good actor imitate someone's walk by observing his handwriting? What is the relationship between empathy and imitation? Is the ability to imitate others successfully a prerequisite to taking the role of the other and in human cooperation? Many of these questions can be pursued fruitfully with Bandura's experimental procedures.

It is of interest, however, to conceive of an experimental situation which is the reverse of the one employed by Bandura. In such a reversed situation, a child would engage in some behaviors in the presence of an adult and subsequently the adult would be observed to see to what extent he imitates the child's behavior. It seems apparent that the adult would be less likely to imitate the child's actions than would the child be to imitate the adult's actions. Why is this so? A functionalist would answer in terms of the fact that imitation of an adult by a child is often very useful in helping the child achieve some mastery over a complex and poorly comprehended environment but that it is rare that an adult will achieve greater mastery by imitation of a child. Even if this answer is not quite correct (Couldn't many adults re-acquire the sense of wonder from the imitation of children?), at least, adults and children often believe it to be true.

Bandura's experiments do, of course, bear on the determinants of the motivation to imitate. His results are congruent with the research done by many social psychologists on the related topics of conformity and social influence. I take it as a favorable omen for psychology that we do find a convergence of social psychological and learning theory approaches in Bandura's paper.

Cooperation and Trust: Some Theoretical Notes

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George Herbert Mead, in his classic work, *Mind, Self, and Society* (1934), developed the thesis that man's distinctive features of mind, self, and consciousness emerged as internalizations of the processes involved in social cooperation. His view was that man's enlarged capacity to "take the role of the other" (through his use of significant symbols) combined with the biological necessity of social interaction resulted in intellectual processes, purposes, emotions, and social interactions which are essentially unique to man. This view is, of course, congenial to most social psychologists since it leads to the conclusion that the social relations of man are no less fundamental to the understanding of man's psychological processes than his biological predispositions. From this point of view, knowledge of the psychological conditions which give rise to such social processes as cooperation and competition and understanding of the psychological consequences of such processes is fundamental to the comprehension of human motivation.

My paper is divided into three major sections. The first considers the psychological consequences of cooperation and competition. It is guided by the Meadian thesis that cooperation breeds new motives, attitudes, values, and capabilities. These, in turn, may have functional or dysfunctional consequences for the maintenance of effective cooperation. In the second section, I deal with the conditions which lead to the initiation of cooperation.
The third section will be concerned with the relation between trust and cooperation.

**THE PSYCHOLOGICAL CONSEQUENCES OF COOPERATION AND COMPETITION**

I find it useful to start with the following definitions:

1. In a cooperative social situation, the goals for the individuals are *promotively interdependent*. "Promotive interdependence" specifies a condition in which individuals are so linked together that there is a positive correlation between their goal attainments. The degree of promotive interdependence between two individuals refers to the amount of positive correlation; it can vary in value from 0 to +1. I shall be primarily concerned with the case in which the goals of individuals are so arranged that either they can be attained completely or not at all. In this limiting case, under complete promotive interdependence an individual can attain his goal if and only if the others with whom he is linked can attain their goals. A psychological state of cooperation exists if a person perceives that his goal is promotively interdependent with the goals of the others in a situation. An interpersonal state of cooperation exists when individuals mutually perceive their promotive interdependence.

2. In a competitive social situation, the goals for the individuals are *contriently interdependent*. "Contrient interdependence" is the condition in which individuals are so linked together that there is a negative correlation between their goal attainments. The degree of contrient interdependence between two individuals refers to the amount of negative correlation; it can vary in value from 0 to −1. In the limiting case, under complete contrient interdependence an individual can attain his goal if and only if the others with whom he is linked cannot attain their goals. A psychological state of competition implies the perception of contrient interdependence; the interpersonal state of competition implies mutual perception of this state.

In this paper, I shall limit myself to the pure cases of promotive and contrient interdependence which are symmetrical and which are perceived consonantly. Figure 1A illustrates a case of pure symmetrical promotive interdependence; consonant perception implies that the relationship is perceived by both persons (P₁ and P₂) to be promotively interdependent. Figure 1B illustrates pure, symmetrical contrient interdependence. Figure 1C illustrates the case of noninterdependence between the goals of P₁ and P₂.

![Diagram](image)

**Fig. 1.** Each matrix depicts the relations between the probabilities of goal attainment of two people, P₁ and P₂. G = goal attainment; C = lack of goal attainment; p, P₁, P₂ refer to probabilities and are conceived to be some function of (B₁) the behavior of P₁, (B₂) the behavior of P₂, and E (events outside the control of P₁ and P₂).

*It may be noted that few real-life situations correspond to our definitions of a pure cooperative or competitive situation. Most situations of everyday life involve a complex set of goals and subgoals. Consequently, it is possible for individuals to be promotively interdependent with respect to one goal and contriently interdependent with respect to another. The members of a basketball team may be cooperatively interrelated with respect to winning the game but competitive with respect to being the*
"star" of the team. Also, people may be promotively interdependent with respect to subgoals and contriently interdependent with respect to goals or vice versa. For instance, firms manufacturing the same product may be cooperative with regard to expanding the total market but competitive with regard to the share of it that each obtains. Moreover, there are certain situations in which people may compete about the terms of their cooperation as in bargaining. Except for this latter type of situation, which is critical to the discussion of the initiation of cooperation, situations which contain mixtures of cooperation and competition will not be considered. I suspect that often not much extrapolation from the "pure" situation is necessary to understand the more complex one.

For the purpose of developing hypotheses about the direction and strength of behavior tendencies which result from the two basic types of goal interdependencies, it is necessary to make some assumptions. First of all, to simplify matters, I shall assume that we are dealing with self-contained systems in which the perceptions of the individuals involved in the situation are largely veridical to the situation and to the events which occur in it. Thus, my discussion is of idealized situations which do not have the perturbations and complexities of cooperative and competitive situations found in everyday life. Secondly, I shall assume that the probability of promotive behavior is, at any given time, a positive function of:

1. the importance of the goal ("importance" is conceived to be a function of the subjective utility of the goal and of the difficulty of obtaining a satisfactory substitute for it),
2. the perceived increment in the probability of the goal's occurrence or nonoccurrence which would result from engaging in such behavior,
3. the perceived probability of goal attainment after engaging in such behavior,
4. the perceived intrinsic attractiveness and lack of cost of the activities involved, and
5. the perceived immediacy of goal attainment after engaging in such behavior.

From the assumptions in the preceding paragraph, it is apparent that such factors as goal importance, perceived power, etc., will be important determinants of behavior in the cooperative and competitive situations. Moreover, differences in goal importance, in perceived power, etc., among the individuals in a given situation will have important consequences. However, let us assume initially that the participants in the situation have approximately equal power and equally important goals involved and let us consider the effects of the two different types of goal interdependence.

The Effects of Cooperation and Competition Among Equals

From the definition of mutually perceived promotive interdependence, it follows that when any individual behaves in such a way as to increase his chances of goal attainment, he increases the chances that the others (with whom he is promotively interdependent) will also attain their goals. Several psychological consequences may be expected to follow from the perception of this state of affairs, (see Deutsch, 1949a, for an elaboration of the rationale underlying these expectations):

Substitutability. If P1 has moved toward his goal as a consequence of P2's actions, there is no longer any necessity for P1 to perform any action which is functionally identical to P2's; P2's actions are substitutable for similarly intended actions by P1 and repetition would be perceived as superfluous.

Positive Cathexis. If P1 has moved toward his goal as a consequence of P2's actions, it seems likely that P1 will cathexis positively P2's actions and may generalize the cathexis to P2.

Inducibility. If P2's actions move P1 toward his goals, it may be expected that P1 will facilitate P2's actions and will be receptive to P2's attempts to induce him to engage in behavior which will facilitate P2's actions.

One may expect just the opposite of substitutability, positive cathexis, and positive inducibility if P1 perceives that P2's actions are decreasing rather than increasing his chances of goal attainment. He will hinder rather than facilitate, be negatively rather than positively influenced, dislike rather than like, correct rather than be satisfied with P2's actions. In other words, one may expect radically different forms of behavior in the promotively in-
terdependent situation depending upon whether the actions are seen as increasing or decreasing the chances of goal attainment.

In some respects, the situation of mutually perceived contingent interdependence resembles the situation of unsuccessful action in the promotively interdependent situation, except that here P1 will have his chances lessened by P2’s successful actions. P2’s successful actions will not be substitutable for similarly intended actions of P1. P1 will not cathex is such actions positively, nor is he likely to be induced to facilitate such actions. On the other hand, if P2’s actions are bumbling and unsuccessful, one could expect that P1 would have no need to duplicate them, would be pleased by such actions, and could be induced to facilitate P2’s bumbling or obstruct P2’s successful actions.1 To generalize, one can say that an individual will tend to facilitate the actions of others when he perceives that their actions will be promotive of his chances of goal attainment, and will tend to obstruct the actions of others when he perceives that their actions will be contingent with respect to his goal attainment.

I shall now turn to a consideration of some of the valuable and dysfunctional consequences of “substitutability,” “positive cathexis,” and “inducibility” for group life and organized collective effort.

Substitutability permits the division of labor and the development of role specialization which seem necessary to the origin and survival of social groups. Role specialization may develop from initial differences in abilities, skills, knowledge, and inclinations among individuals in a cooperative situation. With experience of these differences, they may arrive at a crude matching of individual characteristics and situational requirements. A poor matching presumably would be corrected because the actions of someone who was inadequate in his specialized role would not be seen as substitutable for similarly intended actions by others and, hence, there would be a tendency to redo the actions necessary to goal attainment. In effect, someone else would be performing the activities that were initially done inadequately. Role specializa-
tion could, of course, develop accidentally or by arbitrary assign-
ment and training; but, once it had occurred, it would be likely to generate further differences in knowledge, skills, and inclinations among the individuals performing different functions.

Earlier, I assumed that if an individual’s actions increase the chances that others will attain their goals, his actions will be cathexed positively. If we make the further assumption that an individual desires to be the object of positive cathexis, we can expect that once an individual has experienced success in a given social role, he will tend to value it and seek out occasions which will permit him to perform it. The result of this process, repeated over time, is that individuals develop predispositions to perform certain roles and they come to value the opportunities and conditions which permit them to perform their roles. Thus, the process of cooperative interaction is, in its idealized form, one in which cooperating individuals perform specialized but complementing activities which are motivated in part by values and expectations deriving from prior experiences in cooperative situations.

The molding of personality predispositions so that they support the behavior in a given social role is, of course, a great asset in developing a stable system of cooperative interactions. However, it may also have an important dysfunctional consequence. To the extent that an individual comes to value a given role per se rather than for its contribution to the attainment of goals around which the cooperative system is based, a potentially disruptive motivational element has been introduced into the system. The development of vested interests in roles may make it difficult to restructure the activities comprising a role or to reallocate roles in the light of changing experience. This may lead to the development of contentious interdependence vis-à-vis the allocation of internal resources to the different roles. I shall term this type of dysfunction the pathology of vested interest.

A cooperative system may survive the potentially disruptive influence of individual commitment to specific social roles if it

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1 It should be noted that in these characterizations, we are assuming “pure” situations of promotive or contingent interdependence. Real-life situations mostly contain mixtures of both types. Thus, a bumbling competitor may lessen the joy of a sporting contest in which the participants are promotively interdependent with respect to victory, but promotively interdependent with regard to having a challenging contest.
exists in a relatively stable, unchanging environment. In the absence of such a benign environment, it must develop a unifying influence sufficiently strong to counteract divisive individual interests. One such unifying influence inheres in the development of a commitment to and positive valuation of the cooperative system per se. Depending upon the kind of system involved, this type of commitment is referred to as "we-feeling," "team-spirit," "group identification," "company loyalty," "patriotism," etc.

While the perception of promotive interdependence may be an important determinant of the strength of "group identification," it may not be sufficient by itself to lead to a sense of group identification. I would suggest that, in addition to the perception of promotive interdependence, there must be the perception of an entity which mediates the attainment of the promotively interdependent goals. The perception of a cooperative system as an entity and its positive evaluation are fostered by many factors. These are probably analogous to the factors which give rise to the sense of the self as an entity in the course of individual development; e.g., the reactions of people outside the cooperative system to the system as an entity, the cognition of other cooperative systems as entities, etc. (See Section I for a further discussion of the conditions leading to the perception of an entity.)

One might speculate that the primary functions of leadership are concerned with creating and maintaining a sense of unity despite the existence of divisive individual interests. Presumably, then, the emergence of leadership as a function to create and maintain an overall sense of organized purpose and coordinated effort is made more likely by the development of specialized roles and the division of labor. As history has amply demonstrated, the thesis that individuals tend to develop vested interests in their social roles is also applicable to the roles connected with leadership functions. This, in turn, creates the potential dysfunctional consequence of a divergence between the goals of the leaders and the goals underlying the cooperative system: the pathology of self-perpetuating leadership.

Positive cathexis contributes to the development and maintenance of organized collective effort by creating new motives for participation in the system of cooperation. To the extent that individuals have repeated experience of having their own gratifications and the gratifications of others associated together, they are likely to come to value one another's gratifications and hence, a new basis for promotive interdependence emerges. That is, when there is development of mutual positive interest in one another's welfare, each person receives vicarious pleasure from the other person's pleasure or satisfaction. Under such conditions, even if the original individual goals around which cooperation developed are attained or changed, a continuing basis for cooperative relations is created. In other words, the development of an interest in the welfare of the other provides a source of motivational stability to a cooperative system which buttresses it against the otherwise debilitating effects of changing individual goals. Thus, it may be said that while a mutual interest in each other's welfare is not a necessary condition for cooperative relations, such mutual interest may arise as a consequence of cooperation and may, then, provide a basis for continuing cooperation.

The development of personal relations among cooperators also may have dysfunctional consequences: the pathology of favoritism. This pathology is particularly likely to have harmful consequences in situations characterized by rapid change, high mobility, or considerable complexity. In such situations, personal ties may be an impediment to change, a source of internal conflict when mobility is required, a basis for the erosion of universalistic rules in terms of the obligations of the particularistic ties of a personal relationship. Thus, there is some evidence that one of the personality requirements of upward social mobility is the ability to join and to leave social groups easily: the ability to avoid or resolve a strong emotional attachment to the social groups one has to leave in order to move upward.

Inducibility provides the basis for normative control of individual behavior in the cooperative situation. An individual will be receptive to the influence attempts of others to the extent that he perceives attainment of his goals as promotively linked with theirs and/or dependent upon the existence of the cooperative system per se. Normative control functions to elicit cooperative behavior aimed at facilitating the promotive behavior of others or at obstructing the actions of others that are detrimental with
Cooperation and Trust: Some Theoretical Notes

respect both to goal attainment and to the continued existence of the system. Similarly, the individual should expect that others will be receptive to his attempts to influence them. Thus, mutual inducibility provides the psychological basis for channelling individual effort into a coordinated system of action, moving the group toward goal attainment while maintaining the viability of the cooperative system itself.

While inducibility is necessary to effective coordinated action, it may give rise to important dysfunctional consequences. This possibility has been dramatically illustrated in the Asch-type experiments where an individual may be induced to make an incorrect judgment in order to conform with the opinion of a majority. In effect, inducibility may come to be valued for its own sake or as a sign of one's general promotive orientation toward others. Under such conditions, an individual may facilitate the actions of others even when it would be more useful to obstruct them, he may agree even when it would be more appropriate to disagree. Groups which arrive at consensus and concerted action based upon values which make it difficult for a minority to attempt to induce the majority to change are deprived of the insights which reside in individual judgment.

The Effects of Cooperation and Competition Upon Group Process

Elsewhere (Deutsch, 1949a), I have drawn out the implications of my discussion of substitutability, cathexis, and inducibility to characterize in further detail the effects of cooperation and competition upon group process. Results of experimental work (Deutsch, 1949b) have provided substantial support for this characterization. These results indicated that groups of individuals who were promotively oriented to one another, as compared with groups of individuals who were constrictively oriented to one another, showed: (a) more coordination of efforts; (b) more diversity in amount of contributions per member; (c) more subdivision of activity; (d) more achievement pressure; (e) more communication to one another; (f) more attentiveness to fellow members; (g) more mutual comprehension of communication; (h) more common appraisals of communication; (i) greater orientation and orderliness; (j) greater productivity per unit time; (k) better quality of product and discussions; (l) more friendliness during discussions; (m) more favorable evaluation of the group and its products; (n) more behavior directed toward helping the group improve its functioning; (o) greater feeling of being liked by fellow members; and (p) greater feeling of obligation and desire to win the respect of others. Other studies have replicated many of these findings (e.g., Back, 1951; Berkowitz, 1957; Gerard, 1953; Gottbein, 1955; Grossack, 1954; Levy, 1953; Mituhara, 1952; Mituhara and Tamai, 1952; Schachter, 1951).

In the discussion so far, I have assumed that all participants were equally motivated to attain their goals and were equally capable. These assumptions are, at best, only roughly met in real-life situations. Let us now turn our attention to some of the potential effects upon the cooperative process of differences in motivation and capability.

The Effects of Differences in Motivation and Capability Upon the Cooperative Process

Let us consider the case where the behavior of \( P_1 \) largely determines the probabilities of goal attainment and \( P_2 \)'s behavior is largely irrelevant (or vice versa). An example of this is a situation where a husband and wife both want to live in a given community and the chances of doing so are determined by the husband's efforts to get a job there. Here, the wife's fate is dependent upon the husband's behavior, but the husband alone can produce the outcome. Under these conditions, assuming that both are equally motivated to move to the new community, it may be expected that the power of the husband to induce behavior in the wife will be greater than his wife's power over him. This discrepancy in power will present no problem to the wife, since the husband is strongly motivated to relocate. In general, unequal power among cooperators presents no problem when those who have the most power to determine the outcome have equal or stronger
motivation for goal attainment than those with lesser power (Rosenberg, 1960). However, consider a situation where the husband has the power to determine the outcome but not sufficient motivation to use his power while the wife has little power but strong motivation. Here, one may expect the wife either to attempt to increase her husband's motivation, or to increase her own power to achieve her goal, or to reduce the strength of her own motivation; one may expect the husband to attempt to reduce his power and/or decrease his wife's perception of his power.

I shall not consider the strategy and tactics of influence attempts (see Thibaut and Kelley, 1959, Ch. 7, for a discussion of these matters).

The general principle that I wish to assert is that a stable cooperative relationship exists when there is a strong positive relationship between the amount of power an individual has to determine a group's outcome and the strength of his motivation to achieve that outcome. Thus, if P1's power is greater than P2's power and his motivation is weaker and an unsettled situation exists. To bring it into balance, P2 will attempt to augment his own power, or to augment P1's motivation, or to reduce his own motivation; and/or P1 will attempt to reduce his own power, or reduce P2's motivation, or augment P2's power, or augment his own motivation. If the attempts to establish a more stable relationship between power and motivation do not succeed, one would expect to find symptoms of dissatisfaction and further attempts to change.

The thesis which I have advanced in the preceding paragraphs is not unfamiliar. It has often been stated that those who control power also control the benefits to be derived from its exercise (Laski, 1935) and, of course, there is considerable statistical evidence to support the view that power and such benefits as income, prestige, educational opportunity, etc., do vary together. However, the point that I am making is somewhat more general; namely, that there is a stabilizing process in cooperative systems which functions to keep motivation and power in balance. When motivation is low and power is high in a given member, other members may attempt, for example, to increase his motivation, while he may attempt to decrease his power; when motivation is high and power is low, a member may attempt to increase his power, while the others may attempt to decrease his motivation.

**Goal Attainment Determined by Factors outside the Control of the Interdependent Individuals**

Let us consider the situation in which the behavior of neither P1 nor P2 has any influence on the probability of their goal attainments, and E is the determining factor ("E" is here meant to refer to factors which are not determined by either P1 or P2 or by both acting together). In the promotively interdependent situation this would be the case if two brothers want to go fishing but can go only if the sun is shining and if their father will take them.

From our earlier discussion of the factors influencing the strength of goal-directed behavior, we may expect that if neither P1 nor P2 perceives any way of behaving to affect the probability of his goal-attainment then such behavior will not occur. If so, the basis which we have previously outlined for the development of "substitutability," "inducibility," and "cathexis" between P1 and P2 become irrelevant. However, these notions are not irrelevant to P1's and P2's relations with an E whose actions are perceived to be purposive, i.e., the father and not the sun. Depending upon whether E's actions are seen to be promotive or contrary with respect to his goal attainment, one may expect the individual to act toward E positively or negatively, to be receptive or unresponsive to E's attempts to influence him, to be satisfied with E's actions or to attempt to substitute alternatives for E's actions.

In the situation where neither P1 nor P2 has any control over his fate, their relationship to one another will be determined by the type of perceived interdependence, their experienced or expected fate, the ease or difficulty of leaving the interdependent relationship, and whether or not E's actions are attributed to characteristics of P1 and P2. From Heider's theory of cognitive balance (Heider, 1958) one would expect that individuals who perceive themselves as having similar attitudes and relations toward a third party are likely to develop positive sentiments toward one another, while those who perceive themselves as having opposite attitudes and relations toward a third party are likely to develop negative sentiments toward one another. (See
Margolin, 1954, for an experimental demonstration of this.) However, if one's fate and the fate of another, with whom one is linked, are expected to be negative and one perceives the other (rather than E) as responsible for the common negative fate, then one is likely to develop negative sentiments toward him: this development is less likely when the interdependent relationship is seen to be difficult or impossible to dissolve.

Thus, if a collection of workers perceive that their fates are promotively interdependent, they will tend to develop positive attitudes toward one another. If they perceive themselves as being treated favorably by their employer, the positive attitudes will be enhanced. However, if they perceive themselves as being treated unfavorably, the direction of their attitudes toward one another will be determined by whether they perceive one another or their employer to be responsible for their unfavorable treatment. They are more likely to develop negative attitudes if they blame one another, and if they feel it is easy to dissociate themselves from the others. They are more likely to develop positive attitudes toward one another if they blame the employer, if they see some prospect for improvement of their lot, and/or if they perceive themselves as indissolubly linked together.

The speculations advanced in the preceding paragraphs strike me as making good theoretical sense and as consistent with my intuitions about what happens in everyday life in such situations. I do not know, however, of any empirical research which bears directly on these notions I have just advanced.

Noninterdependence of Goals, Dependence with Regard to Means

Figure 1C depicts a situation in which the probabilities of goal attainment for P₁ and P₂ are independent. In such a situation it is, nevertheless, possible for a number of different types of relationships to exist between P₁ and P₂. For example, P₁'s behavior toward P₂ may determine P₂'s chances of attaining his goal and not have any effect on his own chances, E controlling P₁'s chances. This would be a case of unilateral dependence. An illustration of this might be an assembly line in which each worker may affect the worker behind him but be affected by the one preceding him. A case of mutual dependence would be illustrated by a situation in which P₁'s work determined how much P₂ was paid but did not affect his own pay and, similarly, P₂'s work determined P₁'s pay but not his own.

The situation in which P₂ is unilaterally dependent upon P₁ may be thought of as an extreme case of "cooperation under conditions of differences in motivation and capability." P₂'s power is zero, P₁'s power is critical; P₂'s motivation is high, P₁'s motivation to produce the behavior desired by P₂ may be negligible. One would expect that if P₁ does not produce the desired behavior, it would create in P₂ substitutability, inducibility, and positive cathexis. However, one could also expect that the perceived imbalance between power and motivation would result in stabilizing attempts on P₂'s part to increase P₁'s motivation to produce the desired behavior and/or to increase his own power.

It is apparent that the situation of perceived mutual dependence with regard to means is quite similar in many respects to the situation of perceived promotive goal interdependence; these similarities require no elaboration and have been demonstrated by Thomas (1957). Moreover, it is evident that, over a period of time, the situation of successful mutual dependence will turn into one of promotive dependence, as each person comes to acquire vicarious satisfaction in the other person's goal attainment. However, there are important differences between the two types of situations. Consider the case in which P₁ is very capable and P₂ is incompetent. If they are promotively interdependent, P₂'s incompetence may spur P₁ on to exert additional effort in the attempt to compensate for P₂'s inadequacies; in the mutually dependent case, P₂'s incompetence would be likely to dampen the effort P₁ would make. Also in the situation of mutual dependence, if P₁, a third person, contributes to P₂'s goal attainment, it does not necessarily help P₂; in the situation of promotive interdependence, it does.

The Initiation of Cooperation

Tinbergen in his book, Social Behaviour in Animals (1953), in answer to the question of how does cooperation originate, asserts (p. 106):

Cooperation is ensured by a system of innate activities in the
actor, and of (usually innate) responsiveness to the actor’s behaviour in the reactor. The satisfactory functioning of these behaviour elements is as a rule ensured by ‘preparedness in advance’. A bird develops the tendency to incubate eggs sometime before it lays eggs. The readiness to feed young is there before the eggs have hatched. Such tendencies normally remain dormant until the outside objects to which they react, appear and provide the releasing stimuli.

He further points out that (p. 74) “except perhaps in the highest mammals, all signalling behaviour is immediate reaction to internal and external stimuli.” Moreover, the signals which function to release the reactor’s response are always conspicuous and relatively simple: the behavioral tendencies of the actor, whose signaling behavior releases responses in the reactor, and the responses of the reactor are finely attuned to one another through innate mechanisms.

The situation for man is, of course, radically different: complementing innate mechanisms do not “coerce” coordination and social cooperation. This is not to deny that certain inborn tendencies—e.g., the need for bodily contact, the nurturance-succorance relationship of mother and child, the complementarity of eugenous zones—play an important part in conjunction with specific experience in developing the attitudes, orientations, and skills which may predispose the individual toward or away from social cooperation, toward or away from specific social roles, toward social effectiveness or ineffectiveness. The psychoanalysis have been particularly concerned with investigation of these matters—e.g., Erikson (1959), Kardiner (1939).

However, the paramount fact about human cooperation is, as Asch (1952, p. 162) has pointed out, that it is based upon the human “capacity to perceive a situation that includes others and ourselves and to perceive others as referring themselves to the same situation.” It is based upon the capacity to perceive that there is a reality which exists independently of one’s self and to recognize that other human beings with like experiences will perceive this reality in similar ways. In contrast to bio-social forms of interaction, dependent upon innate signal and releasing tendencies, human interaction is founded upon the fact that the happenings in a social encounter can be psychologically repre-
munity center, a bar, a dance-hall—will also affect the likelihood that people will get to know one another (Merton, 1948; Festinger, Schachter, and Back, 1950). In addition, of course, such personal factors as age, health, sex, social position, and personality will influence the individual’s ability and willingness to get to know others and to become known to them.

The Perception of the Others and Oneself as an Entity

Asch (1952) and Campbell (1958) have discussed more fully than anyone else the question of how we come to perceive social groups as entities. This question is, of course, related to but not identical with the question of how an individual comes to perceive that he and others are part of a promotively interdependent system. Drawing upon studies of perceptual organization by Gestalt psychologists, one may assert some general principles concerning the conditions which are conducive to the perception that a collection of individuals or units are part of a system rather than an unorganized aggregate of elements.

Koffka (1935) pointed out that abrupt discontinuity produces segregating forces between the parts of a visual field which it separates, as well as unifying forces within the separated parts. Further, he indicated that homogeneity tends to produce unifying forces in the visual field. Homogeneity may be based upon (cf. Wertheimer, 1923): (a) the common fate of the elements perceived (e.g., they move together); (b) their qualitative or quantitative similarity (e.g., they have the same color or same luminosity); (c) proximity (e.g., they occur in close spatial or temporal proximity); (d) a common boundary; (e) past experience or custom which has led to similar responses to the various elements; and (f) set or expectation that the elements are to be grouped together.

It seems evident that processes analogous to these determine whether an individual will perceive a collection of individuals as a social group and whether he will perceive himself to be part of the group. Thus, if an individual perceives that he and others are strikingly different in certain respects from the remainder of the people in their surroundings, that he and the others tend to be satisfied or dissatisfied at the same time or under similar circumstances, that he and the others have similar attitudes or similar backgrounds, that he and the others live or work in close proximity, that he and the others are associated together in other people’s minds or treated similarly by other people—if he perceives any of these patterns, the individual is likely to perceive himself and others as promotively interdependent. I would stress, as does Campbell, the central role of the perception of common fate. However, as Heider (1958) has pointed out, whatever the basis of social unit formation, the need for cognitive balance will tend to produce positive sentiments among individuals who perceive themselves as part of the same social unit. Thus, social unit formation itself tends to result in promotive interdependence. This statement, of course, refers to “positive” social units, rather than “negative” social units based upon the perception of discontinuity and heterogeneity (e.g., opposition of fate, dissimilarity, distance, etc.).

The Choice to Cooperate

Let me turn to a consideration of some of the factors relevant to the choice to cooperate or not. In doing so, I shall make the arbitrary assumption that there are no problems with regard to the mutuality of the choice. In other words, I am assuming here that the individual expects that his choice to cooperate will be reciprocated. Reciprocity of choice is, of course, not required when one chooses an inanimate object. For example, if one chooses to eat a cherry pie, one does not have to be chosen by it in order to eat it. Thus, under the limiting condition stated above, the choice to cooperate or not is in many respects similar to any other choice. Hence, such general theories of choice as level-of-aspiration theory (Lewin, et al., 1944) or utility theory (Edwards, 1954) are applicable.

A basic assumption in such theories is that an individual will choose, from a set of perceived alternatives, the positively evaluated alternative which has the highest “effective attractiveness.” As applied to the choice of cooperating or not, this statement means that an individual will want to cooperate when he sees that this is the best or only satisfactory way to achieve a goal (or goals) that he is motivated to attain. It is obvious that many
goals are social in nature and intrinsically require the collaboration of others for their attainment—e.g., to belong to a given group, to achieve a consensus, to have an affective relationship, to play a game of tennis, to participate in an interesting conversation, to sell or buy anything, to obtain someone's approval or support. Other goals, which are not intrinsically social, may be impossible to attain without collaboration of others—e.g., to have a lobster dinner in Chicago, to travel to Europe, to live in a better house than one could construct oneself. Of course, there are many types of nonsocial goals which can be attained either through individual or collaborative effort—e.g., to build a canoe, to solve a problem, to repaint the living room. There are, moreover, certain types of goals relating to self-expression or self-activity which intrinsically make it impossible for the activities of others to be sufficient to produce personal satisfaction—e.g., the goal of making a painting or of eating a lobster. For other types of goals, the activities of others may be entirely sufficient—e.g., seeing that a blind man crosses a street safely, having a nursery school organized so that one's children may have an opportunity to engage in supervised activities with other children.

Whether or not one's goals require or permit cooperation for their attainment will obviously be an important determinant of the choice to cooperate or not. If one's goals permit but do not require cooperation, the choice to cooperate or not will be determined by the effective attractiveness of cooperation as compared with the effective attractiveness of other perceived alternatives. The effective attractiveness of an alternative is a function of two sets of factors: those which influence the desirability or undesirability of the alternative and those which influence the subjective probability that the alternative will lead to the desired result.

Some of the determinants of the desirability of cooperation are: (a) the attractiveness of the activities one expects to engage in, as determined by their difficulty, their meaningfulness, their interest, etc.; (b) the attractiveness of the experiences one expects to undergo as the result of the activities of others; (c) the attractiveness of the other potential cooperators; (d) the attractiveness of being identified as a member of the group; (e) the attractiveness of secondary goals whose attainment may be facilitated or hindered by engaging in cooperation; (f) the immediacy with which cooperation leads to the desired goal.

The subjective probability that cooperation will be successful is determined by: (a) the individual's perception of the skills and resources of potential cooperators for the performance of the cooperative task and (b) the individual's perception of the likelihood that the necessary skills and resources would be made available for a cooperative endeavor.

There has been little direct research on the factors affecting an individual's choice to cooperate or not. However, there has been considerable research on the general determinants of judgments of attractiveness and of chances of success. I shall vastly oversimplify the conclusions to be drawn from this research with the summary that such judgments are determined by:

1. The individual's prior experiences in similar situations. Thus, in studies that I (Deutsch, 1959) and that others (Gerard, 1956; Gilchrist, 1952) have done it has been found that an individual's experience in a group that has done either well or poorly will influence his estimate of the group's chance of winning a prize and will affect his desire to remain as a member in the group.

2. His perceptions of the judgments of others whose judgments he has a need to conform to or whose judgments he believes may be more informed than his own. Sherif (1955), Asch (1951), Deutsch and Gerard (1955), and many others have shown how individual judgments are subject to normative and informational influences from others. It is apparent that one's views of the attractiveness and potential success of a given cooperative relationship (e.g., of being married to a particular person) are often largely determined by the views of others.

3. His cognitive need to make his judgments consistent with his other beliefs and attitudes. Deutsch and Solomon (1959) found that an individual saw others to be desirable as teammates to the extent that the others' judgments of his performance were similar to his own; this was true when the individual had performed poorly as well as when he had performed well.

4. His personality predispositions. The vast research literature on sociometric choice (Jennings, 1950) indicates that attraction to
another person is determined, in part, by compatibility of personality needs and similarity of interests. French (1949), Roby (1953), Rosenberg et al. (1955), and Schutz (1958) have also stressed the significance of the compatibility of interpersonal needs as a determinant of the cohesiveness and productivity of small groups.

Problems of Mutuality in the Choice to Cooperate

So far I have spoken of the choice to cooperate as though it involved a unilateral decision only. Since cooperation depends on mutual and consonant choices, when an individual makes his choice to cooperate or not he is faced with three critical problems: the problem of trust, the bargaining problem, and the problem of coordination. Each are discussed below in terms of the question which it poses for the potential cooperators:

1. Can he and the others trust one another sufficiently to take the risks involved in initiating cooperation? This is the problem of trust, which I shall discuss more fully in Section III. Here let me simply state that cooperation will not develop unless at least one person initiates it through actions which are clearly recognizable as contributing to the attainment of the mutually interdependent goals. Taking the initiative, however, may involve a cost which the individual would not be willing to bear unless he felt that the others were sufficiently trustworthy to reciprocate with further cooperative actions. Figure 2 illustrates the problem of trust. \( P_1 \) has to choose between Rows A and B and has to announce his choice before \( P_2 \) chooses. Clearly unless he can trust that \( P_2 \) will choose Column X in response to his choice of Row A, he is likely to choose Row B.

\[
\begin{array}{c|c}
& X & Y \\
\hline
A & +1,+1 & -2,+2 \\
B & +2,-2 & -1,-1 \\
\end{array}
\]

Fig. 2. The trust problem. This and the following matrices should be read as follows: \( P_1 \), chooses between rows A and B; \( P_2 \), between columns X and Y. \( P_1 \)'s payoffs are the first numbers in the cell; \( P_2 \)'s are the second numbers.

2. Can he and the others resolve differences in preferences or conflicts of interests over the various cooperative agreements that might be made? This is the bargaining problem, which is illustrated in Figure 3(a). \( P_1 \) would obviously prefer an agreement in which he chose Row B and \( P_2 \) chose Column X; \( P_2 \) would obviously prefer an agreement which involved the choices of Row A and Column Y; both players are clearly better off if they reach agreement than if they do not.

The outcome of a bargaining process—whether or not agreement is reached and if so on what terms—depends, I believe, on two broad sets of factors: (a) the factors determining the relative strengths of the bargainers' cooperative and competitive interests and (b) the abilities, resources, and freedom the bargainers have available for the invention and communication of potential bargaining agreements which might affect the strengths of their cooperative and competitive interests. Thus, comparing Figures 3(a), 3(b), and 3(c), one could say that the cooperative interests of the bargainers are strongest in 3(b). Comparing Figures 3(d) and 3(a), one could expect that they are more likely to reach agreement in the situation of 3(d) where the bargainers are able to invent an agreement (CZ) which allows them to reduce their competitive interests.

\[
\begin{array}{c|c|c} 
& X & Y \\
\hline
A & 0.0 & +2,+4 \\
B & +4,+2 & 0.0 \\
\end{array}
\]

\[
\begin{array}{c|c|c} 
& X & Y \\
\hline
A & 0.0 & +8,+10 \\
B & +8,+10 & 0.0 \\
\end{array}
\]

\[
\begin{array}{c|c|c|c} 
& X & Y & Z \\
\hline
A & 0.0 & +1,+4 & +2,+4 \\
B & +4,+1 & 0.0 & 0.0 \\
C & 0.0 & 0.0 & +3,+3 \\
\end{array}
\]

\[
\begin{array}{c|c|c} 
& X & Y \\
\hline
A & 0.0 & +2,+50 \\
B & +4,+20 & 0.0 \\
\end{array}
\]

\[
\begin{array}{c|c|c} 
& X & Y \\
\hline
A & 0.0 & +2,+500 \\
B & +4,+20 & 0.0 \\
\end{array}
\]

Fig. 3. The bargaining problem.
Chamberlain, one of the most informed students of bargaining, has stated that (1955, p. 80) "the influence which one person has over another, in the setting of the terms of their cooperation, is determined by his power to withhold the gains that his cooperation would make possible, thus imposing on the other a cost of disagreeing in his terms." Thus, in Figure 3(c), P₁ presumably has more power than P₂ because the losses that P₂ would suffer from not reaching an agreement are greater than the losses P₁ would suffer. However, Figure 3(f) suggests that the induce to agree may not be a simple function of the cost of disagreeing with the other's terms; that the costs of agreeing with the other adversely affect the induce to agree. In Figure 3(f) P₂ may, over-all, have less of an induce to agree with P₁'s terms than P₁ has to agree with P₂'s terms. Chamberlain has defined the induce to agree with the other's terms as the ratio of the cost of disagreeing on the other's terms to the cost of agreeing on the other's terms. For agreement to occur it is apparent that the ratio of the induce to agree must be 1 or greater for at least one of the parties.

We have recently initiated a program of research on some of the factors affecting the outcome of a bargaining process (Deutsch and Krauss, 1960; Deutsch, 1961; Deutsch and Krauss, 1962). This research has, so far, been concerned with study of some of the factors that influence the strength of the cooperative and competitive interests of the bargainers. We have employed an experimental bargaining game in which a pair of subjects are presented with a bargaining problem which requires the development of a cooperative agreement in order to maximize the amount of (imaginary) money won. Subjects undergo twenty repetitions of the same bargaining problem.

In the first of three experiments, we examined the effect of the availability of threat on our subjects' behavior. Three conditions of threat were employed: No Threat (neither player could threaten the other); Unilateral Threat (only one player had a means of threat available); and Bilateral Threat (both players had a means of threat).

The results of Experiment I indicated that the difficulty in reaching an agreement, as well as the amount of money lost indi-
quently, any conclusions based upon these results would relate to the opportunity to communicate per se. In a third experiment, we attempted to overcome this difficulty by running a treatment condition in which subjects were compelled to communicate on every trial. We call this treatment Compulsory Communication and the treatment employed in Experiment II Permissive Communication. All other aspects of the experiment remained the same. The results indicated that Compulsory Communication significantly improved performance only in the Unilateral Threat condition. In the Bilateral Threat condition communication tended to degenerate into a reiteration of threats; in the No Threat condition the players did not require communication in order to coordinate effectively.

Our interpretation of these experimental results places emphasis on the assumption that the use of threat strengthens the competitive interests of the bargainers by introducing or enhancing the competitive struggle for self-esteem. This assumption is based upon the view that to allow oneself to be intimidated, particularly by someone who does not have the right to expect deferential behavior, is (when resistance is not seen to be suicidal or useless) to suffer a loss of social face and, hence, of self-esteem; and that the culturally defined way of maintaining self-esteem in the face of attempted intimidation is to engage in a contest for supremacy vis-à-vis the power to intimidate or, minimally, to resist intimidation.

3. Can he and the others coordinate their actions in such a way that they will mutually benefit? This is the problem of coordination. Figure 4 illustrates the coordination problem. \( P_1 \) has to choose among Rows A, B, C, and D; \( P_2 \) has to choose among Columns W, X, Y, and Z. If their choices are coordinated appropriately, each will profit; lack of coordination may produce mutual loss or no gain. In such a situation, \( P_1 \)'s best course of action depends on the action he expects \( P_2 \) to take, which depends in turn on \( P_2 \)'s expectation of \( P_1 \)'s action. Each must try to guess what the other guesses he will guess the other to guess, and so on. What permits the convergence of expectations to occur rather than an endless spiral of "second-guessing" the other?

\[
\begin{array}{cccc}
W & X & Y & Z \\
A & +4,+4 & 0,0 & 0,0 & -4,-4 \\
B & 0,0 & +4,+4 & -4,-4 & 0,0 \\
C & 0,0 & -4,-4 & +4,+4 & 0,0 \\
\end{array}
\]

FIG. 4. The coordination problem.

Communication is an obvious way of solving the coordination problem—e.g., \( P_1 \) says to \( P_2 \): “You choose Column W and I’ll choose Row A.” However, there are many situations in which communication is impossible or too costly and coordination has to be accomplished tacitly rather than explicitly. Moreover, even when communication is feasible, there is often some necessity for selecting what one communicates from that limited range of possibilities which are likely to be mutually acceptable. Thus, Schelling (1960, p. 70) has pointed out:

Most bargaining situations ultimately involve some range of possible outcomes within which each party would rather make a concession than fail to reach agreement at all . . . . The final outcome must be a point from which neither expects the other to retreat; yet the main ingredient of this expectation is what one thinks the other expects the first to expect, and so on . . . . These infinitely reflexive expectations must somehow converge on a single point, at which each expects the other not to expect to be expected to retreat.

Schelling (1960, Ch. 3), in a very interesting series of pilot experiments, has demonstrated that it is possible for people to converge their expectations and coordinate their actions even though they have no opportunity to communicate. This was true in situations where the interests of the subjects were purely cooperative (e.g., ‘Name ‘heads’ or ‘tails.’ If you and your partner name the same, you both win a prize.’ “You are to meet someone in New York City. You have not been instructed where to meet; you have no prior understanding with the person on where to meet; and you cannot communicate with each other. You are simply told that you will have to guess where to meet and that he is being told the same thing and that you will just have to try to make your guesses coincide.”) and also true in situations which
involve tacit bargaining (e.g., "You and your partner are to be given $100 if you can agree on how to divide it without communicating. Each of you is to write the amount of his claim on a sheet of paper; and if the two claims add up to no more than $100, each gets exactly what he claimed. If the two claims exceed $100, neither of you gets anything. How much do you claim?").

Schelling (1960, p. 70) advances the proposition that certain alternatives serve as focal points around which expectations converge because they enjoy "prominence, uniqueness, simplicity, precedent, or some rationale that makes them qualitatively differentiable from the continuum of possible alternatives." The existence of qualitatively distinct focal points permits tacit coordination in the situation of pure coordination and gives certain outcomes a greater intrinsic magnetism in bargaining situations. Unfortunately, there has been little adequate theorizing or research on the determinants of the convergence of expectations or in the perception of focal points. I suspect that the research by Gestalt psychologists on the determinants of figure-ground relations in perception and by social psychologists on acculturation processes may provide the best leads for understanding the processes leading to the convergence of expectations in situations of tacit coordination. There is also some suggestion in unpublished research by Leonard Solomon that deficits in skills in tacit coordination are characteristic of schizophrenic patients.

**Trust and Cooperation**

In the previous section, we have indicated that the initiation of cooperation requires trust whenever the individual, by his choice to cooperate, places his fate partly in the hands of others. The significance of trust for social life has been emphasized by many. Thus Nikolai Hartmann has written: (1932, p. 294) "All the strength derived from cooperation consists in men's reliance upon one another. . . . It is preeminently a communal value; it is the most positive unifying force which welds together a variety of individual persons, with their separate interests, into a collective unit. . . . Distrust breaks all bonds." Similarly, Erikson (1959, p. 63) stresses the significance of trust for the healthy personality by indicating that "the firm establishment of enduring patterns for the balance of basic trust over mistrust is the first task of the budding personality."

Although the capacity to trust is basic both to a healthy society and to the healthy personality, I shall not assume that the development of cooperative relationships requires "trusting" personalities. The establishment of a socio-psychological relationship of mutual trust may be based upon situational characteristics rather than upon personality predispositions.

**The Definition of Trust**

The essential features of a situation confronting the individual with a choice to trust or not in the behavior of another person are, in my view (Deutsch, 1957, 1958, 1960): (a) the individual is confronted with an ambiguous path, a path that can lead to an event perceived to be beneficial (Va+) or to an event perceived to be harmful (Va-); (b) he perceives that the occurrence of Va+ or Va- is contingent upon the behavior of another person; and (c) he perceives the strength of Va+ to be greater than the strength of Va-. If he chooses to take an ambiguous path with such properties, I shall say that he makes a trusting choice; if he chooses not to take the path, he makes a distrustful choice. A trusting choice may be based upon "despair," "conformity," "impulsivity," "innocence," "virtue," "faith," "masochism," or "confidence." In this paper, we are concerned with trusting choices based upon confidence—i.e., upon the individual's assumption that the event he desires, rather than the event he fears, will occur. Thus the mother who leaves her child with a baby-sitter makes a trusting choice based upon confidence in the baby-sitter. It is a trusting choice because presumably the mother: (a) is aware that her choice could lead to harmful or beneficial consequences; (b) realizes that the consequences of her choice are contingent upon the behavior of the baby-sitter; and (c) would expect to suffer much more if her trust in the baby-sitter were violated than she would gain if her trust were fulfilled.

It is relevant to distinguish between a trusting choice and a risk-taking, or gambling, choice. Gambling also involves the choice of an ambiguous path, an ambiguous path in which the perceived strength of Va+ is greater than that of Va-. In the
present terminology, one gambles when one has much to gain or little to lose and one trusts when one has much to lose or little to gain. Hence one does not need much confidence in a positive outcome to gamble, but one needs considerable confidence in a positive outcome to trust. Generally, with respect to either type of ambiguous path, one may state that an individual is more likely to choose to take an ambiguous path the greater is the perceived strength of Va+ as compared to Va− and the greater is his confidence that Va+ rather than va− will occur.

The essential features of a situation confronting the individual with a choice to be suspicious or not are, in my view: (a) the individual is confronted with the possibility that a potentially harmful event (Va−) will occur; (b) he perceives that the occurrence of Va− is contingent upon the behavior of another person; and (c) he perceives the possibility of engaging in behavior that will prevent or reduce the harmful consequences of the other person’s behavior, should it occur. In effect, then, a suspicious choice is a choice to engage in behavior to prevent or reduce the harmful consequences of another person’s behavior. A choice not to take an ambiguous path may be considered to be a suspicious one. An individual is more likely to make a suspicious choice the greater is the perceived strength of Va−. The more confidence he has that the suspected behavior of the other person will occur, and the more able he believes he is to prevent or reduce the harmful consequences of the other person’s behavior.

Trust and “Perceived Intentions”

To trust another person to produce a beneficial event X (or to suspect that another person will produce a harmful event Y), an individual must have confidence that the other individual has the ability and intention to produce it. In this paper I am concerned with how the tendency to trust or to be suspicious is affected by the individual’s perceptions of the intentions of the other person, as well as by his own intentions toward the other person.

I distinguish three aspects of an intention: its source, its focus, and its strength. The source of an intention may be defined as the conditions that give rise to the intention; the focus of an intention may be defined as the conditions that are perceived (by “alter,” the person with the intention) to be sufficient and most attractive for the consummation of the intention; the strength of an intention may be defined as the strength of attraction of the focus. The perceived reliability for ego of alter’s intention may be defined as the confidence with which ego expects alter to perform a given behavior which ego desires or fears. I assume that ego’s perception of the reliability of alter’s intention will be determined by his perception of its source, focus, and strength. My emphasis in this paper is upon the source of an intention.

An intention to perform a given behavior that is desired or feared by another individual may arise from any of a number of the following sources (to each source a label is affixed indicating the type of intention it gives rise to):

(a) an intrinsic desire to benefit (or harm) the other person (a benevolent or malevolent intention);
(b) a desire to obtain (or avoid) something from the other person, with one’s own behavior seen as a condition for this (an exchange intention);
(c) a desire to obtain (or avoid) something from others (i.e., not the other person), with one’s own behavior seen as a condition for this (a third-party intention);
(d) a desire to obtain (or avoid) something from oneself, with one’s own behavior in relation to the trust of the other seen as a condition for this (a conscience intention);
(e) a desire to obtain the satisfactions that are perceived to be intrinsically related to the experiences involved in producing the behavior (an activity intention);

The reader should be wary of a common confusion in everyday speech arising from two meanings of the word “risk”: risk as referring to the amount one can lose and risk as referring to the probability of losing. Thus, when one trusts, one “risks” losing a relatively large amount compared to what one can gain, so one will not take much “risk” of losing. When one gambles, one “risks” losing a small amount relative to what one can gain, so one is willing to take a large “risk” of losing.

*Our use of the term “intention” is similar to Lewin’s (1951). “Source” is similar to his “quasi-need,” “focus” is equivalent to his “a certain region of objects and events which have a valence that entices to action (. . . which satiate the ‘quasi-need’).”
(f) a desire to obtain goals, other than those listed above, which are perceived to be mediated by the intended behavior per se.

For example, let us assume that alter has expressed his intention to help ego build a garage onto his house. The intention may derive from his desire to make his neighbor happy because he likes him (a benevolent intention); or it may derive from his desire to have his neighbor help him build a porch (an exchange intention); or from alter's desire to ingratiate himself with his wife, ego's sister (a third-party intention). The source of the intention will determine how reliable it will be in changing circumstances. Thus, if alter can get his porch built without helping ego build his garage, he may not fulfill his intention (if it arose exclusively from his desire to have a porch); or, if alter's wife becomes angry with ego, he may not fulfill his intention if it is based on his desire to please his wife. On the other hand, if alter's intention is rooted in his desire to produce a given effect in ego, it is likely that, despite changing circumstances, the intention will persist until the desired change in ego's state has occurred.

The source of an intention toward ego will thus determine whether changing circumstances will dissipate it and result in new intentions not focused upon ego, or whether ego will remain the constant focus of alter's intention. Our contention is that, from ego's point of view, a motivational source that produces intentions that are invariably focused upon him will be perceived as more reliable than a source that produces intentions that may or may not be focused upon him.

**Some Hypotheses Underlying our Research**

In our research we have been concerned with the effects of three different motivational orientations upon the readiness to engage in trusting or suspicious and in trustworthy or untrustworthy behavior. The three motivational orientations were: (a) cooperative—the S was led to feel that the welfare of the other person as well as his own welfare was of concern to him and that the other person felt the same way; (b) individualistic—the S was led to feel that his only interest was in doing as well for himself as he could, without regard to how well the other person did and that the other person felt the same way; (c) competitive—the S was led to feel that he wanted to do as well as he could for himself and he also wanted to defeat the other person and that the other person felt the same way.

Our earlier discussion would suggest that the cooperative motivational orientation would lead the S to expect the other person to have a reliable, benevolent (i.e., trustworthy) intention toward him and would lead the S to have a reliable, benevolent intention toward the other. Hence, one could predict that the S with a cooperative orientation would be both trusting and trustworthy. Similarly, the S with a competitive orientation would be most likely to expect a reliably malevolent (i.e., untrustworthy) intention from the other, just as his own intention toward the other would be reliably malevolent. Hence, one could predict that the S with a competitive orientation would be both suspicious and untrustworthy.

How about the S with the individualistic orientation? By definition, he is unlikely to be focused upon benefiting or harming the other person or to perceive that the other has the intention of benefiting or harming him. In other words, his intention toward the other and the other's intention toward him have no intrinsic source reliability in terms of whether they will be beneficial or harmful. Thus, we must be concerned with conditions under which P₁ will perceive that P₂, who prefers doing Y rather than X, will choose to do X solely because of the benefits he expects to receive in exchange from P₁, who prefers that X rather than Y be done. Here we are concerned with the conditions under which a mutual exchange may occur, despite an individualistic orientation and despite the absence of either the internal sanctions of conscience or the external sanctions of force, or of intervention by a third party (e.g., "the law," "community censure").

We may hypothesize that: If two individuals are motivated solely by an exchange intention and each perceives that the other person is so motivated, they will engage in an exchange only under conditions that enable each of them to be aware that the other person is making his contribution simultaneously with his own contribution (the "simultaneity hypothesis").
That is, where there is no pre-existing socialized basis for mutual trust, one would not expect that a person who has to offer his contribution first would offer to participate in the exchange. Nor would we expect the potential contributors to offer their contributions if they had to decide simultaneously whether to contribute or not but each person made his decision without being aware of the decision being made by the other. Physical simultaneity—i.e., the occurrence of the decisions at the same physical time—is not what is crucial. What is required is psychological simultaneity—the mutual awareness of what the other's decision is as one decides what to do.

We can relax our restrictions upon the individualistically oriented individual and permit him to have socialized or other motives (e.g., a fear of pain or social censure) that make him vulnerable to the internal sanctions of his conscience or to the external sanctions of force or social disapproval. Since such motives enable him to commit himself to the exchange, we may generalize our previous hypothesis to state that: if two individuals are individualistically motivated, they will be likely to make their contributions to the exchange to the extent that each commits himself, and sees the other as committed, to offering a contribution to the exchange (the "commitment hypothesis").

A person may be said to be committed to doing something if he is able to do it and perceives that he will experience a greater gain (or lesser loss) by doing it than by not doing it. We suggest that making a promise to another (in a form in which one can be unequivocally identified with the promise and under conditions where social norms impose negative sanctions upon the breaking of promises) is a method of committing oneself to a course of action. Hence, one can expect that the opportunity to communicate in such a way that mutual promises of cooperation will enhance the likelihood that individualistically oriented individuals will engage in mutual cooperation.

Elsewhere (Deutsch, 1957), I have elaborated further hypotheses about the effects upon the development of trust or such factors as: the perceived power of the object of trust to cause the desired event; the power relationship between the individual and his object of trust; the methods of communication employed; the relationships with third parties; the individual's self-esteem. Here, I can only state that these are considered to be important determinants of the readiness of individuals to trust one another, particularly when each of the individuals involved are motivated solely by an exchange intention.

The Experimental Situation

In our experimental work we have been utilizing a two-person, nonzero-sum game in which the gains or losses incurred by each person are a function of the choices made by his partner as well as those made by him. The game is illustrated in Figure 5.

\[
\begin{array}{ccc}
\text{P}_1 & \text{A} & \text{B} \\
X & +9 & +10 \\
Y & +9 & -10 \\
\end{array}
\]

FIG. 5.

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.

There are many social situations similar to the game, in the sense that they do not permit rational individual behavior unless
the conditions for mutual trust exist. Any social situation in which an individual may enhance his own satisfactions to the disadvantage of another by not adhering to the normative expectations or "social rules" governing the situation is of this sort—e.g., buyer-seller transactions, husband-wife relationships, pedestrian-driver interactions, a crowd in a theater when there is a fire. In everyday situations, mutual trust is predicated upon the existence of socialized motives (e.g., an interest in the welfare of others, a desire for social approval) or of conscience, external authority, or arrangements that will provide the participants with an incentive for adhering to the rules. Generally, if people who are willing to adhere to the rules cannot trust other participants in the situation to do so, there is little possibility for rational behavior except to attempt to develop the conditions under which mutual adherence to the rules will occur.

In playing the game the Ss, who were all college students, were given standard instructions so that they knew exactly what the situation was and understood the implications of any combination of choices that they and the other person might make.

Some Experimental Results

The effects of motivational orientation (Deutsch, 1960a). Table 1 presents data indicating the effects of motivational orientation upon the choice to cooperate (a choice of A or X) under four different experimental conditions in the one-trial game. In both the No communication and the Communication conditions, the subjects made their choices in secret, at the same time. In the Communication condition, they were allowed to communicate with each other before making their choices by writing notes to each other. In the Non-simultaneous condition, one subject made his choice first, and it was announced to the second subject before he made his choice; no communication was allowed between the subjects before they made their choices. The Reversibility condition was the same as the No communication condition, except that after both subjects made their choices and these were announced either one or both of them could change their choices.

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Individuals Who Chose Cooperatively</th>
<th>Pairs in which Both Chose Cooperatively</th>
</tr>
</thead>
<tbody>
<tr>
<td>No communication:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooperative</td>
<td>46</td>
<td>89.1</td>
<td>82.6</td>
</tr>
<tr>
<td>Individualistic</td>
<td>78</td>
<td>55.9</td>
<td>12.8</td>
</tr>
<tr>
<td>Competitive</td>
<td>32</td>
<td>12.5</td>
<td>6.3</td>
</tr>
<tr>
<td>Communication:</td>
<td></td>
<td></td>
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<tr>
<td>Cooperative</td>
<td>32</td>
<td>96.9</td>
<td>93.8</td>
</tr>
<tr>
<td>Individualistic</td>
<td>34</td>
<td>70.6</td>
<td>56.8</td>
</tr>
<tr>
<td>Competitive</td>
<td>48</td>
<td>29.2</td>
<td>16.7</td>
</tr>
<tr>
<td>Reversibility:</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Cooperative</td>
<td>74</td>
<td>94.6</td>
<td>94.6</td>
</tr>
<tr>
<td>Individualistic</td>
<td>70</td>
<td>77.1</td>
<td>77.1</td>
</tr>
<tr>
<td>Competitive</td>
<td>62</td>
<td>56.1</td>
<td>36.1</td>
</tr>
<tr>
<td>Non-simultaneous:</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Cooperative</td>
<td>46</td>
<td>78.3</td>
<td>78.9</td>
</tr>
<tr>
<td>Individualistic</td>
<td>48</td>
<td>20.8</td>
<td>4.2</td>
</tr>
<tr>
<td>Competitive</td>
<td>50</td>
<td>16.7</td>
<td>6.7</td>
</tr>
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</table>

The data give clear support to our hypotheses concerning the effects of motivational orientation. They indicate that, in all four experimental conditions, a cooperative orientation primarily leads the individual to make a cooperative choice and results in mutual gain, while a competitive orientation primarily leads the individual to make a non-cooperative choice and results in mutual loss. The individualistic orientation produced results which were very much influenced by the specific experimental conditions. Under the condition of Non-simultaneity the results of the
individualistic and competitive orientations were very much alike, while under the 
Communication and Reversibility conditions the individualistic and cooperative orientations produced similar results.

The influence of communication (Deutsch, 1958; 1960a; Loomis, 1960). On the basis of our research on the influence of communication, it is evident that mutual trust can be established in people with individualistic orientations through communication. Communication is likely to be effective to the extent that the basic features of a cooperative interrelationship are made explicit in what is communicated (see Table 2). These basic features are (a) expression of one's intention; (b) expression of one's expectation; (c) expression of one's planned reaction to violations of one's expectation; and (d) expression of a means of restoring cooperation after a violation of one's expectation has occurred.

| TABLE 2 |
| Per Cent of Subjects Who Expected Cooperation and Also Chose Cooperatively by Level of Communication and by Communication Position
<p>| (On first trial) |</p>
<table>
<thead>
<tr>
<th>Communication Level</th>
<th>Receiver*</th>
<th>Sender*</th>
<th>Total**</th>
</tr>
</thead>
<tbody>
<tr>
<td>No communication</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Expectation only</td>
<td>22</td>
<td>39</td>
<td>31</td>
</tr>
<tr>
<td>Intention only</td>
<td>39</td>
<td>39</td>
<td>39</td>
</tr>
<tr>
<td>Expectation and intent</td>
<td>56</td>
<td>47</td>
<td>47</td>
</tr>
<tr>
<td>Retaliation</td>
<td>67</td>
<td>68</td>
<td>68</td>
</tr>
<tr>
<td>Absolution</td>
<td>89</td>
<td>80</td>
<td>80</td>
</tr>
</tbody>
</table>

Note: The experiment involved the employment of prepared notes which were constructed using one or more of four basic communication elements. There were five different notes in all: The simplest note (which stated the note writer's expectation) said, in effect, "I would like you to cooperate so that I can win." The most complete note included all four elements. It stated, "I will cooperate and I would like you to cooperate. That way we can both win. If you don't cooperate then I will choose so that you can't win. If you decide to cooperate and make a cooperative choice after first not doing so, then I will cooperate." The intermediate notes contained one, two or three of these elements. Some of the subjects received notes ( Receivers) and others sent notes (Senders); but there was never any two-way communication. As a control, one group of subjects played the game without any opportunity to communicate.

*Each percentage is based on an N of 18.
**Each percentage is based on an N of 56.

The influence of some types of power relationships and motivational strategies upon the development of trust (Deutsch, 1958; Solomon, 1960). Four different matrices were used in this study (see Figure 6). The subjects were all in position I for the first five trials of the game and in position II for the final trial. Position I chose first and announced his choice before position II chose. No communication was allowed between the players. The subjects were all individualistically oriented. Unknown to the subjects, the other players (i.e., the occupant of position II on the first five trials and position I on the last trial) were always accomplices of the experimenter. The accomplices on the first five trials always chose according to one of the following three strategies: (a) unconditionally benevolent—i.e., no matter what the subject chose, they always chose column X, which made the subject experience a gain; (b) conditionally benevolent—i.e., they chose column X only when the subject chose row A (which permitted maximum mutual gain but which had the potential of maximum loss for the subject); (c) unconditionally malevolent—i.e., no matter what the subject chose, they always chose column Y, which made the subject suffer a loss.

To sum up, the results of this study indicate that an individual is more likely to trust another (a) if he believes the other person has nothing to gain from untrustworthy behavior and (b) if he perceives that he is able to exert some control over the other person's outcome. Further, an individual who is individualistic-
ally oriented is more likely to respond to another person’s trustworthiness with nonexploitative behavior and positive feelings if he perceives that the other person’s behavior is conditional upon the existence of mutual trustworthiness. Finally, an individual who experiences benevolent rather than malevolent treatment from another is more likely to respond benevolently when he has the power to determine the outcome of the other.

The influence of third parties (Deutsch, 1958; Farr, unpublished). The experiment reported here was an attempt to see whether two individualistically oriented players in our game situation (Figure 5) would trust each other more if they each knew that they both disliked a third person. The experimental procedure was to have three people meet in the same room to take individual “intelligence” tests. One of the people was an accomplice of the experimenter; he was instructed to act in a conspicuously obnoxious and irritating manner.

The results indicate that the introduction of a disliked third person increased the tendency to make trusting (and trustworthy) choices. Where the disliked third person’s outcome is interdependent with the choices of the two players, the highest percentage of trusting choices occurs; the next highest occurs where the disliked person is present merely as an observer; the least amount occurs when there is no third party present. The differences between the “three-person-interdependent” and the “two-person” conditions hold for each of the 10 trials; the differences between the “observer” and “two-person” conditions occur only for the initial and final trials. These results indicate that awareness of mutual opposition to a third party may lead the individualistically oriented players to have a greater motivation to be trustworthy and/or to believe that the other person’s motivation to be trustworthy will be greater.

Trust, trustworthiness, and the F scale (Deutsch, 1960b). In this experiment, using the matrix depicted in Figure 5, Ss played the game twice, each time in a different “position” and each time, presumably, with a different person. In the First Position, S made his choice first and his choice was ostensibly announced to the other person before the latter made his choice. In fact, the other person was “fictional” and, hence, the S was not informed of what the “other person” chose after the S made his choice. In the First Position the S was faced with the decision of trusting the other person or not. In the Second Position, the S chose second after he knew the choice of the other person. Here, too, the other person was “fictional” and the actual S was always informed that the “other person” had chosen Row A (i.e., had trusted). Hence, in the Second Position, the S was faced with the decision of being trustworthy or not.

The results indicate a striking tendency for Ss who were trusting to be trustworthy and for Ss who were suspicious to be untrustworthy. F scale scores correlated significantly with game behavior; Ss with low F scores tended to be trusting and trustworthy while Ss with high F scores tended to be suspicious and untrustworthy in their game choices.

In capsule form, I would draw the following over-all implications from our experimental studies of trust:

1. Mutual trust is most likely to occur when people are positively oriented to each other’s welfare.

2. Mutual trust can occur even under circumstances where the people involved are overtly unconcerned with each other’s welfare, provided that the characteristics of the situation are such as to lead them to expect their trust to be fulfilled. Some of the situational characteristics which may facilitate the development of trust appear to be the following:

   a) The opportunity for each person to know what the other person will do before he commits himself irreversibly to a trusting choice.

   b) The opportunity and ability to communicate fully a system for cooperation which defines mutual responsibilities and also specifies a procedure for handling violations and returning to a state of equilibrium with minimum disadvantage if a violation occurs.

   c) The power to influence the other person’s outcome and hence to reduce any incentive he may have to engage in untrustworthy behavior.

   d) The presence of a third person whose relationship to the two players is such that each perceives that a loss for the other player is detrimental to his own interests vis-à-vis the third person.
CONCLUSION

In this paper, I have sketched out the conditions relevant to the initiation of cooperation and the consequences of cooperation once it has been initiated. Throughout, I have assumed that human cooperation is based upon man's enlarged capacity to perceive that there is a reality which exists independently of himself and to recognize that other human beings with like experiences will perceive it in similar ways. This capacity to take into account the joint situation of oneself and another may lead to cooperation or not, depending upon the way individuals perceive their goals to be interrelated. I have suggested that two of the critical problems in the initiation of cooperation, the problem of trust and the bargaining problem, are much easier to resolve if the potential cooperators are interested in each other's welfare. The development of a mutual interest in one another's welfare is, in turn, fostered by the experience of successful cooperation.

We live in a time when international cooperation is required to avert nuclear catastrophe. Yet, cooperation founders because of the inability of one side to trust the other and the inability to resolve bargaining deadlocks. Elsewhere (Deutsch, 1962), I have attempted to elaborate the implications of the reasoning in this paper for the development of a policy to foster international cooperation. Here, I rephrase what I stated above. We must each develop a genuine stake in the other's security and welfare, in the other's doing well rather than poorly, and we must promote cooperative endeavors which will foster the development of an interest in the other's successes rather than failures.

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**Cooperation and Trust: Some Theoretical Notes**


**Comments on Dr. Deutsch’s Paper**

*Seymour Epstein*

It is not often that one comes upon psychological research with a social conscience. One obvious reason for this is that such problems are difficult to get an experimental hold on. Dr. Deutsch has done just that. He has illustrated how careful analysis of complex social issues can lead to experimental analogies. Certainly his findings are not simple statements of the self-evident. I was intrigued by the finding on the bargaining experiments that unilateral threat was a disadvantage even to the person wielding it. The experiments on competition and cooperation are of no less interest and illustrate the versatility of Deutsch’s use of the decision-making task. There is no doubt a wide variety of problems that could be investigated with such an approach. With my conflict orientation, I cannot help but wonder if the competitive situation might be viewed as an interpersonal conflict having common features with intrapersonal conflict. I would guess that, if physiological measures were obtained and summed for both participants, it would be found that the competitive situation is as costly in activation as it is in utilitarian loss, and that even the winner loses. Who knows but that such work might give rise to a psychosocially oriented system of ethics!

I would like to see Dr. Deutsch carry out experiments with increased real stakes. I suspect that gains and losses of sufficient magnitude would produce different results from imaginary or small real stakes. Perhaps an “atom bomb” experiment could be