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I hereby recommend that the thesis prepared under my supervision by Rowland Sheppard entitled A Study of Certain Factors Influencing the Accuracy of Social Perception

be accepted as fulfilling this part of the requirements for the degree of Doctor of Philosophy

Approved by:

Oez Bills
Howard Lyman
Iris Allen

A STUDY OF CERTAIN FACTORS INFLUENCING
THE ACCURACY OF SOCIAL PERCEPTION

A dissertation submitted to the
Graduate School of Arts and Sciences
of the University of Cincinnati
in partial fulfillment of the
requirements for the degree of

DOCTOR OF PHILOSOPHY

1954

by

Rowland Hughes Shepard

A. B. University of Cincinnati 1947

PHI 1947

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Finally, the writer wishes to dedicate this paper to his wife, Lois.

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CHAPTER I

INTRODUCTION

Perception is the awareness and interpretation of sensory impressions. It is an experience which arises from the stimulation of sense organs and which results in the recognition of objects and aspects of the environment in such ways as to prepare the perceiving organism for their appropriate utilization. Through a process of selection and organization, perception functions to transform chaotic sense experience into a relatively stable and predictable world.

Percepts are determined both externally, by the nature of physical stimuli and the neural effects they evoke in the nervous system of the perceiver; and internally, by the perceiver's needs, moods, past experience and memory (7). Any particular percept, then, must be viewed as the resultant of an interaction between within-the-organism factors and within-the-environment factors (5).

While a number of these factors have been isolated and studied, there is still need of "a comprehensive theory of perception, one which is adequate to the range of phenomena from simple differential sensitivity to complex apprehension of social situations" (2, p. 72). In the opinion of Bruner and Postman (2), the task of such a theory would be to delineate the creativity of the organism in perception, to describe the physical stimulus and the environmental conditions under which stimuli are "adequate" to arouse an experience, and to determine the structure and characteristics of the percepts which result from the interaction of stimulus excitation and an active organism.

Perception is frequently subdivided into "object perception" and "social perception", according to whether the source of stimulation is a thing or a person. Inasmuch as the perceptual process may be impinged upon either at the point of stimulation or at the point of reception, some ambiguity has arisen with reference to the term "social perception." Thus, it sometimes refers to situations in which there are social forces influencing the individual while he perceives a thing. In this paper, however, the term social perception is restricted to the use of people as stimuli; and is specifically defined as one individual's awareness of another individual's feelings toward him.

It is generally accepted that "all perception is governed by a uniform and coherent set of principles" (2, p. 72), and that the principles of social perception are identical with the principles of perception found everywhere in the field of psychology (7).

There are, nonetheless, certain differences introduced into the perceptual field by inclusion of a person as the source of stimulation. The interaction between the organism and its environment is no longer that of person-object, but rather of person-person. "It is the fact that expectations operate on both sides of the relation between a given actor and the object of his orientation which distinguishes social interaction from orientation to non-social objects" (15, p. 14). Stated another way, "person objects differ from other objects in an individual's field because they have, among other characteristics, the properties of mobility, capriciousness, unpredictability; because they are the perceived loci of a great deal of causation; because they are perceived to have power qualities - - - - to provide rewards and threaten punishment; because

they are perceived as sensitive and reciprocally reactive" (7, p. 9). This indicates that the factor of relationship between the person perceiving and the person perceived is of importance in social perception.

A second difference in social perception, particularly as defined in this study, lies in the fact that the stimulus properties being perceived are emotional rather than physical. Since the feelings of another person cannot be apprehended directly, it is necessary that some form of communication take place between the person perceiving and the person perceived before perception is possible. From the standpoint of the person perceived, such communication is a matter of his transmitting his feelings through some intelligible form of behavior, i.e. of expressing his feelings through certain cues or signals that carry appropriate meaning. From the standpoint of the person perceiving, the communication process involves receiving the information that is being conveyed and evaluating it correctly.

These considerations have certain implications for a study of social perception. It becomes desirable to tie the feelings of the person perceived to some action real or potential, so that his affection will have relevant behavioral correlates. It is also desirable to select subjects who form relatively homogeneous groups, so that they may utilize similar past experience and learning in assessing one another's behavior. Thus, the means by which one person expresses his feelings, and the means by which a second person interprets these expressions of feeling will have arisen together, as two aspects of the same process, through prolonged exposure to similar forms of affective communication.

Definition of Terms

Perception is the awareness and interpretation of sensory impressions.

Social Perception is here defined as one individual's awareness of a second individual's feelings toward him.

Feelings in the present study are defined as motivation toward companionship in leisure time.

1. Sociometric feelings is the term applied to feelings which are measured by the sociometric test. They tend to be absolute and general, and are assessed by means of a subject's choosing, ignoring, or rejecting another subject as a potential companion. Thus, A may choose B, C, and D as people he would seek out to spend free time with; reject E as a person he would avoid spending free time with; and ignore F, G, H, I, and J in the sense that he would neither seek them out nor avoid them.

2. Preferential feelings is the term applied to feelings which are measured through rankings and paired comparisons. They tend to be relative and specific. Thus, A might choose both B and C as people he would seek out to spend free time with, but as between them he would prefer B to C. On the other hand, he might reject both X and Y as people he would avoid spending free time with, but as between them he would prefer X to Y.

3. Direction of feeling refers to whether an individual's motivation is directed toward or away from another individual as a potential companion. If an individual chooses another person, or expresses a positive preference toward that person, the direction of

feeling is said to be ADient; whereas, if the individual rejects another person, or expresses a negative preference, the direction of feeling is said to be ABient.

4. Degree of feeling refers to the relative strength or weakness of an individual's motivation toward another individual as a potential companion. It may be noted that on the sociometric test, both choice and rejection have in common the fact that they represent strong feelings, as opposed to the "indifference" area, in between, in which feelings are not strong enough to evoke a response. If rejection is considered as "negative choice," then the processes of both choice and rejection may be subsumed under the heading of election, which will refer only to degree and not to direction of feeling. As contrasted to this term, the area in which the individual's feelings are not strong enough to lead to action will be labelled neglection, since there is no a priori reason to assume that such feelings are really indifferent. Rather, it seems likely that they occupy a continuum from not quite choice through relative indifference to not quite rejection.

Preferential feelings may also be considered as having a dimension of degree. Thus they may be strong or weak, depending upon the certainty with which they are held. For example, it may be difficult for A to state a preference between B and C, or again, A may clearly prefer B to C.

5. Feeling Relationships develop from the fact that each subject expresses feelings for every other subject. Thus, A may choose B, and B may choose A. In this event they are said to be involved in a mutual feeling relationship. Similarly, A may prefer B (to C), and B may prefer

A (to C) in which case they are also involved in a mutual feeling relationship. When mutual feeling relationships are based on choice or positive preference, they are said to be ADient. However, feeling relationships may be mutual but not ADient; as where A rejects B, and B rejects A; or A prefers C (to B) and B prefers C (to A). In these situations, where mutual feelings relationships are based on rejection or negative preference, they are said to be ABient.

Feeling relationships may be ADient on one side and ABient on the other as where A chooses B, but B rejects A; or where A prefers B (to C), but B prefers C (to A). In this case they are said to be non-mutual.

Set is the term used in this study to refer to those factors that define the contribution of the perceiver to perception. Operationally, the term sociometric set is employed to describe the prediction that A makes with regard to whether he has been elected (i.e., chosen or rejected) or neglected by B on the sociometric test. Insofar as sociometric feelings are concerned, such a prediction is really a perception. It is only a set with regard to preferential feelings, in relation to which it stands as a generalized anticipatory attitude.

Stimulus is the term employed to describe the feelings of the person perceived. It is not an altogether satisfactory designation, being more conventional than technically accurate. The writer, however, has not been able to find a more suitable substitute.

Statement of the Problem

The purpose of this investigation is to evaluate certain of those factors which influence the ability of one individual to perceive

accurately another individual's feelings toward him. These feelings are characterized by the stimulus properties of direction (ADient-ABient) and degree (strong-weak), each of which may affect the accuracy with which they are perceived. Further, the perceiver's own feeling toward another may influence his evaluation of the other's feeling toward him. Thus, the factors being investigated include the strength and direction of the perceiver's feeling toward another, and the strength and direction of the other's feeling toward the perceiver.

Specifically, the independent variable is here defined as the feelings which individuals have with regard to the sharing of free time with one another, and appears in the following conditions:

1. The direction of such feelings, i.e. whether they are ADient or ABient.
2. The degree of such feelings, i.e. whether they are strong or weak.
3. The source of such feelings, i.e. whether they originate in the person perceiving or in the person perceived.
4. The relationships of such feelings, i.e. whether the feelings of the person perceiving and the person perceived toward one another are mutual or non-mutual.

The dependent variable is accuracy of perception; and the problem is to determine the differential effects on perceiver accuracy of these conditions of feelings operating both singly and in combination.

It should be noted that this study approaches the process of social perception from the standpoint of individual similarities and not from the standpoint of individual differences. The goal, then, is to

discover certain general principles from their operation in a limited sample of the population.

CHAPTER II

ORIENTATION

For purposes of analysis and hypothesis, the process of perception may be subdivided into (a) the contribution of the perceiver, i.e. the influence of his own feelings and experience on his perception; (b) the contribution of the person perceived, i.e. the influence of the other person's feelings on the perception of the perceiver; and (c) the field established by the relationship of the feelings of the perceiver and the feelings of the person perceived, and its contribution to perception. However, as Murphy states, "the outer world can never be so completely unstructured as to make perception depend solely upon the perceiver; but it can never be so sharply defined as to obliterate individual differences among perceivers" (13, p. 353). Ultimately, then, perception can only be understood as a resultant of the interaction of these factors.

Feeling Relationships

The feeling relationship between the person perceiving and the person perceived constitutes an affective field with certain properties which may influence accuracy of perception. The groundwork for a systematic study of affective fields has been laid by sociometric research.

A review of the findings in this area reveals first that "a feeling complex which goes out from one person to another does not run wildly into space but goes to a certain other person and that the other person does not accept this passively like a robot but responds actively

with another feeling complex in return" (11, p. 317). Further, there is a general and substantial tendency for the feelings of the two people involved to be reciprocal, i.e. mutual. The most frequently encountered finding in sociometric studies is the tendency for individuals to form mutual feeling relationships in excess of chance expectancy.

To demonstrate this, Lazarsfield (8) performed an experiment on seven groups of twenty-six children each, who had expressed feelings about one another's desirability as table partners. An eighth group of twenty-six hypothetical individuals was then constructed. Within the limitations of population size and number of choices made, which were the same for the real and hypothetical groups, the sociometric structure of this imaginary group was determined through a chance balloting procedure. The chance ballots, corresponding to the choices made by each of the hypothetical individuals, were shuffled and distributed randomly seven different times. Thus, there was a chance group to compare to each of the actual groups. The results of this experiment showed that mutuality of feeling relationships in the actual groups was 213 per cent more probable than in the hypothetical groups. If a mutual feeling relationship is referred to as a "pair," the number of pairs expected on theoretical grounds in a group of twenty-six individuals each of whom makes three choices is 4.68. In the chance groups the average number of pairs found was 4.3; but in the real groups the average number of pairs found was 13.4.

The tendency to form mutual feeling relationships is not limited to children. In fact, it appears to have a direct relationship with age, at least up to adulthood, such that children manifest it less than

adolescents. Moreno (11) in extensive studies of public school populations found that the incidence of mutual feeling relationships rose steadily from kindergarten groups through each grade level up to the age range of fourteen to eighteen years.

The formation of mutual relationships is likewise independent of the criterion on which the feelings are assessed. Thus, Jennings (6), in a pioneer study of a population of five hundred in the New York State Training School for Girls, found that mutuality appeared with substantial frequency regardless of whether the subjects were choosing one another to work with, live with, or share free time with. There was, however, a tendency for more mutuality to appear as the criterion involved activities which were less structured and less externally defined and which had more personal significance. Thus, mutuality was greater when the subjects selected one another to share free time with than when the criterion was based on the desirability of working together. Jennings also found that over a period of time mutuality in a group increased. A second testing performed eight months after the first revealed that there was an even higher degree of mutuality than had been present originally.

Moreno (11) notes that not only is there an increased trend towards mutuality of choice "far surpassing chance possibility," but there is also a strong tendency for a first choice to draw a first choice, and for a second or third choice to draw a second or third choice.

Deutschberger (3) studied a sample of 326 adolescents, mean age seventeen, in a neighborhood canteen where they met to share their leisure time. He asked them to indicate the amount of their free time

they spent with one another in terms of a three point scale; "much," "medium," and "little." He found that the odds were seven to one that a choice on the level of "much" would be reciprocated as compared to odds of two to one against mutuality of choice at the level of "little." He concluded that "in their interpersonal relationships individuals behave in such a way as to suggest that they have an objective awareness and sensitivity to their acceptance by others. That is to say, the highest levels of choice are invested in situations from which there is a definite return. More tentative levels as well as token choices are expended in situations where reciprocation is hit-or-miss, or where the empirical probability of mutuality is not very great" (3, p. 248).

A secondary finding in Deutschberger's study was that three-fourths of the girl-to-girl choices were reciprocated, as contrasted to only a little over one-half of boy-to-boy choices. Moreno (11) also reported that from the fifth grade on more mutual relations are formed by girls. This led him to formulate the hypothesis that "the female shows a greater tendency toward socialization than the male, a greater trend towards constancy of choice and the formation of stable groups" (11, p. 702).

It is discovered, then, that mutual feeling relationships tend to occur beyond the level of chance frequencies; that this is true with respect to a number of different criteria on which feelings are assessed, although more frequent when the criterion is of a personal and unstructured nature; that it is true of both sexes, although more marked in girls, especially from the age of eleven; that its frequency rises with age from kindergarten to adulthood; that it is true not only of

choice in general but of the various levels of choice as well, such that a first choice tends to be reciprocated by another first choice, a second choice by another second choice, etc.; and that the longer a group functions, the more its members will become involved in mutual feeling relationships.

The wide range of situations in which this finding occurs, and its tendency to appear in groups of various ages, sexes, socio-economic backgrounds and geographical regions suggest that reciprocity of feeling may be a phenomenon basic to the American culture, and possibly to the interaction of humans in general.

The implications that such a condition might have for perception arise from the fact that (a) how a person feels about another person, combined with (b) how he thinks the other person feels about him, forms (c) an internal model of the external relationship. Thus, when a person predicts another person's feeling he is, in effect, hypothesizing the nature of their affective relationship. A diagram may make this clearer:

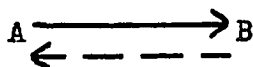


Figure 1

In Figure 1, the solid arrow from A to B indicates that A likes B. The broken arrow from B to A indicates that A thinks B likes him. Both arrows considered together represent the assumption of a mutually ADient relationship. Thus, A conceives of his affective relationship to B as being reciprocal and positive.

Now, if the act of social perception may be viewed as the prediction of an affective relationship, and if it has been the past experience of the perceiver to be involved in mutual relationships, there is some likelihood that his perception will be influenced in the direction of predicting mutuality. On theoretical grounds, then, this is one way in which the factor of affective relationship might influence the accuracy of social perception.

Empirically, there are very few studies which indicate what role affective relationship might play as a determinant of social perception. The most pertinent is that of Tagiuri, Blake and Bruner (19). In this investigation, three groups of ten members each met for twelve two hour sessions. The subjects were "drawn from professions such as teaching, counselling, personnel work, and nursing" (19, p. 585). In their group meetings, they discussed "principles of group psychology, particularly as they relate to self-understanding." After each meeting members were asked to indicate, without restriction on number, those in the group they "liked best" and those they "liked least." They were also asked to guess which members they thought liked them best and least. Data from one of the meetings in the middle of the series was selected for analysis.

For each real subject a matching robot was constructed with the same number of "feelings" and "guesses." The guesses and feelings of the robots were then randomly distributed and the robot groups compared to the real groups.

The authors report that accuracy of perception was significantly better in the human groups than in their corresponding robots. Also, accuracy of perception was "much in excess of chance" when mutuality was

present, and about at chance level when it was not.

Lundberg and Dickson (9) obtained "friendship" choices from a high school population of 1,576 students. The subjects were then asked to predict who from among the people they had chosen would also choose them. The authors report that two-thirds of these predictions were correct. Since they focus on awareness of reciprocation, their data can only shed indirect light on the problem of whether awareness is better where reciprocation exists. They do report, however, that 55.3 per cent of girls' choices were reciprocated as compared to 41.1 per cent for boys; and that the girls were also better at predicting reciprocation than the boys. Also, it was found that members of sororities and fraternities both expected and received reciprocation more often, and were more often right in their predictions, than were non-members.

Maucorps (10) in a study of thirty-five French Army officers, also employed a measure of awareness of reciprocation of choice. He found that "the more individuals are associated, the more they tend to judge adequately the mutualities they exchange with others" (10, p. 62).

Finally, the writer's own pilot studies (17) have indicated that accuracy of perception is better where the person perceiving and the person perceived are involved in a mutual feeling relationship, than where their feeling relationship is non-mutual.

Summarizing, then, it is found that there is a general tendency for individuals to form mutual feeling relationships, and that accuracy of perception may be better when it takes place under this condition.

Feelings-as-Stimuli

The nature of the stimulus in object perception has received long and careful attention. From psychophysics and its correlations of physical stimulus characteristics with attributes of sensation, and from Gestalt psychology with its delineation of the autochthonous factors in perception, a wealth of information has been gathered with regard to the external determinants of perception. In light of this, it is somewhat surprising that the stimulus area has been the most neglected aspect of research in social perception.

It is a truism to state that there is more order than chaos in interpersonal relations, and that the experience of everyday living suggests that a substantial proportion of people's feelings are successfully communicated. There is, nonetheless, no scientific proof that this is the rule; nor is there a systematic body of knowledge of how such communication takes place. This is a matter of vital importance for those areas of endeavor, such as psychotherapy, where the processes of communication and perception of feeling are the sine qua non of operation. The problem of how feelings are communicated, however, lies beyond the scope of this study; except for the assumption that such communication takes place through expressive behavior.

An individual's feelings play a dual role in social perception; (a) they are influential in determining his own perception, and (b) they are the basis for the perception of someone else. It is in the latter sense that feelings are referred to as stimuli in this study.

In searching for those aspects of feelings-as-stimuli which facilitate or depress accuracy of perception, it is convenient to order

the presentation according to the factors of reliability, direction and degree.

Reliability of Feelings

It is very difficult to assess the reliability of feelings, since one of their basic characteristics is changeability. Thus, when a feeling is measured twice at two separated points in time and found to be different, it is difficult to know whether the original feeling was unreliable or whether the feelings measured at each testing were reliable but differed as a result of intervening events. To offset this, one may obtain two measures of feeling in close temporal sequence, although the factor of memory may then enter to influence the results.

With respect to sociometric feelings, the problem is further compounded by the fact that there is only one way in which the feelings may be assessed. To change criteria is to give an entirely different test.

Sociometrists have dealt with this difficulty by studying the extent to which a subject is chosen by others on one occasion and on another, or even several, occasions. Thus, reliability relates to the "choice-position" the individual receives from others in general, and not from any particular others. Newstetter, Feldstein and Newcomb (14) reported an average reliability of .95 using this method and basing it on data collected on four successive weeks. Their subjects were allowed to make five choices, using as a criterion the selection of tentmates in a summer camp. Zeleny (20), studying a college population permitted five choices for selecting one another as members of a discussion group, found reliability coefficients ranging from .93 to .95 when the test was

readministered on successive days. Jennings (6), in her exhaustive study, allowed unlimited choice and readministered the test after an interval of eight months. She reported a correlation of .65 for the extent to which an individual was chosen on the two tests, and a correlation of .66 for the extent to which an individual was rejected.

Jennings writes "a comparison of the individual's consistency with himself on separate occasions (his extent of expenditure of choice) could not be made in previous research as the extent to which the subject could choose others was allotted in advance. By allowing the subject unlimited expression of choice and rejection the present research focusses upon the individual's consistency in expansiveness or rejection; his extent of choice, positive and negative, for others at two points in time eight months apart" (6, p. 31). The results showed that between Test I and Test II the choice of others by the subject correlated at .37, and the rejection of others by the subject correlated at .27. Jennings states that both coefficients are significant beyond the .01 level of confidence.

Jennings adds that "only one effort was made to ascertain by immediate re-test the consistency of choice behavior.... A re-test of one housing unit was made after a four day interval; this gave a reliability coefficient of .96 for positive choice and .93 for rejection, based on the gross number of reactions given by the individual toward others on the two occasions" (6, p. 31).

It appears, then, that an individual expresses a fairly consistent amount of strong positive and negative feelings; and also that an individual is the focus of a fairly consistent amount of strong

positive and negative feelings. The question of one particular individual's feelings toward another particular individual, and of the second individual's feelings toward the first, however, remains largely unexplored.

Moreno (11) reports two studies in which specific feelings toward particular people were retested at two intervals. In a large population of adolescent girls, the subjects, after expressing choices for others on the criterion of living together, were given ninety days in which to change their selections. However, it was found that they maintained their original choices to the extent of ninety-five per cent. In a population of high school boys, the sociometric test was repeated after an interval of three months. Moreno writes: "the findings in respect to changing of choices were as follows: eight per cent of the first choices were changed, eighteen per cent of the second choices" (11, p. 135).

Direction of Feeling

Until recent years, the process of rejection remained unstudied by sociometric methods. This is reflective of the general finding that positive feelings far outweigh negative feelings in most groups. In contemporary American society, affective relationships are almost always based on positive or friendly feelings. Unfriendly feelings lead to avoidance and lack of relationship.

By way of corroboration, Jennings (6) reported that the ratio of choice to rejection in her groups was approximately four to one, and that this was a general finding independent of the criterion on which feelings were expressed. In another study based on a large sample, Lundberg and Dickson (9) found the ratio of friendly to unfriendly

feelings was slightly less than two to one. However, they limited positive feelings to three choices while allowing unlimited rejections. In most small sample studies, rejection is so slight numerically that it does not lend itself to adequate statistical and analytical procedures. This raises difficulties with regard to studying direction of feeling as a possible determinant of social perception.

In the only investigation known to the writer where accuracy of perception was plotted against direction of feeling, Taigiuri *et al* (19) found that perceptual accuracy for being chosen was above chance, while accuracy of perception for being rejected or neglected was not significantly different from chance.

The writer's pilot studies, although based on a limited number of cases, suggest that accuracy of perception for being either chosen or rejected is considerably better than for being neglected.

Degree of Feeling

This finding indicates that accuracy of social perception might be more a function of degree than of direction of feeling. Thus, both sociometric choice and rejection may be viewed as representing stronger feelings than sociometric neglect. This would, however, be rather a crude approach to the assessment of feeling strength. There might, for example, be a considerable difference in the way that an individual felt toward two others, both of whom he had chosen on the sociometric test. That is, he might strongly prefer one to the other. The same consideration would hold true among the people he rejected, and even among those to whom he indicated indifference. Sociometrists have occasionally included preferential levels in their tests, such that they

could distinguish between a first choice, a second choice, a third choice, etc. Unfortunately, there has been practically no analysis of such data.

It might be assumed that the stronger an individual's preference, the more likely he would be to express it in some unequivocal manner, thereby increasing the probability of its being perceived. Such an hypothesis is in accord with the known relationship between intensity of stimulating conditions and accuracy of object perception, and it is also substantiated by pilot study findings.

The Factor of Set

Despite the considerable work of functional and act psychologists which demonstrated the influence of set or einstellung on object perception, the contribution of the perceiver was slow in being generally recognized and accepted. This was the situation which prompted Stern to his classic utterance, Keine Gestalt ohne Gestalter. In recent years, however, the emphasis has shifted. The wide use of tachistoscopes and projective techniques; studies of the autokinetic phenomenon and hypnosis; experiments on after-images, double-images, paradoxical sensations and illusions have long since shown that the role of the perceiver is not simply one of passive registration. The upshot is that the set of the perceiver is the more frequently studied variable in social perception.

According to Bruner, any given set "results from the arousal of central cognitive and motivational processes by preceding environmental states of affairs" (1, p. 124). This might be paraphrased to read that what the perceiver expects to see is a blend of what he has most

frequently encountered in identical or similar situations and what he wishes would be there now.

After stating that attending is a form of set, Munn writes: "From the standpoint of perception, attending has aptly been called a 'pre-perceptive attitude' --- 'a reaction of expectancy and exploration,' or 'an anticipatory perceptual adjustment.' This readiness to be stimulated, or to perceive....is in the last analysis a motivational process" (12, pp. 305-306). Thus, perception is functionally selective, guided by the perceiver's interests, needs, attitudes and values. Munn adds: "attending is characterized by an increased clearness, a bringing out of detail in whatever is attended to" (12, p. 306). This, of course, does not guarantee that perception will follow attending, or that it will always be correct.

The fact that set functions to "tune the organism for perception" is so well verified in studies where the stimulus is an object, that it suggests itself as a determinant of social perception as well. The writer has not been able to find anything in the literature that has a direct bearing on this hypothesis. The reason seems to be, as Munn states, that "attending and perceiving are in some respects indistinguishable" (12, p. 315). Thus, it becomes very difficult to measure set independently of perception.

The major differentiation between attending and perceiving is the preperceptive quality of the former. In accord with this, the writer has proposed to measure set in the following way: Individual A is asked to indicate what he believes his sociometric status is in the feelings of individual B, i.e. does A believe that B has chosen,

rejected or neglected him on the sociometric test. If A expects either to be chosen or rejected by B, it is said that A considers himself emotionally meaningful to B; whereas if A expects to be neglected by B, it is said that A does not consider himself emotionally meaningful to B.

This expectancy takes on the quality of a generalized anticipatory attitude, since the way A perceives B in other situations will be influenced by this set that A has with regard to B. If A believes himself to be chosen or rejected by B, he may be expected to be "tuned" to perceive other feelings that B may have; whereas if A believes that B has ignored him, he may be turning his attention elsewhere in his social field.

Now, if A is asked to guess whether B prefers him to C, or to D, E, F, etc., one might expect A to perceive more accurately if he is tuned to B than if he is not. This, then, is one way in which set might play a role in influencing accuracy of social perception.

Most empirical findings in this area have been based on only one measure of feelings and one measure of their perception. In these cases, the operation of set cannot be assessed directly but must be inferred from its effects on perception. The general trend is for an individual's perception to be related to his own feeling. Thus, if one individual chooses another on the sociometric test, he expects to be chosen in return; and if he rejects another, he expects to be rejected in return. The evidence for this tendency, however, is not clear cut.

Tagiuri (18) introduced the concept of "internal congruence" between the subject's own feeling toward another and his expectancy of the other's feeling toward him. In studies of some thirty groups, he

found that the incidence of real non-mutual relationships (defined as A chooses B, but B rejects A) was approximately eighteen per cent. However, the incidence of predicted non-mutual relationships (defined as A chooses B, but A expects to be rejected by B) was only three per cent. Theoretically, it was expected that the two percentages would be the same. This is illustrated in Figure 2.



Figure 2

The real relationship (indicated by A, Figure 2) existed in eighteen per cent of the cases studied; but the predicted relationship (indicated by B, Figure 2) had a frequency of only three per cent. There was no a priori reason why the two frequencies should diverge.

Tagiuri goes on to say that this "relationship between perception of affect and affective response has been found to obtain generally, irrespective of the size of the group, the sex and age of the subjects (youngest group studied: seven-year-olds)" (18, p. 99).

In their previously cited study, Tagiuri et al (19) also found a substantial inclination for the perceiver to predict reciprocity of his own feeling. Here they report a tendency, significant beyond the .01 level of confidence, for the subject to perceive his own feeling as returned by another. They refer to this phenomenon as "congruency," and state that "in sum, for the active processes of both accepting and rejecting, congruency is the rule; one rejects another and sees the other as rejecting one, or one chooses another and sees one's choice

reciprocated. Where indifference (or ignoring) is concerned, no very clear relation emerges. Omitting another from one's selected list or rejected list is not strongly associated with an assumption of being omitted from the other's list" (19, p. 586).

One very marked difficulty involved in this approach arises in the following rather frequent circumstance:

1. Alice chooses Betty
2. Alice expects to be chosen by Betty
3. Betty does in fact choose Alice

Now, since Alice's expectancy may derive either from her own feeling or from Betty's feeling, and since it would lead to accurate perception in either case, how is it to be explained? It might be assumed that Alice is projecting her own feeling and it just happens to be reciprocated. On the other hand, it might be assumed equally well that she is simply perceiving Betty's feeling accurately. The Tagiuri method is unable to solve this dilemma.

In dealing with this problem, it would be advisable to establish at least two conditions of feeling strength, such that the differential influence of a strong feeling and a weak feeling could be determined for both feelings-as-sets, and feelings-as-stimuli; and also to obtain a measure of set which is independent of perception. The present study tries both approaches.

There is some evidence contradictory to the hypothesis that individuals tend to predict reciprocity of their own feelings. Thus, the writer has found in pilot studies (17) that only about half of those who choose another on the sociometric test expect to be chosen in return.

Also, the figures of Lundberg and Dickson (9) show that while their subjects made 4,053 choices, they expected reciprocation in only 2,077 (or about one-half) of them.

One interesting finding in this connection is that although there is never a one-to-one relationship between an individual's predicting reciprocity and his receiving it, the total amounts of reciprocity expected and obtained in many groups are almost identical. Thus, the potentiality for one hundred per cent accuracy of perception exists. This suggests that individuals may be aware of the general likelihood of their feelings finding mutuality.

In summary, the factor of set may be defined as an anticipatory attitude which tunes the organism for perception. An hypothesis derived from this finding was presented. There is also some possibility that an individual's set is influential in leading him to predict reciprocity of his own feeling.

Interaction of Factors

As Bruner and Postman have written, in the last stage of perceptual theory one must ask "about the structure and characteristics of the percepts which result from the interaction of stimulus excitations and an active organism" (2, p. 73). This is perhaps even more crucial to social perception where we are dealing with two active organisms. In any event, perception must ultimately be understood as an interaction of factors, as the mutually facilitating or depressing, antagonistic or counter-balancing effects of the perceiver's set, the feelings in the person perceived, and the affective field in which they are involved.

Restatement of the Problem

The purpose of this study is to demonstrate certain factors which influence the accuracy of social perception. The areas selected for investigation are those which have been (a) postulated by modern perceptual theory, (b) found to occur in empirical research, and (c) indicated by pilot studies. These have been discussed in some detail, and may now be stated in the form of hypotheses to be tested.

Hypotheses:

1. Accuracy of social perception is a function of the affective relationship between the person perceiving and the person perceived.

Specifically: Persons involved in mutual affective relationships develop the same level of perceptual accuracy as persons involved in non-mutual affective relationships.

2. Accuracy of social perception is a function of the strength of feeling in the person perceived.

Specifically: If an individual is certain with regard to his preference, the likelihood of its being perceived accurately by someone else is the same as if he is uncertain.

3. Accuracy of social perception is a function of the perceiver's set.

Specifically: Accuracy of perception of preferential feelings will be the same where the perceiver considers himself emotionally meaningful to the person perceived as where the perceiver does not consider himself emotionally meaningful to the person perceived.

In addition to the foregoing experimental hypotheses, it is expected that the factors of perceiver set, certainty of preference in

the person perceived, and preferential relationship between the person perceiving and the person perceived will interact in such a way as to mutually facilitate, mutually depress, or counter-balance one another's effects on accuracy of perception.

All tests of perceptual accuracy are to be made on the subject's preferential feelings.

CHAPTER III

METHODOLOGY

Subjects

Pilot study experience, the nature of the variables, and the method of measurement all combined to place rather strict limits on the selection of subjects for this investigation.

Since the literature indicated that girls tend to show a higher degree of perceptual accuracy, to form more stable groups, and to develop more mutuality of preference than boys; and since it happened that they were also more available for pilot work, all preliminary studies were conducted on female subjects.

Exploratory research revealed that it required at least average intelligence or comparable psychological sophistication for a subject to understand properly the nature of the task. It was also noted, in a study of delinquent girls, that this sort of procedure may be anxiety-inducing to certain socially maladjusted individuals.

These considerations suggested that college groups might form the most suitable population, and this was borne out by further pilot investigation.

Inasmuch as this is a problem involving social relationships, it was necessary to select the subjects as group members. As mentioned previously, it was desirable that the groups chosen be relatively homogeneous as to the variables of age, intelligence and socio-economic level; and that they be uni-sexual. In addition, groups selected had also to meet

the criteria of (a) allowing for frequent and intimate contacts among their constituents over a substantial period of time, and (b) not being self-selected. Thus, for example, members of a nursing class have not chosen one another as colleagues; nor has a pledge class of a sorority, since such individuals are selected by others already in the group.

The use of the paired comparisons technique as a measure of preferential feelings imposed a size limit to such groups, permitting a range of about eleven to fifteen members each. When there are fewer than eleven individuals in a group, the task may not be sufficiently difficult; whereas if there are more than fifteen individuals in a group, the task may become too difficult.

Subjects were obtained in the following ways:

1. Two student nurse groups were obtained from Longview State Hospital, in Cincinnati, Ohio. These subjects were at approximately the same grade level as college sophomores. In each group, the individual members represented two different nursing schools. Thus, members representing one nursing school had had ample opportunity to become acquainted, whereas their contacts with members from another school were limited to the training period they received at Longview. However, this training was of a highly specialized sort. Included in the curriculum were semi-weekly sessions conducted under the auspices of the psychology department during which there were discussions of the principles of group psychology and the mechanisms of self-understanding. This allowed for much greater opportunity of intimate contact than could otherwise have taken place. The Longview training period lasted for twelve weeks, and the groups were tested during the tenth week of this period.

2. Four college sorority groups were obtained through the University of Cincinnati Pan-Hellenic Society. An appeal was made before this body for subjects representing the sophomore classes of their sororities. Each Pan-Hellenic representative then relayed the appeal to her group, and four groups responded. All subjects were, of course, volunteers. In two sororities, the full sophomore class was obtained. In a third sorority, through a mistake in the reporting of names, one girl was left out. In the fourth sorority, only about half of the sophomore class was tested.

In all, there were two groups of eleven members each, two groups of twelve members each, one group of fourteen members, and one group of fifteen members.

Each subject was given an individual folder with her name on the front and her own set of test materials inside. The folders contained three sheets of carefully detailed instructions, so that it was rare for a subject to raise a question. No tests were collected from a subject until she had completed the entire testing procedure. The nursing groups were tested in a large classroom at Longview State Hospital, and the two groups interspersed. The sorority groups were tested over a ten day period in two rooms provided by the University of Cincinnati Psychology Department, and their subjects were also interspersed. Each subject worked at her own rate of speed, the amount of time needed to complete the testing procedure ranging from about forty to eighty minutes.

It was the examiner's impression, from observing the subjects and talking with them after the testing, that they were genuinely enthusiastic and highly cooperative. Several commented upon the novelty of the

experience and many requested notification of the results. On the whole, they appeared to become emotionally involved in the procedure rather quickly.

Technique

In presenting the experimental procedure employed in this research, the written instructions which each subject received are quoted in their entirety. The text accompanying these instructions embodies, in addition, a brief rationale for each form of assessment.

Introduction to the subject:

I'd like to thank each of you for your cooperation in this research project, which is a study of "empathy." I think you will find it interesting and quite different from anything you have ever done before. Your papers will be kept in strictest confidence, and each of you will be anonymous in the report of the results.

Each of you has been given a folder of materials with your name and group number on the outside. Inside you will find a complete list of the full names of the girls in your group. Later, only the first names appear, and where two girls in any one group have the same first names, the initial of their last names is added.

Assessments of Feelings

The sociometric test demands a criterion on which to base choices and rejections. This criterion must have an actualization potential. Thus, it cannot be simply feelings of friendship, but must involve such feelings as might be translated into action. The writer utilized the one presented by Jennings (6). This is the spending together of free time, defined as the time when a subject is not in class, working or studying and can do whatever she pleases. The criterion of sharing free time was chosen because of its highly personal and psychologically important nature. The

same criterion was then applied to all assessments of feeling.

1. The Sociometric Test

To the subject:

In your folders, the sheet numbered "1" is an alphabetical list of the names of the girls in your group. This is a form for recording how you would like to spend your free time, i.e. the time when you are not in class, working or studying and can do whatever you like. Below are some statements describing how much or how little you desire to spend your free time with the various girls in your group. These statements are:

- (A) I would like very much to spend my free time with her, and would make an effort to arrange it.
- (B) I would like to spend some free time with her, but I would not go out of my way to arrange it.
- (C) I would not mind spending some free time with her, if none of the girls I'd rather be with were around.
- (D) I would rather be alone than be with her in my free time, but I would not try to avoid her.
- (E) I would try to avoid being with her in my free time.

Now, for each girl in your group, decide which of the above statements best describes the way you feel about spending your free time with her, and put the letter of that statement on the blank next to her name. For example, if you would like to spend a lot of your free time with a certain girl, and would seek her out to be with, put the letter "A" on the blank next to her name; if you would like never to be with a certain girl and would try to avoid spending any free time with her, put the letter "E" on the blank next to her name. Decide which statement best describes your feelings for each girl, and put the letter of that statement on the blank next to the girl's name. Leave the blank next to your own name empty."

Statements "A" and "E" become the choice and rejection conditions respectively. They are separated from the three conditions of neglect

by their commitment to potential action.

2. The Ranking Test

Each subject was asked to rank the other group members from one to N in the order in which she preferred spending her free time with them.

To the subject:

In your folders, the sheet numbered "2" is also an alphabetical list of the names of the girls in your group. Again there is a blank beside each name. On this sheet, you are asked to rank the girls in your group in the order in which you prefer to spend your free time with them. Place the number "1" next to the name of the girl you'd most like to be with. Place the number "2" next to the name of the girl you'd second most like to be with, and so on until each girl has a number on the blank next to her name. Leave the blank next to your name empty.

This method of preferential ranking afforded an alternate form to the paired comparisons, to be used as a measure of reliability of feeling.

3. The Experience Test

A crude measure of the amount of free time the subjects actually spent with one another was obtained by means of the following four point scale: "most," "much," "some," "little." This was used as a rough estimate of the relevance of the criterion to the subjects, i.e. the extent to which their feelings toward one another were translated into actual experience.

To the subject:

The sheet numbered "3" is also an alphabetical listing of the girls in your group. On this sheet, you are asked to indicate how much of your free time you actually spend with each girl. Do it by writing down next to each name one of the following words, describing about how much of your free time you spend with that girl: "most," "much," "some," "little." Leave your own name blank.

4. The Paired Comparisons Test

The $N(N-1)/2$ pairs in each group were arranged in such a way as to present the name of each girl in the left and right hand columns an equal number of times. They were then assigned a random order. The subjects were asked to specify by an "X" which of the two girls they would prefer spending their free time with, and then to indicate how sure they were of their judgments according to the following scale: "certain," "fairly sure," "doubtful," and "forced to guess."

To the subject:

The next sheets in your folders are numbered "4." There are several of them for each group. On them you will find the first name of each member of the group compared to the first name of each other member. For each pair you are to judge which girl you would prefer to be with in your free time, and then to place an "X" on the blank next to that girl's name. For example, if your sheet read:

JOAN _____ OR SALLY X

and you would rather be with Sally, then you'd place an "X" on the blank next to Sally's name (as indicated). You will also notice another blank with each pair, over on the right hand side of the page. Here you are asked to indicate how sure you are of your feelings, as follows:

If you are certain, place a "3" on this blank

If you are fairly sure, place a "2" on this blank

If you are doubtful, place a "1" on this blank

If you are forced to guess, place an "0" on this blank

To return to the example, if you would rather be with Sally than with Joan, but the decision is pretty difficult and you feel doubtful about it, then it would look like this:

JOAN _____ OR SALLY X 1

For each pair, then, make a judgment regarding which girl you'd rather be with in your free time, and then decide how sure you are of your judgment. Leave all the pairs with your own name in them blank.

Assessments of Perception

The sheet of instructions and the test blanks dealing with assessments of perception appeared in the subjects' folders as Part II of the experiment, following the materials concerned with measurements of feeling.

Introduction to the Subject:

Now you have made judgments about spending your free time with the other girls in your group, and each of the others has made judgments about spending her free time with you.

1. The Paired Comparisons Perception Test

Each subject received a number of sheets with the name of a group member written in at the top, one sheet for each of the other members. The subject then made a series of predictions, comparing herself against every other group member in the preferential feelings of the girl whose name appeared at the top. She also indicated the certitude of her expectancies according to the same four point scale as was utilized in the assessment of feelings.

To the subject:

In this part of the study, you will find a series of sheets numbered "5." At the top of each sheet the name of a girl in your group will be written in, and you are asked to decide how this girl judged all the pairs that had your name in them. For example, the sheet might start like this:

I BELIEVE THAT SALLY
WOULD PREFER TO SPEND HER FREE TIME WITH:

ME X OR JOAN

If you think that Sally would rather spend her free time with you than with Joan, place an "X" (as indicated) on the blank next to "ME". Again you will see another blank on the right side of the page next to each pair, and here you are asked to decide how sure you are of your judgment. As before:

If you are certain, place a "3" on this blank

If you are fairly sure, place a "2" on this blank

If you are doubtful, place a "1" on this blank

If you are forced to guess, place an "0" on this blank

To return to the example, if you feel that Sally would rather be with you than with Joan, and you are fairly sure of it, then it would look like this:

I BELIEVE THAT SALLY
WOULD PREFER TO SPEND HER FREE TIME WITH:

ME X OR JOAN 2

Do this for all the pairs on each sheet, except two. You will notice one pair which will give you a choice between "ME" and your own name. Leave this blank. You will notice another pair which will give you a choice between "ME" and the name of the girl at the top of the sheet. Leave this blank also. Thus, there will be two pairs on each sheet which you are to leave blank.

Thus, each subject made N-2 predictions on N-1 individual's feelings, for a total of (N-2) (N-1) percepts. "ME" appeared on these sheets as the first name one-half of the time, and as the second name one-half of the time.

2. The Sociometric Perception Test (set)

Each subject was asked to predict what statement each of the

others had selected to describe her sociometric feelings toward the subject.

To the subject:

At the bottom of each sheet appear two other judgments to be made in regard to how the girl named at the top of the sheet (for example, "Sally") feels about spending her free time with you. One of these deals with the statements that you decided on in the first section of the study, and you are to indicate what statement you think "Sally" chose to express her feelings about spending free time with you. Was it "A", "B", "C", "D", "E". For example, if you thought Sally would like to spend some of her free time with you, but would not go out of her way to arrange it, then you would place the letter "B" on the blank next to this question, as follows:

I BELIEVE SHE CHOSE THIS LETTER TO DESCRIBE HER
FEELINGS TO ME B

This was the measure of sociometric set discussed previously. If the subject placed the letters "A" or "E" on this blank, she indicated that she considered herself emotionally meaningful to the girl whose name appeared at the top of the sheet; and this generalized anticipatory attitude might then be expected to influence her accuracy on the paired comparisons perception test.

3. The Ranking Perception Test

Each subject was asked to predict the rank she had been accorded by each of the others when the latter had listed in order their preferential feelings.

To the subject:

The other judgment is concerned with the ranking that "Sally" (or whoever it may be) gave you when she listed in order the girls in your group in terms of whom she's prefer to be with.

Did she give you a first, second, third, fourth, etc. If you thought "Sally" ranked you sixth, then it would look like this:

I BELIEVE SHE PREFERS TO BE WITH ME 6 IN
THE GROUP

When you have made all these decisions for the sheets marked number "5", the study is over. Thanks again,

Rowland Shepard

Tabulation Procedures

The complexity of data introduced by use of the paired comparisons technique could best be handled through IBM cards and operations. However, since machine procedures were unavailable to the writer, several methods of scoring and analysis by hand were employed. In retrospect, there does not seem to be any one ideal technique. Each procedure has at least one advantageous aspect unique to itself.

Scoring

The major problem involved is the bringing into juxtaposition of one individual's feeling with a second individual's perception of it. Two methods of performing this operation will be described. Together, they score the data in such ways as to allow for almost any subsequent analytical manipulation, besides serving as a check upon one another.

1. Diadic Arrangements

In this method, one studies the various diads, i.e. pairs of relationships, that exist in a group. For example, the diadic relationship between Alice and Betty exists by itself and also in relation to Carol, Donna, Ellen, Fay, Grace, Helen, etc. An illustration of this procedure is given in Table 1. It depicts the diad formed by Alice and Betty, when Alice is perceiving Betty. When Betty is perceiving Alice,

TABLE 1

THE DIADIC PREFERENTIAL RELATIONSHIP BETWEEN
ALICE (PERCEIVING) AND BETTY (PERCEIVED)

BETTY				
Col. I	Col. II	Col. III	Col. IV	Col. V
Preference	Certainty	Third Person*	Preference	Certainty
	3	CAROL	+	3
	1	donna	+	3
ALICE	3	ELLEN	+	2
	3	FAYE	+	2
	2	GRACE	-	1
	0	helen	-	3

Legend: Columns

- I --- Alice's preference to Betty
 II --- Alice's certainty of preference to Betty
 III --- The names of each of the other group members, to whom Alice has compared Betty, and Betty has compared Alice
 IV --- Betty's preference to Alice
 V --- Betty's certainty of preference to Alice

Symbols

- + --- ADient preference
 - --- ABient preference
 3 --- Certain preference
 2 --- Fairly sure preference
 1 --- Doubtful preference
 0 --- Forced-to-guess preference

Third Person Names

- IN CAPITAL LETTERS --- Alice's perception of Betty's preference is accurate
 in small letters --- Alice's perception of Betty's preference is inaccurate

* This column can only be filled in after the rest of the table is completed.

the preferences and their certainties are reversed, but the percepts may be entirely different. Thus, all preferences and certainties of preference must be listed twice; once for the individual as perceiver, and once for the individual as perceived.

This tabulation was made on a 17 x 14 columnar pad. Four sheets this size were necessary for a group with eleven members, while ten sheets were required for a group of fifteen members.

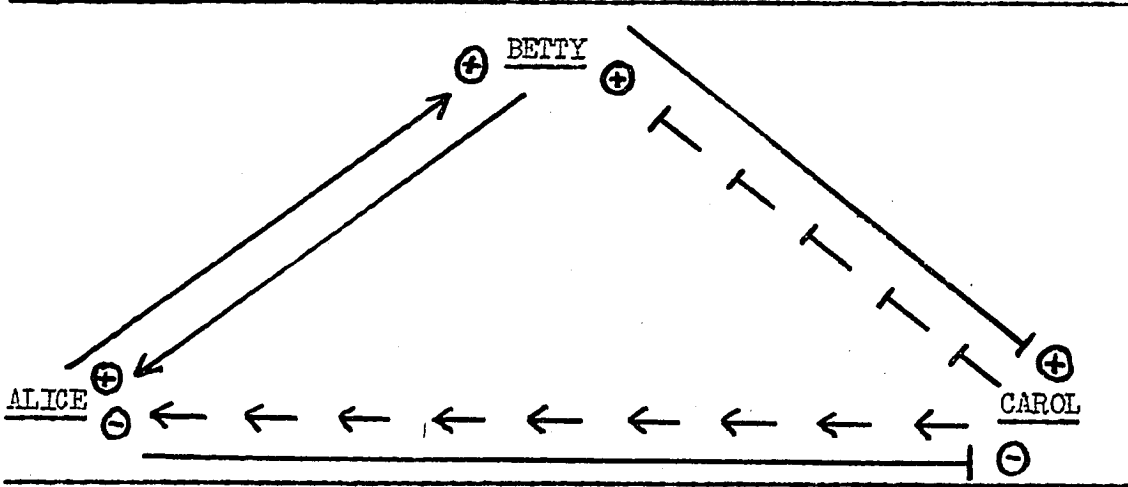
Since there are $N(N-1)/2$ diads in a group, the total number of diads for all groups was 438. There were, however, 4,767 preferences expressed; and, since a preference involved two people, each of whom was to perceive it, there were 9,534 perceptions of preference.

Tabulation by diads was the first method employed by the writer. Consequently, in this procedure tabulations were made directly from the raw data. Later, when reduction of data was advisable, another technique was utilized.


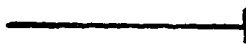

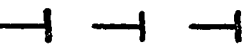
2. Triadic Arrangements

In the special case of social perception (i.e., where each person is to serve both as stimulus for others and perceiver of others ----- or, where the things judged will in turn do the judging), the paired comparisons method demands a triad as its basic unit. The group of three is the simplest unit that can be removed from context and still preserve all the characteristics of the larger matrix of which it is a part. For purposes of tabulation and analysis, the group of three may be studied as a diad plus a third person (as in Table 1), or as a triad, composed of three interlocking diads (as in Figure 3).

In the procedure illustrated in Figure 3, all triads in every



Legend:

-  Strong ADient Preference
-  Strong ABient Preference
-  Weak ADient Preference
-  Weak ABient Preference

Symbols:



-  Correct Perception
-  Incorrect Perception

Figure 3.

A Means of Studying Perceptual Accuracy in the Triadic Framework

group were studied singly, each being drawn on a 3 x 5 file card. Here, certainty of preference was dichotomized into "certain" and "uncertain." The latter category subsumed the levels of "fairly sure," "doubtful," and "forced to guess."

While one loses sight of the full nature of the relationship between any two individuals in this approach, one gains the perspective afforded by being able to juxtapose the preferences and percepts of all three subjects simultaneously.

As there are $N(N-1)(N-2)/3$ triads in a group, the total number of triads for all groups was 1,589.

3. Monadic Arrangements

These were used primarily for assessing the reliability of feelings, and secondarily for purposes of checking other tabulations and studying individual patterns.

The form used to obtain reliability estimates is presented in Table 2. This operation was performed for each of the seventy-five individual subjects.

Testing the Hypotheses

In order to test the hypotheses of this study, the following procedures were utilized:

1. Hypothesis # 1 --- Feeling relationships

All those preferential bonds between individuals of the type \longleftrightarrow or $\overleftrightarrow{\hspace{1cm}}$ represent mutual relationships. Those preferential bonds between individuals of the type $\overrightarrow{\hspace{1cm}}$ or $\overleftarrow{\hspace{1cm}}$ represent non-mutual relationships. In order to test whether accuracy of perception is better in mutual than in non-mutual relationships, the

TABLE 2
RELIABILITY OF AN INDIVIDUAL'S FEELINGS

Subject: ALICE				
RANK GIVEN	NAME OF OTHER	TIMES PREFERRED	TIMES NOT PREFERRED	RANK DERIVED*
1	Betty	6	0	1
2	Carol	5	1	2
3	Donna	4	2	3
4	Ellen	3	3	4
5	Faye **	1	5	6
6	Grace **	2	4	5
7	Helen	0	6	7
	Total	21	21	

* The ranks given on the ranking test were correlated with the ranks derived from the paired comparisons test. The resulting rho coefficient represented a reliability estimate of the subject's feelings.

** It is found that while Alice ranks Faye 5th and Grace 6th on the ranking test, she indicates on the paired comparisons test that she prefers Grace to Faye. This is an example of an inconsistent preference. Since Alice has indicated 21 preferences, one of which is inconsistent with the rankings, it might be said that her preferences, as measured, are 95.2 per cent reliable.

percentages of correct predictions made in each of these types of relationship were compared.

2. Hypothesis #2 --- Feelings-as-stimuli

As indicated previously, the fairly sure, doubtful, and forced-to-guess levels of preferential certainty were combined to form the class of "uncertain" preferences. Accuracy of perceiving these was then compared to accuracy of perceiving those preferences designated as "certain."

3. Hypothesis #3 --- The factor of set

When the subject indicated that she expected either to be chosen or rejected by another on the sociometric test, she was placed in that group which was considered tuned to perceive. If, on the other hand, the subject indicated that she expected neither to be chosen nor rejected by another individual on the sociometric test, she was placed in that group which was considered not tuned to perceive. The percentages of correct predictions made by the two groups on the paired comparisons perception test were then compared. For example, if Alice considered herself emotionally meaningful to Betty, the number of correct predictions made by Alice on Betty, were then totalled as illustrated in Table 1. The same procedure was followed for all those who expected to be chosen or rejected, and the resulting accuracy score compared to that obtained by those who expected to be neglected.

4. Interaction of Factors

Here one studies the mutually facilitating, counter-balancing or mutually depressing effects of the various factors in interaction. Since this is the ultimate goal, it is necessary always to tabulate the conditions of each factor in such a way as to preserve their interactions.

Thus, for example, in tabulating the accuracy of perception of certain and uncertain preferences it is wise not to do this as an isolated task, but to obtain the totals for each of these conditions by summing those preferences which are certain in mutual relationships and those which are certain in non-mutual relationships to get the total for strong preferences, and similarly for uncertain preferences in mutual and non-mutual relationships. This approach also allows for a study of the same data from the point of view of feeling relationships at a later time. But, more important is the fact that in the final analysis it remains possible to study, for example, only those preferences which are both strong and in mutual relationships, or both weak and in non-mutual relationships, so as to determine differential effects on accuracy of perception when the various factors interact, and to do this without having to retabulate one or more times.

CHAPTER IV

RESULTS (CHARACTERISTICS OF THE PERCEPTUAL FIELD)

This section of the report is designed to present a context in which results pursuant to the hypotheses may properly be understood. It is necessitated by (a) the question of reliability of feelings, (b) the affective fields established within the various groups, (c) the relevance of the criterion, (d) the fact that while the nature of the conditions of the independent variable could be specified beforehand, their frequencies could not, and (e) the structuring of data imposed by the paired comparisons technique.

Reliability of Feelings

The stimuli in social perception are the feelings of another person. These are known to be changeable, sometimes ambivalent, and difficult to measure directly. A question arises, therefore, with regard to their reliability. The methods by which reliability of feeling was assessed have been described in Chapter III (cf. Table 2).

Since the paired comparison method may be looked upon as a form of ranking, the ranks obtained through this procedure may be correlated with those made through the direct ranking technique. The Spearman Rank Difference Correlations which result are presented in Table 3.

TABLE 3
DISTRIBUTION OF RELIABILITY COEFFICIENTS
BASED ON TWO RANKING PROCEDURES

RHO	NUMBER SUBJECTS	RHO	NUMBER SUBJECTS
1.00	3	.89	0
.99	9	.88	1
.98	12	.87	2
.97	4	.86	1
.96	12	.85	1
.95	3	...	...
.94	11	...	...
.93	4	...	...
.92	5	...	...
.91	2	...	...
.90	4	.57	1

Inspection of this table shows that seventy-two per cent of the correlations are above .93, and only six out of seventy-five are below .90.

Another way of studying reliability of feeling arises from the fact that the method of ranking is at least an implied form of making paired comparisons. Thus, the individual ranked one should be preferred over each of the others; the individual ranked two should be preferred over all the rest except the person ranked one, and so forth. In this way, reliability may be assessed by noting the incidence of inconsistent preferences --- an inconsistent preference being defined as one which does not accord with the straight rankings, e.g. where a person ranked two is preferred in the paired comparisons over the person ranked one (cf. Table 2). The percentage of inconsistent preferences may then be referred to as the amount of error. The results of this approach to estimating

reliability are presented in Table 4.

TABLE 4
RELIABILITY AS MEASURED BY THE FREQUENCIES OF CONSISTENT
AND INCONSISTENT PREFERENCES IN EACH GROUP

Number of Preferences				
Group	Consistent	Inconsistent	Total	% Error
I	462	33	495	6.7
II	459	36	495	7.3
III	619	41	660	6.2
IV	603	57	660	8.6
V	1007	85	1092	7.8
VI	1225	110	1365	8.1
Total	4405	362	4767	7.6 %

The percentage of inconsistent preferences (amount of error) is seen to be low in all groups, and fairly constant from group to group. The range from the most consistent to the most inconsistent group is only 2.4 per cent.

While no tests of significance have been run on these data, the feelings of the subjects, as measured, appear to possess a high degree of reliability.

Affective Fields

Inasmuch as each subject took the sociometric test, it was possible to indicate the emotional atmosphere existing within the various groups. Table 5 presents the relative amounts of choice and rejection found in each group.

TABLE 5

PERCENTAGES OF ALL SOCIOMETRIC FEELINGS WHICH
WERE CHOICES AND REJECTIONS IN EACH GROUP

Group	% Choices	% Rejections
I	29.1	0.9
II	65.5	0.0
III	40.9	0.0
IV	53.0	0.0
V	31.3	1.6
VI	32.9	1.9
Total	40.4 %	0.9 %

These choice figures are seen to vary considerably from group to group, but it is clear that strong positive feelings far outweigh strong negative feelings. There was, in fact, a grand total of only eight rejections; in three of the groups there were no rejections at all.

In this combined sample of seventy-five subjects, the average number of choices made by each individual was 4.72. This compares favorably with the figures reported by Jennings (6), employing the same criterion (the sharing of free time). In her groups the average number of choices made by each subject at the first testing was 4.08; and at the second testing, eight months later, it was 4.31. However, she found that her subjects averaged 1.04 rejections at Test I and 1.10 rejections at Test II. This is a markedly higher degree of rejection than found in the present sample, where the average number of rejections per subject was 0.11.

It appears, then, that a generalized spirit of friendliness

prevailed among the subjects of this research. This was especially true of the members of Group II (a nursing group), each of whom averaged 6.55 choices on the sociometric test (maximum possible: 10).

Relevance of the Criterion

The subjects were asked to indicate about how much of their free time they actually did spend with one another. This was done according to the four point scale: "most," "much," "some," "little." Since there were very few entries in the "most" category, the results appearing in Table 6 have been trichotomized.

TABLE 6

PERCENTAGES OF THE AMOUNTS OF FREE TIME ACTUALLY
SPENT BY THE SUBJECTS WITH ONE ANOTHER

Group	% "most-much"	% "some"	% "little"
I	17.3	26.4	56.3
II	28.2	31.8	40.0
III	21.2	38.6	40.2
IV	27.3	40.1	32.6
V	22.0	33.0	45.0
VI	25.7	42.4	31.9
Total	23.7 %	36.2 %	40.1 %

While this type of measurement is only descriptive, and while the small number of categories employed allows for rather gross errors of estimation, the results indicate that the criterion did have some real meaning to the subjects. Thus, it is noted that in nearly sixty per cent of all diadic relationships the two individuals involved had spent more than a "little" of their free time with one another.

Since Table 5 showed that 40.4 per cent of all sociometric feelings expressed were choices, but since Table 6 reveals that in only 23.7 per cent of all cases did the subjects indicate that they actually spent free time with one another to the extent of "much," it follows that a considerable number of their choices were directed toward people with whom they actually spent less than "much" of their free time. Further analysis reveals that in seventeen per cent of those cases where a subject indicated that she would go out of her way to arrange the sharing of free time with another, she actually spent only a "little" of her free time with that other. Since there were only eight rejections made, three of which were coupled with the actual sharing of "some" free time, it might be supposed that where subjects indicated that they spent "little" of their free time with one another, this was more the result of unfavorable circumstance or indifference than of an active desire to avoid one another.

Such factors as being students of different nursing schools, or of different colleges within the University; or being on different co-operative work and school schedules; or of having unreciprocated feelings were among those which prevented a subject from actualizing her sociometric choices.

Structure Imposed by the Paired Comparison Method

In the paired comparison method, preferences are necessarily dichotomized. Thus, each preference is a direct statement of feeling toward one person in a pair and an implied statement of feeling away from the second person. As indicated previously, the subject may like

both members of the pair, but it does not follow that she likes them equally well. Thus, while her general feeling to each is one of positive liking, she may still prefer one to the other with more or less certainty. It is possible, then, that an implied statement of feeling away from a person actually indicates only a relatively smaller degree of liking for that person. Nonetheless, such statements of relative feeling may be looked upon as ABient in the particular contexts where they occur. Thus, if Alice states that she would rather spend her free time with Betty than with Carol, this means that she would rather not spend her free time with Carol than with Betty. Such a statement, of course, says nothing about whether or not Alice would like to spend free time with Carol. This latter aspect of feeling has already been determined through the sociometric test.

Since each paired comparison may be viewed as being both a statement of preference toward one member of the pair and a statement of preference away from the second member, the total amounts of ADient and ABient preferences expressed by each subject on the paired comparisons test must be equal. This also means that one comparison involves two preferences, and becomes the basis for two perceptions, i.e. when Alice states a preference between Betty and Carol, both Betty and Carol will be asked to predict what this preference was.

It has been shown that the basic unit of this study is the triad. This triad has certain properties which can be demonstrated through examining a group of three hypothetical subjects: Alice, Betty, and Carol. Each of these subjects expresses a preference between the other two, according to the one with whom she would rather spend her free time.

If one starts with Alice, it may be seen that she must choose either Betty or Carol. Her choice will indicate a preference toward one and also a preference away from the other. Alice's preference, therefore, may take one of two directions, as illustrated in Figure 4.

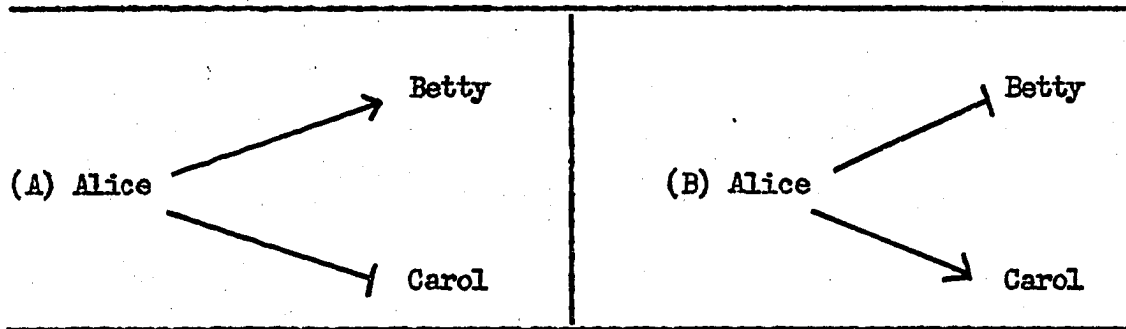


Figure 4

Alice's preference may be toward Betty and away from Carol (A, Fig. 4) or toward Carol and away from Betty (B, Fig. 4).

If Betty's preference is added, it is noted that it, too, may take one of two directions in a similar fashion, i.e., toward Alice and away from Carol, or toward Carol and away from Alice.

If the preferences of both Alice and Betty are considered together, there are now four possibilities, as follows:

- A. Alice prefers Betty; Betty prefers Alice
- B. Alice does not prefer Betty; Betty does not prefer Alice
- C. Alice prefers Betty; Betty does not prefer Alice
- D. Alice does not prefer Betty; Betty does prefer Alice

These possibilities are illustrated by diagrams in Figure 5.

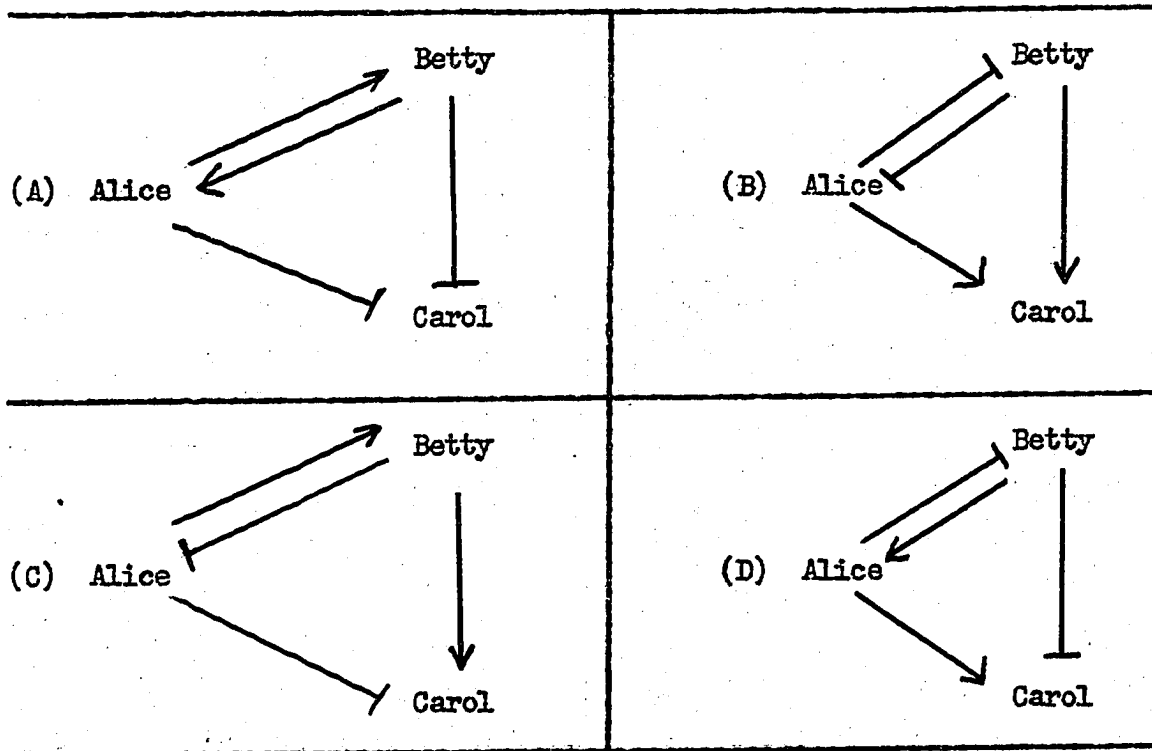


Figure 5

The diagrams in Figure 5 illustrate the four possible types of relationship which can exist between the preferences of two people in this study. Where Alice and Betty prefer each other to Carol, a mutually ADient feeling relationship is formed (A, Fig. 5). Where Alice and Betty prefer Carol to each other, a mutually ABient feeling relationship arises (B, Fig. 5). Feeling relationships of the type \longleftrightarrow or $\overline{\longleftarrow}$, then, constitute the condition of mutuality of preference.

Where Alice prefers Betty to Carol, but Betty prefers Carol to Alice, a non-mutual feeling relationship exists (C, Fig. 5). Another non-mutual feeling relationship emerges where Alice prefers Carol to Betty, but Betty prefers Alice to Carol (D, Fig. 5). Feeling relationships of the type $\overline{\longrightarrow}$ or $\overleftarrow{\quad}$, then, define the condition of non-mutuality of preference. These may be labelled as ADient-ABient, or

ABient-ADient depending upon which individual is the focus of study.

In order to complete the hypothetical triad, it is necessary to add the preference of Carol. She may also show a preference in one of two directions, i.e., either toward Alice and away from Betty, or toward Betty and away from Alice. This is illustrated in Figure 6.

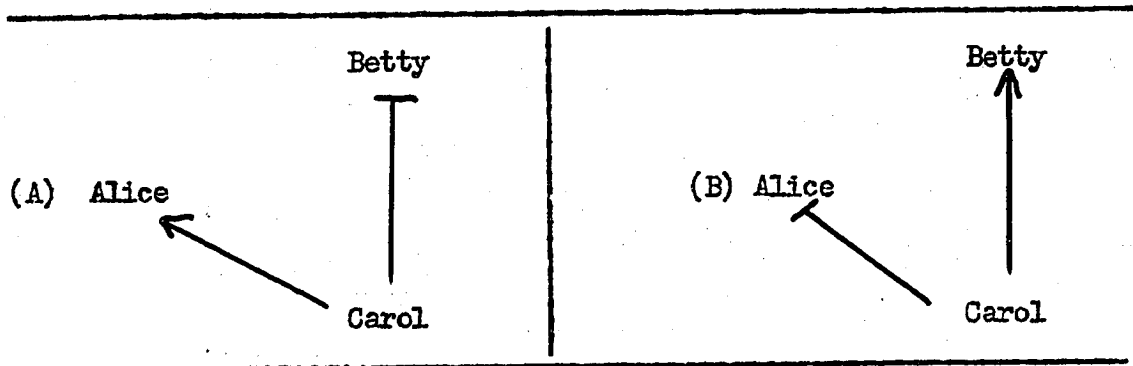


Figure 6

If, now, one views the various ways in which the three people involved may express their preferences for one another in the basic triad, there are $2 \times 2 \times 2$ or 8 possibilities. These are:

- A. Alice prefers Betty; Betty prefers Alice; Carol prefers Alice
- B. Alice prefers Betty; Betty prefers Alice; Carol prefers Betty
- C. Alice prefers Betty; Betty prefers Carol; Carol prefers Alice
- D. Alice prefers Betty; Betty prefers Carol; Carol prefers Betty
- E. Alice prefers Carol; Betty prefers Alice; Carol prefers Alice
- F. Alice prefers Carol; Betty prefers Alice; Carol prefers Betty
- G. Alice prefers Carol; Betty prefers Carol; Carol prefers Alice
- H. Alice prefers Carol; Betty prefers Carol; Carol prefers Betty

In this listing, only the positive aspect of each preference has been stated, although each preference carries with it a negative aspect as well. These eight possibilities are schematized in Figure 7.

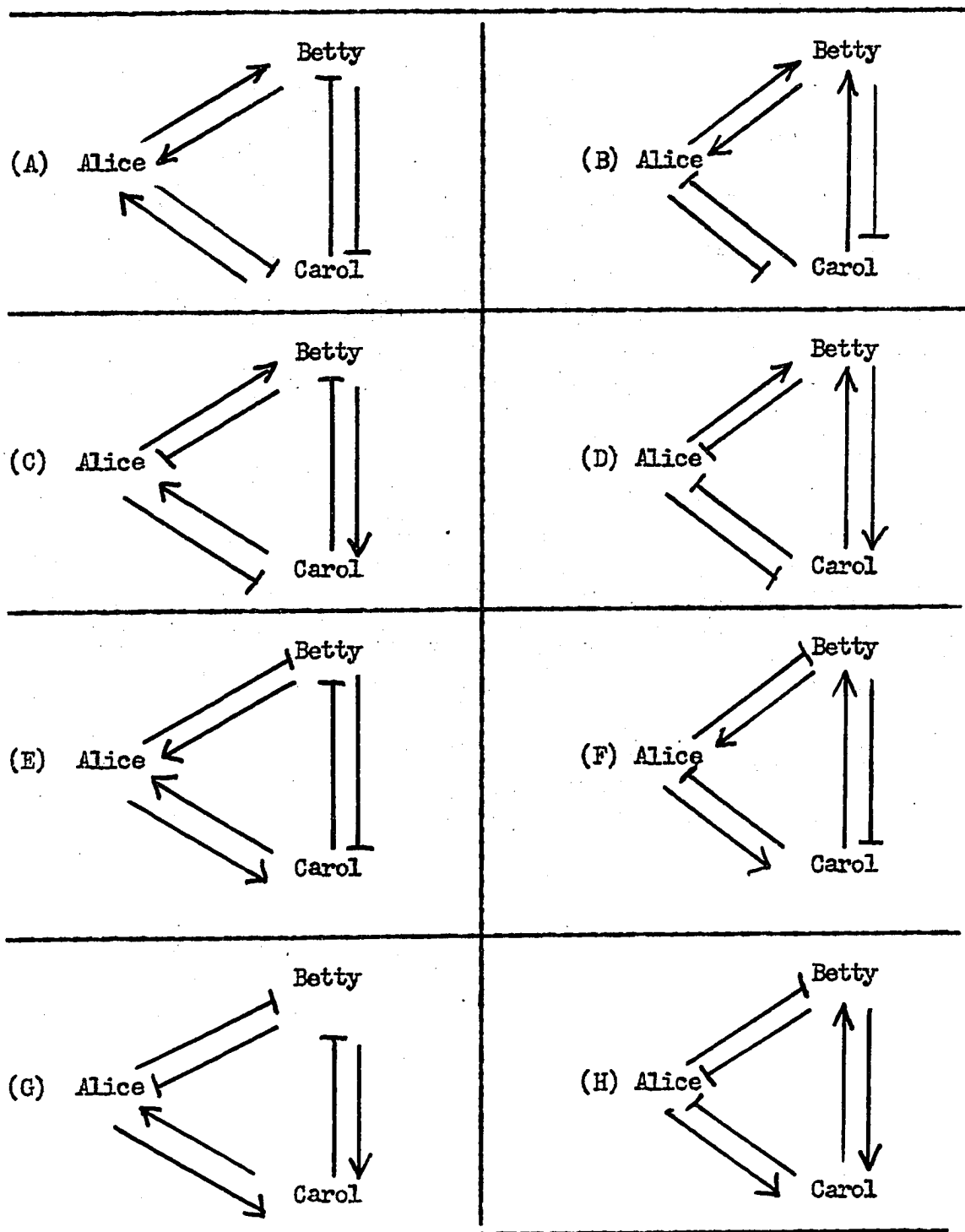
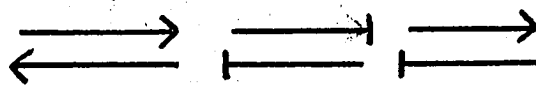
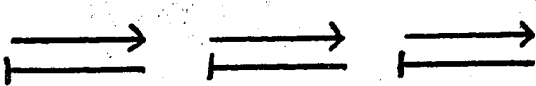


Figure 7

Permutations of Triads

If the focus of interest is shifted from the individuals to the relationships that develop between them, one sees that any given triad is made up of three interlocking diads, each of which represents either a mutual or a non-mutual feeling relationship. An analysis of the triads shown in Figure 7 reveals that there are six (A, B, D, E, G, H) which are composed of the following three diads:  mutually ADient, mutually ABient, and non-mutual, respectively. Thus, in six out of eight triadic possibilities, there will be two mutual and one non-mutual feeling relationship formed.

On the other hand, it is noted that there are two instances (C, F, Fig. 7) where the triads contain the following three diads, all of which are non-mutual: . Thus, in two out of eight triadic possibilities there will be three non-mutual and no mutual feeling relationships.

There are, then, two basic types of triad formed by paired comparison preferences. If that type of triad containing two mutual diads and one non-mutual diad is labelled Type "A," and that type of triad containing three non-mutual diads is labelled Type "B," it is noted that if only chance is operating three Type A triads will occur for each Type B triad.

Frequency of Conditions of the Independent Variable

The experimental design for this research specified the nature of the conditions of the independent variable. However, the subjects themselves determined the frequency of these conditions, by stating preferences to one another, indicating the certainties of their preferences, and

deciding whether they considered themselves emotionally meaningful to each other. It was impossible to specify beforehand what these frequencies would be.

Feeling Relationships

As noted previously, there are two basic types of triad, each of which develops a different frequency of mutual feeling relationships. It can be demonstrated that if these two triadic types occur at chance frequencies there will be an equal number of mutual and non-mutual feeling relationships. Thus, there are eight possible triadic arrangements of preferences, of which six have been specified as Type A. In each Type A triad there are two mutual feeling relationships. Therefore, in the eight triads there will be twelve mutual feeling relationships. However, in each Type A triad there is also one non-mutual feeling relationship; while in each Type B triad, there are three non-mutual feeling relationships. The six Type A triads, then, will produce six non-mutual feeling relationships; and the two Type B triads will also produce six non-mutual feeling relationships. Therefore, the total of non-mutual feeling relationships will be twelve, the same as the total of mutual feeling relationships.

The probability calculations are as follows:

$$\text{For Mutuality: } (6/8) (2/3) + (2/8) (0/3) = 1/2$$

$$\text{For Non-Mutuality: } (6/8) (1/3) + (2/8) (3/3) = 1/2$$

The frequencies of mutual and non-mutual preferential relationships, then, derive from the frequencies of the two basic types of triad. The degree to which the triadic frequencies diverge from the three to one ratio of Type A to Type B will determine the amounts of mutual and non-

mutual relationships in this study. A test for the significance of the deviation of these frequencies from chance is presented for each group and the grand total in Table 7.

TABLE 7

SIGNIFICANCE OF DEVIATION FROM CHANCE
FREQUENCIES FOR TYPE A AND TYPE B TRIADS

OBTAINED FREQUENCIES				
Group	Type A Triads	Type B Triads	t	p
I	162	3	6.79	< .01
II	156	9	5.71	< .01
III	211	9	7.09	< .01
IV	205	15	6.15	< .01
V	343	21	8.41	< .01
VI	425	30	9.01	< .01
Total	1502	87	17.95	< .01

Table 7 shows that the frequency of Type A triads is significantly higher and the frequency of Type B triads is significantly lower than their chance expectancies. Thus, in every group, the subjects tend to avoid developing triads where all relationships between the three individuals are non-mutual. The result is that the number of mutual preferential relationships in this study is much greater than the number of non-mutual preferential relationships.

Levels of Preferential Certainty

It will be recalled that the subjects were asked to indicate how certain they were of each preference that they stated, according to

the four point scale: "certain," "fairly sure," "doubtful," and "forced-to-guess." The percentage of occurrence of each of these categories in the various groups is presented in Table 8.

TABLE 8
PERCENTAGE FREQUENCIES OF EACH LEVEL
OF PREFERENTIAL CERTAINTY

Group	% Certain	% Fairly Sure	% Doubtful	% Forced Guess
I	51.1	28.5	13.3	7.1
II	64.4	15.4	16.4	3.8
III	49.2	28.6	13.9	8.2
IV	36.8	35.9	19.4	7.9
V	44.7	38.1	12.5	4.8
VI	39.6	34.8	15.9	9.6
Total	45.5 %	32.2 %	15.1 %	7.2 %

Table 8 shows a tendency for the less certain preferences to be those which are least frequent. Thus, there is a general trend toward certainty of preference. In order to test the significance of this, some arbitrary chance expectancy has to be decided upon. In the absence of any data, the writer assumed that each certainty level might be used about the same number of times, i.e., one-fourth of all preferences would be marked certain, one-fourth fairly sure, one-fourth doubtful and one-fourth forced guess. If, certainty of preference is dichotomized into certain and uncertain as explained previously, one may set up the arbitrary hypothesis that one-fourth of all preferences will be marked certain, and three-fourths uncertain. This hypothesis is tested in Table 9.

TABLE 9
SIGNIFICANCE OF DEVIATIONS FROM EXPECTED FREQUENCIES
OF CERTAIN AND UNCERTAIN PREFERENCES

OBTAINED FREQUENCIES				
Group	Certain	Uncertain	t	p
I	253	242	13.37	< .01
II	319	176	20.22	< .01
III	325	335	14.38	< .01
IV	243	417	6.99	< .01
V	488	604	14.99	< .01
VI	541	824	12.45	< .01
Total	2169	2598	32.67	< .01

The results in Table 9 show that significantly more than one-fourth of all preferences are marked as certain, while considerably less than three-fourths of all preferences are marked as uncertain. In fact, as has been indicated, nearly one-half of all preferences are listed as certain. This tends to justify the dichotomizing procedure.

The scale for measuring preferential certainty, although crude, does appear to possess validity. It might be expected that the more certain a person was of her preference, the more consistent she would be in expressing it. Thus, if Alice indicated that she was certain of her preference for Betty over Carol, one might expect to find that she ranked Betty before Carol as well. On the other hand, the less certain Alice's preference, the more likely its inconsistency at two different testings. Table 10 presents the percentage of preferences at each level of certainty which were found inconsistent with the rankings, and therefore considered as unreliable.

TABLE 10
 FREQUENCIES OF CONSISTENT AND INCONSISTENT PREFERENCES
 AT EACH LEVEL OF CERTAINTY

NUMBER OF PREFERENCES			
Level of Certainty	Consistent	Inconsistent	% Unreliable
Certain	2131	38	1.8
Fairly Sure	1429	105	6.8
Doubtful	584	136	18.9
Forced Guess	261	83	24.1

Table 10 suggests that it is indeed true that the more certain an individual of her preference, the more likely the preference to be reliable. A test of significance of this tendency is presented in Table 11, where the preferential certainties have again been dichotomized.

TABLE 11
 SIGNIFICANCE OF CERTAIN PREFERENCES BEING
 MORE RELIABLE THAN UNCERTAIN PREFERENCES

NUMBER OF PREFERENCES					
Level of Certainty	Consistent	Inconsistent	Total	χ^2	P
Certain	2131	38	2169	194.39	< .01
Uncertain	2274	324	2598		

The results in Table 11 demonstrate that there is a highly significant tendency for strong preferences to be more reliable than

weak preferences.

One other point in connection with certainty of preference has to do with the likelihood of certain or uncertain preferences becoming involved together in the same relationship. For example, if Alice is certain of her preference between Betty and Carol, will Betty also be certain of her preference between Alice and Carol? The frequencies with which certain and uncertain preferences meet one another in diadic relationships, and a test of their significance, appear in Table 12.

TABLE 12

FREQUENCIES OF THE PAIRING OF CERTAIN AND
UNCERTAIN PREFERENCES IN DIADIC RELATIONSHIPS

CERTAINTY OF PREFERENCE OF THE PERSON PERCEIVED					
Perceiver Preferential Certainty	Certain	Uncertain	Total	χ^2	p
Certain	1054	1115	2169	15.32	< .01
Uncertain	1115	1483	2598		

The results in Table 12 show that there is a very significant tendency for both members of a diad to feel sure about their preferences toward one another, or for both of them to feel unsure. The trend is away from one member of the diad feeling sure and the other feeling unsure of their respective preferences toward one another. Thus, if Alice is certain of her preference between Betty and Carol, the chances are good that Betty feels sure about her preference between Alice and Carol, also.

Sociometric Sets

Table 5 (p. 50) presented the relative amounts of sociometric choices and rejections made by members of the various groups studied. In Table 13 are presented the relative amounts of sociometric choices and rejections expected in each group. These may then be summed to form the set condition of "expecting election," i.e., considering oneself emotionally meaningful to another.

A comparison of the figures in Table 13 with those in Table 5 shows that there were only about half as many choices expected as were given, and only one-fourth as many rejections expected as given. There were, in fact, only two cases where rejection was expected, both in the same group, and both in the same person in that group.

TABLE 13

PERCENTAGE OF ALL SOCIOMETRIC EXPECTANCIES WHICH WERE CHOICES AND REJECTIONS

Group	% Choices	% Rejections
I	20.0	0.0
II	42.7	0.0
III	17.4	0.0
IV	28.0	0.0
V	14.8	1.1
VI	19.0	0.0
Total	22.4 %	0.2 %

Interaction of Factors

The ensuing discussion is based entirely upon the preferential feelings derived from the paired comparisons test.

It has been demonstrated that there is a significant tendency for a strong preference from one person to meet another strong preference from the second person. The next question is concerned with whether this circumstance is more likely where the two preferences form a mutual feeling relationship, than where they form a non-mutual feeling relationship. In other words, when Alice states that her preference between Betty and Carol is certain, and Betty states that her preference between Alice and Carol is also certain, will these two preferences then take the form of Alice preferring Betty and Betty preferring Alice (or of Alice preferring Carol, and Betty also preferring Carol).

In calculating the probability for, and expected frequency of, a preferential relationship being characterized by both mutual certainty and mutual feeling (i.e., ADience or ABience), the following procedure was employed:

1. The expected number of preferential relationships in which both members are certain of their preferences is:

$$\frac{2169 \times 2169}{4767}$$

2. The obtained number of mutual feeling relationships is:

3004 (out of 4767)

3. The expected number of relationships characterized by both mutual certainty and mutual feeling, as based on the numbers of each actually obtained, is:

$$\frac{2169 \times 2169 \times 3004}{4767 \times 4767} \quad \text{or} \quad 622$$

(thus the probability for such a relationship is .1305, while the probability against it is .8695).

4. The obtained number of relationships characterized by both mutual certainty and mutual feeling, however, is:

791

5. A t test for the difference between these figures (622 expected and 791 obtained) is significant at the .01 level of confidence. The resulting t is 7.25.

Thus, there is a significant tendency for certain preferences to become associated in mutual feeling relationships. This is of some importance, because should the experimental hypotheses be verified, this particular set of conditions would produce the highest degree of accuracy of perception.

Another aspect of the interaction of direction and certainty of preferences helps to justify the statement made earlier that most relationships between individuals in this study are based on ADient feelings. Remembering that when the subject makes one comparison of which she is certain it results in both a strong ADient preference and a strong ABient preference, a question might be raised as to which of these preferences was more influential in determining the comparison. It might be assumed that were there an equal number of relationships based on liking and disliking, there would be no difference in the extent to which a strong ADient preference is reciprocated and the extent to which a strong ABient preference is reciprocated. Here, the concern is with reciprocation of feeling only, so that level of certainty of the second preference is not involved.

In answering this question, it is found that of 2,169 strong ADient preferences, 1,576 (72.7 per cent) are reciprocated; while of 2,169 strong ABient preferences, 1,383 (63.8 per cent) are reciprocated. A t test of this difference results in a value of 3.55, significant at the .01 level of confidence. Thus, a strong ADient preference is significantly more likely to be reciprocated than a strong ABient preference.

Inasmuch as the total number of reciprocations of ADient and ABient preferences has to be equal, it also follows that an uncertain ADient preference is much less likely to be reciprocated than an uncertain ABient preference. A way of illustrating this is shown in Figure 8.

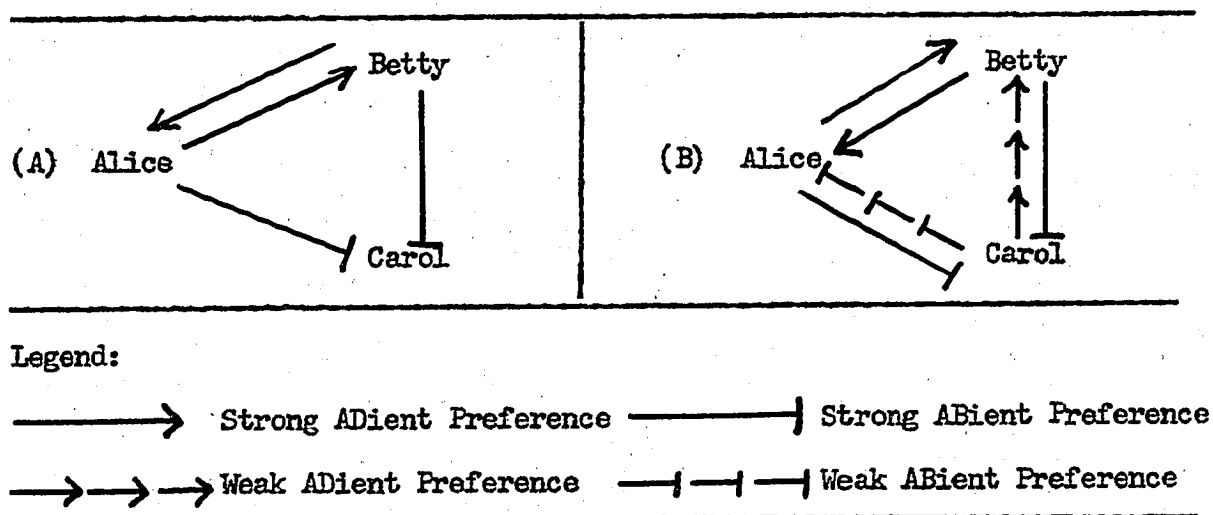


Figure 8

Examples of Reciprocation of Strong and Weak Preferences

Thus, when Alice states that she is certain that she prefers Betty to Carol, and Betty states that she is certain that she prefers Alice to Carol, the relationship so formed (A, Fig. 8) is likely to be based on positive feelings from Alice to Betty and vice versa; and does not tend to develop as a consequence of Alice disliking Betty less than Carol, and of Betty disliking Alice less than Carol.

The second finding, which complements the first, is that when Carol is in the position indicated (A, Fig. 8) she is more likely to complete the triad by extending weak preferences to both Alice and Betty (B, Fig. 8), so that a weak ADient preference is then less likely to be reciprocated than a weak ABient preference. The triad so formed (B, Fig. 8) may be seen to be an example of what was earlier referred to as the Type

A triad. This particular example is found quite frequently, as a probable consequence of the fact that Alice and Betty are best friends and the others who alternate as third members in Alice-Betty-Other triads act as though they were aware of this, i.e., they seem to realize the impossibility of an ADient preference toward either Alice or Betty being reciprocated when both Alice and Betty are involved in the same triad.

CHAPTER V

RESULTS (FACTORS INFLUENCING PERCEPTUAL ACCURACY)

Feeling Relationships

The preceding discussion has shown that as a consequence of the way the subjects structured their triadic preferences, there were considerably more mutual than non-mutual feeling relationships formed. The problem now is to examine what connection, if any, exists between mutuality of feeling relationship and accuracy of perception.

Hypothesis #1 for this study stated:

Persons involved in mutual feeling relationships develop the same level of perceptual accuracy as persons involved in non-mutual feeling relationships.

The test of this Hypothesis is presented in Table 14. The results reveal that in every group and for all groups combined, perceptions of preference which take place in mutual feeling relationships are very significantly more accurate than perceptions of preference which take place in non-mutual feeling relationships. Accordingly, the null hypothesis may be rejected.

Inasmuch as there are two types of mutual feeling relationship a question might be raised as to whether there is a difference in accuracy between them. The same question might be directed toward non-mutual feeling relationships, of which there are also two sub-types. The answers to these questions are presented in Table 15.

TABLE 14

RELATION OF PERCEPTUAL ACCURACY TO MUTUAL
AND NON-MUTUAL FEELING RELATIONSHIPS

Group	MUTUAL FEELING RELATIONS			NON-MUTUAL FEELING RELATIONS			χ^2	p
	Correct Percepts	Incorrect Percepts	% Accurate	Correct Percepts	Incorrect Percepts	% Accurate		
I	486	162	75.0	220	122	64.3	12.59	< .01
II	518	106	83.0	256	110	69.9	22.86	< .01
III	643	201	76.2	271	205	56.9	52.45	< .01
IV	629	191	76.7	287	213	57.4	54.57	< .01
V	1058	314	77.1	460	352	56.7	100.01	< .01
VI	1356	344	79.8	606	424	58.8	139.92	< .01
Total	4690	1318	78.1 %	2100	1426	59.6 %	371.49	< .01

TABLE 15

RELATION OF PERCEPTUAL ACCURACY TO THE SUB-TYPES OF MUTUAL AND NON-MUTUAL RELATIONSHIPS

Type Relationship	Correct Percepts	Incorrect Percepts	Total	% Accurate
MUTUAL				
(1) ADient-ADient	2360	644	3004	78.6
(2) ABient-ABient	2330	674	3004	77.6
NON-MUTUAL				
(1) ADient-ABient	1064	699	1763	60.4
(2) ABient-ADient	1036	727	1763	58.8

As the figures in Table 15 indicate, the difference in perceptual accuracy between the sub-types of mutual feeling relationships is minimal. This is also true for the sub-types of non-mutual feeling relationships. Thus, it is the mutuality or the non-mutuality of the feeling relationships that relates to accuracy of perception.

Feelings-as-Stimuli

It was noted previously that approximately half (45.5 per cent) of all preferences were marked as being certain. Accordingly, the levels of preferential certainty were dichotomized into the classes of certain and uncertain.

Hypothesis #2 for this study stated:

If an individual is certain with regard to his preference, the likelihood of its being perceived accurately by someone else is the same as if he is uncertain.

The test of this hypothesis is presented in Table 16. The results reveal that in every group and for all groups combined, accuracy of

TABLE 16
 ACCURACY OF PERCEPTION OF CERTAIN AND UNCERTAIN PREFERENCES

Group	CERTAIN PREFERENCES				UNCERTAIN PREFERENCES				p
	Correct Percepts	Incorrect Percepts	% Accurate	Correct Percepts	Incorrect Percepts	% Accurate	χ^2		
I	403	103	79.6	303	181	62.6	34.86	< .01	
II	535	103	83.9	239	113	67.9	33.46	< .01	
III	505	145	77.7	409	261	61.0	43.05	< .01	
IV	374	112	77.0	542	292	65.0	20.98	< .01	
V	751	225	76.9	767	441	63.5	46.56	< .01	
VI	867	215	80.1	1095	553	66.4	52.89	< .01	
Total	3435	903	79.2 %	3355	1841	64.6 %	247.04	< .01	

perceiving strong preferences is very significantly better than is accuracy of perceiving weak preferences. Accordingly, the null hypothesis may be rejected.

There is, in fact, a tendency for perceiver accuracy to show a direct relationship to certainty of preference in the person perceived. Thus, in Table 17, it is noted that in general the more certain the preference, the more likely it is to be perceived accurately.

TABLE 17

RELATION OF PERCEIVER ACCURACY TO CERTAINTY
OF PREFERENCE IN THE PERSON PERCEIVED

Level of Certainty	Correct Percepts	Incorrect Percepts	% Accurate
Certain	3437	903	79.2
Fairly Sure	2062	1006	67.2
Doubtful	888	552	61.7
Forced Guess	405	283	58.9

A question might be raised as to whether accuracy of perceiving an ADient preference is any better than accuracy of perceiving an ABient preference. The same question might be posed with regard to the levels of certainty of ADient and ABient preferences. Table 18 is designed to answer these questions.

The figures in Table 18 demonstrate clearly that accuracy of perception of ADient and of ABient preferences is equally good; and that this is true when the factor of ADience-ABience is combined with that of certainty-uncertainty as well. Thus, it is as easy for these subjects to perceive themselves not preferred as to see themselves preferred.

TABLE 18

ACCURACY OF PERCEIVING ADIENT AND ABIENT PREFERENCES:
SINGLY AND IN COMBINATION WITH CERTAINTY LEVELS

Type of Preference	Correct Percepts	Incorrect Percepts	% Accurate
CERTAIN			
(1) ADient	1720	449	79.3
(2) ABient	1715	454	79.1
UNCERTAIN			
(1) ADient	1676	922	64.5
(2) ABient	1679	919	64.6
TOTAL			
(1) ADient	3396	1371	71.2
(2) ABient	3394	1373	71.2

Finally, it is noted that the ability of others to perceive accurately when the preference of the person perceived is unreliable is at chance level. Of the 724 unreliable preferences, 366 (50.6 per cent) are perceived accurately.

The Factor of Set

Sociometric Set

It has been noted that the average number of sociometric choices made by each subject in this study was 4.72. One may assume, then, that there are approximately five other members of the group who are emotionally meaningful to the hypothetical subject. Thus, for example, Alice may have chosen Betty, Carol, Donna, Ellen and Faye on the sociometric test. At the same time, there are others, for example, Grace and Helen, whom Alice has not chosen. Now, if Betty believes that she has been chosen by Alice, it is said that Betty considers herself emotionally meaningful to

Alice. Where this occurs, it is then predicted that Betty will perceive more accurately how Alice will react to her on the paired comparisons test.

This is not so simple as it may at first seem, because (a) Betty may think that she is emotionally meaningful to Alice when in fact she is not; and this faulty anticipation might then lead to very poor perceptual accuracy; (b) it may be true that Betty is emotionally meaningful to Alice, but, as previously indicated, so are Carol, Donna, Ellen, and Faye. Therefore, when Betty is asked to predict: "does Alice prefer you to Carol; does Alice prefer you to Donna, etc.," Betty will have to know more than the fact that she is emotionally meaningful to Alice in order to perceive correctly. Thus, there are two levels of perception involved here. The first, sociometric perception, is of a generalized sort and is thought to reveal the subject's general set toward another. If this set takes the form of a subject's expecting to be chosen or rejected by the other person on the sociometric test, it is said that the subject is tuned to perceive. This tuning, then, is directed toward the second level of perception, that of predicting the preferential feelings that the other person has expressed to the subject on the paired comparisons test.

There is some evidence to indicate that where a subject considers herself as emotionally meaningful to another, she really is tuned to perceive. Thus, each subject was asked to indicate how certain she was of her paired comparisons predictions, according to the same four point scale used to assess certainty of preference.

If a subject were tuned to perceive another subject's preferences, one might expect that her resulting predictions would be characterized by

an increased degree of certainty. This would suggest that she had weighed herself carefully against each of the others in the feelings of the person perceived, and had arrived at a series of relatively clear conclusions.

This does, in fact, appear to be the case. It is found that in the group expecting election (i.e., tuned to perceive) twenty-eight per cent of the predictions of preference made are marked "certain"; whereas the corresponding figure for those expecting neglection (i.e. not tuned to perceive) is only seventeen per cent. Similarly, in the group expecting election, only 10.6 per cent of all predictions are marked "forced guess"; whereas the corresponding figure for those expecting neglection is 17.6 per cent. In testing whether this trend is significant, the levels of certainty of prediction have been dichotomized. This time the levels of "certain" and "fairly sure" have been combined into "sure"; while those of "doubtful" and "forced guess" have been lumped into "unsure" (this division was the closest approximation to an even split). The test for frequency of sure and unsure predictions in the two types of sociometric set is presented in Table 19.

TABLE 19

RELATION OF CERTAINTY OF PREDICTION OF
PREFERENCE AND TYPE OF SOCIOMETRIC SET

Type of Set	Sure Pre- dictions	Unsure Pre- dictions	χ^2	p
Expecting Election	1470	619	173.81	< .01
Expecting Neglection	4037	3408		

The results show that there is a significant tendency for those expecting election to be more sure of their paired comparisons predictions than those expecting neglect. The next, and primary, question is whether those who expect election also perceive the preferences of the other more accurately than do those expecting neglect.

Hypothesis #3 for this study stated:

Accuracy of perception of preferential feelings will be the same where the perceiver considers himself emotionally meaningful to the person perceived as where the perceiver does not consider himself emotionally meaningful to the person perceived.

The test of this hypothesis is presented in Table 20. The results show that in every group and for all groups combined those individuals who consider themselves emotionally meaningful to another person are significantly more accurate in their perceptions of that other person's preferential feelings than are those who expect the other person to neglect them. Thus, if Betty believes she has been chosen by Alice on the sociometric test, Betty will also perceive more accurately her status in Alice's preferential feelings. The null hypothesis, then, may be rejected.

But what if the subject's set is wrong, i.e., she considers herself emotionally meaningful to another person when in fact she is not? What effect will this have on her accuracy of perceiving the other person's preferences? It may be seen that there are four possibilities with respect to one subject's sociometric set and the other subject's actual sociometric feelings. Thus, one may expect election and receive it; one may expect election and not receive it; one may not expect election and not receive it; and one may not expect election but receive it. The accuracy of predictions on preferential feelings that arise from these four

TABLE 20

RELATION OF SOCIOMETRIC SET TO ACCURACY
OF PERCEPTION OF PREFERENTIAL FEELINGS

Group	EXPECTING ELECTION			EXPECTING NEGLECTION				P
	Correct Percepts	Incorrect Percepts	% Accurate	Correct Percepts	Incorrect Percepts	% Accurate	χ^2	
I	167	31	84.3	539	253	68.1	20.83	< .01
II	355	68	83.9	419	148	73.9	14.11	< .01
III	182	48	79.1	732	358	67.2	12.87	< .01
IV	287	83	77.6	629	321	66.2	15.92	< .01
V	269	79	77.3	1249	587	68.0	11.77	< .01
VI	407	113	78.3	1555	655	70.4	12.96	< .01
Total	1667	422	79.8 %	5123	2322	68.8 %	95.83	< .01

conditions are presented in Table 21.

TABLE 21
PERCEPTUAL ACCURACY OF PREFERENTIAL FEELINGS
AMONG RIGHT AND WRONG SOCIOMETRIC SETS

SOCIOMETRIC			PREDICTIONS ON PREFERENTIAL FEELINGS		
S. Expects	S. Receives	N	Correct	Incorrect	% Accurate
Election	- Election	159	1390	270	83.7
Election	- Neglection	39	277	152	64.6
Neglection	- Election	203	1527	667	69.6
Neglection	- Neglection	475	3596	1655	68.5

The results show that a very substantial number of those expecting to be emotionally meaningful to another actually are. Thus, 80.6 per cent (159/198) of those who expect election actually receive it. This is fortunate for hypothesis #3, for when such a set is incorrect, the resulting accuracy of predicting preferences is the lowest of the four conditions (64.6 per cent). Still it is not so low as might be expected were one to assume that such an individual's perception would be greatly distorted by her emotional desires. Insofar as an individual's expecting neglection is concerned, it does not appear to matter whether such a set is correct or not. Accuracy of perceiving preferences is approximately equal in the two conditions.

An Ex Post Facto Finding

It will be recalled that the studies of Tagiuri (18) and Tagiuri, Flake and Bruner (19) purported to show that there was a general trend for individuals to predict reciprocity of their sociometric feelings. Thus, if the subject chose another, he expected to be chosen in return;

while if he rejected another, he expected to be rejected in return. However, if he neither chose nor rejected another, there was no particular tendency to predict that other felt indifferent also.

In this study, it was noted that the subjects made 354 sociometric choices, but expected reciprocation of choice in only 184 of them (52.0 per cent). It would appear, then, that Tagiuri's finding is not confirmed.

However, it has been noted that there were an unusually large number of sociometric choices made by the subjects in this study; especially in light of the fact that group sizes were small, a condition which might ordinarily act to restrict the subject's range of choice. It might be supposed, then, that not all of these choices carried the same emotional import, and some of them may have been merely token expressions.

If this were the case, one might expect to find that the subjects generally expected reciprocity of only their more important choices, i.e., a subject might expect reciprocity of her first and second choices, but not of her third and fourth choices. To test the likelihood of this possibility, the sociometric choices were divided into two groups: (a) those choices for which reciprocity was expected, and (b) those choices for which reciprocity was not expected. Then the level of each choice was determined by the ranking that accompanied it. For example, Alice may have chosen Betty, Carol, Donna and Ellen --- but when she ranked them she placed Betty first, Carol second, Donna third, and Ellen fourth. The question then is whether she would be more likely to expect reciprocity of choice from Betty and Carol, for example, than from Donna and Ellen.

The number of sociometric choices at each rank level, the

frequencies of expected and unexpected reciprocity of these choices, and a test for the significance of difference between the rank means of those choices where reciprocity was expected versus those where it was not expected are presented in Table 22.

TABLE 22

SIGNIFICANCE OF DIFFERENCE BETWEEN MEAN RANKS OF THOSE CHOICES WHERE RECIPROCITY WAS EXPECTED AND UNEXPECTED

Rank of Choice	Number of Choices	Frequencies of:	
		Expected Reciprocity	Unexpected Reciprocity
1	70	60	10
2	65	45	20
3	54	28	26
4	43	17	26
5	40	17	23
6	28	8	20
7	19	5	14
8	14	1	13
9	12	1	11
10	6	1	5
11	2	0	2
12	1	1	0
Total	354	184	170

Mean Rank:	2.77	4.94
Standard Deviation:	1.95	2.47
Standard Error of Mean:	.144	.190

Standard Error of Difference (means):	.238
Difference between means:	2.17
t:	9.12 (p is <.01)

Inspection of this table shows that a subject expects reciprocity of her higher ranked choices significantly more often than of her lower

ranked choices. It may be seen that the likelihood of a subject expecting reciprocity of her first choice is six to one, and of her second choice a little better than two to one. Expected reciprocity of third choices, however, occurs only about half the time; and after her third choice, the chances are two to one that the subject does not expect reciprocation.

Thus, Tagiuri's finding might be accepted, with some modification; namely, that the subject tends to predict reciprocity of her more important choices. Whether this modification is limited to the present sample of subjects cannot be ascertained at this time.

While the work of Tagiuri was limited entirely to sociometric feelings, it is possible that the tendency to predict reciprocity of feeling will be more clearly manifested at the level of preferential, rather than sociometric, feelings. The analysis which follows, then, is based only upon the preferential feelings derived from the paired comparisons test.

In discussing the relationship which may exist between Alice's preference for Betty, and Alice's prediction of Betty's preference for her, it is convenient to proceed, for the time being, as though there were no information available with regard to Betty's preference. Thus, this particular problem will be approached from the standpoint that the only data available for analysis are: (a) the perceiver's preference and its certainty, and (b) the perceiver's prediction of other's preference. Through pretending that there is no way of knowing whether this prediction is accurate, it is possible to speak of the predicting of reciprocity of one's own preference as "imputing."

The hypothetical subject, Alice, may again be studied here for purposes of illustration. It has been noted that when Alice states a

preference between Betty and Carol, it may take one of two directions: (a) Alice prefers Betty to Carol; (b) Alice does not prefer Betty to Carol.

Now, if Alice is asked to predict whether Betty prefers spending free time with her (Alice) or with Carol, Alice again has two choices of response: (a) Betty prefers "me" to Carol; (b) Betty does not prefer "me" to Carol.

This allows for four possible combinations between Alice's preference toward Betty and her expectancy of Betty's preference toward her, as follows:

- A. Alice prefers Betty; Alice believes Betty prefers her
- B. Alice does not prefer Betty; Alice believes Betty does not prefer her
- C. Alice prefers Betty; Alice believes Betty does not prefer her
- D. Alice does not prefer Betty; Alice believes Betty prefers her

These four possible combinations of the perceiver's own preference and her prediction of the other person's preference are diagrammed in Figure 9.

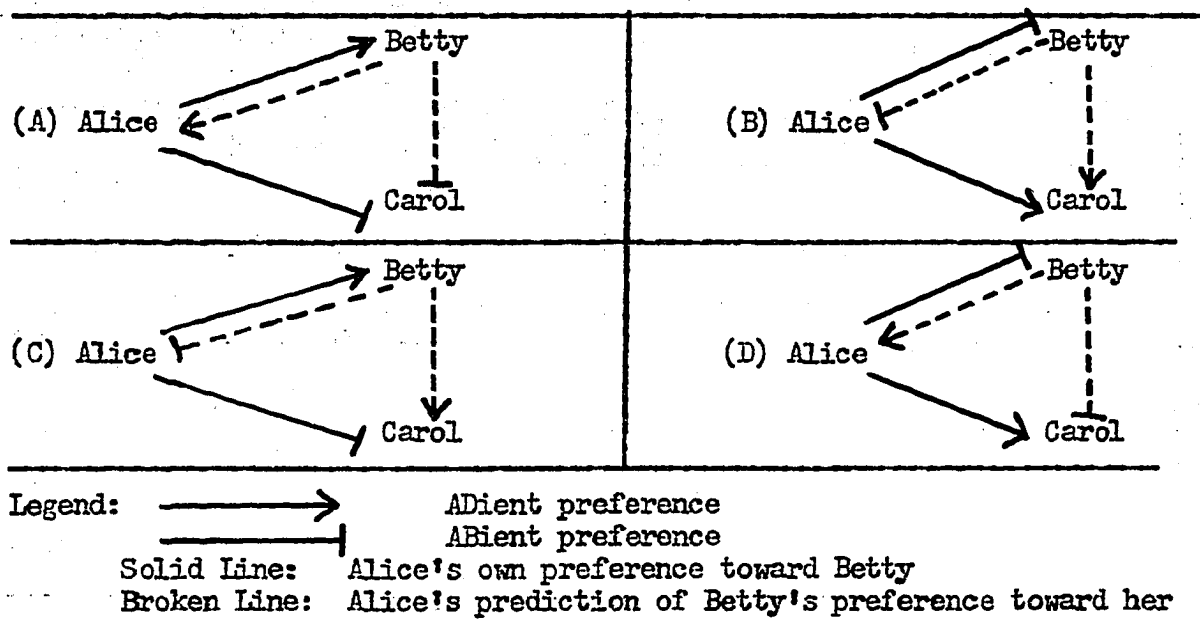


Figure 9

Combinations of the Perceiver's Own Preference and Her Prediction of the Other Person's Preference

It may be seen in (A, Fig. 9) and (B, Fig. 9) that what Alice is doing, in effect, is to predict mutuality of preference. In (A, Fig. 9) she is predicting ADient mutuality, i.e., that she and Betty prefer each other to Carol; whereas in (B, Fig. 9) she is predicting ABient mutuality, i.e., that she and Betty prefer Carol to each other.

In (C, Fig. 9) and (D, Fig. 9), however, Alice is predicting non-mutuality of preference, i.e., if Betty feels the way Alice predicts, then they will be involved in a non-mutual feeling relationship with regard to Carol.

The important variable here is found to be whether Alice predicts mutuality or non-mutuality of relationship. That it does not matter which sub-type of either mutuality or non-mutuality she predicts can be shown by reference to Table 23. Here the various relationships between the perceiver's preference and her prediction of the other person's preference are referred to as ADient-ADient, ABient-ABient, ADient-ABient, and ABient-ADient, with the first term referring to the perceiver's own preference and the second to her prediction of the other person's preference.

TABLE 23
FREQUENCIES OF THE VARIOUS TYPES OF PREDICTED RELATIONSHIP
AND THE PERCEPTUAL ACCURACY DEVELOPING FROM EACH

PREDICTED RELATIONSHIP		PERCEIVER'S ACCURACY			
Perceiver's Preference	Perceiver's Prediction	Correct	Incorrect	Total	% Accurate
ADient -	ADient	2360	699	3059	77.1
ABient -	ABient	2330	727	3057	76.2
Total Predictions of Mutuality		4690	1426	6116	76.7 %
ADient -	ABient	1064	644	1708	62.3
ABient -	ADient	1036	674	1710	60.6
Total Predictions of Non-Mutuality		2100	1318	3418	61.4 %

These results show that it does not matter to accuracy of perception whether one predicts ADient mutuality or ABient mutuality, so long as the prediction is of a mutual feeling relationship. Likewise, it does not matter to accuracy of perception which of the sub-types of non-mutuality one predicts, so long as the prediction is of a non-mutual feeling relationship.

Table 23 brings out a fact of some importance; namely, the tendency of these subjects to predict mutuality of preference. Thus, there are 6,116 predictions of mutuality and 3,418 predictions of non-mutuality. It is important to recognize that while there must be an equal amount of ADient and ABient preferences (since when Alice says she prefers Betty to Carol, she is also implying that she does not prefer Carol to Betty); there does not have to be an equal number of ADient and ABient predictions. This is so because any particular subject is free to predict that she will always be preferred, or that she will never be preferred; and there is no reason why she must guess that she will be preferred half the time, and consequently no reason why the total number of ADient and ABient predictions has to be equal. As can be seen from Table 23, however, it happens that there are almost exactly the same number of ADient and ABient predictions made (4,769 for the former; 4,765 for the latter). This is unfortunate in that it suggests that there has been an error in tabulation, when actually this is a bona fide result, and a tribute to the subjects' awareness of their perceptual field.

As to whether a prediction of ADient preference is likely to be more accurate than a prediction of ABient preference, there is virtually no difference. The percentage of ADient predictions which are correct is

71.2 per cent; and the percentage of ABient predictions which are correct is also 71.2 per cent. Thus, whether or not the subject expects to be preferred has no bearing on the accuracy of her prediction.

It has been stated that these subjects show a strong tendency to predict mutuality of preference, i.e., to see their own preferences as reciprocated. This is true for each group as well as for all combined. The number of predictions of mutuality and non-mutuality and the percentage of the former (referred to as imputing) in each group are presented in Table 24.

TABLE 24
FREQUENCY OF PREDICTED MUTUALITY OF PREFERENCE

Group	Predictions of Mutuality	Predictions of Non-Mutuality	% Imputing
I	608	382	61.4
II	628	362	63.4
III	848	472	64.2
IV	842	478	63.8
V	1410	774	64.6
VI	1780	950	65.2
Total	6116	3418	64.1 %

As this Table reveals, all groups are relatively consistent in demonstrating the tendency to predict mutuality of preference, there being a total range of only 3.8 per cent.

It has been noted that there must be an equal number of ADient and ABient preferences. It has also been noted that there is an almost equal number of ADient and ABient predictions, although this is not a necessary consequence of the method. The null hypothesis would suggest that the

number of combinations of a subject's own preference and her prediction of the preference of another which were mutual would be equal to the number which were non-mutual. Specifically, the expected number of predictions of both mutuality and non-mutuality would be 4,767. It was observed, however, that the obtained number of predictions of mutuality is 6,116 and the obtained number of predictions of non-mutuality is 3,418. A t test of this difference is significant at the .01 level of confidence (t is 27.64). It may be concluded, then, that the tendency toward the perceiver's having a picture in her mind of being involved in a majority of mutual relationships is very significant.

The next question that arises has to do with whether the tendency to predict mutuality is related to the certainty of the perceiver's preference, such that the more certain Alice is of her preference the more likely she will be to predict that Betty reciprocates.

The degree to which the tendency to impute is related to the certainty of the perceiver's own preference is indicated in Table 25.

TABLE 25

PREDICTIONS OF RECIPROCITY AT EACH LEVEL OF
CERTAINTY OF THE PERCEIVER'S OWN PREFERENCE

Level of Certainty	Predictions of Mutuality	Predictions of Non-Mutuality	% Imputing
Certain	3026	1312	69.6
Fairly Sure	1896	1172	61.8
Doubtful	823	617	57.2
Forced Guess	371	317	53.9

The figures presented in Table 25 reveal that there is a general tendency for the perceiver to expect reciprocity more often as her own

preference becomes more certain. The tests for significance of this tendency are shown in Table 26, where certainty of preference has again been dichotomized into certain and uncertain.

These tests demonstrate that where the perceiver is certain of her own preference she is significantly more likely to predict reciprocity than where she is uncertain. Further analysis, however, reveals that this finding must be qualified. Thus, whereas it does not matter to accuracy whether the preference being perceived is toward or away from the person perceiving it; it does matter to imputing whether the perceiver's own preference is ADient or ABient. Since the perceiver's own preference may be certain or uncertain, and also either ADient or ABient, there are four possible combinations of the strength and direction of a preference. The relation that each of these conditions of the perceiver's own preference has to the tendency to predict reciprocity is shown in Table 27.

These figures indicate that virtually all the difference in the perceiver's tendency to predict reciprocity between a certain and an uncertain preference is attributable to whether the preference is ADient or ABient. Thus, if the perceiver's preference is certain and ADient she is inclined to predict reciprocity much more frequently than if her preference is uncertain and ADient. When the perceiver's preference is ABient it does not matter whether it is certain or uncertain, there being a constant and medial tendency to predict mutuality. This again seems a reflection of the fact that most relationships between subjects in this study were based on positive rather than negative feelings.

A final note to this discussion is that when the perceiver's own preference is unreliable, the tendency to impute is at chance level. Thus,

TABLE 26
 PERCEIVER'S TENDENCY TO PREDICT RECIPROCIITY WHEN
 HER OWN PREFERENCE IS CERTAIN AND UNCERTAIN

Group	CERTAIN PREFERENCES				UNCERTAIN PREFERENCES				p
	Times Imputed	Times Not Imputed	% Imputed	Times Imputed	Times Not Imputed	% Imputed	Times Imputed	χ^2	
I	331	175	65.4	277	207	57.2	6.83	< .01	
II	430	208	67.4	198	154	56.3	11.86	< .01	
III	465	185	71.5	383	287	57.2	29.14	< .01	
IV	347	139	71.4	495	339	59.4	19.30	< .01	
V	680	296	69.7	730	478	60.4	20.25	< .01	
VI	773	309	71.4	1007	641	61.1	31.19	< .01	
Total	3026	1312	69.6 %	3090	2106	59.5 %	108.60	< .01	

TABLE 27

COMBINATIONS OF THE CERTAINTY AND DIRECTION OF THE PERCEIVER'S PREFERENCE AND THEIR RELATION TO IMPUTING

Perceiver's Preference Certainty Direction	Times Imputed	Times Not Imputed	% Imputed
Certain - ADient	1624	545	74.9
Certain - ABient	1402	767	64.6
Uncertain - ABient	1655	943	63.7
Uncertain - ADient	1435	1163	55.2

out of 724 unreliable preferences, the perceiver predicts mutuality in only 358, or 49.4 per cent.

To summarize the ex post facto finding, these subjects show a general and significant tendency to predict mutuality of preference, i.e., if Alice prefers Betty (to Carol), she also expects Betty to prefer her (to Carol). Also, the more certain the perceiver's preference, the more likely she is to predict mutuality. However, this is almost entirely the result of the perceiver predicting mutuality where her own preference is both certain and ADient as compared to where it is both uncertain and ADient. An ABient preference leads to predictions of reciprocity about as frequently when it is certain as when it is uncertain.

Interaction of Factors

It has been shown that the factors of the perceiver's set, the certainty of preference in the person perceived, and the relationship between the preferences of the person perceiving and the person perceived will each produce an effect on accuracy of perception. In the ensuing discussion, the ex post facto finding that the perceiver tends to predict

mutuality of her preference is the measure of set employed. This is done (a) because of the very strong implications that the tendency to predict mutuality has for the other factors involved, and (b) to avert the complexity arising from analysis which is carried on simultaneously at two different levels; namely, that of sociometric feelings and perceptions, and that of preferential feelings and perceptions. Thus, the analysis of the interaction of factors is based entirely upon preferential feelings and perceptions.

There is a strong need at this point for simple terms to describe the variables under consideration, and thereby to avoid the confusion resulting when more than one of them comes up for discussion in the same sentence. The meeting of two preferences has already been referred to as a relationship, which may be either mutual or non-mutual. It is now proposed to designate the preference of the perceiver as "set," and the preference of the person perceived as "stimulus." Within both the set and stimulus factors there are the conditions of certain (strong) and uncertain (weak).¹

In studying the interaction of factors, at least three types of analysis are necessary: (a) one to show that the factors are independent of one another, i.e., that each adds something unique and that they are not merely two sides of the same coin; (b) one to show how they affect one another; and (c) one to show which, if any, is the more important.

¹ Wherever possible the operational terms "certain" and "uncertain" are employed. However, "strong" and "weak" sometimes become necessary to avoid ambiguity, as, e.g., a certain preference, a certain set, a certain stimulus, etc.

Independence of Factors

It must be recognized at the outset that it is very unlikely that the factors of preferential certainty in the perceiver (set) and the relationship of preferences between perceiver and person perceived are independent of one another. Thus, if a person is inclined to predict reciprocity of preference, she will of necessity be more accurate where such reciprocity actually exists than where it does not. On the other hand, since the set toward predicting reciprocity does not act directly on accuracy of perception, but only indirectly through the relationship of preferences which happens to exist, it is impossible to study the effect of the perceiver's set without reference to the relationship in which it occurs. Accordingly, the attempts to show independence of factors deal only with the perceiver's set (i.e., her preference and its certainty) and with the stimulus (i.e., the preference of the person perceived and its certainty).

In order to demonstrate the independence of a variable, it is necessary either to study its operation in isolation, or to study its effects when other variables present are held constant. Both types of tests are possible and will be made.

The existence of unreliable preferences in this study affords the opportunity of studying the factor of set in isolation. Thus, where the preference of the person perceived is inconsistent, there is, in effect, no stimulus; and there being no stimulus preference, there is also no relationship of preferences. Therefore, one might ask if there is a significant tendency for the perceiver to impute her own preference to another in those cases where the preference of the other has no stimulus value. In

answering this question it is first necessary to subtract from the number of cases where the stimulus preference is inconsistent those few where the preference of the perceiver is also inconsistent ("double unreliaables"). It is found, then, that out of 660 cases where the perceiver must perceive an inconsistent preference, she predicts reciprocity 388 times (58.8 per cent). This deviates from chance expectancy (50 per cent) at the .01 level of confidence (t is 4.52). Thus, it appears that in the absence of stimulus information (or more appropriately, in the face of contradictory stimulus information), the subject would still show a significant tendency to predict reciprocity.

There are next a series of tests in which the two conditions of set are varied, while the other factors are held constant. It is necessary in each case to demonstrate that there is a significant difference between the effects produced by a strong as opposed to a weak set on perceptual accuracy. Inasmuch as the preference of the person perceived may be certain or uncertain, and the preferential relationship between the perceiver and the person perceived may be mutual or non-mutual, there are four combinations of these two factors. These are:

1. Stimulus preference certain, relationship mutual
2. Stimulus preference uncertain, relationship mutual
3. Stimulus preference certain, relationship non-mutual
4. Stimulus preference uncertain, relationship non-mutual

Now, in each of these four situations, it must be shown that where the preference of the perceiver is certain there results a significantly higher or lower degree of perceptual accuracy than where the preference of the perceiver is uncertain.

The four tests indicated are presented in Table 28, where it is found that in every case there is a significant difference between the two

TABLE 28

EFFECTS ON PERCEPTUAL ACCURACY OF STRONG AND WEAK SETS
WHEN CONDITIONS OF THE OTHER FACTORS ARE HELD CONSTANT

TEST # 1				TEST # 2			
Stimulus Preference Certain Preferential Relationship Mutual				Stimulus Preference Uncertain Preferential Relationship Mutual			
Perceiver's Predictions				Perceiver's Predictions			
Set of Perceiver	Correct	Incorrect	χ^2	Set of Perceiver	Correct	Incorrect	χ^2
Certain	1373	209	16.42	Certain	1028	349	8.53
Uncertain	1121	256	< .01	Uncertain	1168	504	< .01
TEST # 3				TEST # 4			
Stimulus Preference Certain Preferential Relationship Non-Mutual				Stimulus Preference Uncertain Preferential Relationship Non-Mutual			
Perceiver's Predictions				Perceiver's Predictions			
Set of Perceiver	Correct	Incorrect	χ^2	Set of Perceiver	Correct	Incorrect	χ^2
Certain	329	197	12.77	Certain	425	428	9.59
Uncertain	612	241	< .01	Uncertain	734	560	< .01

set conditions in terms of their effects on accuracy of perception.

The results confirm the fact that where the perceiver is certain of her own preference she is significantly more likely to predict reciprocity than where her own preference is uncertain; and this is true regardless of whether the stimulus conditions are favorable or unfavorable to perceptual accuracy.

However, as may be seen, the effect of the perceiver's set on accuracy of perception depends upon the relationship that exists between herself and the person perceived. Obviously, the more the subject is inclined to predict mutuality the more accurate she will be when mutuality actually exists, and the more inaccurate she will be when the actual relationship is non-mutual. This, then, is the reason why a strong set will lead to significantly greater perceptual accuracy than a weak set when the relationship is mutual; and this is also why a strong set will lead to significantly lesser perceptual accuracy than a weak set when the relationship is non-mutual.

The set factor, then, is seen to operate in isolation and in combination with the other factors in such a way as always to preserve its identity.

In order to study the stimulus factor in isolation, one may again make use of the unreliable preferences in this study. Thus, in those cases where the perceiver's own preference is inconsistent, there is, in effect, no set. Also, since there is now only one reliable preference there is likewise no relationship of preferences. The perceiver in such a situation can arrive at accurate perception only through making appropriate use of the stimulus information available. Is the perceiver's ability to predict

correctly better than chance expectancy under these conditions? The number of correct predictions made in this situation (after the "double unreliaables" have again been subtracted) is 460/660 or 69.7 per cent. This is better than fifty per cent accuracy at the .01 level of confidence. The resulting t is 10.20.

As before, there is next a series of tests in which the two conditions of stimulus preference are varied while the other factors are held constant. It is necessary in each case to demonstrate that there is a significant difference between the effects produced by a certain as opposed to an uncertain stimulus preference on accuracy of perception. Inasmuch as the preference of the perceiver may be certain or uncertain, and the preferential relationship between the perceiver and the person perceived may be mutual or non-mutual, there are four combinations of these two factors. These are:

1. Set preference certain, relationship mutual
2. Set preference uncertain, relationship mutual
3. Set preference certain, relationship non-mutual
4. Set preference uncertain, relationship non-mutual

Now, in each of these four situations, it must be shown that where the preference of the person perceived is certain there results a significantly higher degree of perceptual accuracy than where the preference of the person perceived is uncertain. It will be noted here that stimulus certainty affects perceiver accuracy directly, regardless of the type of preferential relationship in which it occurs.

The four tests indicated are presented in Table 29, where it is found that in every case there is a significant difference between the two stimulus conditions. Thus, in every interactive situation, a certain (strong) preference is more accurately perceived than is an uncertain (weak) preference.

TABLE 29

EFFECTS ON PERCEPTUAL ACCURACY OF STRONG AND WEAK STIMULI
WHEN CONDITIONS OF THE OTHER FACTORS ARE HELD CONSTANT

TEST # 1				TEST # 2			
Set of Perceiver Certain Preferential Relationship Mutual				Set of Perceiver Uncertain Preferential Relationship Mutual			
Perceiver's Predictions				Perceiver's Predictions			
Stimulus Preference	Correct	Incorrect	χ^2	Stimulus Preference	Correct	Incorrect	χ^2
Certain	1373	209	70.31	Certain	1121	256	53.57
Uncertain	1028	349	< .01	Uncertain	1168	504	< .01
TEST # 3				TEST # 4			
Set of Perceiver Certain Preferential Relationship Non-Mutual				Set of Perceiver Uncertain Preferential Relationship Non-Mutual			
Perceiver's Predictions				Perceiver's Predictions			
Stimulus Preference	Correct	Incorrect	χ^2	Stimulus Preference	Correct	Incorrect	χ^2
Certain	329	197	20.85	Certain	612	241	49.31
Uncertain	425	428	< .01	Uncertain	734	560	< .01

The stimulus factor, then, is also seen to operate both in isolation and in combination with the other factors in such a way as always to preserve its identity.

There is no way available in which to study the factor of preferential relationship in isolation. It is not possible to make use of the unreliable preferences here, since a relationship can exist only when the preference of the perceiver and the preference of the person perceived are reliable. Further, there is always a tendency (at any level of certainty) for the perceiver to predict reciprocity of her preference. To study relationship independently of the tendency to predict reciprocity, then, would require that one eliminate the influence of the perceiver's set. In doing this, though, one is also eliminating the preference of the perceiver, which means that there is no longer a relationship. Thus, it is impossible to study relationship independently of the influence of set.

However, profound differences between the mutual and non-mutual forms of relationship are noted when the set and stimulus conditions are combined and held constant. Given two conditions each of set, stimulus, and relationship, there are eight possible combinations of these three factors. Various tests between them have already been employed in the arguments for independence of the set and stimulus factors. Table 30 presents all eight combinations, ordered so as to test differences between mutual and non-mutual relationships while the set-stimulus conditions are held constant. These tests demonstrate that every condition involving a mutual relationship produces a significantly higher degree of perceptual accuracy than does the corresponding condition involving a non-mutual relationship.

TABLE 30

PERCEPTUAL ACCURACY RESULTING FROM THE INTERACTION OF THE VARIOUS CONDITIONS OF SET, STIMULUS, AND RELATIONSHIP; AND TESTS OF SIGNIFICANCE OF DIFFERENCE BETWEEN THE EFFECTS ON PERCEPTUAL ACCURACY PRODUCED BY MUTUAL AND NON-MUTUAL RELATIONSHIPS WHEN THE OTHER FACTORS ARE HELD CONSTANT

CONDITIONS OF: The Set - The Stimulus Preference Preference	MUTUAL RELATIONSHIP				NON-MUTUAL RELATIONSHIP				χ^2	p
	Correct Percepts	Incorrect Percepts	% Accurate	Correct Percepts	Incorrect Percepts	% Accurate	Correct Percepts	Incorrect Percepts		
Certain - Certain	1373	209	86.8	329	197	62.5	150.37	< .01		
Certain - Uncertain	1028	349	74.7	425	428	49.8	143.53	< .01		
Uncertain - Certain	1121	256	81.4	612	241	71.7	28.51	< .01		
Uncertain - Uncertain	1168	504	69.9	734	560	56.7	54.92	< .01		

Interactions of the Factors

The accuracy percentages presented in Table 30 for the eight possible combinations of the two conditions each of the set, stimulus and relationship factors demonstrate well what might be expected to result from their interactivity.

Thus, it is noted that any condition containing a strong (certain) stimulus produces a higher degree of accuracy than any corresponding condition where the stimulus is weak (uncertain). Likewise, it may be seen that where the relationship is mutual, a strong set will aid accuracy more than will a corresponding weak set. Also, since the tendency to predict mutuality will depress accuracy where mutuality does not exist, a strong set in a non-mutual relationship may be seen to lower accuracy when compared to the corresponding condition of a weak set in a non-mutual relationship.

The best interactive condition for accuracy of perception, then, would have to contain the elements of (a) a strong stimulus, and (b) a strong set, operating in (c) a mutual relationship. That this is indeed the case can be shown by the fact that this particular condition of the three factors in combination produces an accuracy score of 86.8 per cent. As previous tests have shown, this is a significantly higher percentage than that produced by any other condition. This is illustrated in Figure 10.

In Figure 10, it may be seen that if Alice feels a strong preference toward Betty (A, Fig. 10) she will be inclined to predict reciprocity. Also, it has been noted that if Betty's preference toward Alice is strong (B, Fig. 10), Alice will be more likely to perceive it correctly. Now, if the preferences of both Alice and Betty are strong and mutual (C, Fig. 10), Alice may predict Betty's preference correctly either by imputing or by

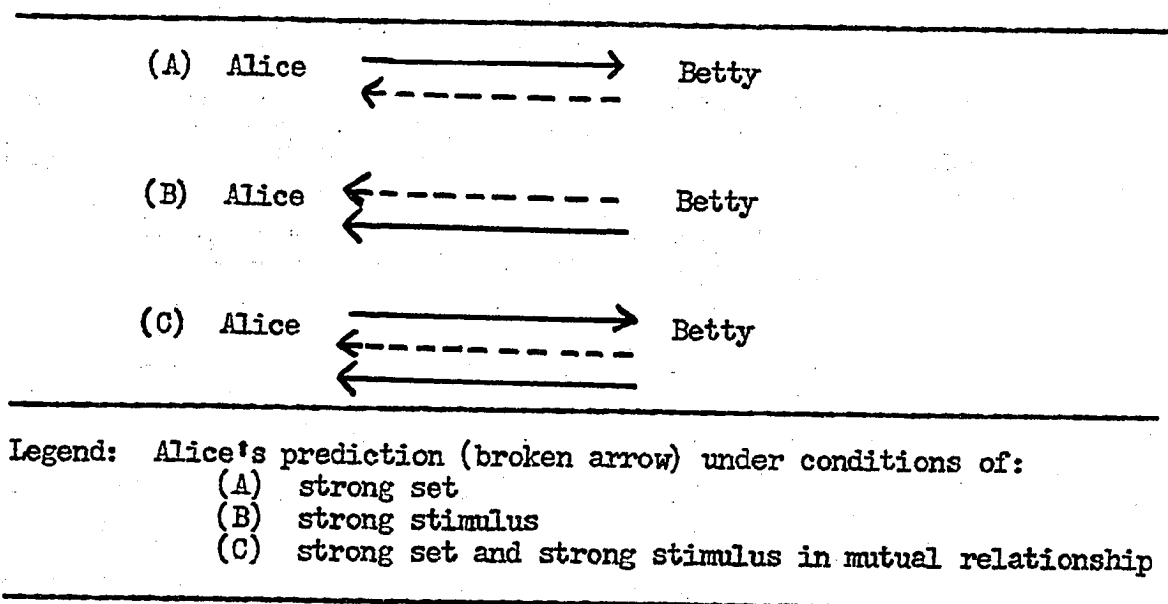


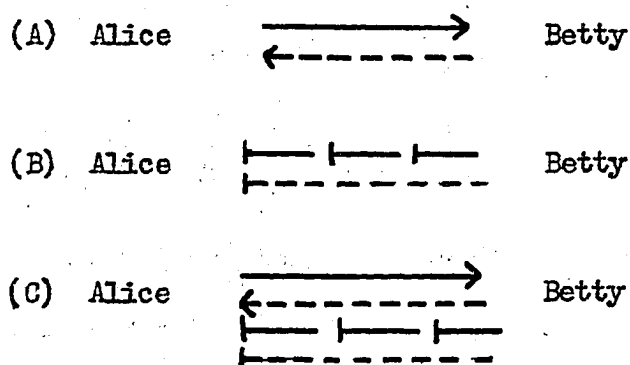
Figure 10

The Most Favorable Interactive Conditions
 for Accuracy of Perception

perceiving. Thus, the tendency to predict reciprocity and the tendency to perceive accurately combine in this situation to mutually facilitate one another, thereby leading to the highest degree of perceiver accuracy.

In a similar fashion, it may be seen that the worst interactive condition for accuracy of perception would have to contain the elements of (a) a weak stimulus and (b) a strong set, operating in (c) a non-mutual relationship. It is found that this condition produces an accuracy score of 49.8 per cent; and this has been shown to be significantly poorer than the accuracy score of any other condition. This is illustrated in Figure 11.

Here it is noted that if Alice feels a strong preference she will be inclined to predict reciprocity (A, Fig. 11). It has also been shown that if Betty's preference is weak, Alice will not be so inclined to perceive it correctly (B, Fig. 11). Finally, if Alice is faced with both



Legend: Alice's prediction (broken line) under conditions of:

- (A) strong set
 (B) weak stimulus
 (C) strong set and weak stimulus in a non-mutual preferential relationship ($\begin{array}{c} \xrightarrow{\quad} \\ \xleftarrow{\quad} \\ \text{---|---|---} \\ \text{---|---|---} \end{array}$).
-

Figure 11

The Least Favorable Interactive
 Conditions for Perceptual Accuracy

poor stimulus information and a strong tendency to predict reciprocity, and if this occurs where reciprocity does not exist (C, Fig. 11), then Alice will tend to be wrong on two counts. Thus, this particular situation results in the lowest level of accurate perception. It should be noted however, that this score (49.8 per cent) is only at and not below chance level.

The interactions of the various factors discussed combine to produce the accuracy of perception scores, presented in Table 31, which resulted for each group and the grand total.

The figures in Table 31 indicate, with the exception of Group II, that the level of perceptual accuracy from group to group is quite consistent, there being a range of only 2.7 per cent. It has already been

TABLE 31
 PERCEPTUAL ACCURACY SCORES FOR EACH GROUP
 OF SUBJECTS, AND THE GRAND TOTAL

Group	Correct Percepts	Incorrect Percepts	Total Percepts	% Accurate
I	706	284	990	71.3
II	774	216	990	78.2
III	914	406	1320	69.2
IV	916	404	1320	69.4
V	1518	666	2184	69.5
VI	1962	768	2730	71.9
Total	6790	2744	9534	71.2 %

noted that in Group II there was a much higher number of sociometric choices made and expected, and also a markedly higher proportion of strong preferences, than in the other groups. Thus, those conditions favorable to accuracy of perception were more frequent in this group; and this accounts for the higher score its subjects attained.

Weighting the Factors of Set and Stimulus

It has been demonstrated that the factors of set (certainty of preference in the perceiver) and stimulus (certainty of preference in the person perceived) have significant and independent effects on accuracy of perception. One might then inquire as to which, if either, is the more important influence.

There are several ways to test the relative importance of the set and stimulus factors. The first of these is based on the total frequencies of (a) imputing, i.e., predicting one's own preference, and (b) perceiving accurately, i.e., predicting the other person's preference. This test is

presented in Table 32.

TABLE 32

SIGNIFICANCE OF DIFFERENCE BETWEEN THE RELATIVE
FREQUENCIES OF IMPUTING AND PERCEIVING ACCURATELY

Factor	Times Predicted	Times Not Predicted	% Predicted	χ^2	p
SET: Imputing own preference	6116	3418	64.1	108.92	< .01
STIMULUS: Perceiving other's preference	6790	2744	71.2		

This test shows that the subjects of this study perceived the other person's preference accurately significantly more often than they predicted that their own preferences would be reciprocated.

A second, and particularly crucial, means of weighting the contributions of the set and stimulus factors arises from an examination of the non-mutual preferential relationships. Here, the set and stimulus factors work against one another, so that to perceive another person's preference accurately, the perceiver must not predict mutuality.

The question, then, is whether a subject can perceive significantly in excess of chance accuracy when her own preference is unreciprocated. It is found that of 3,526 predictions made in non-mutual preferential relationships, 2,100 (or 59.6 per cent) are correct. This is significantly better than fifty per cent at the .01 level of confidence. The resulting t value is 16.06.

Thus, accuracy of perception of unreciprocated preferences, while relatively low, is still significantly above chance. In this situation, also, the stimulus factor is revealed as being more influential in determining perception than the set factor.

A third test is based on how certain the perceiver is that her prediction of another's preference is correct. Thus, one might assume that if the set factor were more important to the perceiver, she would tend to be sure of her prediction as a result of the strength of her own preference; whereas if the stimulus factor were more important to the perceiver, she would tend to be sure of her prediction as a result of the strength of the other person's preference. In Table 33 are presented the number of times a perceiver was sure of her own prediction when (a) her own preference was certain, and (b) when the preference of the person perceived was certain.

TABLE 33

RELATION OF THE PERCEIVER'S CERTAINTY OF PREDICTION
TO THE STRENGTH OF HER OWN PREFERENCE AND TO THE
STRENGTH OF PREFERENCE OF THE PERSON PERCEIVED

Strength of Set and Stimulus Preferences	Perceiver's Prediction			
	Sure	Unsure	χ^2	p
S's own preference strong	2682	1656	11.20	< .01
Other's preference strong	2832	1506		

The test in Table 33 demonstrates that the subject is sure of her perception significantly more often when she is perceiving a strong preference in someone else than when her own preference is strong.

A fourth test is based on the degree to which the set and stimulus factors operate in isolation. Thus, where the stimulus preference is unreliable it has been noted that the perceiver imputes her own preference 58.8 per cent of the time; while where the perceiver's own preference is unreliable, she perceives the other person's preference accurately 69.7 per cent of the time. Is this difference significant? The issue is tested in Table 34.

TABLE 34

RELATIVE INCIDENCE OF SET AND STIMULUS FACTORS
IN UNRELIABLE PREFERENCE SITUATIONS

Factor	Times Pre- dicted	Times Not Predicted	χ^2	p
SET: Imputing own preference	388	272	17.10	< .01
STIMULUS: Perceiving other's preference	460	200		

These results show that where only one of the factors is operative, the stimulus preference will be more influential in determining the subjects perception than will her own preference.

Finally, it has been observed that where the relationship of preferences is mutual, both the strength of the perceiver's set and the certainty of the stimulus preference lead to better accuracy scores. Thus, set and stimulus both work in the same direction under conditions of mutuality, and both work toward accurate perception. It might be inquired, then,

whether one produces more noticeable effects than the other. Where both are either strong or weak there is, of course, no way to separate their contributions. But, there are also two conditions where one is strong and the other is weak; namely, (a) perceiver's preference certain, preference of the person perceived uncertain; and (b) perceiver's preference uncertain, preference of the person perceived certain. In the one condition there is a strong set toward predicting reciprocity which will lead to accurate perception, and in the other there is a strong stimulus preference which should also lead to accurate perception.

One would predict, then, that these two conditions would lead to approximately the same level of perceptual accuracy if the set and stimulus factors were of equal importance. It is necessary, however, to test this under two circumstances. Thus, it has been shown that the tendency for the perceiver to predict reciprocity is stronger where her own preference is certain and ADient than where it is certain and ABient. Accordingly, the two conditions of set and stimulus certainty will be made under both ADient mutuality and ABient mutuality.

The results in Table 35 show that where one is dealing with ADient mutuality, the contributions of the set and stimulus factors are approximately equal, i.e., there is no significant difference between their contributions to perceptual accuracy. However, where the same test is performed on ABient mutuality, the contribution of the stimulus factor is again seen as significantly more important.

Thus, in five of the six tests employed to determine the relative influence of the set and stimulus factors, the latter are found to be significantly more important. It appears, then, that the strength of

TABLE 35

VARYING CONTRIBUTIONS TO ACCURACY OF PERCEPTION OF THE
SET AND STIMULUS FACTORS UNDER TWO TYPES OF MUTUALITY

(1) ADient Mutuality

Condition of: Set - Stimulus	Correct Percepts	Incorrect Percepts	% Accurate	χ^2	p
Certain - Uncertain	481	129	78.9	1.06	< .50
Uncertain - Certain	466	114	76.4		> .30

(2) ABient Mutuality

Condition of: Set - Stimulus	Correct Percepts	Incorrect Percepts	% Accurate	χ^2	p
Certain - Uncertain	547	220	71.3	44.84	< .01
Uncertain - Certain	655	112	85.4		

preference in the person perceived is considerably more influential in determining social perception than is the strength of the perceiver's own preference. There remains, though, the particular case of mutually ADient preferential relationships. Here the set factor is likely to determine the resulting percept as much as the stimulus factor (and both will lead to accurate perception).

CHAPTER VI

DISCUSSION

As a preface to the interpretation, and synthesis of the findings of this study, and as a reservoir of information upon which to draw for discussion, a brief resume of results is herewith presented, ordered according to the three analytical aspects of the perceptual field.

Review of Findings

Feelings-as-Stimuli

It was found that preferences show a high degree of consistency and thus become reliable stimuli for perception by others. Also, there is a general trend toward certainty of preference, such that 45.5 per cent of all preferences are marked as certain; 32.3 per cent as fairly sure; 15.1 per cent as doubtful; and only 7.2 per cent as forced-to-guess. Further, the more certain the preference the more likely it is to be perceived accurately. Thus, preferences marked as certain are perceived accurately significantly more often than preferences marked as uncertain; but at even the forced-to-guess level (despite the fact that almost one-fourth of such preferences are unreliable), there is still accuracy of perception above chance level (t is 4.66). Finally, it was noted that the subject can perceive another's preference as well when she is preferred as when she is not preferred.

The Perceiver's Set

It was discovered that where the perceiver considers herself emotionally meaningful to the person perceived, she achieves a significantly higher degree of perceptual accuracy than where she does not consider herself as emotionally meaningful to the person perceived.

When the subject expects sociometric election, then, she may be considered as tuned to perceive. Further, such expectancies tend to exist only where the perceiver feels relatively sure that she really is emotionally meaningful to another. Thus, over eighty per cent of all such expectancies are correct.

It was also noted that these subjects show a general tendency toward predicting reciprocity of their own preferences; and where the subjects predict reciprocity they are more accurate than where they do not. Further, the more certain they are of their own preferences, the more likely they are to predict reciprocity. Thus, a perceiver with a strong preference is significantly more likely to predict reciprocity than a perceiver whose own preference is weak; but even at the forced-to-guess level (again where nearly one-fourth of such preferences are unreliable), there remains a significant tendency to predict reciprocity (t is 2.06, significant at the .05 level of confidence).

However, unlike preferences as stimuli, the direction of the perceiver's preference makes a difference. Thus, a subject with a strong ADient preference shows a very marked tendency to predict reciprocity; while a subject with an ABient preference either certain or uncertain shows a medial tendency to predict reciprocity; and a subject with a weak ADient preference shows a much slighter tendency to predict reciprocity.

Relationship of Preferences

It was observed that these subjects develop the type of triadic preferences which result in a significantly higher frequency of mutual than of non-mutual preferential relationships. There is also a

significant tendency for both preferences in a relationship to be either certain or uncertain; and thus the trend is away from a strong preference on one side of a relationship meeting a weak preference on the other. There is further a significant tendency for relationships where both preferences are certain also to be mutual. Thus, the trend is toward preferential relationships which are both mutual and reciprocally certain.

As a result of the tendency for the perceiver to predict reciprocity of her preference, mutual relationships are characterized by a significantly higher degree of perceptual accuracy than are non-mutual relationships. And, since accuracy is also better where the preference being perceived is certain, those particular cases where the relationship is not only mutual but also contains two strong preferences produce the highest degree of accuracy among the various interactive conditions.

Finally, a strong ADient preference is significantly more likely to be reciprocated (at any level of certainty) than is a strong ABient preference; and, conversely, a weak ADient preference is less likely to be reciprocated than is a weak ABient preference. This, along with other data presented, argues for the formation of most relationships on the basis of positive rather than negative feelings.

The Role of Projection in Social Perception

The prevalent point of view both in laboratory and clinic is that there are two kinds of perception: (a) veridical, i.e., accurate, and (b) "defensive," i.e., wish-fulfilling. The second type is frequently said to be the result of "projection," which is defined as a mechanism through which the subject or patient perceives what he wishes

to be there instead of what really is.

Before pursuing this discussion further, it would be helpful to clarify the distinction between veridical perception and projection.

The findings of modern physical science suggest that in a very real sense one never perceives what is actually "out there." It would appear, in fact, that what is really out there is imperceptible to the human organism in its true form, e.g., electronic structures. Thus, people are forced to reach some more or less arbitrary agreement as to what is out there, and to this (generally un verbalized) consensus is given the term "reality." Now, it is true that this kind of reality may result from projection, in the sense that it reflects the perceivers' desires more than it reflects the external facts. But, if one defines as "projecting" a mechanism which the majority of people employ, then the concept of projection loses any meaning that it might have in explaining individual idiosyncrasies. It would appear that this concept has a real value to psychologists in understanding individuals whose percepts deviate from those of most persons. To this deviation, then, is best applied the term "projection," thereby preserving its traditional scientific meaning. As for the deviation, if any, which exists between what most people call "real," and what actually is real, it would be helpful to apply some other term or, better yet, to ignore it as presently unmeasurable. Thus, veridical perception applies to what most people perceive in any particular situation, arising from a blend of their knowledge and of their past experience in helping one another to compromise their wishes.

This discussion was made necessary by a current trend in the literature to term as projection what appears to be a very frequent and therefore normal (statistically defined) process. It will be recalled that Tagiuri et al (19) found a significant tendency in their subjects to predict reciprocity of their sociometric feelings. From this result they reached the conclusion that accuracy of perception arises "out of a compounding of autism and chance" (19, p. 591). They write: "In sum, the interpersonal perceptions of individuals in a small face-to-face group appear to be dependent to a large extent upon the operation of a congruency between how a member feels toward another, and how the other is seen as feeling toward him. If two individuals have mutual feelings toward each other, their impressions of each other are likely, thereby, to be 'accurate.' If mutuality of feeling happens to be absent they may be at cross-purposes with each other --- a situation relieved by the practice of politeness and reserve designed to mask feelings whose recognition might prove disruptive. In any case, accuracy of perception in interpersonal relations seems as much a product of other factors as a skill in its own right" (19, p. 592). If this conclusion is true, it is indeed fortunate that mutual relationships occur so often, for without them the individual's social world might become either chaotic or entirely deceptive.

But, even though this conclusion were accepted, one would still lack a suitable explanation for it. For, after all, why should people tend to predict mutuality? Is this really an autistic process? And, if it occurs so frequently, how can it be of a private, wish-fulfilling nature to each of the individuals who manifest it?

In dealing with this problem, it is noted first that Tagiuri's finding is not entirely corroborated by this study. Thus, employing the same technique, it has been found that only about one-half of those who choose another on the sociometric test expect to be chosen in return. However, further analysis revealed that this half consists of an individual's strongest or most important choices; so that it might be argued that Tagiuri's finding is upheld, and that the reason why it does not extend to all levels of choice lies in the unusually large number of choices made by the present subjects, some of which may have been based more on diplomacy than on emotion.

When the focus of attention is turned to the preferential feelings, it is found that these subjects do show a tendency to predict reciprocity of their preferences significantly in excess of chance expectancy. But one also finds that in five of the six tests employed to weigh the relative importance of this tendency as opposed to their ability to perceive accurately, there is a significant difference in favor of the latter. Thus, these subjects perceive the other person's preference significantly more often than they predict reciprocity of their own; except for the particular case where they have a strong ADient preference and are involved in a mutual relationship, and here there is no difference in the effects of the set and stimulus factors.

It has also been shown that where these subjects predict reciprocity they achieve higher perceptual accuracy than where they do not predict reciprocity. But, even more striking was the finding that they perceive accurately (to an extent significantly above chance level) even when they are involved in non-mutual relationships, where; to be

accurate, they must not predict reciprocity. Thus, where reciprocity of preference does not exist, these subjects predict it significantly less often than chance expectancy.

Further, it is noted that while these subjects predict that 64.1 per cent of all their preferences will be reciprocated; in actual fact, 63.0 per cent of their preferences are reciprocated. Thus, it appears that were each predicted preference matched with the proper real preference (of the person perceived), every one of the subjects could develop almost perfect perceptual accuracy. If, then, the sixty-four per cent of those cases where reciprocity is predicted were the same as the sixty-three per cent of those cases where it exists, there would be only a few cases of predicted mutuality left over.

Even more impressive is the fact that when one considers each type of preference in the perceiver, e.g., strong and ADient, strong and ABient, weak and ADient, weak and ABient, it is found that reciprocity is predicted to a different extent; and further, that the extent to which reciprocity is predicted for each type closely resembles the degree to which it actually exists for each type. Table 36 presents the number of times reciprocity is predicted and the number of times it actually occurs for each type of perceiver preference, and a test of significance of difference between predicted frequency and actual occurrence at each level.

As the results in Table 36 indicate, there are no significant differences between the extent to which reciprocity is predicted and the extent to which it actually exists. Further, as the percentages indicate, there is a remarkable tendency on the part of the subjects to predict

TABLE 36
 FREQUENCIES OF PREDICTED AND ACTUAL RECIPROCIITY
 FOR EACH TYPE OF PERCEIVER PREFERENCE

Type of Preference in the Perceiver	Predicted Reciprocity				Actual Reciprocity				X ²	p
	Times	Times Not	% Times	Times	Times Not	% Times	Times	% Times		
Certain - ADient	1624	545	74.8	1576	593	72.7	2.74	< .10	> .05	
Certain - ABient	1402	767	64.6	1383	786	63.8	0.37	< .70	> .50	
Uncertain - ABient	1655	943	63.7	1621	977	62.4	0.96	< .50	> .30	
Uncertain - ADient	1435	1163	55.3	1428	1170	55.0	0.04	< .90	> .80	
Total	6116	3418	64.1 %	6008	3526	63.0 %	2.64	< .50	> .30	

reciprocity at almost the same level that it actually exists, for each type of preference and for all combined.

It may be seen that since 6,008 preferences are reciprocated, this is the maximum number of predictions of reciprocation that can be correct. Subtracting this figure from the 6,116 predictions of reciprocity actually made, it is noted that there would be 108 left over, all of which would have to be wrong. Thus, the maximum accuracy score possible, if the predictions of reciprocity were matched properly to the situations where reciprocity actually occurred, would be 98.2 per cent. On the other hand, since there are 3,536 cases where reciprocity does not exist, this represents the maximum number of times where a prediction of reciprocity would be incorrect. If, then, 3,526 of the 6,116 predictions of reciprocity occurred where it did not in fact exist, the resulting accuracy score would be 42.3 per cent. This would be the lowest possible score for predictions of reciprocity. Since reciprocity actually exists sixty-three per cent of the time, one would expect that were there no relationship between the predicting of reciprocity and its actual existence, then only sixty-three per cent of all predictions of reciprocity would be correct. The obtained figure, however, is 76.7 per cent (4,690); and this difference (4,690 - 3,853) produces a t value of 22.2, significant at the .01 level of confidence thus, predictions of reciprocity result in an accuracy score significantly in excess of chance expectancy. To summarize, it has been shown:

1. That while reciprocity is predicted significantly in excess of chance, it also exists significantly in excess of chance.
2. That reciprocity is in fact not predicted significantly more often than it does actually exist.

3. That reciprocity is predicted in such a way that 98.2 per cent of such predictions could be accurate; while 76.7 per cent of such predictions actually are accurate, a figure significantly in excess of chance (and better than predictions of non-reciprocation).

4. That despite their tendency to predict reciprocity, these subjects still perceived non-reciprocated preferences to a degree in excess of chance accuracy.

5. That wherever there is a significant difference between the tendency to predict reciprocity and the tendency to perceive accurately, the difference is in favor of the latter.

6. That predictions of reciprocity are so finely tuned to the possibility of their actualization, that for every type of perceiver preference there is a close relationship between the total amounts of reciprocity predicted and actually extant.

This mass of evidence suggests that predictions of reciprocity cannot possibly be looked upon as "autistic." On the contrary, they occur so frequently and with such good reason that they appear to represent a "normal" approach to social perception. Secondly, accuracy of perception can hardly be considered the result of compounding autism and chance. Accurate perception is, in fact, the rule. It develops in almost every possible situation. It can be demonstrated that in mutual and non-mutual relationships, on strong and weak preferences, where the perceiver predicts reciprocity or does not predict reciprocity, accuracy of perception is always significantly in excess of chance. In fact, it is only by combining the worst conditions of all three variables that one can produce an accuracy score that is not above chance, and even then it is still not below chance.

The conclusion that offers itself is that the prediction of reciprocity is not a projection, i.e., it is neither unrealistic nor infrequent. In fact, in this situation one would have to define projection as the consistent failure to predict reciprocity since such a failure would represent a statistically abnormal deviation.

Why, then, do people predict reciprocity?

The Role of Past Experience in Social Perception

While all who study social perception grant that any particular set of the perceiver arises from both motivational and experiential factors, the latter are seldom evoked for explanatory purposes.

However, if it is assumed that predictions of reciprocity are the general rule, then it would seem logical also to assume that this is because such predictions have the best chance of being accurate. Moreover, as previously indicated, they do have the best chance of being accurate, because reciprocity of preference does in fact occur significantly more often than does non-reciprocity.

The very close link between the degree of predicting reciprocity under various conditions of the perceiver's own preference, and the degree to which it actually exists in these conditions suggests that each subject has, so to speak, an internalized map, a sort of cognitive sociometric chart which guides her both in behavior and in perception.

Such a chart has been neither divined nor wished, it has been learned. It may be conceived as the result of numerous stimulus-response sequences, occurring in the laboratory of interpersonal experience, which have conditioned the subject to certain types of behavioral and perceptual functioning.

Since all these subjects form one relatively homogeneous group, it may be said that they have attended the same cultural school and have obtained approximately the same type of social learning. Thus, their past experience has been undergone in similar affective fields, subject to similar patternings and processes.

This is an important consideration, not only in explaining how a particular set develops, but also because in social perception each person must serve both as perceiver and as stimulus. A subject's experience as perceiver should then be helpful in teaching her what sort of information to provide as stimulus for someone else, and how to provide it. At the same time her experience as stimulus tends to create a set for her as perceiver, directed toward what sorts of cues presented by others will be meaningful, and how to interpret them. Social perception, then, appears to be a circular process in which each individual enacts two roles in the same play, a play which is acted out daily in the theater of social interaction.

This is presented only as a somewhat sketchy theory, based on a limited and highly selected sample of the population. Nonetheless, it would help to account for the general finding that those conditions most conducive to perceptual accuracy also occur the most frequently. For example:

1. The high degree of reliability of preference.
2. The tendency toward certainty of preference, coupled with the fact that the more certain the preference the more likely it is to be perceived accurately.
3. The formation of triads which result in significantly more mutual than non-mutual relationships; and the fact that accuracy is significantly better under mutual conditions.
4. The finding that a strong ADient preference is reciprocated significantly more often than any other, and also that it is significantly more often predicted to be reciprocated
5. The fact that mutual relationships which are at the same time reciprocally certain occur significantly more often than chance, and also that these lead to the best conditions for perceptual accuracy.

While it is not yet known how a subject becomes aware of the affective field in which she operates, it is clear that more than a

little of the ultimate explanation will be based on the factor of past experience, with its implications for social learning and cultural conditioning.

The Deviant Perceiver

The role of motivation in a cultural conditioning theory of social perception would be largely one of promoting accurate percepts. Thus, as Ruesch and Bateson have said: "wish and perception partially coincide..... Not only does every human being tend to see in the external world (and in himself) that which he wishes to be the case; but having seen in the external world something even disastrous, he must still wish his information to be true. He must act in terms of what he knows -- good or evil --- and when he acts he will meet with frustration and pain if things are not as he 'knows' them to be. Therefore he must, in a certain sense, wish them to be as he 'knows' they are" (16, p. 177). This is another way of stating the general perceptual goal of achieving a stable and predictable world. Thus, the perceiver is motivated to see what actually exists.

There remains, of course, the opportunity for more personal motives to color an individual's perception. In this study, for example, the subject has a number of opportunities to perceive herself as being preferred or as not being preferred by someone else (depending upon her desires) in those cases where the stimulus preference is weak or inconsistent, or where her own preference is strong. Certainly, no one needs to be one hundred per cent accurate in her perceptions of others, and no one, in fact, is. It is a somewhat different problem to determine the critical minimum for veridical perception, but it would appear

that an accuracy score which was not significantly above chance might prove too low.

There is in this study one subject who may be said to project, i.e., whose motivation produces an idiosyncratic type of prediction which leads to distortion and inaccurate perception. It is noted first that she was the only one to predict that she would be rejected by another on the sociometric test, and she did this twice (neither time was she actually rejected by the other). But her performance on the paired comparisons perception test was even more striking. A summary of her record is presented in Table 37.

TABLE 37
PERCEPTION OF PREFERENCES BY SUBJECT N.K.

Stimulus Preference	Subject's Perceptions			
	Correct	Incorrect	Total	% Accurate
ADient	12	85	97	12.4
ABient	59	0	59	100.0
Total	71	85	156	45.5 %

As the figures in Table 37 demonstrate, this subject was not wrong once when she was not preferred. She was infallible in perceiving ABient preferences. Unfortunately, she perceived ABient preferences 144 out of 156 times (92.3 per cent); when it actually existed only sixty-nine out of 156 times (44.2 per cent). As a matter of fact, in terms of the number of times she was actually preferred, she stood fourth in a group of fourteen. Thus, she was a well-liked person.

Here, then, is the case of a person who did not follow the general trend. She predicted reciprocity of preferences only thirty-four per cent of the time; and could not perceive a strong preference any more accurately than a weak one (46 per cent for the former, 45 per cent for the latter). Thus, she may be considered a perceptual deviant, in whom projection took the form of expecting not to be preferred. As a result, she was the only subject out of seventy-five who did not develop perceptual accuracy to a degree substantially above chance level.

It would be interesting in a case such as this to study the subject intensively for purposes of discovering whether she was neurotic or otherwise maladjusted.

The Implications of Triadic Position for Perceptual Accuracy

As noted previously, a particular type of structuring of affective fields occurs through use of the paired comparisons method. This is highly advantageous in that it makes possible not only the study of every possible paired relationship in the group, but it also allows the investigator to examine each of these diads in relation to every other diad. Thus, while one may study in isolation the relationships between Alice and Betty, between Alice and Carol, and between Betty and Carol, and derive considerable information from this type of approach; each of these diads is more satisfactorily understood in relation to the others. For example, suppose that Alice is strongly motivated to Carol, and Betty is also strongly motivated to Carol, but Carol responds to Betty and not to Alice. Now, it would be interesting to know how Alice responds to Betty in light of the fact that Carol has preferred Betty to her (Alice). Will this circumstance affect Alice's perception of Betty? Questions

like this may be both raised and answered by bringing all three diads into their proper triadic frame of reference.

One particular illustration of the triadic frame of reference is presented in Figure 12.

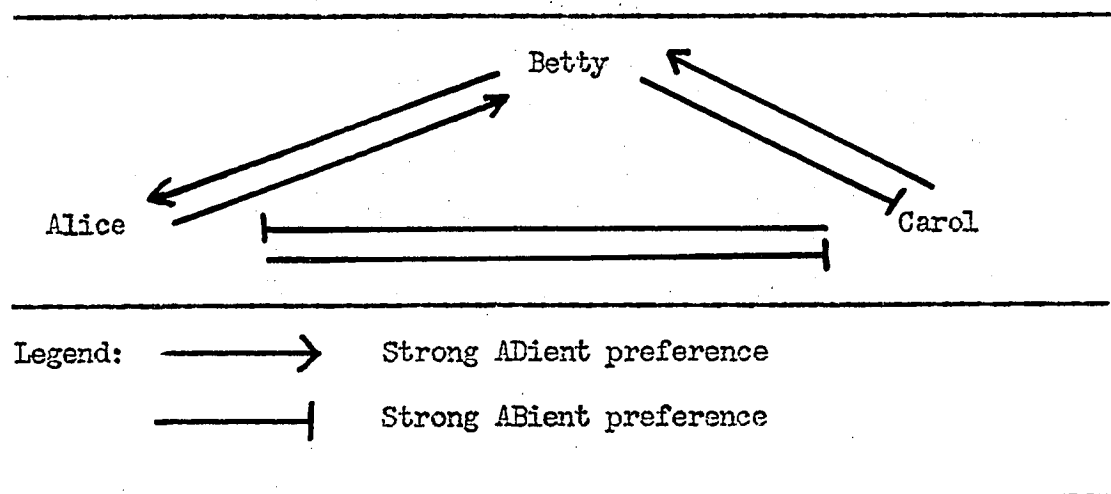


Figure 12

An Example of the Triadic Frame of Reference

A study of Figure 12 reveals that there is one very important aspect of an individual's position in her immediate affective field which can only be seen in the triadic framework. This is that each subject, by expressing a preference between two others, becomes one node of two different diads. Her total perceptual accuracy score, then, will be based on how well she can perceive the feelings of the other person in both of the diads so formed. It has already been shown that those diadic conditions most conducive to accurate perception develop where the two individuals have mutual feelings about which each is certain. This is illustrated in Figure 12 by the relationship between Alice and Betty. Therefore, in perceiving one another, Alice and Betty will each achieve a high level of accuracy. But this does not end their perceptual task; for each must also perceive the preference of Carol, the person to whom they prefer

each other. Now, if Carol responds as in Figure 12, her preference carries different implications for the accuracy of perception of Alice and Betty. Thus, Alice is placed in the position of being involved in not one but two mutual relationships, each of which is certain on both sides. As previously indicated, perceptual accuracy is highest under these conditions, so that the combined score that Alice attains from perceiving the preferences of both Betty and Carol is 85.8 per cent.

When the focus of attention is turned to Betty, however, one notes that while she will derive a good score from her reciprocally certain and mutual relationship with Alice, she is not in such a fortunate position with reference to Carol. Here she is aided by the fact that Carol's preference is strong, but she is hindered by the fact that she will tend to predict reciprocity when in fact the relationship is non-reciprocal. Thus, Betty will achieve 85.8 per cent perceptual accuracy in perceiving the preference of Alice, but her score in perceiving Carol's preference will be only 69.7 per cent. These combine into a total accuracy score of 77.7 per cent for someone in Betty's position.

This has an important ramification; for if popularity is defined as the number of times a person is preferred, it follows that a person who is frequently in Betty's position is, of necessity, quite popular. But since it is the person in Alice's position (who is preferred only half the time), and not the person in Betty's position who develops the highest accuracy score, it also follows that popularity and perceptual accuracy are, to a certain extent, antagonistic conditions.

This can be demonstrated further with regard to Carol's position in Figure 12. It may be seen that Carol is preferred by neither Betty

nor Alice. Therefore, a person who is frequently in Carol's position will, of necessity, be quite unpopular. But with respect to perceptual accuracy, it is noted that (a) Carol is involved in a reciprocally certain and mutual relationship with Alice which is favorable to accuracy and results in a score of 85.8 per cent; while (b) she is also involved in a reciprocally certain but non-mutual relationship with Betty. Betty's strong preference will aid Carol's accuracy, but Carol will be very strongly inclined to predict reciprocity here, since her preference is both strong and ADient, and thus her accuracy score will be only 65.5 per cent. The combined accuracy level for someone in Carol's position, then, will be 75.6 per cent.

Reviewing these findings briefly, one finds that the perceptual scores and popularity levels of Alice, Betty and Carol are as follows:

1. Alice is preferred half the time; her accuracy is 85.8 per cent
2. Betty is preferred all the time; her accuracy is 77.7 per cent
3. Carol is preferred none of the time; her accuracy is 75.6 per cent

These figures indicate that the correlation between popularity and perceptual accuracy will be on the order of 0.00, a finding that the writer had previously noted in his pilot work.

There is some possibility that this situation develops as an artifact of the paired comparisons technique; but there is also some evidence that suggests it is a general condition. Thus, Dymond et al (4) using a sociometric perception type of test on public school classes were unable to demonstrate a correlation between popularity and perceptual

accuracy scores. Also, the writer has tried to measure popularity independently of the paired comparisons, through defining it as the number of sociometric choices that an individual receives. A comparison of the seventeen most popular subjects on the sociometric test with the seventeen least popular subjects revealed no particular differences between them in terms of perceptual accuracy (based on preferential feelings). In fact, the middle group of forty-one subjects had a somewhat higher perceptual accuracy score than either of the popularity extremes.

However, this finding is only presented as suggestive of the sorts of analysis made possible by using the paired comparisons method. It becomes clear, then, that the present study has only scratched the surface of the myriad of potentialities afforded by the use of this tool in studying feelings and the perception of feelings. Among the more important areas which might be investigated by means of a systematic study of preference and perception in various groups are: (a) cultural and sub-cultural regularities and differences; (b) racial, religious, socio-economic and other cleavages among heterogeneous groups; (c) adjusted and maladjusted populations; and (d) changes in the same group over a period of time as the result, for example, of psychotherapy, improved communication, maturation, or instruction.

CHAPTER VII

SUMMARY AND CONCLUSIONS

This study explored the relation of affect and the perception of affect in six groups of female college sophomores and nursing school students. Feelings and their perception were measured through ranking and sociometric tests, but the principal technique employed was that of paired comparisons. These paired comparisons were coupled with certainty estimates so as to give a rough measure of degree as well as direction of feeling.

It was discovered that the paired comparisons approach structured preferences in terms of triadic units, each of which was composed of three diadic relationships. These diadic relationships were explored from the point of view of the perceptual accuracy that developed for each of the two persons involved.

It was hypothesized that the general principles governing social perception would be the same as those operative in object perception; and consequently would derive from the three analytic aspects of any perceptual field --- the set of the perceiver, the strength of the stimulus, and the relationship which exists between perceiver and stimulus.

Specifically, null forms of the following hypotheses were tested and rejected:

1. Persons involved in mutual preferential relationships show a higher accuracy of perception than persons involved in non-mutual preferential relationships.

2. If an individual is certain with regard to his preference, it is more likely to be perceived accurately by someone else than if he is uncertain.

3. Accuracy of perception of preferential feelings is enhanced in those cases where the perceiver considers himself emotionally meaningful to the person perceived.

It was also shown that the factors of the perceiver's set, the certainty of preference of the person perceived, and the preferential relationship between the person perceiving and the person perceived interact in such a way as to mutually facilitate, mutually depress, or counterbalance one another's effects on accuracy of perception.

In addition, an ex post facto finding of some importance was that the perceiver tended to predict reciprocity of her own preference, and that this tendency varied directly with the strength and direction of her preference. Thus, reciprocity of preference was predicted more often if the preference was strong and ADient than if it was weak and ADient. An ABient preference, regardless of its certainty, led to a medial tendency to predict reciprocity.

This finding appeared to account for the fact that perception was better in mutual than in non-mutual relationships. However, it was shown that the contributions of the perceiver's own preference and of the preference of the person perceived were independent of one another, and worked together or separately for or against accuracy of perception. In weighting these two factors, the stimulus preference emerged as more influential in determining perception than did the set induced by the perceiver's own preference.

It was shown that the tendency to predict reciprocity was no greater than the likelihood that reciprocity would actually exist. In fact, the prediction of reciprocity and its actual occurrence were so closely linked in a variety of different situations, that the labelling

of this tendency as autistic or projective seemed unwarranted. Rather, it appeared that consistent failure to predict reciprocity would be more suggestive of the operation of projection, and an illustration of such a case was presented.

Accuracy of perception was found to be the rule in almost every situation, and under almost any condition or combination of conditions. Thus, the subjects revealed themselves as decidedly "reality bound." Further, there was a strong tendency for those conditions most conducive to accurate perception also to occur significantly more often than chance expectancy.

Thus, the preferences of these subjects were found to be highly consistent, there was a noteworthy trend toward certitude of preference, mutual relationships developed significantly in excess of chance and they were significantly more likely to be reciprocally certain.

These findings led to the formulation of a "cultural conditioning" theory to explain the phenomena of social perception. This was based on the notion that subjects forming a relatively homogeneous population have undergone similar social learning, such that each is equipped with a sort of cognitive sociometric chart. This chart, the result of incessant conditioning to similar stimulus-response sequences, was thought to enable a subject to evaluate and behave appropriately in her affective field.

The complexity of this field, as revealed through the paired comparisons procedure, was emphasized; and an illustration of the interaction of the various factors determining social perception was presented, in its triadic framework. This resulted in the enigmatic discovery that popularity and perceptual accuracy, at least as measured, appear to be contradictory conditions.

CONCLUSIONS

The conclusions derived from this investigation, all of which are restricted to the population from which this sample was drawn, may be stated as follows:

1. Reciprocity is a key variable, both in the formation of affective relationships, and in the perception by individuals of one another's feelings.
2. Most individuals possess a keen awareness of their preferential relationships with others in the same affective field.
3. Social perception is determined by both the perceiver's set, which arises from a blend of her motivation and her past experience, and the stimulus clarity afforded by the person perceived; and accuracy of perception of another's feelings is determined by the interaction of these two factors.
4. Individuals appear to maintain a stable social world through behaving and perceiving in accordance with the common cultural conditioning to which they have been exposed.
5. The paired comparisons technique offers a new and highly promising approach to the study of feelings and the perception of feelings; and possesses the potentiality, through detailed analysis of affective and perceptual fields, of developing into a yardstick of wide value in measuring similarities and differences between cultural and social groups, and in assessing changes wrought by other variables within the same group over a period of time.

CHAPTER VIII

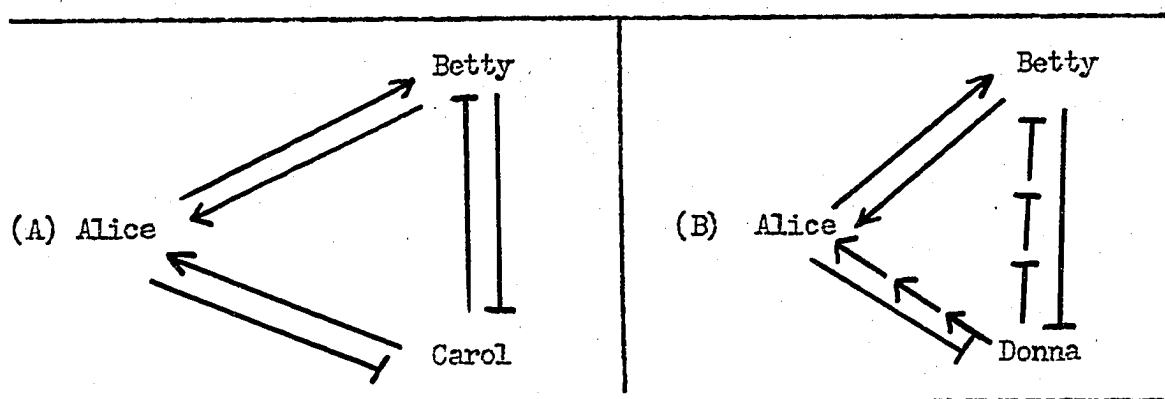
SUGGESTIONS FOR FUTURE RESEARCH

The writer is deeply impressed with the variegated potentialities that the paired comparisons technique, when coupled with an estimate of feeling strength, has for studying affective and perceptual fields. On the basis of the experience provided by this study, it is suggested that further research might follow the sequential order outlined below.

First, it would be advisable to examine thoroughly the implications of this method independently of other variables. For example, as was indicated earlier, there are two basic types of triad (Type A and Type B) which develop as a consequence of each individual's preferring one and not the other of her two triadic partners. However, when the variable of certainty of preference is added to the triadic structure, a number of additional complexities are introduced. Thus, the individual's preference may be one of four types: certain-ADient, certain-ABient, uncertain-ADient, and uncertain-ABient. It may be seen, then, that there are $4 \times 4 \times 4$ or sixty-four triadic possibilities. But, when attention is again drawn to the types of preferential bonds between pairs of individuals which develop in these triads, one finds that there are only twelve basic types. Further, it is discovered that eight of these are variations of the Type A triad, and the other four are variations of the Type B triad.

These variations seem to possess a certain amount of significance in terms of the contexts they provide for similar forms of preferential relationships. A detailed discussion of their properties will not be attempted here, but an illustration of their implications is afforded in

Figure 13. Here, (A and B, Fig. 13) it is found that a reciprocally certain and mutual relationship between Alice and Betty may exist under two different conditions. Thus, the third member of the triad may express a strong preference toward the other two, as Carol (A, Fig. 13) or a weak preference, as Donna (B, Fig. 13). As a result of whether the third person's preference in such a situation is strong or weak, a differential effect on perceptual accuracy is produced for all three members of the triad.



Legend:

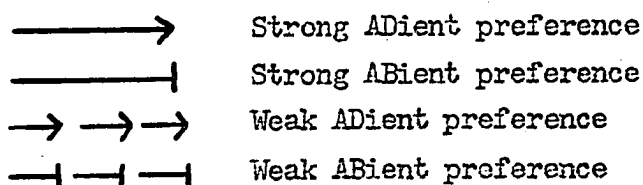


Figure 13

The Effect of the Strength of the Third Person's Preference on a Reciprocally Certain and Mutual Preferential Relationship

Thus, while Alice and Betty each achieve an accuracy score of 85.8 per cent when the third person's preference is strong (A, Fig. 13), their accuracy scores when the third person's preference is weak are both 90.4 per cent (B, Fig. 13).

Analysis of these situations suggests that this differential results from the disruptive effect of the emotional need introduced by Carol (A, Fig. 13), an emotional need which under the circumstances cannot be satisfied. It would appear further that in both of the triads illustrated in Figure 13, Alice and Betty are likely to best friends, i. e., to prefer each other strongly to anyone else in the group. Also, since type (B) of Fig. 13 occurs much more frequently than type (A), it seems that this relationship between Alice and Betty is common knowledge in the group, so that most of the others, when they find themselves as third persons in a triad containing Alice and Betty, react as Donna (B, Fig. 13). Thus, it is a matter of relative indifference to them which one they prefer, as in a certain sense, the question of preference has no real meaning to them. It would then be possible that those persons who don't develop this tendency, as Carol (A, Fig. 13) may be people who are generally unperceptive and/or unpopular. However, in order to answer questions such as these, very large samples are necessary, since this fine an analysis requires a breakdown of results into many units.

One other suggestive finding contingent upon triadic analysis derives from the fact that there are two ways in which non-mutual preferential relationships may develop: (a) as the third diad in Type A triads (where the other two diads are mutual), or (b) as one of the three diads in a Type B triad (where all diads are non-mutual). There is some indication that accuracy of perception is considerably worse in a non-mutual relationship which occurs in a Type B triad, than in one which occurs in a Type A triad. The perceptual accuracy levels of the two types are as follows:

1. Non-Mutual Relationship in Type A triads: 62.3 per cent
2. Non-Mutual Relationship in Type B triads: 44.3 per cent

Also, the frequency of non-mutual relationships which develop as third diads in a Type A triad is about six times as great as that of non-mutual relationships which develop from all three diads in a Type B triad. It is especially rare to see a Type B triad where all the preferences are certain. As a matter of fact, in the study just reported there were only three such triads out of a total of 1,589. Thus, there appears to be a very decided tendency for people to avoid relationships of the type where A has a strong preference for B, but B has a strong preference for C, and C has a strong preference for A.

One other aspect of triadic structures is concerned with the various positions in which individuals find themselves. It is discovered that there are thirty-two different triadic positions in which an individual may be placed, each of which carries different implications for accuracy of perception. While it appears that many of these are quite similar in their effects, each still deserves a thorough analysis.

These examples indicate something of both the complexity and the potential which reside in results structured by the paired comparisons technique.

Once the implications and ramifications of this technique have been studied exhaustively, it might then profitably be employed to detect similarities and differences between and among various groups which are homogeneous with regard to variables such as sex, age, socio-economic status, geographical location, etc. When these have been determined, it might then be possible to study groups which are heterogeneous with regard

to certain of these variables, thereby detecting, measuring and weighing their interactive effects.

Finally, a picture of the affective and perceptual fields conditioned by the American culture might emerge (as reflected by this method). If this same process were repeated in other nations, it might then lead to some practical concepts as to how international understanding could be fostered. One particularly valuable sample for study in this connection would be a group such as that attending a Children's International Summer Village. Here, the opportunity would be provided to determine the effects of international experience over a period of time by employing the technique twice, once at the beginning and again at the end of such an experience.

The cultural implications of this approach are legion. For example, it is conceivable that the French, with their traditional attitude of independence, belief in personal autonomy, inability to cooperate or reach workable compromises with others, would not find it at all uncomfortable to establish the Type B triads mentioned earlier, where there is no reciprocity of feeling. Further, their perception under such circumstances might be quite accurate. Such a finding would be of value particularly as contrasted with the American emphasis on reciprocity (should this result stand up).

With respect to testing the changes in a group which occur over a period of time as the result of an intervening experience, the paired comparisons technique again appears to have an unique value. Its use would seem especially appropriate as a means of detecting changes and measuring improvement as a result of group therapy. Since this technique affords a multi-dimensional approach to interpersonal phenomena, it

becomes possible to study the individual, the diad, the triad, and the group, as different facets of the same problem, merely by shifting the focus of attention.

At the individual level, a number of suggestions for research arise:

1. The problem of the deviant perceiver; the forms that projection and wish fulfillment may take in social perception, and a study of how others react to the person who is perceptually inaccurate.

2. The relationship between popularity and perceptual ability. Here it might be helpful to develop other indices of popularity so as to make sure that the results are not contingent upon an artifact of the measuring instrument.

3. The question of the individual's awareness of the affective relationships existing between pairs of other persons. To measure this directly would require a highly elaborate technique. One thought that has come to the writer is that the subjects of a group might be presented with a sociogram of that group, in which their individual names had been removed. The subject would then be asked to write in the names of the group members according to their sociometric positions.

4. Exhaustive correlative studies which would seek relationships at the individual level between and among the following factors:

- (a) The degree to which the individual's feelings toward all other members of the group are reliable.

- (b) The incidence of certain and uncertain feelings in a given individual.

- (c) The subject's ability to perceive.

- (d) The ability of others to perceive the subject.
- (e) The value of the subject as the basis of comparison for someone else, i.e., accuracy of perceiving another person's preference when that preference involved the subject.
- (f) The subject's conception of who likes whom in the group, and the popularity status of each member including himself.
- (g) The degree to which the subject predicts ADient and ABient preferences.
- (h) The extent to which the subject is able to become involved in mutual preferential relationships.
- (i) The certitude of the subject's expectancies of other people's preferences.
- (j) The extent to which the subject predicts reciprocity of his own preference.

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