experimental situation, would probably be quite unwilling to undertake such a risk, given the same degree of uncertainty in the same situation. What this ultimately implies is that the relationship between the measures of the manifest and the subjective states of in-group members expecting interaction is different from the relationship for complete strangers who have little reason to expect extra-experimental interaction. Such a comparison would in fact be a worthwhile focus for future research.

This line of reasoning would be consistent with other previous findings. Lieberman (1964), on the basis of results from a negotiable 3-person coalition game, concluded that trust and trustworthiness derive from self-interest -- a long term interest based upon the anticipation of future interaction and directed towards the preservation of the stability of the coalition. Similarly, Marlowe, Gergen, and Doob (1966), although not directly concerned with the problem of trust, did find that given the expectation of future social interaction with the other person, subjects made more cooperative choices.

There is a second reason why the results obtained represent an overestimation of manifest trust. For each trial in which O (number 4) was trustworthy during stage I, the subjects received 25¢. That is, they received 25¢, 75¢, or \$1.25 depending on the number of exposures to the trustworthy O. Consequently, during measurement, the subjects may have reasoned that since they were already "ahead" (by 25¢, 75¢, or \$1.25), they could afford to take a chance even though subjectively, they may not have been very convinced of O's trustworthiness. Under other circumstances, without the benefit of previous payoffs, they may have been more reluctant to risk a net loss of their own money.

To summarize up to this point, the discussion has been primarily concerned with the hypothesis that trust is more difficult to establish than suspicion. The measures of subjective trust and suspicion furnished strong support for this hypothesis. However, the measures of manifest trust and suspicion were not as clear-cut. To account for the latter result, it was argued that the frequency of subjects who manifested trust was inflated, the consequence of this being to decrease the difference between the frequency of subjects who manifested trust and the frequency of subjects who manifested suspicion. Two reasons were offered in support of this explanation. First, the fact that the

subjects were all members within a well-defined group raised the possibility that being in-group members, they had an expectation of post-experimental interaction, and a greater tendency to give each other "the benefit of the doubt". Secondly, because of the payoffs that were received by the subjects during the induction of trust, it was possible that the degree of manifest trust obtained was an artifact of the methodology. Thus, the tendency of the subjects in this experiment to manifest trust even in the face of uncertainty may not have been typical, especially under other circumstances.

B. Effects of Trust and Suspicion Upon Bargaining and Negotiations:

This part of the study (the bargaining stage) was designed not only to determine the effects of trust and suspicion upon bargaining outcomes, but also to permit inferences about why those outcomes occurred. For this reason, the findings concerning the processes of bargaining were assigned largely to the role of qualifying the results concerning the outcomes of bargaining. In this respect, the emphasis of this discussion will lie in relating and integrating the findings as meaningfully as possible rather than accounting for each result individually.

Two indices of outcome were analyzed. One measure was the time required to reach settlement; the other was the locus

or nature of the settlement, e.g., if agreements tended to be equal or more equitable. Of the two measures, the former is generally regarded as being less important. That is, whether the duration of bargaining is protracted or abbreviated usually is not, itself, of central interest¹ (especially if the settlement is objectively in the best long-range interests of both parties). Knowledge of duration, however, can be useful if it is also possible to determine why and under what conditions a particular period of time has been required to achieve an agreement. For example, if a bargaining session has been prolonged, it would be worthwhile to determine if the time has been occupied by irrelevant bickering or if some constructive ends have been accomplished.

In the analysis of the time measure, a significant main effect was found, with the trust-induced groups requiring less time than the suspicion-induced groups to reach an agreement. Taking the control group into account made it difficult, however, to specify precisely what the effects of trust and suspicion were upon the duration of bargaining. The graphic representation of the means of

¹Exceptions occur, of course, in the extreme cases. Where bargaining is, for example, concluded quickly, the agreement might be regarded as being overly hasty and ill-considered; or, if bargaining is proceeding slowly, the constituents might become impatient and disgruntled; or, if a strike is in effect, the delay in production might be extremely costly.

the control group, the trust group, and the suspicion group (see Figure 14, p. 119), gave the impression that trust had the effect of decreasing duration, whereas suspicion had no appreciable effect. However, comparisons of the control group mean with the means of the trust and the suspicion groups detracted from the plausibility of this interpretation insofar as no significant differences were found.

Although the effects of trust and suspicion upon duration could not be unequivocally specified, it was clear that the trust group did require less time than the suspicion group to reach a solution. An examination of the more specific aspects of the bargaining process suggested a number of possible explanations for this difference. For example, it was found that the subjects in the suspicion group made initial offers that were more extreme than the initial offers made by the subjects in the trust group. Their offers were both absolutely extreme and extreme relative to their own actual bargaining ranges.¹ (However, their own actual bargaining ranges were unaffected by trust and suspicion.) The discrepancy between the initial offers was therefore greater for the suspicion group than for the trust group. In effect, this meant that the subjects in the suspicion group had to bargain over an initially greater

¹A subject's own actual bargaining range was defined as the range between his actual minimum disposition and his actual maximum disposition.

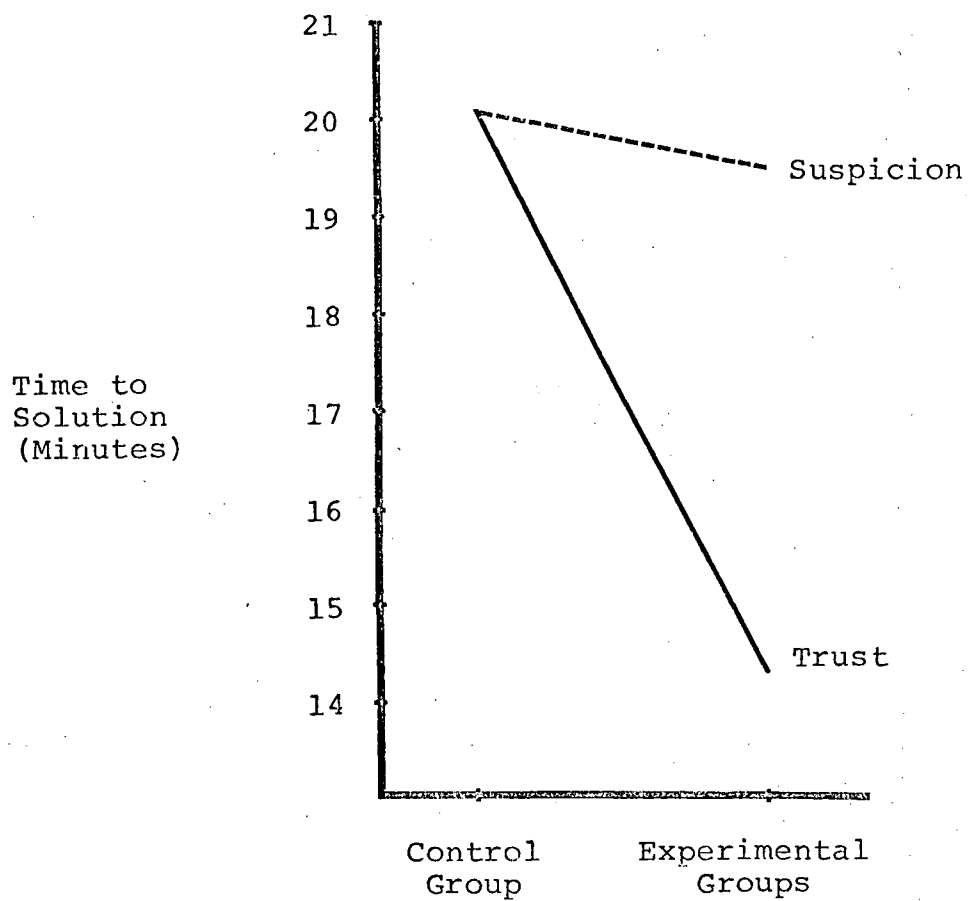


Figure 14. Graphic representation of the times required to reach agreement.

range of alternatives; and in order to reach an agreement, they eventually had to make a greater number of concessions. Thus, the ultimate consequence was probably that the subjects in the trust group, relative to the suspicion group, found bargaining easier, as was reflected in their ability to arrive at settlements more quickly.

Analyses of the qualitative nature of the communications also reflected the differences between the trust and the suspicion groups. Proportionally more of the messages sent by the subjects in suspicion groups were directed toward the modification of each others' utilities. Not only did they send more lies, but they also made more checks and sent more threats, ultimatums, and refusals to bargain (strikes) than did the subjects in the trust groups. On the other hand, they (the subjects in the suspicion groups) sent proportionally fewer informational messages. Along with the other results, this seems to indicate that the subjects in the suspicion group were not so much seeking solution through the exchange of information as attempting to obtain higher payoffs by means that were highly conflictful. This latter observation relates, in fact, to the interpretation of the results for the other measure of outcome -- the nature of the final settlement.

Whether a dyad settled at equality or in a more equitable direction appeared to depend upon the degree of trust or

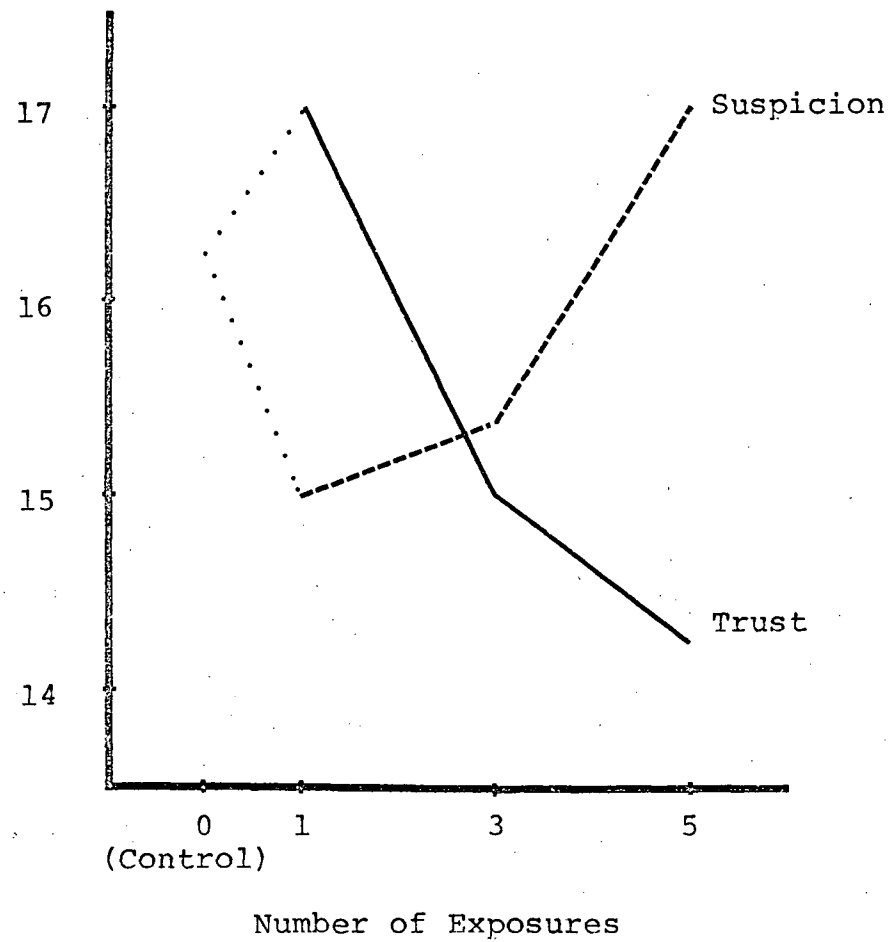
suspicion that had been induced in the first stage of the experiment. This result, represented statistically as an interaction, is difficult to explain because of the nature of the interaction (see Figure 15, p. 122). On one hand, the settlements of the trust group at the lowest level of C, the number of exposures factor, tended toward equality; at higher levels of C, i.e., as trust was presumably increasing, the tendency was to settle in a more equitable direction. On the other hand, the suspicion group at the lowest level of C began with more equitable settlements and, as suspicion increased, tended toward equality.

Of the 56 dyads (including the control group dyads), 18 -- almost a third -- settled at equality. This was twice the number of dyads that settled at the next most frequently occurring alternative (which was exactly midway between equity and equality). Figure 16 presents the frequency distribution for the entire range of alternatives. Clearly, equality was highly preferred.

This result raises two questions. First, how does this result relate to the obtained interaction? Secondly, why is equality so attractive?

With regard to the first question, a more detailed inspection of the data indicated that out of the 18 dyads that settled at equality, 7 were in the trust-induced group, 7 were in the suspicion-induced group, and 4 were in

Nature of final
settlement.
(Equality = 18.0
Equity = 12.0)



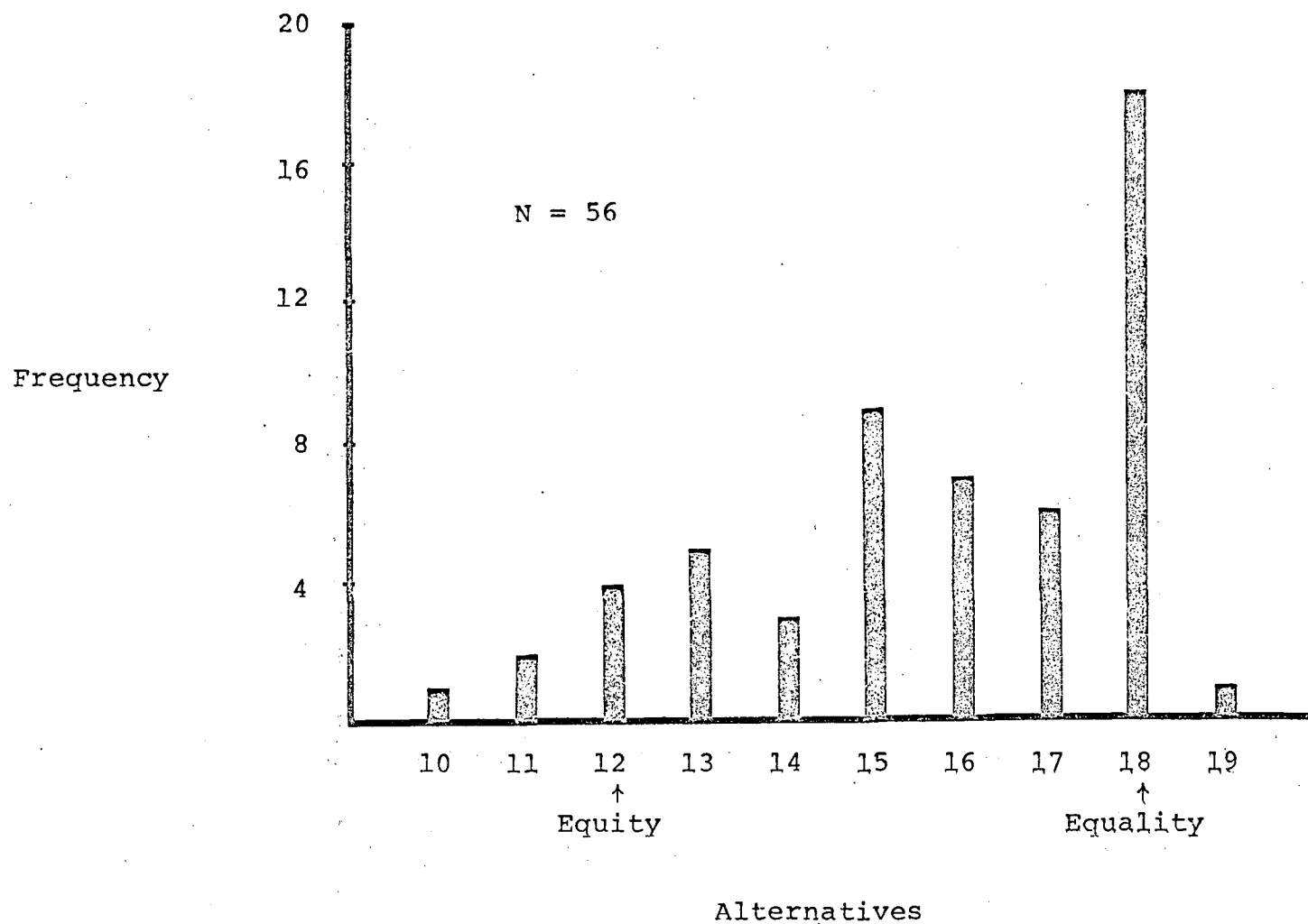


Figure 16. Frequency distribution of dyads over the range of solutions.

the control group. In other words, the experimental treatments had no apparent effect upon the preference for equality. However, an examination of the times required by these dyads revealed an interesting finding: that the 7 dyads in the trust condition settled relatively quickly, whereas the 7 dyads in the suspicion condition settled relatively slowly.¹ It appears, therefore, that the reasons underlying the solution of equality were quite different. The trust dyads that settled at equality preferred and/or accepted the solution with relative ease, whereas the suspicion dyads capitulated or unwillingly yielded to equality only after a considerable amount of conflict and hard bargaining.

In this context, the interaction obtained (from the data pertaining to the nature of the solution) is more easily understood. Although it appears from the interaction that the "low trust" group and the "high suspicion" group are similar insofar as they both tend to settle toward equality, this interpretation suggests that the settlements by these groups at equality have different implications.

¹The means for the 7 trust dyads and the 7 suspicion dyads were 15.6 minutes and 22.9 minutes respectively, the difference being 7.3 minutes. A test of this difference was significant ($p < .05$), but, of course, was not independent of the over-all F test that had previously been found to be significant.

The question remains as to why so many settlements were located at equality. Morgan and Sawyer (1967) compared friends with non-friends and also found equality to be equally highly attractive in both groups.¹ This occurred even though asymmetry (where one person received a more generous scale of payoffs) was legitimated between non-friends, i.e., why one person received the higher scale was plausibly justified within the experimental situation. To account for their findings, Morgan and Sawyer argued that in effect, asymmetry was virtually disregarded by the subjects and that a number of factors promoted symmetry. Thus, with essentially symmetrical outcomes, equality became highly prominent. In the present experiment, asymmetry was not legitimated in any way. It is therefore possible that the subjects, like the subjects in the Morgan and Sawyer study, also imposed symmetry over asymmetry. However, it was informally observed in many cases that once asymmetry became evident, it was accepted and often taken into account during bargaining.

Equality may have been prominent for other reasons. To a limited extent, the payoff schedules were disguised;

¹Morgan and Sawyer also compared the effects of having information about O's expectations with not having information. The result discussed here pertains only to the "have information" condition since this condition resembles more closely the way in which the present study was conducted.

however, the values at the point of equality were among those that were not altered. Thus, discovery either through the exchange of information or by means of a check, often resulted in equality becoming the focal point of subsequent bargaining.

Exact equity, on the other hand, could not be made obvious as in some experiments where the payoff schedules are completely revealed to both sides. In Sawyer's Bargaining Board, for example, three nickels were juxtaposed with three quarters at the point of equity, making the point prominent if for no other reason than the fact that the number of coins was identical (Morgan & Sawyer, 1967). Reference not so much to the point of equity as to a more equitable settlement was nevertheless quite justified in the present study. For although the subjects had no knowledge of the range and magnitude of the other person's scale at the outset of bargaining, almost all became aware of the disparate nature of the scales during the course of bargaining. In fact, subjects frequently referred to some notion of equity (but not the specific point of equity) when they argued in favor of more equitable solutions.

In this part of the discussion, an attempt was made to present an integrated interpretation of the results from the bargaining stage. Two measures of outcome were discussed and then qualified in terms of several process-related

findings. With respect to the measure of time to agreement, it was found that the trust group required less time than the suspicion group to reach a settlement. In the context of several aspects of the bargaining process, the reasons why the suspicion group required relatively longer to come to an agreement became evident. Not only did the suspicion group make initial offers that were more extreme, but they also made more checks, sent proportionally fewer information messages, more lies, and more threats, ultimatums, and refusals to bargain.

This highly conflictful tenor which characterized the bargaining in the suspicion group facilitated the explanation of the results that pertained to the nature or location of the final settlement. Essentially, it was found that with greater trust, there was a greater tendency toward more equitable solutions; but with greater suspicion, there was a greater tendency toward equality. It was observed that equality was a modal solution; in fact, it accounted for almost 1/3 of the solutions. Furthermore, equality occurred with the same frequency in both the trust and the suspicion groups. It was discovered that compared with the suspicion groups, the trust groups required less time to reach settlement at equality. Thus, arriving at the solution of equality had different implications, depending on whether trust or suspicion was apparently operating. For the trust

groups, equality was a solution that was relatively amicably agreed upon; however, for the suspicion groups, it was a settlement reluctantly arrived at through a great deal of conflict.

CHAPTER EIGHT: SUMMARY AND CONCLUSIONS

The principal purpose of this chapter is to suggest some of the more general implications of this study and in so doing, to present a summary of the major results.

At the beginning of the first chapter, two related objectives were set forth. To reiterate, the objectives were: (i) to attempt to overcome some of the methodological difficulties in studying trust and suspicion, and (ii) to obtain some theoretically-important empirical evidence about both the development and the effects of trust and suspicion. Obviously, the successful accomplishment of the methodological objectives was prerequisite to the successful achievement of the empirical objectives. Therefore, although the experiment was ostensibly directed toward the latter (empirical) objectives, it should be emphasized that the methodological aspects were equally (perhaps more) important. For this reason it would be worthwhile to assess briefly some of the methodological implications of the study.

Among the various approaches to the laboratory study of trust and suspicion, the method of experimental induction was selected.¹ An experimental situation was then developed in which trust and suspicion could be generated and measured in a manner that permitted (1) valid inferences about trust

¹Another approach would be, for example, to compare samples drawn from populations that are for some reason considered to be different with respect to trust and suspicion.

and suspicion, and (2) observation of the effects upon some dependent variables. The conditions outlined in Chapter Two as being necessary for valid inferences were incorporated as extensively as possible. For example, in both the induction and the measurement stages, the experimental situations consisted of sequential events that were easily comprehended, and involved moderately sizable amounts of real money that could be won or lost. Furthermore, the measurement of trust and suspicion took into account the differentiation between manifest trust and suspicion on one hand and subjective trust and suspicion on the other hand.

Adopting these steps did not, of course, guarantee that effects would necessarily be observed. However, the results that have been reported do furnish some evidence of the effectiveness of the procedures. More specifically, a number of reasons suggest that the methodology was both valid and effective. For example, the observed effects of the stage I manipulations were generally consistent in the subsequent stages. That is, the strongest effect measured in the second stage (i.e., Factor A, which accounted for approximately 85% of the treatment variation), was also the strongest effect in the bargaining stage. Furthermore, the effects that occurred within the bargaining stage were usually consistent with each other; this permitted a more general and inclusive interpretation of the results.

Finally, despite the fact that the Semantic Differential was administered at the very conclusion of the experiment, it nevertheless reflected effects initiated in the first stage. On the basis of the foregoing considerations, it seems reasonable to conclude that the methodological objective set forth at the beginning of this thesis was accomplished. The remainder of this chapter will now be devoted to reviewing the empirical findings.

The results concerning the development of trust and suspicion as a function of previous experience have at least three important implications. First, the conceptualization of trust and suspicion does not consist of simply stating one set of relations for trust and merely stating the opposite set of relations for suspicion. This is apparent insofar as trust and suspicion develop at different rates, with trust being more difficult to establish than suspicion. The degree of trust moreover, is appreciably influenced by the incentive conditions under which O was previously trustworthy; in contrast, the degree of suspicion is not influenced to the same extent by the incentive conditions that were operating when O was previously untrustworthy.

Apart from this conceptual implication, the aforementioned results are important for an additional reason. This reason relates to the long-range interest of determining means of

fostering trust where suspicion is unjustified and/or has costly and disruptive effects upon efforts to arrive at solutions to problems. That trust is often difficult to establish is not, of course, an entirely novel finding since others (e.g., Osgood, 1962; Pilisuk, Skolnick, Thomas, & Chapman, 1967; and Schelling, 1960) have made similar observations. But it is important to recognize that a relatively greater degree of trust can be engendered by an individual who has been trustworthy despite the temptation of a high incentive to betray. Trustworthiness while foregoing a low incentive does not appear to be as effective in encouraging trust.

Another implication is that it is important to distinguish between the manifestation of trust and suspicion and the underlying subjective states. The importance of making this distinction lies in determining the nature of the relationship between the subjective and the manifest states and thereby being able to ascertain the thresholds at which subjective trust and suspicion become expressed as overt behavior. From the results of this study, it appears that the nature of the relationship between the manifest and the subjective states may vary, depending, for example, upon such factors as the population from which the sample has been drawn. Accordingly, a threshold, if identifiable, may also vary. It is in this respect that future research can

be directed since a knowledge of thresholds would be valuable in attempting to generate more behavioral trust.

With regard to the data from the bargaining stage, it is necessary to acknowledge that the generality of the interpretations may be somewhat limited. For in assessing and combining the data in a post-hoc analysis such as this, a certain number of alternative interpretations were sacrificed in the interest of integration. Nevertheless, a limited number of implications can tentatively be proposed. Perhaps the most important implication of the effects of trust and suspicion upon bargaining is that trust tends to facilitate, whereas suspicion tends to impede and in some cases disrupt the bargaining process. Not only did suspicion have the effect of making the initial offers more extreme, but it also led to a period of bargaining characterized by conflict. Subjects in suspicion-induced groups sent proportionally fewer informational messages, more lies, and made more outright attempts to modify the other persons' utilities by making more threats, ultimatums and refusals to bargain. It is not surprising, then, that trust groups were found to require less time to reach a settlement.

It would therefore appear that even if the nature of the solution were not affected by suspicion, bargaining under a certain amount of trust would be preferable to bargaining under a high degree of suspicion. For where

extreme suspicion is operating, there appears to be a greater tendency to become distracted from task-oriented behavior and instead to engage in behavior that is not only irrelevant to the solution of the problem, but often conducive only to the intensification of conflict.

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APPENDIX A: EXAMPLE OF THE PDG RESPONSE SHEET

PD FORM

Instructions:

RED

- (i) Carefully examine the table below.
- (ii) Remember that this form goes to the other person who, knowing what you have already chosen, will then make his choice.
- (iii) Now choose either the upper row or the lower row by drawing a horizontal line through the entire row chosen.

GREEN

- (i) Carefully examine the table below.
- (ii) Note the choice that has already been made by the other person.
- (iii) Now make your own choice between the column on the left or the column on the right by drawing a vertical line through the chosen column.

IMPORTANT: THE AMOUNT OF MONEY YOU RECEIVE WILL BE DETERMINED BY THE INTERSECTION OF THE LINES DRAWN BY YOU AND THE OTHER PERSON.

Green chooses either

left

right

upper

+ \$0.50 + \$0.50

- \$1.00 + \$1.00

Red chooses either

lower

+ \$1.00 - \$1.00

0

0

PD FORM

Instructions:

RED

GREEN

- (i) Carefully examine the table below.
- (ii) Remember that this form goes to the other person who, knowing what you have already chosen, will then make his choice.
- (iii) Now choose either the upper row or the lower row by drawing a horizontal line through the entire row chosen.

- (i) Carefully examine the table below.
- (ii) Note the choice that has already been made by the other person.
- (iii) Now make your own choice between the column on the left or the column on the right by drawing a vertical line through the chosen column.

IMPORTANT: THE AMOUNT OF MONEY YOU RECEIVE WILL BE DETERMINED BY THE INTERSECTION OF THE LINES DRAWN BY YOU AND THE OTHER PERSON.

Green chooses either

left

right

upper

+ \$0.50 + \$0.50

- \$1.00 + \$1.00

Red chooses either

lower

+ \$1.00 - \$1.00

0

0

	left	right
upper	+ \$0.50 + \$0.50	- \$1.00 + \$1.00
lower	+ \$1.00 - \$1.00	0 0

APPENDIX B: PROCEDURE AND RULES OF BARGAINING

PART III: BARGAINING

- A. Objective:
Agreement by both sides upon one of the alternatives.
- B. Procedural Details:
1. A statement (on yellow slips) must accompany each message.
 2. Agreement occurs when one side sends a decision message (pink slips) indicating commitment, and the other side decides to accept.
- C. Rules and Other Factors to Consider:
1. Time: The quicker you reach an agreement, the more money you will receive. HOWEVER, too hasty an agreement may not be wise since the other side may be deceiving you, leaving you with a relatively low payoff.

Determination of the time bonus or penalty:

Time	Bonus	
1		Maximum bonus for settlement in 1st 3 minutes.
2	25%	
3		
4	24	Bonus decreases by 1% every minute.
5	23	
.	.	
.	.	
.	.	
11	17	Bonus decreases by 3% every minute.
12	16	
13	15	
14	12	
15	9	
16	6	Penalty of 1% every minute.
17	3	
18	0	
	Penalty	
19	-1%	
20	-2%	
.	.	
.	.	

2. Deception: This might yield a better outcome, BUT, if detected, i.e., checked, it might either delay or eliminate the possibility of agreement.

Checking the truth of the other person's claims costs approximately 5% of your maximum payoff.

3. Refusal to bargain: Here, no messages are allowed for the time specified. Bonus decrements and penalties are still in effect, only the other person's decrements and penalties are doubled.

APPENDIX C: EXAMPLES OF BARGAINING PROBLEMS

The problems on the following page were intended to contrast with each other so that the subjects would not be as likely to have sets about the similarities or differences between one side's scale and the other side's scale with respect to the range of the payoffs and the payoff increments. In pilot studies, it had been found that subjects frequently assumed either that the other person's payoff schedule was similar to their own, or when only one example problem was given, that the experimental problem was in some specific way similar to the example problem.

OBJECTIVE OF BARGAINING: MUTUAL AGREEMENT UPON ONE OF THE ALTERNATIVES.

Example 1

One side gets	50	31	25	19	17	17	16	16	16	15	14	13	9	6	2
Alternatives	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Other side gets	-3	-3	-2	-1	0	1	1	3	4	7	15	29	30	31	30

Example 2

One side gets	1	4	6	7	10	13	14	15	22	26	27	29	34	35	39
Alternatives	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Other side gets	138	121	109	87	73	51	45	44	21	2	-10	-31	-36	-58	-92

APPENDIX D: STANDARD FORMS USED DURING BARGAINING

The three forms that were used by the subjects are presented in the following pages. Colors were used to facilitate the distinctions among the forms. The first two (the blue standard message and the pink decision message) were the means by which the subjects communicated. The third form, which had to be submitted along with each message, was not a communication, but a statement of the subject's actual minimum and maximum dispositions at the time of sending.

STANDARD MESSAGE # _____

(NOT BINDING and NOT NECESSARILY TRUTHFUL)

Complete only one of the following:

- (i) At alternative _____, I get _____.
- (ii) What do you get at _____?
- (iii) I cannot possibly go any lower than _____.
- (iv) If you aren't going to budge, I will submit a decision to refuse bargaining for the next _____ minute(s).
- (v) My next offer will be final; I will go to _____, but no lower.
- (vi) I suggest that we settle at around _____.
- (vii) Other:

Time remaining _____

DECISION MESSAGE# _____

(ALL DECISIONS COMMUNICATED BY THIS MESSAGE ARE
BINDING.)

-
- I offer to commit myself to settle at _____,
where I will get _____. (Binding, but not
necessarily truthful)
 - I accept your offer to settle at _____.
 - I reject your offer _____.
 - I refuse to bargain for the next _____ minute(s).

Time remaining _____

STATEMENT

Corresponding to: The initial offer _____.
: Standard message # _____.
: Decision message # _____.

(THIS STATEMENT DOES NOT GO TO THE OTHER PERSON,
BUT IS RETAINED BY THE MONITOR.
BOTH ENTRIES HERE MUST BE TRUTHFUL.)

Complete both of the following:

- (1) The lowest alternative to which I will go is _____.
- (2) The highest I think I can get is _____.

APPENDIX E: SEMANTIC DIFFERENTIAL

Name: .

Assigned #: 1 2 3 4 (circle one)

ON EACH OF THE SCALES BELOW, INDICATE AS ACCURATELY AS POSSIBLE, YOUR FEELING TOWARD THE PERSON WITH WHOM YOU HAVE BEEN BARGAINING. (Remember that #1 has been bargaining with #2 and #3 has been bargaining with #4.) DO THIS BY MARKING AN 'X' IN ONE OF THE 7 SPACES BETWEEN THE WORDS THAT LIE AT THE ENDS OF EACH SCALE.

good : : : : : : bad

cruel : : : : : : kind

dishonest : : : : : : honest

clean : : : : : : dirty

unpleasant : : : : : : pleasant

nice : : : : : : awful

unfair : : : : : : fair

APPENDIX F: ANOVA TABLES

In the presentation of these tables, the following conventions have been adopted:

- (a) The dependent measures analyzed have been indicated by means of the numbered sub-headings which precede each summary table.
- (b) Page numbers have been placed in the square brackets next to each subheading to refer to the location in the text where the particular result has been presented.
- (c) Where possible, extraneous sources of variation have been removed from the treatment variation. The variation due to a particular session in which a group was run has been indicated in the Source column by the word 'Sessions'. The variation due to either of the different scales received by the bargainers has been indicated by the word 'Scales'.

1. SUBJECTIVE PROBABILITY MEASURES OF TRUST AND SUSPICION [pages 85-88]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	5809.50	104.04	<.0001
B (Incentive)	1	195.51	3.50	.06
C (Exposures)	2	26.98	<1	
A B	1	17.17	<1	
A C	2	269.67	4.83	<.02
B C	2	51.08	<1	
A B C	2	86.07	1.54	
Sessions	12	39.40		
Error	72	55.84		
Total	95			

2. NATURE OF THE FINAL SETTLEMENT
[pages 94-96]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	1.69	<1	
B (Incentive)	1	1.69	<1	
C (Exposures)	2	2.65	<1	
A B	1	.19	<1	
A C	2	22.56	4.03	<.04
B C	2	.06	<1	
A B C	2	.81	<1	
Sessions	12	5.60		
Error	24	5.60		
Total	47			

3. TIME TO SOLUTION
[pages 96-97]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	331.28	5.30	<.03
B (Incentive)	1	80.34	1.29	
C (Exposures)	2	22.83	<1	
A B	1	13.76	<1	
A C	2	149.99	2.40	.11
B C	2	4.84	<1	
A B C	2	1.66	<1	
Sessions	12	83.25		
Error	24	62.46		
Total	47			

4. ABSOLUTE EXTREMITY
[pages 97-98]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	92.04	7.85	<.01
B (Incentive)	1	8.17	<1	
C (Exposures)	2	23.95	2.04	<.14
A B	1	3.37	<1	
A C	2	15.82	1.35	
B C	2	14.89	1.27	
A B C	2	.59	<1	
Sessions	12	19.60		
Scales	12	14.44		
Error	60	11.72		
Total	95			

5. RELATIVE EXTREMITY
[page 98]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	60.96	5.34	<.03
B (Incentive)	1	9.07	<1	
C (Exposures)	2	3.54	<1	
A B	1	6.77	<1	
A C	2	19.60	1.72	<.19
B C	2	.80	<1	
A B C	2	24.07	2.11	<.13
Sessions	12	14.10		
Scales	12	14.29		
Error	60	11.42		
Total	95			

6. MID-POINTS OF ACTUAL INITIAL RANGES
[pages 98-99]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	8.34	<1	
B (Incentive)	1	.75	<1	
C (Exposures)	2	5.51	<1	
A B	1	.19	<1	
A C	2	.22	<1	
B C	2	5.45	<1	
A B C	2	7.61	<1	
Sessions	12	2.51		
Error	24	9.64		
Total	47			

7. ACTUAL INITIAL RANGE
[page 99]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	1.33	<1	
B (Incentive)	1	40.33	1.26	
C (Exposures)	2	115.65	3.62	<.05
A B	1	4.08	<1	
A C	2	14.77	<1	
B C	2	56.02	1.75	.19
A B C	2	6.40	<1	
Sessions	12	18.79		
Error	24	31.96		
Total	47			

8. AMOUNT OF COMMUNICATION (TOTAL NUMBER OF MESSAGES
DIVIDED BY TIME TO SOLUTION)
[page 99]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	.3271	1.13	
B (Incentive)	1	.0361	<1	
C (Exposures)	2	.6083	2.09	
A B	1	.5015	1.73	
A C	2	.4082	1.40	
B C	2	.2550	<1	
A B C	2	.3889	1.34	
Sessions	12	.2752		
Error	24	.2904		
Total	47			

9(a). INFORMATION MESSAGES (RATE)
[pages 100-103]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	1.1794	5.36	<.03
B (Incentive)	1	.0251	<1	
C (Exposures)	2	.5206	2.37	.11
A B	1	.0000	<1	
A C	2	.0034	<1	
B C	2	.0085	<1	
A B C	2	.0717	<1	
Sessions	12	.2206		
Error	24	.2200		
Total	47			

9(b). INFORMATION MESSAGES (PROPORTION)
[pages 100-103]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	.2377	7.48	.01
B (Incentive)	1	.0002	<1	
C (Exposures)	2	.0105	<1	
A B	1	.0108	<1	
A C	2	.0221	<1	
B C	2	.0042	<1	
A B C	2	.0010	<1	
Sessions	12	.0273		
Error	24	.0318		
Total	47			

10(a). MODIFICATION MESSAGES (RATE)
[pages 100-103]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	.0410	3.03	.09
B (Incentive)	1	.0022	<1	
C (Exposures)	2	.0065	<1	
A B	1	.0004	<1	
A C	2	.0078	<1	
B C	2	.0081	<1	
A B C	2	.0149	1.10	
Sessions	12	.0207		
Error	24	.0136		
Total	47			

10(b) . MODIFICATION MESSAGES (PROPORTION)
 [pages 100-103]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	.0263	6.46	<.02
B (Incentive)	1	.0000	<1	
C (Exposures)	2	.0025	<1	
A B	1	.0000	<1	
A C	2	.0041	<1	
B C	2	.0008	<1	
A B C	2	.0034	<1	
Sessions	12	.0096		
Error	24	.0041		
Total	47			

11(a) . LIES (RATE)
 [pages 100-103]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	.0673	<1	
B (Incentive)	1	.0642	<1	
C (Exposures)	2	.1897	2.33	<.12
A B	1	.0037	<1	
A C	2	.1172	1.44	
B C	2	.0316	<1	
A B C	2	.0015	<1	
Sessions	12	.0767		
Error	24	.0816		
Total	47			

11(b). LIES (PROPORTION)
[pages 100-103]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	.0834	3.49	.07
B (Incentive)	1	.0126	<1	
C (Exposures)	2	.0243	1.02	
A B	1	.0009	<1	
A C	2	.0227	<1	
B C	2	.0070	<1	
A B C	2	.0010	<1	
Sessions	12	.0155		
Error	24	.0239		
Total	47			

12(a). TIME-BONUS MESSAGES (RATE)
[pages 100-103]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	.0027	<1	
B (Incentive)	1	.0304	4.59	.04
C (Exposures)	2	.0048	<1	
A B	1	.0158	2.38	.13
A C	2	.0049	<1	
B C	2	.0005	<1	
A B C	2	.0057	<1	
Sessions	12	.0026		
Error	24	.0066		
Total	47			

12(b). TIME-BONUS MESSAGES (PROPORTION)
[pages 100-103]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	.0013	<1	
B (Incentive)	1	.0145	4.95	<.04
C (Exposures)	2	.0020	<1	
A B	1	.0061	2.10	<.16
A C	2	.0027	<1	
B C	2	.0011	<1	
A B C	2	.0037	1.27	
Sessions	12	.0014		
Error	24	.0029		
Total	47			

13. CHECKS
[page 102]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	11.02	3.75	<.07
B (Incentive)	1	.52	<1	
C (Exposures)	2	.02	<1	
A B	1	6.02	2.05	.16
A C	2	3.52	1.20	
B C	2	.65	<1	
A B C	2	5.15	1.75	.19
Sessions	12	1.73		
Error	24	2.94		
Total	47			

14. CHANGES IN THE BARGAINING RANGE
 [page 104]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	42.19	1.49	
B (Incentive)	1	17.52	<1	
C (Exposures)	2	58.15	2.05	<.15
A B	1	15.19	<1	
A C	2	23.69	<1	
B C	2	51.40	1.81	.18
A B C	2	27.44	<1	
Sessions	12	32.02		
Error	24	28.40		
Total	47			

15. SEMANTIC DIFFERENTIAL
 [pages 104-105]:

<u>Source</u>	<u>df</u>	<u>Mean Squares</u>	<u>F</u>	<u>p</u>
A (O's trustworthiness)	1	1254.30	19.10	.0001
B (Incentive)	1	25.01	<1	
C (Exposures)	2	39.78	<1	
A B	1	380.01	5.79	<.02
A C	2	41.70	<1	
B C	2	83.95	1.28	
A B C	2	1.32	<1	
Sessions	12	58.16		
Scales	12	56.28		
Error	60	65.67		
Total	95			