THE EFFECTS OF BALANCE, INVOLVEMENT, AND COGNITIVE COMPLEXITY UPON OBSERVERS' CAUSAL ATTRIBUTIONS AND INTERPERSONAL COMMUNICATION

by

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CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

At the core of human communication transactions is the structuring and interpreting of impinging environmental stimuli. The observation of self and others yields bits and pieces of information that are put together to form a meaningful, albeit tentative, impression of behavior. The pivotal nexus in this process of "meaning creation" is the inference persons make about the causes of observed behavior. Attribution -- the behavior of the average individual in attempting to infer the underlying causes of observed behavior -- may be the incipient phase of human communication.

Understanding the dynamics that intervene between information and meaning is a relevant and significant concern of the communication theorist for two reasons. First, understanding how individuals go about attributing the causes of behavior may further illuminate the dynamics of human information processing. Second, once a cause for an action has been tentatively designated, the nature of future communication may be channelized in predisposed, systematic manners.

The authors of a recent survey of attribution theory and research [Jones, Kanouse, Kelley, Nisbett, Valins & Weiner, 1971, p. x] cite three broad concerns that are relevant to the study of human communication:

> (1) The factors motivating the individual to obtain causally relevant information,
> (2) the factors determining what cause will be assigned for a given event, and
> (3) the consequences of making one causal attribution rather than another.

The nature of the first concern is integral to understanding the link between communication and attribution.

A primary motive of man is to engage in effective interaction with the environment. The constituents of such effectiveness are understanding, prediction and control. Arriving at a subjectively satisfying interpretation of the environment, man makes it predictable and, thus, feels competent to exercise control over it. Seeking out and defining the underlying causes of observed behavior initiates the first step in achieving effective interaction with the environment. Harold Kelley [1971a, p. 22] proposed that the attribution process be seen as an individual's

> means of encouraging and maintaining his effective exercise of control in the world. The purpose of causal analysis -- the function it serves for the species and the individual -- is effective control. The attributor is not simply an attributor, a seeker after knowledge. His latent goal in gaining knowledge is that of effective management of himself and his environment. He is not a pure "scientist," then, but an applied one.

Having been motivated to make causal attributions, what naturally follows is the comparison of the predicted with the perceived and, subsequently, the determination of needed adjustments. Various other motives can be derived from this superordinate one, but it is important to note that the impetus for human communication may also appropriately be ascribed to the need "to act effectively" [Barnlund, 1962].

The second concern is clearly reflected in the focus of scien-

tific investigations of the attribution phenomenon -- the discovery and verification of any systematic consistencies in how individuals search for and process available environmental information relevant to causal analysis. In attempting to delineate the factors that may systematically determine what cause will be assigned for a given event, attribution research has produced a variety of paradigms intended to illuminate the manner in which persons will assign causes for events and behavior. One of the more pervasive paradigms recently proposed is the "actor-observer" phenomenon [Jones & Nisbett, 1971]. Extracting from Heider's [1958] The Psychology of Interpersonal Relations, Jones and Nisbett [1971, p. 80] argued that

> there is a pervasive tendency for actors to attribute their actions to situational requirements, whereas observers tend to attribute the same actions to stable personal dispositions.

This phenomenon may be explained in terms of information available. The actor has more readily available information concerning the situation, its history and growth, and the constraints imposed upon behavior by environmental forces. On the other hand, the observer does not have ready access to this information. To the observer the behavior is figural, while the context is the ground. For the actor, however, the behavior is the ground while the context is figural. Thus, Jones and Nisbett [1971, p. 85] asserted that

> different aspects of the available information are salient for actors and observers and this differential salience affects the course and outcome of the attribution process.

While the actor's view of his own behavior emphasizes the role of environmental conditions at the moment of action, the observer's empha-

sis is upon the causal role of stable dispositions and personal properties of the actor. In terms of an internal-external attributional dichotomy, the paradigm predicts that observers will designate primarily internal causes, while actors will designate primarily external causes. In short, as Kelley [1971a, p. 18] put it, "Too little account is taken of external causes (contextual factors) in judgments of other persons' behavior."

While much research has been conducted as to how actors construe their own behavior, the construction processes of observers is equally important. Ichheiser [1970] has presented a variety of phenomenological examples that demonstrate that many complex and often coercive social arrangements derive from society-as-observer attributions. An appropriate focus for research would then tend to concentrate on the observer in this paradigm.

While there may be relatively stable systems associated with the causal attributions of observers, there may be differences in how observers process information related to other factors. For example, under what conditions will an observer <u>not</u> make predominantly internal attributions concerning an actor's behavior. Two mitigating factors that may exert significant influence are involvement and strain towards balance.

Differences in observers' causal attributions about an actor's behavior may be related to the degree that observers are involved with the actor. Jones and Nisbett [1971] asserted that the observer's tendency to attribute action to the actor would probably increase as he became more actively involved with the actor -- when the consequences

of the actor's behavior affect the observer, his goals, etc., and when the observer may influence the actor as well as be influenced by him. However, Kelley [1971a, p. 19] suggested that

> those actions of another person that are in conflict with the attributor's interests tend to be attributed, more than they should be, to that person.
>
> In interdependent interaction with another person, the attributor tends to attribute to himself those actions of the other person that are consistent with the attributor's own interests.

Thus, the observer's involvement with the actor would be expected to affect the nature of the observer's attribution -- external when the action is positive and internal when the action is negative.

In a like manner the congruity or incongruity of the actor's behavior with the sentiment relations between actor and observer as seen by the observer may also influence the nature of observers' causal ascriptions. Balance was proposed by Fritz Heider [1958] as an operating principle which works in conjunction with other principles to influence the organized cognitive and perceptual processes of an individual.

> The concept of a balanced state designates a situation in which the perceived units and the experienced sentiments co-exist without stress; there is thus no pressure towards change, either in the cognitive organization or in the sentiment. [Heider, 1958, p. 176]

In a more general sense, balance refers to a "fit without stress." Heider maintained that balance is preferred and, in the case of imbalance, the configuration will change in the direction of balance -- a satisfying fitting together of social elements.

Historically it is appropriate to join balance and attribution in that it was Heider [1958, p. 56] who first proposed that

> behavior can be ascribed primarily to the person or to the environment; that is, behavior can be accounted for by relatively stable traits of the personality or by factors within the environment.

For example, the acquisition and maintenance of a balanced configuration would suggest that an observer makes primarily external causal attributions when presented with an actor he likes behaving in a way he dislikes, rather than the internal attribution predicted by the actor-observer paradigm. Thus, a balanced state may serve as a criterion of attributional sufficiency. Balance is not merely one vehicle by which attributions are made, but rather a criterion for understanding, a criterion for when explanations for behavior are thought to be sufficient.

However, people may differ in their need to acquire and maintain balanced cognitive configurations. Some people, in fact, seem to be intrigued with imbalanced patterns, finding them exciting and growthful. These differences may lead to considerable differences in the nature of causal attributions. This difference in preference for balance may reflect differences in level of cognitive functioning. One significant indicator of level of cognitive functioning is cognitive complexity [Crockett, 1965]. This personality characteristic indexes the differentiation and hierarchic organization of a person's cognitive system and has been shown to be a factor in an individual's preference for balance. The cognitively complex person differentiates more precisely the qualities of others, recognizes and accepts the co-existence of positive and negative traits in the same person, and organizes his impression of behavior so as to account for both positive and negative traits [Crockett, 1965; Mayo & Crockett, 1964; Rosenkrantz

& Crockett, 1965; Meltzer, Crockett & Rosenkrantz, 1966; Nidorf & Crockett, 1965; Nidorf, 1961; Mahood, 1971]. Thus, the tendency towards balance, which may require the supression in one way or another of incongruent elements by relatively noncomplex perceivers, may be a less compelling motive for the more cognitively complex person. That is, the individual who is more likely to recognize, accept, and explain in an organized manner the incongruent elements of a person's behavior may be less likely to make causal attributions that are primarily the result of a strong preference for balanced cognitive configurations.

Thus, three variables expected to be related to the formation of causal attributions are the congruity of an actor's behavior with the sentiment relation between actor and observer, the degree of interdependent involvement between actor and observer, and the cognitive complexity of the observer. This study determines the effect of these three variables, singly and in combination, upon the causal attributions of observers. Varying the degree of liking that observers have for an actor and varying the desirability of the actor's behavior should yield information about the effect of preference for balance upon the nature of causal attributions. Varying the degree of observers' interdependence with an actor should yield information about the effect of differential involvement on the formation of causal attributions. Measuring observers' cognitive complexity should yield information about the effect of differential levels of cognitive functioning upon the complexity of attributional functioning. In addition, varying these factors should facilitate the exploration of the consequences of making

one causal attribution rather than another, specifically in regards to the nature of interpersonal communication between actor and observers.

Review of the Literature

Causal Attributions and Actors and Observers

A few studies have provided direct support for Jones and Nisbett's [1971, p. 93] proposition that

> Actors tend to attribute the cause of their behavior to stimuli inherent in the situation, while observers tend to attribute behavior to stable dispositions of the actor.

Several studies have asked subjects to record the causes of behavior presented in written form. McArthur [1970; 1972] showed subjects simple one sentence descriptions of an action and then asked them to indicate whether the action occurred as a result of the person, the stimulus, or the situation. The source cited most frequently was the person. Attributions of person-stimulus interaction were cited most often when the description involved emotional reactions and experiences (i.e., X likes the tv show.).

Two studies reported by Nisbett, Caputo, Legant and Marecek [1973] lend additional support. In the first study subjects were requested to indicate why they liked the female they had dated most frequently recently, why they had chosen their college major, why their best friend liked the girl he had dated most frequently recently, and why their best friend had chosen his college major. In explaining their own choice of female companions, subjects cited twice as many stimulus reasons as personal dispositions, while reporting equal numbers of stimulus and dispositional reasons for their best friends. On the other hand, their friend's choice of college major reflected

four times as many dispositional reasons compared to reasons associated with the nature of the major, while equal numbers of entity and dispositional reasons were reported in explaining their own choice.

In the second experiment subjects checked which of three descriptions best described several stimulus persons, including themselves: a trait term, its polar opposite, or the phrase "It depends on the situation." Subjects attributed fewer trait terms to themselves than to other people, and fewer trait terms for those they knew well than for those they knew less well.

A series of studies conducted by Taylor and Koivumaki[1] found moderate confirming support using the same written recall format. People viewed their own behavior as more situationally determined than that of other people. They also found a positivity effect in that person attributions were made for positive behaviors, while situational attributions were made for negative behaviors. It is interesting to note that in the one study which employed ratings on both situational and dispositional scales, rather than ratings on a scale that placed situational causes at one end and dispositional causes at the other, as acquaintance with the other person increased dispositional factors were judged to be more important than situational factors in producing positive behaviors. This suggests that persons operate much more complexly than research instruments allow. That is, rather than sliding back and forth on an internal-external scale, the subject probably construes behavior causally on a multi-dimensional matrix composed of a variety of causal loci. As information is acquired and processed, different vectors come into play and interact to influence the attri-

bution process. The more measures of attribution allow for the reporting of such complexity, the more the underlying dynamics of causal attributions will be revealed.

As one moves to the observation of actual on-going behavior, the results do not change drastically. Nisbett, Caputo, Legant and Marecek [1973] asked actor-subjects and observer-subjects to estimate the probability that an actor would volunteer for a task as a function of whether or not actors had volunteered for a similar prior task. Observers inferred that the person would volunteer or not according to whether he had volunteered or failed to do so on the earlier trail. Actors, themselves, did not tie their predicted future behavior so unequivocally to their past actions.

McArthur [1970; 1972] solicited subjects' participation in a survey of interpersonal relationships and then asked them why they had agreed to participate. Subjects attributed their actions to such factors as the importance of the survey. Observers, who were given a written account of the actors' behavior and the circumstances of the action, explained the same behavior primarily as personal inclinations to participate in such surveys.

Storms [1973] investigated the effects of changes in visual orientation upon the attributions of actors and observers. He reported strong evidence that actors characteristically attribute causality to aspects of the situation, while observers tend to attribute causality to the actor's disposition.

There is indirect evidence that generally supports the existence of differential attributions made by actors about themselves, and

observers about actors [Jones, Rock, Shaver, Goethals and Ward, 1968; Jones and Harris, 1967; Jones, Worchel, Goethals and Grumet, 1971]. While not directly concerned with causal attributions, these studies found in a variety of situations a general tendency for observers to place greater emphasis than did actors themselves upon dispositional factors in explaining an actor's behavior. Studies by Jones and Harris [1967] and Jones, Worchel, Goethals and Grumet [1971] are especially compelling. In both studies subjects read or listened to speeches presumably written by fellow students. Subjects were asked to estimate the communicator's real opinions based on this information. In a "no choice" condition subjects were convinced that the communicators had no freedom in their choice of sides on that particular topic. In spite of evidence that circumstances strongly affected the delivered message, subjects' estimates of the communicators' real positions were unduly influenced by the message presented.

An explanation of the underlying dynamics of this phenomenon may begin by recalling the earlier discussion of the motive of effectance -- the processing of environmental information to achieve effective interaction with that environment. Assigning a cause to a particular event or behavior makes that behavior understandable, predictable and, thus, potentially controllable. Within this framework, actors and observers attempt to explain the causes of an actor's behavior. The differential treatment of the same action by actors and observers can be partially ascribed to differences in the information that each possess about the behavior [Jones & Nisbett, 1971]. However, this same orientation may also explain differences in how both <u>process</u> salient

information. Bem [1967] has asserted that actors and observers use similar evidence and logic in construing the actor's behavior, actors being self-observers. However, the actor may place greater emphasis upon situational elements in explaining his own behavior not only because he has ready access to that data, but also because the ability to respond differentially to varying situations enhances his sense of control of the environment [Mischel, 1969]. On the other hand, the observer likewise enhances his sense of control by attributing relatively stable causal dispositions to the actor, making the actor potentially more predictable [Brehm, 1966]. This line of reasoning might also account for the positivity effects noted in some studies such that the attribution of negative acts to circumstantial factors increases the probability, or sensed probability, that non-attractive consequences may be manipulated, controlled, predicted and, thus, prevented; or, at least, that the perceiver is not subject to the behavior of a malevolent actor.

While the evidence for the actor-observer hypothesis is certainly not incontrovertible, there would appear to be sufficient consistency in experimental results to merit tentative acceptance. It is also clear that the effect of other cognitive and motivational processes upon the differential behavior of actors and observers has not been thoroughly researched. As with Storms's [1973] study of the effects of visual and physical perspective upon attributional tendencies, the effects of these variables upon attributions should be subjected to further empirical investigation. In this regard, the further refinement of attribution measures so as to differentiate <u>plausible</u> causal

loci would provide further information about the underlying dynamics involved in determining the direction that attributions take. Such elaboration has already advanced the knowledge of success-failure attributions [Weiner, Frieze, Kukla, Reed, Rest & Rosenbaum, 1971], and should be undertaken in future actor-observer research.

Involvement and Causal Attributions

The effect upon causal attributions of different levels of observer interdependence with the actor has not been extensively studied. The theoretical hypotheses that have been advanced must be subjected to further empirical testing before they can be tentatively accepted or rejected.

Jones and Nisbett [1971] distinguished between passive and active observers on the basis of influence and reciprocality. The passive observer is typically neither affected by the actor's behavior nor in a position to respond to the actor. The active observer, however, is typically both affected by the actor's behavior and in a situation to influence and respond to the actor. From the results of studies reviewed above, one would expect the passive observer to make predominantly dispositional attributions for the actor's behavior, especially when it is positive. The question at hand is how does being actively involved with an actor affect the observer's causal attributions.

Jones and Nisbett [1971] predicted that the active observer will behave in ways similar to the passive observer; that is that he will make primarily internal, dispositional attributions. They advanced three theoretical reasons to support this point. First, the active observer is, in some senses, now an actor himself and, being caught

up in on-going action, may be less likely to make appraisals of environmental constraints than he normally would. Second, since the active observer may be in a position where prediction of the actor's behavior is highly salient, he would be especially concerned to determine the actor's dispositions. Third, if the surrounding environment is basically the same for actor and observer, then the extent to which the actor responds differently from the observer should cause the observer to make essentially dispositional attributions about the actor. In short, all these factors would induce the active observer to make dispositional causal attributions.

On the other hand, Kelley [1971a] has suggested that in interdependent interaction with another person, the attributor will tend to attribute to himself those actions of the other person that are consistent with the attributor's own interests, goals, values, etc.; while attributing to the other person those actions of the other person that are inconsistent with the attributor's goals. Kelley offered some empirical research that gives limited support for his thesis. Johnson, Feigenbaum and Weiby [1964] reported on teachers' attributions of students who improved over time and students who continued to do poorly. The increase in performance was attributed by the teachers to their own effectiveness, while the continued poor performance was attributed by the teachers to the students' lack of ability or effort. In a replication of this study, Beckman [1970] reported the same kind of attributions for teachers, but not for uninvolved observers. This same attributional tendency for teachers has also been reported elsewhere [Streufert & Streufert, 1969].

On the surface both positions appear sensible, although incongruent. The former hypothesis asserts that dispositional attributions will be the result of a decreased attention to environmental factors consequent upon increased interdependence. Kelley seems to be saying that people prefer to take responsibility for positive consequences and reject the responsibility for negative consequences. We prefer a modification of Kelley's position, principally because of empirical evidence, but also because it makes intuitive and phenomenological sense. A brief examination of the underlying dynamics of active involvement will clarify the choice.

In 1961 Jones and Davis proposed "hedonic relevance" as a factor significantly influencing causal attributions. An act has hedonic relevance in so far as it promotes or undermines an attributor's interests, goals, etc. -- proves gratifying or disappointing. An act that facilitates goal attainment, task accomplishment, or reinforces values would be of positive hedonic relevance and, according to Kelley, would be attributed to one's self rather than to the source of the act. But an actor's behavior also has hedonic relevance for a different reason. The extent to which a person behaves as one predicts is relevant to one's sense of understanding, prediction and control. In this regard, it is probably a distinguishing characteristic of the active observer that he has information, gathered through interaction, about the actor's orientation towards him. Such information often leads to predictions about the actor's behavior in reference to the observer. There are now actually two ways in which another's behavior can possess positive or negative hedonic relevance -- whether the actor behaved as

predicted and whether the act was facilitative or destructive of the observer's goals, desires, etc.

This is a complex situation where the sources of hedonic relevance may in fact compete with each other. In these situations it may be that the behavior with direct implications for one's predictive capability will establish the primary attributional direction. There are thus four possible outcomes depending upon whether the behavior is positive or negative and whether it is expected or unexpected.

Where positive behavior is expected and observed, both acts would be of positive hedonic relevance. The relevance to general predictive accuracy would indicate a dispositional attribution to the actor, but, at the same time, the positive behavior, in keeping with Kelley's argument, would indicate an attribution to self as well.

Where positive behavior is observed and unexpected, one act is of positive hedonic relevance, and one is of negative relevance. In this situation, attributions to circumstances would maintain one's predictive ability by ascribing the unexpected behavior to mutable and often unpredictable aspects of the environment.

Where negative behavior is expected and observed, one could expect dispositional attributions to the actor consistent with the hedonic relevance to predictive ability and Kelley's speculation about explanations for negative acts.

Where negative is observed and unexpected, circumstantial attributions to mutable aspects of the situation would be expected in light of the implications for predictive ability. In fact, where increased positive acquaintance leads to stronger positive expectations, the

tendency to attribute unexpected negative behavior to circumstantial sources appears to increase [Taylor & Koivumaki[1]].

Precisely what direction causal attributions will take in each of these conditions is not completely clear and needs further research. But it is reasonable to expect that differential levels of interdependent involvement will influence the nature of observers' attributions.

Balance and Attributions

A number of theorists have presented the idea that persons tend to organize perceptual data in cognitively consistent patterns (Abelson, Aronson, McGuire, Newcomb, Rosenberg & Tannenbaum, 1968]. One of the more potent and applicable statements of such tendencies is Heider's principle of balance [1958, p. 180].

> By a balanced state (or situation) is meant a harmonious state, one in which the entities comprising the situation and the feelings about them fit together without stress.

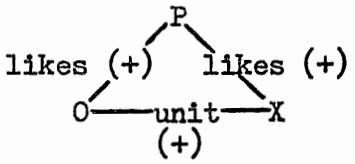
The elements of balance are perceived sentiment and unit formations. A balanced state is one in which the perceived sentiments and perceived units co-exist without stress. In one way or another they tend to fit together. The typical statement of the Heiderian formulation involves a P-O-X triad: P likes O, P likes X, P perceives O in unit relationship to X. Sentiment relations can possess either a positive (like) or a negative (not like) sign, as can unit (positive) and not unit (negative) relations. The simplest statement of the principle is that a balanced configuration exists when the algebraic product of the signs of the three relations is positive, and imbalanced when negative. Many excellent reviews of theory and research related to balance have appeared in recent years [Abelson, et al, 1968; Rosenberg & Abelson,

1960] that sketch the growth and development of the theory.

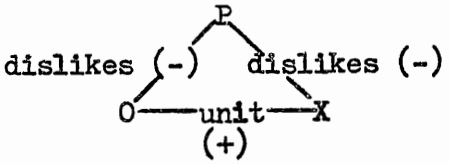
Though subject to some interpretation regarding underlying dynamics, there is a wealth of research evidence supporting most of Heider's original formulations: individuals appear to exhibit a preference for balanced configurations [Jordan, 1953; Price, Harburg & McLeod, 1965; Price, Harburg & Newcomb, 1966; Rodrigues, 1965, 1967]; individuals appear to change imbalanced structures into balanced structures [Burnstein, 1967; Rodrigues, 1967]; individuals appear to remember balanced structures better than imbalanced ones [Feather, 1969a, 1970]. But while these results tend to generally support the importance of the balance principle in the structuring of perceived social relations, there has not been much investigation of the effects of a strain towards balance upon the processes of causal attributions. Harold Kelley's discussion of causal schemata [1971b, 1973] provides an appropriate context for such an application.

Consistent with his assertion of systematic proclivities in the attribution process, Kelley suggested that attributors are prone to use a variety of attributional schemas in designating the underlying cause of an event or behavior. One such schema is balance. Consider the situation where P likes O, and O performs an act, X, that P dislikes. Central to this analysis is whether or not P perceives a unit relation between O and X. In attributional terms a unit relation reflects P's assumption that O caused X. The formation of a not unit relation reflects P's assumption that O did not really cause X. In other words, does P make primarily dispositional or primarily situational attributions about the causes of O's behavior? Balance predictions would

suggest that when O's behavior is consistent (possesses the same sign) with P's perceived sentiment toward O, then P will make dispositional attributions (form a unit relation between O and X).



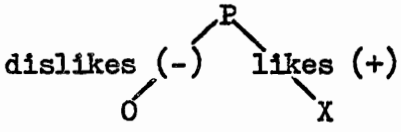
P likes O.
P likes X.
O causes X.



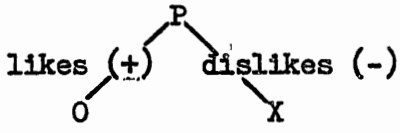
P dislikes O.
P dislikes X.
O causes X.

In both situations above, P would make internal, dispositional attributions about the causes of O's behavior since such attributions appropriate a balanced configuration (the algebraic product of the signs is positive). Such analysis is from P's viewpoint, as is the analysis of an observer's attributions.

However, the triads below do not lend themselves to similar balancing tactics.



P dislikes O.
P likes X.



P likes O.
P dislikes X.

It is clear that in these situations, P basically has three choices. First, he can ascribe the cause of X to someone or something other than O -- the circumstances. Second, he can change his sentiment toward O and ascribe the cause of X to dispositional qualities of O. Or, third, he can change his valence towards X and make similar dispositional attributions. If, however, the experienced sentiment is salient and strong enough, it may realistically be predicted that P will make primarily situational attributions by the formation of not unit relations between

O and X. If this analysis were applied to observers in the manner just outlined, the underlying dynamics of the actor-observer paradigm can be elaborated.

Jones and Nisbett [1973, p. 93] saw the plausibility of such predictions in their discussion of the influence of motivational and cognitive factors upon the attributional tendencies of observers.

> We also readily grant that, when the observer has a favorable opinion of the actor who performs a praiseworthy act, a dispositional inference is more likely. . . The tendency to infer dispositional causes is undoubtedly also enhanced when the observer dislikes the actor who performs a blameworthy act. . . . the observer's bias can just as easily be reversed, as when the observer likes the perpetrator of bad acts . . . or dislikes the performer of good acts.

In terms of causal schemas, Kelley suggested that balance is a "simple", "main effect" pattern that reflects either persons or entity attributions. Citing the research of Chapman and Chapman [1967, 1969] and Jones and Harris [1967], Kelley asserted that there would appear to be a tendency for attributors to prefer simple rather than complex causal schemas "even under circumstances where the use of such schemata is in conflict with other evidence in the situation" [1973, p. 122]. There is available research evidence to indicate that such might generally be the case.

Feather [1969b] reported indirect evidence supporting the general balance contention. He reported that subjects who were initially confident of passing a test tended to attribute success to internal factors while attributing failure to external, situational factors. This effect was replicated in later research [Feather & Simon, 1971a] and also reported in reference to observer's attributions of actors' success [Feather & Simon, 1971b]. If expectations can be interpreted

as "I expect people I like to do likeable things," then the results bear directly upon a balance schema. Press and Bethel [1971] reported more direct evidence. Presenting subjects with an actor and his behavior, they reported that balanced situations produced the attribution of internal, disposition motives, and unbalanced situations the attribution of external or devious motives in explaining O's actions. Data analyzed, but not reported, by Taylor and Koivumaki[1] also lend support to the existence of balance effects in observers' attributions. They asked married couples who was responsible for arguments in their family: themselves, their spouses, or situational factors. Subjects reported primarily situational factors (only three of forty-six cited their spouses, while twelve cited themselves). This suggests, in balance terms, that if subjects liked their spouses, and disliked arguments, then the acquisition of a balanced configuration was appropriated by circumstantial attributions (P likes O, P dislikes X, O not unit with X). Press[2] has gathered data that confirms the effects of balance preferences upon attributional tendencies, such that personality is referred to more often than circumstances in explaining the positive behavior of a liked peer and the negative behavior of a disliked peer. On the other hand, circumstances are referred to more than personality when subjects explain the negative behavior of a liked peer and the positive behavior of a disliked peer.

While research in this particular area has not been extensive, enough evidence is present to suggest that balance does affect causal attributions and it is consistent enough to merit further investigation. Balance can either be considered as a simple causal schema, a la Kelley,

or as a criterion of attributional sufficiency. Future research should examine the latter position as it allows for the introduction and consideration of additional cognitive, motivational and causal schemas co-existent with balancing tendencies. As attribution appears to be a complex phenomenon, this position makes more theoretical and practical sense.

Cognitive Complexity

Recognizing that individuals differ in the manners in which they cognitively deal with social percepts, several theorists have focused attention on cognitive complexity [Bieri, 1955; Leventhal, 1957; Scott, 1962, 1963; Zajonc, 1960; Crockett, 1965; Vannoy, 1965]. Each author has developed somewhat different definitions and measurements of cognitive complexity. Since Crockett's approach is analytic rather than phenomenological [Zajonc, 1960], its techniques and conclusions are more applicable to a discussion of balance (the analytic method derives from how individuals reconcile inconsistencies). Additionally, the approach is easy to administer and has appropriated an attractive body of theory as underpinnings. Thus, this approach (Crockett's) is preferred for the present investigation.

In explaining the relationship between cognitive complexity and impression formation, Crockett [1965] has synthesized the theoretical positions of George Kelly [1955] and Heinz Werner [1957, 1961]. Crockett has approached complexity from a developmental perspective emphasizing the differentiation and organization of individual construct systems. A brief examination of Kelly's and Werner's theories will elaborate the perspective chosen here.

At the base of Kelly's theory of personality is his belief that a primary motive of man is prediction and control. He advised that all men should be seen as scientists whose "ultimate aim is to predict and control" [1955, p. 5]. This is an essentially gestaltist position that stresses the transaction between man and the environment in the creation of meaning. Man is simply not a passive responder to environmental stimuli, but rather an active creator of his own reality. Man represents, construes the environment rather than just responding to it. By placing varying constructions on his environment, man imposes patterns on the world by which he interprets (creates) reality. By making predictive inferences about his environment, man can respond with appropriate behavior, and, thus, exert control over his world.

Kelly intuitively asserted that man's construct systems develope out of experience with social interaction. And though construct systems may differ, there are similarities between individuals that allow for and can facilitate social interaction (This interaction hypothesis is similar to Mead's significant symbol theory and has been explored by Adams-Webber [1969], although not in Meadian terms.). However, Kelly does not speculate as to the exact nature of a construct system's development. Crockett used Werner's orthogenetic principle of growth to specify the line of constructural development. The orthogenetic principle, as stated by Werner, is that

> Wherever development occurs it proceeds from a state of relative globality and lack of differentiation to a state of increasing differentiation and hierarchic integration. [1957, p. 127]

Combining Kelly and Werner, Crockett defined cognitive complexity.

> A cognitive system will be considered relatively complex in structure when a) it contains a relatively large number of elements and b) the elements are integrated hierarchically by relatively extensive bonds of relationship. [1965, p. 49]

Thus, differentiation and hierarchic organization are the criteria of cognitive complexity. Differentiation refers to the number of constructs, while organization refers to relationships between these constructs. An index of complexity is the degree of differentiation an individual uses in construing reality and his ability to unite the elements of his construction into an interrelated system. Several studies have indicated that construct systems do develope in line with the orthogenetic principle [Dornbush, Hastdorf, Richardson, Muzzy & Vreeland, 1965; Signell, 1966; Scarlett, Press & Crockett, 1971].

While there are several studies indexing the relationship between cognitive complexity and other variables [see Crockett, 1965, and Abelson et al, 1968], the focus of the present analysis is upon the effects of cognitive complexity on the strain towards balance. There is a substantial amount of research that bears directly upon the relation between complexity and balance.

It would appear that subjects low in cognitive complexity tend to rely on the balance formulation in dealing with social reality [Press, Crockett & Rosenkrantz, 1969; Delia, 1970; Delia & Crockett, 1973; Shaw, 1969; Scott, 1962, 1963] more than subjects operating at a high level of cognitive complexity. Explanations for this rest upon the tendency of the high complexity individual to, first, recognize the existence of both positive and negative information and, second, integrate that information into their impression. Rather than supressing or distorting inconsistent information, high complexity individuals

will report impressions that tend to be bi-valent and account for the existence of both positive and negative traits [Crockett, 1965, in reanalyzing Supnick's data, 1964; Mayo & Crockett, 1964; Rosenkrantz & Crockett, 1965; Meltzer, Crockett & Rosenkrantz, 1966; Nidorf & Crockett, 1965; Nidorf, 1961; Mahood, 1971].

Individuals who possess a highly differentiated construct system simply have more dimensions by which to construe elements of their perceptual field and, thus, are more likely to recognize disparate elements. As the organization of their system increases, it is more likely that inconsistent elements can be retained without causing undue anxiety in the system. Additionally, the degree of organization also permits the resolution of inconsistencies by explaining the inconsistency rather than denying or distorting one or both incongruent elements. It would appear that high complexity individuals use essentially different modes of inconsistency resolution in dealing with what may be termed unbalanced configurations [Heider, 1958, pp. 113-114; Abelson, 1959; Kaplan & Crockett, 1968; Kelman & Baron, 1968].

It seems clear that the level of cognitive complexity will affect an individual's tendency to rely upon balance formulations in construing social reality. If balance affects the attributions of individuals faced with inconsistent actor-action situations, then the observer's level of cognitive complexity should affect the nature of the observer's attributions as well, such that attributions should be less likely to reflect primarily either dispositional or circumstantial causal loci -- they will probably reflect emphases upon both. Scarlett, Press and Crockett [1971] found that children's descriptions of peers

were more differentiated as the developmental level of their construct systems were higher. In part, they reported, the developmental level was related to increasing age [also reported by Rosenbach, Crockett & Wapner, 1973]. Baldwin and Baldwin [1970] have also demonstrated that attributional complexity may also increase with age (although Kelley has maintained that simple causal schemas such as balance clearly may also predominate in adult attributions). They asked pre-school children, eighth-graders, and college students to explain a child's kindness based on a story about his actions, the circumstances and the consequences. Although their results are subject to competing explanations, there appeared a trend for the younger subjects to refer to essentially to dispositional explanations reflecting the assumptions that "behavior is behavior" and "good actions indicate good persons." In this regard it is interesting to note recent research that indicates that the tendency to fashion impressions that recognize and integrate conflicting and inconsistent information decreases as emotional involvement of the perceiver in the situation increases [Rosenbach, Crockett & Wapner, 1973].

Thus, it is predicted that high complexity observers will make attributions that rely less upon balancing schemas than will low complexity observers. This effect should be enhanced when the phenomenal situation involves inconsistencies between the observer's experienced sentiment toward the actor and experienced sentiment towards the actor's behavior.

Communication Consequences of Differential Attributions

It makes intuitive sense that individuals will be disposed to interact with another person in certain modes depending upon the attri-

butions they make about the causes of the other's behavior. Unfortunately, there has not been extensive and direct research in this area. But it is clear that different attributions will lead to different actions. For example, the reciprocation of harm and benefit may depend upon whether or not an individual judges the source to have caused the initial harm or help [Kelley, 1971a, pp. 14-15; 1973, pp. 126-127]. In a study of the effects of "can" and "trying" attributions upon the nature of messages supervisors send to subordinates, Stroup [1974] found that more attempts were made to motivate "high ability" subordinates when assigning them to jobs that "high effort" and "high trying" subordinates. Other than this one study, there seems not to have been any direct tests of the effects of attributions upon interpersonal communication. This is an area that deserves further study and will be explored in this study.

HYPOTHESES

The purpose of this study is to investigate the effects of balance, interdependence and cognitive complexity upon the attributional tendencies of observers and the nature of observers' post-attribution communication with the observer actor. The preceding discussion makes it possible to stipulate predictions for the effects of each of the three variables upon attributions. As was stated above, the interpersonal communication consequences of differential attributions is exploratory in nature.

This study will construct a situation in which actively (interdependent) and passively (independent) involved observers either like or do not like an actor who performs either a positive or a negative act.

Balance

The first general hypothesis is that there will be differences in the nature of observers' causal attributions which will be related to differences in their degree of liking for an actor and differences in the positivity of the actor's behavior. Both actively and passively involved subjects will be affected by these differences. Specifically, it is predicted that observers in congruent behavioral situations -- positive sentiment and positive act, or negative sentiment and negative act -- will make more internal, dispositional attributions about the causes of the actor's behavior than will observers in incongruent behavioral situations -- positive sentiment and negative act, or negative sentiment and positive act. Conversely, it is also predicted that observers in incongruent behavioral situations will make more external, circumstantial attributions about the causes of an actor's behavior than will observers in congruent behavioral situations.

Involvement

The second general hypothesis is that there will be differences in the nature of observers' causal attributions related to differences in their degree of interdependent involvement with the actor in the situation. Specifically, it is predicted that in incongruent behavioral situations, observers who are interdependent with the actor will make more external, circumstantial attributions that will observers who are not. The higher hedonic relevance of the implications of predictive failure taking precedence over the hedonic relevance of the nature of the actor's behavior accounts for this prediction. For simplicity, those observers who are interdependent with the actor shall be referred

to as "actively" involved, and those observers who are not interdependent with the actor shall be referred to as "passively" involved. In negatively congruent behavioral situations (negative sentiment and negative behavior) and positively congruent behavioral situations (positive sentiment and positive behavior), the attributions of actively and passively involved observers are not expected to differ appreciably, although there may be a tendency for actively involved observers in the positive congruence condition to use dispositional and self-attributions (among other circumstantial factors) more than passively involved observers. Likewise there may be a tendency in the negative congruence condition for actively involved observers to be slightly more dispositional in their attributions than passively involved observers.

Cognitive Complexity

The third general hypothesis is that there will be differences in the nature of observers' causal attributions related to differences in their level of cognitive complexity. Specifically, it is predicted that observers high in cognitive complexity will be less subject to balancing tendencies, such that they will evidence a more proportinate distribution of causal attributions across both internal (dispositional) and external (circumstantial) factors. However, it may be that the effects of cognitive complexity will be attentuated as interdependence (involvement) with the actor in the situation increases [Rosenbach, Crockett & Wapner, 1973].

CHAPTER II

PROCEDURES

Subjects

Subjects were undergraduate students at the University of Kansas. All subjects were volunteer participants paid at the rate of $4.00 per experimental session. The initial sample contained 81 Ss. Two were dropped due to susipicion of the experimental deception and manipulations. Two were dropped from the dependent measures analysis due to late arrival at the experimental session which prevented them from completeing the cognitive complexity measure.

The Experimental Session

The experimental session involved four naive Ss and one confederate. Ss were led to believe that they were to participate in a study of communication networks.

When the Ss reported to the session they were informed that another experimenter had requested a small portion of time to conduct some preliminary investigation into social perception. The other experimenter then distributed and Ss completed the Social Perception Questionnaire which was used to score cognitive complexity (Appendix A).

Ss were then introduced to the supposed communication network study. They were informed that four aspects of networks would be focused upon: the effects of acquaintance between members in a network; how information about people as well as about the task gets transferred

and processed in networks; how different kinds of involvement affect the operation of networks; and how networks can reorganize internally. The explanation of these factors was designed to make the experimental setting congruent with real-world situations.

Ss were then instructed to complete two questionnaires -- Member Information (Appendix B) and Member Attitudes (Appendix C). They were told that this information corresponded to data one might naturally acquire about others in the course of working with them. They were informed that the information would then be exchanged among the network members in a predetermined manner so as to introduce different degrees of acquaintance among members. From this point on all Ss operated out of individual rooms. The experimenter acted as messenger for all subsequent transfer of information.

When Ss had completed the two initial questionnaires, their attitude questionnaires were given to a confederate who constructed either similar or dissimilar questionnaires, which were purported to be the confederate's own, for each S according to a method discussed below. He also constructed an Interpersonal Judgment Scale (Appendix D) for each S that indicated that he did or did not like them. Ss were instructed that when they received information from other participants they were to record their reactions to that person on the Interpersonal Judgment Scale. In some cases they were to receive someone else's reaction to them before they were to record their reaction. Thus, each naive S received both an attitude questionnaire and a report of liking or disliking from the confederate before they recorded their reaction to him. These procedures accomplished the manipulation of

liking or not liking, and served as a check of that manipulation.

Next, by means of a bogus lottery, Ss and the confederate were assigned positions in a pyramidal network configuration (Appendix I). The confederate always received the central position in the network and, therefore, was always the problem selector for the task. Two naive Ss were randomly assigned the role of problem solvers; the other two naive Ss were randomly assigned to be recorders. The task involved the solving of seven pattern recognition problems in fifteen minutes (Appendix H). The problem selector's role was structured as selecting the tasks each problem solver would work on; selections were said to be made from a pool of one-hundred such tasks. The problems were assigned bogus difficulty ratings ranging from "very easy" to "extrenely difficult" (Appendix I). In actuality, each problem solver received the same seven problems in exactly the same order. The first six were actually relatively easy, while the seventh was extremely difficult. This procedure was followed to insure that both of the problem solvers experienced the same degree of success and used about the same amount of time. The seventh problem was never acknowledged as correctly solved.

The situation was so structured that the problem selector and the problem solver could communicate only by means of written messages during the task. Messages were written on $8\frac{1}{2}$ x $5\frac{1}{2}$ sheets with "TO: _____" and "FROM: _____" at the top. However, the observers only received a carbon copy of the message, which they recorded on forms provided by the experimenter (Appendix H). Each recorder kept track of the interaction between the confederate and one S.

For one S, the message received from the confederate was always

positive and encouraging; for the other S, they were always negative and critical.

Thus, a condition existed in which the Ss either liked or did not like the confederate, who behaved either positively or negatively toward them. In each experimental session there were two actively involved Ss (interdependent), two passively involved Ss, and actor behavior that was either congruent or incongruent with the relationship between the confederate and the Ss.

At the conclusion of the task, the Ss were instructed to complete the "Information Processing" questionnaire (Appendix F). This composed the dependent measure on attributions. It also contained a post-action check of liking using the Interpersonal Judgment Scale.

When Ss had completed the "Information Processing" form, they were informed that the exact same task with different problems was to be conducted again. Before that, however, they were to complete the "Network Reorganization" questionnaire (Appendix G). They were to construct any message they desired to be sent to the problem selector (confederate) and read by him before the task resumed. This form also included a check on how Ss had seen the confederate's behavior. When Ss had completed this form, they were informed that the experiment was over. The total session lasted approximately two hours.

Independent Variables and Manipulations

Of the four independent variables, three -- relation, action, and involvement -- were manipulated. The fourth -- cognitive complexity -- involved existing differences between Ss and was used as a randomized block factor.

Relation. There were two levels of relation -- like and not like. Both conditions were manipulated using attitude similarity and revealed reciprocal liking. In the like condition, the S received a "Member Attitude Questionnaire" purported to have been completed by the confederate in which 80 per cent of the attitude items, randomly selected, were answered exactly as the S had answered them previously. In the not like condition, the proportions of agreement and disagreement were reversed, so that the confederate agreed with the S on only 20 per cent of the items. These percentages were chosen on the basis of previous use by Byrne [1971]. In addition, in the like condition, the S received information recorded on the Interpersonal Judgment Scale [Byrne, 1971] purportedly completed by the confederate which indicated that the confederate either liked the S ("I feel that I would probably like this person.") or did not like the S ("I feel I would probably dislike this person.").

After the S had received both bits of information about and from the confederate, he recorded his reaction to the confederate on the Interpersonal Judgment Scale. This was the manipulation of relation.

Action. There were two levels of action -- positive and negative. In the positive condition the S received communication purported to have originated with the confederate as problem selector that was always supportive, friendly, and encouraging concerning the completion of the experimental task (Appendix E). In the negative action condition, the communication was always petulant and unfriendly (Appendix E). At the conclusion of the task, the S recorded his view of the confederate's behavior on four dimensions as a manipulation check.

Interdependent Involvement. There were two levels of involvement -- active and passive. In the active condition, the S was directly involved in the completion of the task assigned by the confederate. The S's role was that of a problem solver. In the passive condition, the S was merely an observer, simply recording all communication between the confederate and an actively involved S. In the active condition, the S's behavior regarding the task depended upon the confederate's selection of problems. The problem solver and the problem selector could exchange messages. In the passive condition, the S was not involved whatsoever in solving problems. No messages were sent directly to this S and he could not communicate with other participants.

Cognitive Complexity. This variable was measured by a shortened version of the Four Role Category Questionnaire [Crockett, 1965] (see Appendix A -- "Social Perception Questionnaire"). The S was asked to think of two persons -- a liked and disliked person of the S's same age and sex. After being given a few minutes to think of these two persons and mentally compare and contrast them, the S was asked to describe each of them as fully as possible. Three minutes was allowed for the completion of each description. The descriptions were scored for the number of interpersonal constructs used in each; the sum of the two numbers was the index of complexity. The scores were arranged in order and divided at the median to form two levels of complexity. A second scorer scored a random sample of the questionnaires to determine the reliability of the scoring. The correlation between scorers was +.97.

Summary of the Design

The experiment was conducted basically as a 2^4 factorial design.

One factor -- cognitive complexity (high versus low) -- involved differences between Ss; the other three factors -- like versus not relation, positive versus negative action, and active (interdependent) versus passive involvement -- corresponded to the experimental manipulations.

Dependent Measures

Two dependent variables were analyzed: attributions and communication. Observers' attributions were analyzed first on a single internal-external scale, and, second, on a form that differentiated plausible causes into five loci -- personality, circumstances, mood, motivation and other persons.

Observers' communications to the confederate actor were analyzed in a 3 x 2 grid, one axis consisting of personality and circumstances, the other axis being composed of negative reinforcement, positive reinforcement, and adoption of behavior.

Attributions. The main dependent measure consisted of two scales. Ss were first requested to rate from 0 to 100 each of the five explanations in terms of how well each accounted for the actor's behavior, where a 0 implied an extremely poor explanation, 50 implied an explanation somewhere between extremely poor and excellent, and 100 implied an excellent explanation of the actor's behavior. Second, Ss were instructed to check a point on an internal-external scale of attributions that represented in general their estimation of the effects upon the confederate's behavior of underlying characteristics of the person (scale point 1) and the pressures and expectations indiginous to the situation (scale point 10).

Communication. The messages that the Ss sent to the confederate actor were analyzed according to the strategy adopted in influencing the actor's future task behavior. Since this was an exploratory portion of the study, the analysis was intended to reveal any differences in the approaches of Ss to the confederate. Strategies were conceived along two dimensions: the content of the message and the rationale of the message. Message content was of three kinds: negative reinforcement (messages explicitly disconfirming previous behavior) based upon either personality (i.e., "Don't be so tyrannical.") or circumstances (i.e., "Don't keep telling me to hurry up because when I do I lose accuracy."); positive reinforcement (messages explicitly confirming previous behavior) based upon personality (i.e., "You are a very effective selector in terms of motivating others.") or circumstances (i.e., "Your leadership is great as you don't give her problems harder that she is capable of solving in the time you have."); and adoption (messages explicitly suggesting new behaviors to be adopted) based upon personality (i.e., "Add a tone of humanity to your notes.") and circumstances (i.e., "Since the problems are all of equal value, choose the easiest ones."). Messages basing their strategy upon the actor's personality were messages that appeared to place the burden of change upon a change in the actor's dispositions to behave in particular manners. They did not cite or recognize the mitigating influence of circumstantial factors. On the other hand, messages basing their strategy upon circumstances cited situational elements that supported the recommended course of action. In addition, the quantity of the messages was computed, with the unit of analysis being independent

clauses in the communication. A second scorer scored a randomly selected sample of the messages. The correlation between scorers was: quantity, +.93; negative reinforcement-person, +.97; negative reinforcement-circumstances, +.90; positive reinforcement-person, +.96; positive reinforcement-circumstances, +.84; adoption-person, +.93; and adoption-circumstances, +1.00. There was an additional category that was not analyzed into which were placed all clauses not directly related to content or strategy (i.e., simple descriptions and greetings).

Data Analysis

Since the cell sizes were not equal (see Table 1), a harmonic n analysis of variance was performed on the dependent measures. The external-internal attribution scale was analyzed in a 2^4 factorial analysis, as was each of the five causal loci and each of the communication categories. In addition, in order to acquire an idea of the pattern of attributions in each of the experimental conditions, a repeated measures analysis was run in a 2x2x2x2x5 design, with repeated measures on the last factor, causal loci.

Table 1

Cell Sizes

		Active		Passive	
		High	Low	High	Low
Like	Positive	4	6	4	5
	Negative	4	7	3	5
Not Like	Positive	5	6	5	5
	Negative	7	2	6	3

CHAPTER III

RESULTS

This chapter reports the results of tests for confirmation of the hypotheses. Summary tables for all analyses of variance appear in Appendix J. The hypotheses concerning the effects of balance, interdependent involvement and complexity upon attributions shall be presented first, then the results bearing upon the exploratory investigation of interpersonal communication.

Success of Experimental Manipulations

The manipulations of like and not like relations proved successful. Checks on Ss' liking for the confederate actor were completed immediately after the manipulation of similarity and revealed liking, and soon after the Ss had been exposed to the behavior of the actor. Ss exposed to the like manipulation reported significantly greater liking for the actor than those Ss exposed to the not like manipulation (Table 2) ($t=17.41$, $df=77$, $p<.005$). In a post-action analysis, there was also a significant difference in the expected direction ($t=9.64$, $df=77$, $p<.005$). There was no significant change in liking as a result of exposure to the actor's behavior for Ss who initially liked the confederate actor ($t=1.31$, $df=77$, $p>.10$). However, there was a significant change for Ss who initially disliked the actor ($t=-2.25$, $df=77$, $p<.03$). Nevertheless, there remained a highly significant difference between groups as a function of the liking manipulation.

TABLE 2

Mean Liking Ratings

	Like	Not Like
Pre-Action	2.15	5.70
Post-Action	2.54	5.10

1="probably like this person very much"
7="probably dislike this person very much"

The manipulation of positive and negative action was also successful (Table 3). The four feedback items in the "network Reorganization" questionnaire served as a manipulation check. It was important that the experimental problems be seen by Ss as essentially neutral in terms of difficulty. Both the recipients of positive and negative action reported that the problems were "about right" ($t=-1.48$, $df=77$, $p>.10$). In terms of the other three dimensions, the groups did differ significantly, confirming the success of the manipulation. Recipients of negative action saw the actor's contribution to task accomplishment as not helpful, positive action recipients saw it as helpful ($t=-4.77$, $df=77$, $p<.005$); the nature of the interpersonal relationship established by the actor was reported as "negative" by negative action Ss, and "positive" by positive action Ss ($t=13.05$, $df=77$, $p<.005$); and the actor's manner of motivating others was seen as "inappropriate and ineffective" by Ss receiving negative action, and as "appropriate and effective" by positive action Ss ($t=-9.14$, $df=77$, $p<.005$).

The Attribution Hypotheses

The attribution hypotheses concerned the effects of balance, interdependence and cognitive complexity upon the causal attributions of observers. The results of each applicable analysis will be presented in order and their bearing upon the three hypotheses indicated.

The hypotheses asserted that there would be a general balancing tendency for all Ss, but that within that prediction, different levels of interdependence and cognitive complexity would produce differential reactions to balancing tendencies.

TABLE 3

Mean Action Ratings

	Ease of Problems	Actor's Contribution to Task Accomplishment	Nature of Interpersonal Relationship	Actor's Manner of Motivation
Positive	5.43	6.33	1.90	7.68
Negative	5.00	4.10	6.90	3.87

Problems: 1="much too difficult"; 9="much too easy"
Contribution: 1="low -- not at all helpful"; 9="high -- was very helpful"
Relationship: 1="positive"; 9="negative"
Motivation: 1="inappropriate and ineffective"; 9="appropriate and effective"

Balance. The balance hypothesis was generally supported. The repeated measures analysis revealed that the factors significantly affecting the attributional tendencies of Ss were Relation and Action. The Causal Locus x Relation x Action interaction was significant ($F=4.848$, $df=4,244$, $p=.001$). Table 4 represents the pattern of attributional ascriptions of the four Relation x Action groups. Simple tests on the mean percentage ratings for the four groups at each of the causal loci (Table 5) indicated the following significant differences.

Regarding personality, the not like/negative group saw personality as significantly more important as a causative factor than like/negative groups ($F=6.298$, $df=1,244$, $p=.025$), and like/positive groups saw personality as a more important causative factor than the like/negative group ($F=8.158$, $df=1,244$, $p=.005$). Other differences revealed by a Tukey-B analysis are presented in Table 5.

For circumstances, the like/negative group saw it as more significant than the not like/negative group ($F=5.750$, $df=1,244$, $p=.025$), and the like/negative group saw circumstances as more important than the like/positive group ($F=11.806$, $df=1,244$, $p=.001$). Other differences indicated by a Tukey-B analysis are listed in Table 5.

There were no significant differences between any of the Relation x Action groups on mood or motivation. Differences revealed by a Tukey-B analysis are listed in Table 5.

For the other person locus, not like/negative groups saw it as a more important causative factor than the like/negative groups ($F=8.970$, $df=1,244$, $p=.005$), and as more important than the not like/positive groups ($F=4.316$, $df=1,244$, $p=.05$). Other differences indicated by the

Table 4

Relation x Action

Repeated Measures Group Means

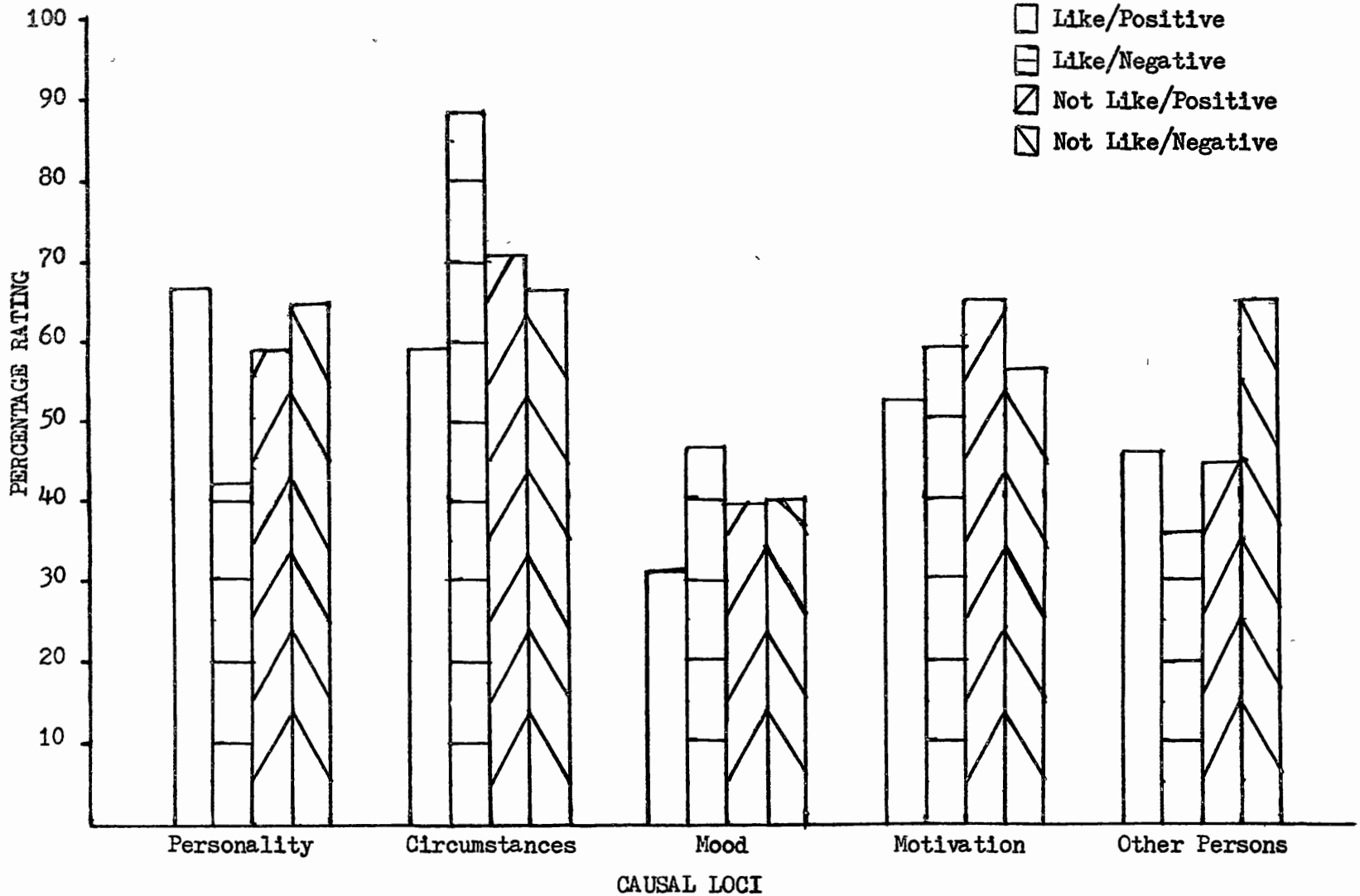


TABLE 5

Mean Percentage Ratings of Causal[1] Loci by Relation and Action

	Like Positive	Like Negative	Not Like Positive	Not Like Negative
Personality	66.6 $_{aA}$	41.9 $_{A}$	58.1 $_{aAC}$	63.9 $_{aA}$
Circumstances	58.0 $_{aAB}$	87.6	69.3 $_{aA}$	66.7 $_{aA}$
Mood	31.2 $_{aC}$	46.4 $_{bAB}$	39.1 $_{abB}$	39.5 $_{ab}$
Motivation	52.7 $_{aAB}$	58.2 $_{aB}$	64.3 $_{aA}$	56.4 $_{aA}$
Other Persons	45.8 $_{aBC}$	36.3 $_{aA}$	44.8 $_{aBC}$	62.5 $_{A}$

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

Tukey-B test are listed in Table 5.

This same general pattern was also noted in the internal-external attributional scale analysis. There was a significant Relation x Action interaction ($F=18.519$, $df=1,61$, $p=.001$). Analysis of the group means (Table 6) with simple tests indicated that the not like/negative groups were significantly more internal than like/negative groups ($F=25.923$, $df=1,61$, $p=.001$), more internal than not like/positive groups ($F=7.362$, $df=1,61$, $p=.01$), and like/positive groups were significantly more internal than the like/negative groups ($F=12.694$, $df=1,61$, $p=.001$).

In general, the tendency of observers in the experimental conditions to operate according to a balance principle in attributing the causes of an actor's behavior was as predicted in the balance hypotheses. The significant interaction was Relation x Action. Attributions of Ss in congruent situations were generally more internal than attributions of Ss in incongruent situations. The most notable exception was in the use of mood as a causal factor. While the differences between the groups was in the predicted direction, the differences were not significant. The influence of the strain toward balance appeared to be most influential for incongruent groups (like/negative and not like/positive), especially the like/negative group.

Involvement (interdependence) and complexity showed no significant main effects for the pattern of attributions made by Ss in the experimental situation. They were, however, involved in significant between groups interactions. The Relation x Action x Involvement interaction was significant ($F=4.242$, $df=1,61$, $p=.044$). The Action x Involvement x Complexity Interaction was also significant ($F=11.060$,

Table 6

Internal-External Attribution Scale

Mean Scores[1]

Relation x Action

	Positive	Negative
Like	5.58 Aa	3.53
Not Like	4.95 Aa	6.50

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same colum do not differ significantly if they share a common upper-case subscript.

Table 7

Personality

Mean Percentage Ratings[1]

Relation x Action

	Positive Action	Negative Action
Like	66.58 $_{A}$	41.95
Not Like	58.10 $_{Aa}$	63.89 $_{a}$

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

positive group also saw personality as a more significant causative explanation than did the like/negative group ($F=7.842$, $df=1,61$, $p=.01$). The fact that the not like/positive group did not differ significantly from the other groups is a replication of the same result found in the repeated measures analysis. But, in general, the congruent groups saw personality as a better explanation for action than did incongruent like/negative groups.

Analysis of the significant Relation x Involvement x Complexity interaction (Table 8) showed that (1) when low complex Ss were actively (interdependently) involved, not like groups saw personality as more significant than like groups ($F=5.060$, $df=1,61$, $p=.05$), (2) when low complex Ss were in the not like condition, actively involved Ss saw personality as significantly more influential than passively involved Ss ($F=5.315$, $df-1,61$, $p=.025$), (3) when Ss were passively involved in the like condition, low complex Ss saw personality as more important than high complex Ss ($F=4.304$, $df=1,61$, $p=.05$), and (4) when Ss were passively involved in the not like condition, high complex Ss saw personality as significantly more important than low complex Ss ($F=7.719$, $df=1,61$, $p=.01$).

Analysis of the significant Action x Involvement x Complexity interaction (Table 9) showed that when low complex Ss were actively involved, they saw personality as a more significant causal explanation when exposed to a positive action than when exposed to a negative action ($F=6.995$, $df=1,61$, $p=.025$). When Ss were passively involved and exposed to positive actions, high complex Ss saw personality as a better explanation of the actor's behavior than did low complex Ss ($F=4.356$,

Table 8

Personality

Mean Percentage Ratings[1]

Relation x Involvement x Complexity

	Active		Passive	
	High	Low	High	Low
Like	62.50_{Aa}	43.85_{a}	50.14_{a}	58.60_{a}
Not Like	55.42_{Aa}	72.50_{ab}	75.00_{b}	40.00_{a}

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

Table 9

Personality

Mean Percentage Ratings[1]

Action x Involvement x Complexity

	Active		Passive	
	High	Low	High	Low
Positive	52.78_{Aab}	70.42_{a}	73.89_{Aa}	49.00_{Ab}
Negative	62.73_{Aa}	38.89_{b}	53.45_{Aab}	52.13_{Aab}

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

df=1,61, p=.05).

None of these three-way interactions were predicted. The hypotheses suggested that different levels of interdependence and cognitive complexity would differentially affect Ss' responses within a balance condition or, in other words, a Relation x Action interaction. It would appear that involvement and complexity interact differently in response to Relation and Action. Although there was a significant Relation x Action interaction, it would appear that in terms of attributions to personality, involvement of an interdependent nature and cognitive complexity function independently of balanced and unbalanced configurations.

In terms of the relation between Ss (observers) and the actor, when Ss are passively involved, high complex Ss referred to personality as a better explanation of behavior than did low complex Ss when both groups did not like the actor. However, these tendencies were reversed when Ss liked the actor. When Ss were interdependently involved with the actor, low complex Ss who did not like the actor saw the actor's internal dispositions as a more significant cause of his behavior than did low complex Ss who liked the actor. Finally, when low complex Ss did not like the actor, those who were interdependently involved saw internal, personality factors as a better explanation of an actor's behavior than did Ss who were not so involved.

In terms of the actor's behavior, when low complex Ss were interdependently involved with the actor, positive behavior prompted greater causal ascriptions to personality than negative behavior. In addition, when passively involved Ss were the recipients of positive

behavior, high complex Ss saw personality as more of a causative factor than did low complex Ss.

In summary, the analysis of personality attributions provided no direct support for either the interdependent involvemnt or the complexity hypotheses, although there was support, again, for the general balance hypothesis.

Circumstances. The analysis of Ss' attributions to circumstances provided no support for the interdependence and complexity hypotheses. There was a main effect due to Action ($F=6.349$, $df=1,61$, $p=.014$) and a significant Relation x Action interaction ($F=6.158$, $df=1,61$, $p=.016$). Negative behavior was ascribed more to circumstances than positive behavior (Table 10). This tendency, however, depended upon the relation to the actor (Table 11). When Ss liked the actor and were exposed to negative behavior, they ascribed the action more to circumstances than when exposed to negative behavior from an actor they did not like ($F=6.081$, $df=1,61$, $p=.025$). In addition, circumstances was seen as a more significant causative factor when Ss liked an actor who behaved negatively than when they liked an actor behaving positively ($F=12.379$, $df=1,61$, $p=.001$). This result replicates the effects seen in the repeated measures analysis and offers support for the balance hypothesis.

Mood. The analysis of Ss' attributions to mood revealed two significant interactions: Action x Involvement ($F=6.352$, $df=1,61$, $p=.014$) and Relation x Action x Involvement ($F=9.723$, $df=1,61$, $p=.003$). Analysis of the Action x Involvement interaction revealed that those Ss passively involved with the actor attributed negative actions more to mood than positive actions ($F=5.993$, $df=1,61$, $p=.01$). In

Table 10

Circumstances

Mean Percentage Ratings

Action

Positive	Negative
63.98	77.46

Table 11

Circumstances

Mean Percentage Ratings [1]

Relation x Action

	Positive	Negative
Like	58.13 $_{A}$	87.68
Not Like	69.29 $_{Aa}$	66.67 $_{a}$

[1] Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

addition, those Ss exposed to positive behavior attributed the behavior to mood more When they were actively (interdependently) involved than when they were passively involved ($F=5.822$, $df=1,61$, $p=.01$). The mean percentage ratings for mood appear in Table 12.

The analysis of the Relation x Action x Involvement interaction bears directly upon the interdependent involvement hypothesis. The mean percentage ratings for the three-way interaction (Table 13) indicate that in the not like/positive incongruent condition, actively involved Ss saw mood -- an external causal loci -- as significantly more explanatory of the actor's behavior than did passively involved Ss ($F=8.259$, $df=1,61$, $p=.005$). This provides partial confirmation of the prediction that in incongruent situations, interdependently involved observers would use more external attributions than passively involved observers. There is also direct support for the prediction that in negatively congruent conditions interdependently involved observers will be less dispositional in their causal attributions that will passively involved observers. Analysis revealed that in the not like/negative condition passively involved Ss differed significantly in the predicted direction from interdependently involved Ss ($F=5.571$, $df=1,61$, $p=.025$). Interdependently involved Ss were less circumstantial than passively involved Ss.

Other significant findings in this three-way interaction did not directly confirm aspects of the involvement hypothesis. More than anything else, they provided further support for the balance hypothesis. Ss in the like/negative condition saw mood as significantly more influential on the actor's behavior than did Ss interdependently involved in

Table 12

Mood

Mean Percentage Ratings[1]

Action x Involvement

	Active	Passive
Positive	45.81 A	23.68
Negative	38.35 Aa	47.35 a

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

Table 13

Mood

Mean Percentage Ratings[1]

Relation x Action x Involvement

	Positive		Negative	
	Active	Passive	Active	Passive
Like	34.20 ab	27.78 Aa	50.64 b	40.63 Aab
Not Like	56.36 a	20.00 Ab	23.33 b	55.56 Aa

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

the not like/negative condition ($F=4.400$, $df=1,61$, $p=.05$). In addition, Ss interdependently involved saw mood as a significantly more explanatory cause of the actor's behavior when they were in the not like/positive condition than when in the not like/negative condition ($F=6.439$, $df=1,61$, $p=.025$). Thus, Ss actively (interdependently) involved in incongruent conditions saw mood as a greater causative factor than Ss interdependently involved in congruent conditions.

Motivation. The analysis of the causal ascriptions made to motivation revealed one significant three-way interaction -- Action x Involvement x Complexity ($F=5.498$, $df=1,61$, $p=.022$). The interpretation of this interaction in terms of the interdependent involvement and complexity hypothesis is confounded, however, by the fact that Ss in the incongruent conditions were interpreting motivation as an essentially circumstantial factor, while Ss in congruent conditions interpreted motivation as basically internal and dispositional in nature. No simple tests were significant in the analysis of this interaction, but two t-tests were. An analysis of the mean percentage ratings for motivation (Table 14) revealed two differences. When Ss were of low complexity and interdependently involved, they ascribed greater attributional potency to motivation when exposed to positive behavior than when exposed to negative behavior ($t=2.087$, $df=19$, $p=.025$). When Ss were interdependently involved in the reception of negative behavior, high complex Ss saw motivation as a better explanation of behavior than low complex Ss ($t=1.734$, $df=18$, $p=.05$). Neither of these results supported the hypotheses.

Other Persons. The analysis of the other persons causal locus

Table 14

Motivation

Mean Percentage Ratings[1]

Action x Involvement x Complexity

	Active		Passive	
	High	Low	High	Low
Positive	49.67_{Aa}	69.58_{Aa}	58.33_{Aa}	54.50_{Aa}
Negative	68.18_{Aa}	40.56_{Ab}	50.56_{Aab}	68.75_{Aa}

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

revealed one significant three-way interaction -- Action x Involvement x Complexity (F=10.786, df=1,61, p=.002). Subsequent analysis of this interaction offered no clear support for the interdependent Involvement or Complexity hypotheses.

The analysis of the mean percentage ratings for other persons (Table 15) did reveal that when low complex Ss were passively involved, negative behavior produced more ascription to other persons than did positive behavior (F=4.663, df=1,61, p=.05); when Ss were the passive recipients of positive behavior, high complex Ss attributed the action more to other persons than did low complex Ss (F=5.894, df=1,61, p=.025); and when Ss were the interdependent recipients of negative behavior, high complex Ss attributed the action more to other persons than did low complex Ss (F=6.367, df=1,61, p=.025).

Internal-External Attribution Scale. Analysis of Ss' responses on the internal-external attribution scale revealed a significant main effect for Relation (discussed above), a significant Relation x Action interaction (discussed above), a significant Relation x Involvement x Complexity interaction (F=3.983, df=1,61, p=.05), and a significant Action x Involvement x Complexity interaction (F=5.173, df=1,61, p=.026). These effects provide no direct support for the Involvemnt and Complexity hypotheses.

Analysis of the Relation x Involvement x Complexity (Table 16) interaction revealed that when high complex Ss were actively involved (interdependently) they made more dispositional attributions in the not like condition than in the like condition (F=8.288, df=1,61, p=.01). The same effect was noticed when the same Ss were passively involved

Table 15

Other Persons

Mean Percentage Ratings[1]

Action x Involvement x Complexity

	Active		Passive	
	High	Low	High	Low
Positive	40.56 $_{ab}$	51.67 $_{Aa}$	49.44 $_{Aab}$	28.00 $_{b}$
Negative	63.64	31.67 $_{A}$	41.67 $_{A}$	56.88

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ if they share a common upper-case subscript.

Table 16

Internal-External Attribution Scale

Relation x Involvement x Complexity [1]

	Active		Passive	
	High	Low	High	Low
Like	3.50 $_{a}$	4.77 $_{Aab}$	4.00 $_{ab}$	5.00 $_{Ab}$
Not Like	5.84 $_{ab}$	5.63 $_{Aab}$	6.18 $_{a}$	4.75 $_{Ab}$

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

($F=6.458$, $df=1,61$, $p=.025$).

Analysis of the mean percentage ratings for the Action x Involvement x Complexity interaction (Table 17) revealed that interdependently involved Ss made more dispositional attributions than did passively involved Ss when they were highly complex and exposed to negative behavior ($F=4.151$, $df=1,61$, $p=.05$). When Ss were interdependently involved and exposed to negative behavior, high complex Ss made more dispositional attributions than low complex Ss ($F=6.731$, $df=1,61$, $p=.025$).

Summary of the Attribution Hypotheses

Balance. There was compelling support for the Balance hypothesis predictions. Ss in congruent conditions made more dispositional (internal) attributions than Ss in incongruent conditions. Likewise, Ss in incongruent conditions made more situational (external) attributions than Ss in congruent conditions. This tendency was stronger in the like conditions than the not like conditions. Ss behaved as predicted except for mood attributions, although the results were in the predicted direction. The Relation x Action interaction appeared to be the main predictor of attributional tendencies.

Involvement. There was minimum support for the Involvement hypothesis predictions. Attributions to mood provided the only direct support. Hypotheses supported were that in incongruent situations interdependently involved observers would use more external attributions than passively involved observers. Also supported was the hypothesis that in negatively congruent situations, interdependently involved observers would be less dispositional than passively involved observers. The involvement factor most frequently interacted with

Table 17

Internal-External Attribution Scale

Action x Involvement x Complexity [1]

	Active		Passive	
	High	Low	High	Low
Like	4.67_{a}	5.50_{ab}	6.11_{b}	5.00_{Aa}
Not Like	6.18	4.11_{a}	4.56_{a}	4.75_{Aa}

[1] Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

complexity and relation, or complexity and action. Involvement did have significant effects on Ss' attributions to causal loci, but rarely in the predicted manner.

Complexity. There was no direct support for the Complexity hypothesis predictions. Complexity did not interact significantly with Relation and Action -- such three-way interactions being the basis for the predictions. Complexity did significantly affect Ss' attributional tendencies, but only in three-way interactions that were not predicted (Relation x Involvement x Complexity and Action x Involvement x Complexity).

Overall, the Balance hypothesis was supported, but the effects of involvement and complexity, while significant, were not consistent with the Involvement and Complexity hypotheses.

Interpersonal Communication

An exploratory aspect of this study was the effect of making differential causal attributions upon the nature of observers' interpersonal communication with the confederate actor. Analysis of the communication proceeded along dimensions of content and strategy. Content was of three kinds: negative reinforcement (messages explicitly disconfirming previous behavior), positive reinforcement (messages explicitly confirming previous behavior), and adoption (messages explicitly recommending new behavior). Strategy referred to whether or not the attempt to influence the actor was founded primarily upon causative factors inherent in the actor's dispositions to behave (person) or upon causative factors inherent in circumstances (circumstances). Descriptive statements were also recorded, but were not

analyzed as they did not bear upon the content categories directly. In addition, the quantity of communication was also recorded and analyzed. A composite table of means appears in Table 18. The ubiquity of the effects of Relation and Complexity are interesting aspects of the analysis. The following presentation will take up separately each of the communication categories cited above (except for description).

Quantity. Quantity was affected only by a significant Relation x Complexity interaction ($F=5.458$, $df=1,61$, $p=.023$). Further analysis of relevant means (Table 19) revealed that low complex Ss communicated more when they liked the actor than when they did not like the actor ($F=10.827$, $df=1,61$, $p=.005$). When Ss liked the actor, high complex Ss communicated more than low complex Ss ($F=4.019$, $df=1,61$, $p=.05$). Thus, while low complex observers communicate more to a liked actor than a disliked actor, high complex observers communicated more to the liked actor than low complex observers.

Negative Reinforcement of Behavior Based Upon Personality. A main effect due to the actor's action was the main predictor accounting for differences between Ss in directly demanding the cessation of the actor's behavior ($F=13.633$, $df=1,61$, $p=.0005$). Negative action ($\bar{X}=.675$) accounted for more such attempts than positive action ($\bar{X}=.025$).

Negative Reinforcement of Behavior Based Upon Circumstances. The actor's behavior (Action) again presented a significant main effect ($F=6.297$, $df=1, 61$, $p=.015$). Negative action elicited more such negative reinforcement than did positive (.972 v. .125). However, the effect of Action depended upon the Relation of the observer to the actor and

Table 18

Communication

Mean Scores

Relation x Action

	Like Positive	Like Negative	Not Like Positive	Not Like Negative
Quantity	5.00	4.26	3.29	3.99
Negative Reinforcement-Person	0.00	.421	.047	.944
Negative Reinforcement-Circumstances	0.00	.736	.238	1.22
Positive Reinforcement-Person	1.53	.263	1.14	.222
Positive Reinforcement-Circumstances	.263	.105	.428	.055
Adoption-Person	.578	.895	.524	.499
Adoption-Circumstances	.578	.789	.381	.333
Description	2.05	1.05	.579	.717

Table 19

Quantity

Relation x Complexity [1]

	High	Low
Like	3.80 $_{A}$	5.52
Not Like	4.22 $_{A}$	2.75

[1] Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

the cognitive complexity of the S (Relation x Action X Complexity: F=4.226, df=1,61, p=.044). Analysis of the group means (Table 20) revealed that high complex Ss made more such attempts than low complex Ss in the negative congruence condition (F=6.329, df=1,61, p=.025); high complex Ss who were the recipients of positive action made more such attempts when they did not like the actor than when they liked him (F=8.044, df=1,61, p=.025); that low complex Ss who liked the actor made more such attempts when the actor behaved negatively than when he behaved positively (F=5.740, df=1,61, p=.05); and high complex Ss who did not like the actor made more such attempts when the actor behaved negatively than when he behaved positively (F=9.906, df=1,61, p=.005).

It would appear that high complexity Ss, perhaps reflecting their naturally greater awareness of circumstantial factors, adopt the strategy of calling for the cessation of certain actor behaviors based upon the deleterious situational effects moreso than low complexity Ss when faced with a negatively congruent situation. In addition, high complexity Ss adopt this strategy moreso when faced with a not like/positive incongruency than when faced with positive congruence, and moreso when faced with negative congruence than not like/postive incongruence. On the other hand, low complex Ss adopted the negative reinforcement-person strategy more when faced with a like/negative incongruence than when faced with positive congruence. In this regard it is interesting to note that high complexity Ss adopted this strategy more when based upon circumstances than when based upon the person. This was also true for low complexity Ss, but still lower than high

Table 20

Extinction-Circumstances

Relation x Action x Complexity[1]

	Positive		Negative	
	High	Low	High	Low
Like	0.00 $_{Aa}$	0.00 $_{Aa}$	.285 $_{Aab}$	1.00 $_{Ab}$
Not Like	.200 $_{Aa}$	.272 $_{Aa}$	1.62	.200 $_{Aa}$

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

high complexity Ss. In fact, low complexity Ss only adopted this tactic to a significantly different degree when dealing with actors they liked.

Positive Reinforcement of Behavior Based Upon Personality. The analysis of this communication strategy showed a significant ($F=18.703$, $df=1,61$, $p=.0005$) main effect of Action ($+ \bar{X}=1.325$, $- \bar{X}= .243$), significant two-way interactions between Relation and Involvement ($F=7.715$, $df=1,61$, $p=.007$) and Action x Complexity ($F=4.303$, $df=1,61$, $p=.042$), and a significant Relation x Action x Involvement x Complexity interaction ($F=7.235$, $df=1,61$, $p=.009$).

As the four-way interaction is difficult to interpret sensibly (Table 21), the significant two-way interactions were analyzed separately.

Analysis of the Relation x Involvement interaction (Table 22) indicated that when Ss liked the actor, they made more direct reinforcements of his behavior based upon the assumption of dispositional causation when they were passively involved than when they were actively involved ($F=6.649$, $df=1,61$, $p=.025$). When Ss were passively involved, they made more such reinforcements when they liked the actor than when they disliked the actor ($F=6.313$, $df=1,61$, $p=.025$).

Analysis of the Action x Complexity interaction (Table 23) indicated that high complexity Ss made more personality-based reinforcements when exposed to positive behavior than when exposed to negative behavior ($F=5.187$, $df=1,61$, $p=.05$).

Positive Reinforcement of Behavior Based Upon Circumstances. The only factor significantly influencing the Ss' tendency to use this communication strategy was Complexity ($F=4.103$, $df=1,61$, $p=.047$).

Table 21

Reinforcement-Personality

Relation x Action x Involvement x Complexity[1]

		Active		Passive	
		High	Low	High	Low
Like	Positive	1.00 Aa	1.00 Aa	3.25	1.20 Aa
	Negative	.250 Aa	0.00 Aa	.333 a	.600 Aa
Not Like	Positive	2.20 a	1.00 Ab	.200 b	1.20 Aab
	Negative	0.00 Aa	1.00 Aa	0.00 a	.670 Aa

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ if they share a common upper-case subscript.

Table 22

Reinforcement-Personality

Relation x Involvement[1]

	Active	Passive
Like	.523 A	1.35
Not Like	.950 Aa	.526 a

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

Table 23

Reinforcement-Personality

Action x Complexity[1]

	High	Low
Positive	1.27	1652 $_{A}$
Negative	.521	1.06 $_{A}$

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

Again, perhaps reflecting a greater awareness of circumstantial influences (or at least the advisability of a persuasive strategy based upon such), high complexity Ss used this tactic more ($\bar{X}$=.368) than low complexity Ss ($\bar{X}$=.076). This result again appears to point towards high complexity Ss as being more aware of circumstantial factors or the advisability of circumstances-based appeals.

Adoption of Behavior Based Upon Personality. Analysis of this communication factor showed two significant two-way interactions: Relation x Involvement (F=9.676, df=1,61, p=.003) and Relation x Complexity (F=8.343, df=1,61, p=.005).

Investigation of the Relation x Involvement interaction (Table 24) indicated that Ss actively involved with an actor they like make more direct suggestions for the adoption of new behavior than when they are actively involved with an actor they do not like (F=10.595, df=1,61, p=.005). Ss actively involved with an actor they like make more such suggestions than when passively involved with an actor they like (F=4.570, df=1,61, p=.05). And Ss passively involved with an actor they do not like use this strategy more than when actively involved with an actor they do not like (F=5.945, df=1,61, p=.025). It is clear that the more intensely an observer is involved with an actor they like, the more likely it is that they will directly suggest the adoption of new behaviors; moreso when intensely involved with an actor they dislike. On the other hand, the less intensely involved they are with an actor they do not like, the more likely it is that they will make such suggestions.

Investigation of the Relation x Complexity interaction (Table 25) indicated that Ss of low complexity used this strategy more when

Table 24

Adoption-Personality

Relation x Involvement[1]

	Active	Passive
Like	.952	.470 A
Not Like	.250	.789 A

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

Table 25

Adoption-Personality

Relation x Complexity [1]

	High	Low
Like	.400 A	.956
Not Like	.653 Aa	.312 a

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

dealing with a liked actor than a disliked actor ($F=8.203$, $df=1,61$, $p=.01$) and that when dealing with a liked actor only, low complexity Ss used this strategy more than high complexity Ss ($F=5.895$, $df=1,61$, $p=.025$).

Adoption of Behavior Based on Circumstances. Analysis of this communication factor only showed one significant interaction: Relation x Involvement ($F=9.562$, $df=1,61$, $p=.003$). Investigation of the interaction revealed that actively involved Ss make more suggestions for the adoption of new behavior based upon situational constraints, conditions and effects when dealing with an actor they like, rather than one they dislike ($F=15.893$, $df=1,61$, $p=.001$). And when dealing with an actor they like, actively involved Ss make more such indirect suggestions than do passively involved Ss ($F=9.653$, $df=1,61$, $p=.005$). The mean scores are summarized in Table 26. It is clear that the more intensely observers are involved with actors they like, the more likely they are to use such a strategy; moreso when intensely involved with an actor they do not like.

Summary of the Communication Investigation

Since the study of communication was exploratory in nature, no hypotheses had been advanced. The quantity of the messages sent to the actor by observers appeared to be a function of Ss' cognitive complexity and their degree of liking for the actor. Attempts to directly stop unwanted behavior was a function mainly of the nature of the actor's behavior. Attempts to stop unwanted behavior supported by the citation of situational factors appeared to be a function of cognitive complexity operating within a balance schema (Relation x Action). The positive

Table 26

Adoption-Circumstances

Relation x Involvement[1]

	Active	Passive
Like	1.14	.294 A
Not Like	.100 a	.421 Aa

[1]Means in the same row do not differ significantly at .05 by the Tukey-B test if they share a common lower-case subscript. Those in the same column do not differ significantly if they share a common upper-case subscript.

reinforcement of behavior inferred to be the result of the target actor's disposition was a highly complex phenomenon, no doubt involving the processing of information untapped by the communication measure. The positive reinforcement of behavior based upon circumstances was a function only of Ss' cognitive complexity. The ubiquity of complexity in terms of significant effects upon communication strategies suggests that there may be qualitatively different evaluative perspectives of appropriate communication strategies between high and low complexity individuals. This tendency might well be a function of the differences in ability to appropriate, accept, and construe information more flexibly by the cognitively complex person as compared to the non-complex person.

The tactic of directly suggesting the adoption of new behavior was a function of interactions between Relation and Involvement, and Relation and Complexity. It would appear that both the intensity of involvement and cognitive ability affect an individual's choice of this strategy in dealing with liked and disliked others. Likewise, the tactic of supporting suggested change with situational data was a function of degree of liking and degree of involvement with the actor.

SUMMARY

This study found that there was an overall tendency for both actively and passively involved observers to demonstrate attributional tendencies and patterns that correspond to balance predictions. With one exception, observers faced with incongruent situations made primarily external (circumstantial) attributions; while observers faced with congruent situations made primarily internal (dispositional) attributions. Involvement and complexity did not appear to affect this

attributional tendency.

However, in terms of causal ascriptions to individual causal loci, the balance predictions were not completely supported -- the loci of motivation and other persons not offering direct support. It was clear that the use of each of these areas (personality, circumstances, mood, motivation, and other persons) as singular causal explanations was subject to a variety of influences, much as though each had semi-unique judgment criteria. The analysis of these five loci offered no direct support for the involvement predictions.

Of the four independent variables, only Relation and Action demonstrated significant main effects -- external-internal attribution scale and circumstances, respectievly. All four factors were involved in a variety of significant interactions: Relation in personality, circumstances, mood, and the internal-external scale; Action in personality, circumstances, mood, motivation, other persons, and the internal-external scale; Involvement in personality, mood, motivation, other persons, and the external-internal scale; and Complexity in personality, motivation, other persons, and the internal-external scale. Only Rela- and Action were significant for the analysis of attributional patterns.

In terms of communication from observer to actor, all four factors influenced the content and strategy of the messages. The effects of complexity and involvement upon the strategy chosen appeared to be the most significant interactions, although Action was the main predictor of the negative reinforcement-personality strategy.

CHAPTER IV

DISCUSSION

In this chapter the results will be elaborated and construed. Implications for theory and suggestions for future research will also be included.

Findings About the Hypotheses

Balance

In general, the balance hypothesis was supported. Differences in the overall pattern of observers' attributions were mainly a function of the congruency or incongruency of the actor's behavior with the relation between observers and actor. Observers in the like/positive condition made primarily internal attributions; while observers in the like/negative and the not like/positive conditions made primarily external attributions. The exception was the behavior of the not like/negative groups (to be discussed below).

Further investigation of the data indicates that this interpretation, while valid, is too simplistic to completely explain the uniqueness of each group's attributional patterns. It may not be a simple "fitting-togetherness" or "not fitting-togetherness" of elements in a person's cognitive configuration that accounts for his attributional tendency. Rather, as will be discussed below, the influence of social expectations may have altered the attributional tendencies in a manner that, while generally predicted by and consistent with balance formu-

lations, produced differential information processing outcomes.

Attribution research is concerned with how available information is processed: the creation and construction of causal explanations. In this experimental situation, individuals knew that the actor either liked or disliked them, held similar or dissimilar attitudes, and performed certain positive or negative actions. As a result of processing this information, like/positive and not like/negative groups saw personality as a better explanation of the causes of the actor's behavior than did like/negative and not like/positive groups; while like/negative and not like/positive groups saw circumstances as a better explanation than did like/positive and not like/negative groups. While these trends were not consistently significant, they become more understandable if one considers the constituent elements in each case.

A derivation of the typical balance formulation indicates that two lines of attributional reasoning are involved. Liking and disliking establish certain expectations about future behavior. These expectations derive not only from personal influences, but also from social norm influences. This last influence links expectations with behavior. There would appear to be socially defined norms about behavior [Kanouse & Hanson, 1971] such that positive behavior is expected; negative behavior, therefore, has a greater informational content. The examination of the attributional activity of the four Relation x Action groups yields some consistency of results when viewed from this perspective.

In the like/negative condition, behavior was unexpected and negative. The negative behavior was so incongruent with expectations --

both personal and social -- that resolution of the inconsistency emphasized highly circumstantial factors and greatly de-emphasized personality factors. Since the behavior deviated from both personal and social expectations, its information value was high. The resulting processing of information produced the largest difference between personality and circumstances of any of the groups. As a matter of fact, circumstances differed significantly from all other causal loci.

In the not like/positive condition, the behavior was incongruent with personal expectations, but congruent with social norm expectations. The resulting processing of information emphasized circumstances as primary causative factors, but certainly did not greatly de-emphasize personality factors. Some explanation had to be found for the expectedness and unexpectedness of the positive behavior. The low informational content of the socially expected positive behavior led to more of a balance between internal and external factors than in the former condition. In fact, there was no significant difference between personality and circumstances for this group.

In the like/positive condition, the positive behavior was expected both personally and socially. While personality was emphasized more than circumstances, there was no significant difference between them. This suggests that complete congruence of behavior with expectations, especially social expectations, yielded little unique information. Ss, therefore, were not completely confident of the cause of this behavior. It was not out of the ordinary, especially in terms of expected social norms.

In the not like/negative condition, behavior was congruent with

personal expectations, but not with social norm expectations. This condition produced the smallest difference between personality and circumstances: both were seen as equally strong influencing factors. In fact, this condition showed a reversal of the balancing tendencies seen in the other three groups. This is the most puzzling result obtained, as one would expect an emphasis of personality factors and a de-emphasis of circumstantial factors. Explanation of this result proceeds along two lines.

First, Newcomb [1968] has proposed that in POX situations where the P/O relation is negative, Ps will tend, though not invariably, to "disengage" themselves from the triadic relationship. Disengagement does not mean noninvolvement, but rather a state of little or no preference for balance or imbalance. Thus, if P/O is negative, there is typically much uncertainty in P's judgments. Consequently, Newcomb maintained, balance effects work only for liked others and not necessarily for disliked others. This would appear to be the case for the not like/negative group's almost equal stress upon personality and circumstances as factors causing the actor's behavior. It does not, however, explain the other not like condition (not like/positive). In the latter instances, however, there was a socially expected positive behavior that, as discussed above, influenced Ss' attributions.

Second, given that individuals appear to be more tentative in their causal attributions when they dislike the originator of negative behavior, there would appear to have been a unique personality x circumstances causal ascription by Ss in the not like/negative condition. These Ss were significantly higher than all other groups in the use of

the other persons factor as a causal explanation of the actor's behavior. In essence the reasoning would appear to be "disliked persons cause him to act negatively." While theoretically an external factor, this causal locus, as used by these Ss, indicates the dual importance placed on personality and circumstances reflects an interaction between internal and external factors. It is interesting to note that Ss in the like/positive condition did not emphasize other persons to as great an extent as did Ss in the not like/negative condition. Since the positive behavior in the former condition was both so personally and socially expected, there may have been some doubt as to whether other persons was a significant causative factor or not.

Thus, the disengaging influence of the not like relation, coupled with clear evidence of socially unexpected negative behavior, led Ss in this condition to employ personality and circumstances as equally significant causal factors, while also greatly emphasizing the other persons locus as an explanation for the negative behavior.

Therefore, if the salient balance-derived elements are considered, the modes of information processing employed by the different experimental groups become understandable and consistent with the main balance predictions. Within the balance framework, it would appear that expected behaviors yield more dispositional attributions than unexpected behaviors, and in addition, positive behaviors yield more dispositional causal explanations than negative behaviors. In terms of external attributions, unexpected behaviors yield more than expected, and negative behaviors yield more than positive.

There are two other causal loci that demand attention. First,

it appears that all groups placed relatively small emphasis on causal ascriptions to mood. This lack of use suggests that a minimum of mood-relevant information may have to be available before attributions to mood are made. Since Ss had not known the actor long enough to acquire any mood-relevant data, the factor was not salient. Circumstances more than likely picked up many incipient "mood" attributions.

Second, the attributions to motivation were not as predicted. However, the differential interpretations that Ss' gave to motivation can explain the unexpected results.

A check of Ss' verbal explanations of the actor's behavior (see "Information Processing" questionnaire, page 4, Appendix F) revealed that the experimental groups differed in their interpretation of motivation. The like/positive and not like/negative groups appeared to have interpreted motivation as essentially an internal, dispositional factor, as it was intended and explained on the dependent measure form.[3] On the other hand, Ss in the like/negative and not like/positive conditions appeared to have interpreted this category as an circumstantial, external factor. Typical verbal explanations cited "competitiveness" or the "desire to succeed" as underlying motivations, but also strongly emphasized the nature of the experimental task situation as the main influence on the mode of behavior that the appearance of the motive took. The explicit implication was that in other situations the actor might not have behaved in this particular manner.

As an internal causal locus, motivation should have displayed the same basic pattern as personality. Had Ss not construed motivation as an essentially external, circumstantial factor, like/negative and not

like/positive groups may have been lower than like/positive and not like/negative groups, rather than vice versa as it was.

Overall it is concluded that Ss behaved in accordance with the balance predictions. Inconsistencies in the individual group's results appear to be consistent with the balance hypothesis when constituent elements are examined more closely. The information processing modes of each group depended not only on a strain towards balance, but also upon other attributional tendencies, primarily social expectations.

Involvement and Complexity

Involvement. In general, the involvement hypothese were not supported. Differential levels of interdependent involvement did not affect the attributional pattern of the experimental groups. However, in terms of attributions to mood, there was some confirmation of the hypothesis. In negatively congruent conditions, actively involved (interdependent) observers were more dispositional in their causal attributions than passively involved observers.

Other than this single instance, there was no support for the predictions. And it is also clear that there was no support for either the assumptions that Jones and Nisbett or Kelley had advanced about the effects of involvement. There were clear differences in the attributions of actively and passively involved observers, contrary to the Jones and Nisbett assertion. At the same time, there was no evidence to support Kelley's thesis that actively involved observers will attribute positive actions to themselves and negative actions to the actor.

Involvement did affect observers' causal attributions, but only in interaction with complexity and relation, or complexity and action

(with the exception of mood attributions). These interactions will be discussed below under Involvement x Complexity.

Complexity. In general, the complexity hypothesis was not supported. Differential levels of cognitive complexity did not affect the overall attributional pattern of the experimental groups. Complexity did affect attributions to specific loci, but only in interaction with involvement and action, or involvement and relation. These effects will be discussed below.

Involvement x Complexity. While there were no main effects due to either complexity or involvement, there were significant interactions between these factors. The evidence was confusing and deserves further research; still, some tentative observations can be made.

First, active (interdependent) involvement tends to produce a "negativity" effect when compared to passive involvement. High complexity observers saw negative behavior as more internally caused when actively involved than when passively involved. Low complexity observers saw the behavior of actors they did not like (and who disliked them) as more internally caused when actively involved than when passively involved.

Second, active involvement tended to increase the tendency for both high and low complexity observers to see the behavior of actors they disliked (and who disliked them) as more internally caused than the behavior of actors they liked (and who liked them).

Third, active involvement tended to produce a "positivity" effect for low complexity observers. They saw positive behavior as more internally caused than negative behavior.

Fourth, passive involvement produced a "negativity" effect among high complexity observers. They saw the behavior of actors they disliked as more internally caused than the behavior of liked actors.

Fifth, passive involvement tended to influence high complexity observers to see the behavior of disliked actors and positive behavior as more internally caused, and the behavior of liked actors as less internally caused than did low complexity observers.

One must be cautious in generalizing this data. These effects did not appear in the analysis of the overall attributional tendencies of the experimental groups. In addition, the passively involved observers did not correspond to the typical uninvolved observer most often discussed in the actor-observer literature. These observers did have information about the environment and circumstances, did have some information about the actively involved observers, and possessed a great deal of data about the actor himself. But, in general, with one exception, these results substantiate the findings of Rosenbach, Crockett and Wapner [1973] as to the effects of emotional involvement upon the level of cognitive functioning. The assumption of internal causality was most clearly a function of negative behavior or relationship. Rosenbach, et al [1973] noted that the decrease in the level of cognitive functioning was greater for negative involvement than for positive involvement. It is interesting to note in this regard that the "negativity" effect for high complexity individuals appeared to be a function of the behavior when moving across levels of involvement, while for low complexity persons the effect appeared to be a function of the interpersonal relationship. Therefore, it would appear

that the attenuating effects upon cognitive complexity of negative involvement may be increased by negative actions as opposed to negative relationships. However, this can only be a tentative explanation in as much as among high complexity Ss who were actively (interdependently) involved, the behavior of those actors they disliked was seen as more internally caused than the behavior of actors they liked. This deviation may be attributed to the fact that the information that the actor disliked them may have held greater informational and inferential energy since it was based upon a relatively small amount of data and contact. The fact that the actor expressed a socially unexpected and informationally "unreasonable" dislike of them may have been so potent as to merit their internal causation assumption.

One puzzling result remains the tendency of high complexity observers in the passive involvement condition to operate apparently on the basis of the simplifying assumption that behavior or relation is directly indicative of internal dispositions. The attentuation of complexity predicted in the active involvement condition should not thus appear in the passive involvement condition. While replications may clarify the confusion, a tentative explanation can be advanced. The explanation cited above for the extreme informational relevancy of disliking may explain the tendency of high complexity individuals to see the behavior of those they dislike (and who dislike them) as more internally caused than low complexity individuals. In fact, when the relationship was reversed (like), and, presumably, the informational content decreased, the trend was reversed. The additional finding, that positive behavior was seen as more internally caused by highs

than by lows when passively involved, may simply indicate that both low and high complexity persons are subject to a positivity effect -- as were lows in the active condition, such that positive behavior is attributed more to persons than is negative behavior.

Theoretical Implications and Suggestions for Future Research

The processes involved in making causal attributions are clearly complex. Persons must attend to available information and process this data to arrive at a satisfactorily coherent explanation of behavior. One attributional paradigm is that observers will form causal explanations of an actor's behavior that reflect primarily reliance on internal, dispositional elements. This study was designed to identify any systematic and predictable differences in the attributional processes of observers based upon factors of differential involvement, differential cognitive complexity, and the psychological strain towards balance.

Results tend to indicate that the contention that the acquisition of a balanced perceptual configuration functions as a criterion of attributional sufficiency is, itself, not sufficient to explain the observed phenomena. It may be true, as Kelley [1971a] asserted, that balance is simply one of many causal schemata by which causally relevant information is processed. The strain towards balance was not an equally compelling force for individuals in this study. It is clear that other causal schemata, such as a social expectation matrix, also played a role in information processing. But it clear that observers do differ in their attributional tendencies. They do not behave consistently in accordance with the predictions of the actor-observer

paradigm.

Future research should attempt to establish the parameters of the range of applicability and use of causal schemata such as balance. Under conditions of low acquaintance, it appeared that balance was most used in reference to liked actors. Under conditions of high acquaintance would this same effect hold? Previous research indicates that it probably would. However, would balance be more readily used in dealing with known disliked other than with relatively unknown disliked others as in this study? It would also be profitable to investigate the manners in which causal schemata interact.

It is also patently clear that the manner in which the experimenter solicits data about attribution processeses affects the view given. A simple internal-external attributional scale may reflect general tendencies, but once one elaborates possible causal loci, a different picture is painted. To a certain extent, the view of reality can be a function of the limitations or creativity of the dependent measures. The results of this study make it clear that there are perhaps somewhat different attributional guides for each specified area of causality. Individuals may use different information processed in different modes in ascribing motivational, mood, personality, etc. causes. Future research should further investigate the causal modes and schemata that may be indiginous to particular causal loci.

The differences between actively (interdependently) and passively involved observers, and cognitively complex and non-complex observers found in this study clearly suggest that the interaction between them was more significant than any main effects. Interdependce tended to

attenuate the effects of complexity. It would appear that a certain degree of detachment may be necessary for complex individuals to function at a normally high level. Is this same tendency retained when interdependently involved with a highly known other? Future research might concentrate in this area. Does the complex person's tendency to integrate conflicting information by seeking underlying motivational explanations decrease when something personal at stake has been facilitated or inhibited by a liked or disliked other? More importantly, it must be realized that passive involvement in this study was not truely passive in terms of the actor-observer paradigm. If individuals are totally bereft of data about circumstances and the actor, will the effects of complexity be the same as found here? All of these can be lines of future research in terms of balance, as well as involvement and cognitive complexity.

Finally, the effects of differential attributions upon the content and strategy of interpersonal communication remains an area in need of future research. The data gathered in this study does give some tentative description of such effects. But it is clear that there was not a direct relation between reported attributions and communication strategy adopted. There appeared to be general tendencies related to relationship and behavior, but none that bear out a direct tie to causal attributions. The effects of cognitive complexity were clearly evident in individual's choices of strategies. However, the exact nature of processes that ocurred between attribution and subsequent communication are not clear. Another area of future research would be the investigation of influences upon decisions to adopt one strategy

over another. While one may decide that a person's dispositions were quite clearly the cause of a particular behavior, the approach to changing that behavior may rest upon more than simply causal designations. The discovery of some of these intervening communication-related factors may, in fact, shed more light upon the processes of causal attributions themselves.

As usual, research, while answering some questions, raises many more in the same process. Investigating the complex processes of human behavior only leads one to marvel even more at the complexity itself.

Summary

An experiment was performed to test the effects of strain towards balance, involvement, and cognitive complexity upon the causal attributions observers would make about an actor. In a 2^4 factorial design, 81 University of Kansas undergraduates served as subjects. The experimental sessions involved the manipulation of a like or dislike relation between subjects and a confederate actor by means of attitude similarity/dissimilarity and revealed reciprocal liking or disliking. Subjects were then exposed to positive or negative behavior by the confederate actor with whom they were either passively or actively (interdependently) involved in a mutually contingent problem-solving task. Subjects were then asked to record their attributions of the causes of the actor's behavior in terms of internal or external causality, personality, circumstances, mood, motivation, and other persons.

The congruence/incongruence of the actor's behavior with observer-actor relationship influenced the overall attributional pattern of the subjects. Essentially, those in congruent conditions made primarily

internal, dispositonal attributions, while subjects in incongruent situations made primarily external, circumstantial attributions. This result, however, was not consistent for all experimental groups, even though the Relation x Action interaction was the only significant factor affecting overall attributional patterns. Differential levels of involvement and complexity did not produce predicted results. However, there appeared to be a lessening of complexity effects as involvement moved from passive to active.

Subjects were also asked to communicate with the actor after the completion of the task so as to change his behavior as they saw advisable. There was no direct, observable relation between content and strategy of communication and the nature of prior causal attributions. There did appear to be effects due to relation and behavior, as well as ubiquitous effect due to cognitive complexity.

Three major conclusions were drawn. First, the attributional tendencies of observers do differ significantly from that predicted by the actor-observer paradigm. Second, the formation of causal attributions was significantly affected by a strain towards balance. However, balance appeared to function as one of several relevant causal schemata, rather than a singular criterion of attributional sufficiency. Third, the effects of cognitive complexity appear to be attenuated as involvement (interdependence) with the object person becomes higher, greater, and more intense.

FOOTNOTES

[1]Personal communication with S. E. Taylor, December, 1973.

[2]Personal communication with Alan Press, December, 1973.

[3]"He/she acts in these ways because he/she has certain needs, wants, desires that motivate their actions. That is, there is some underlying motivational state that leads him/her to act in these ways."

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APPENDIX A

SOCIAL PERCEPTION QUESTIONNAIRE

SOCIAL PERCEPTION QUESTIONNAIRE

Name _____ Sex _____

Our interest in this questionnaire is to learn how people describe others. We are interested in knowing, in your own terms, the characteristics which a set of individuals have--those which set one person off from another as an individual, and those characteristics which they share in common.

Our concern here is with the habits, ideas, mannerisms -- in general, with the personal characteristics, rather than the physical traits -- which characterize a number of different people.

In order to make sure that you are describing real people, we have set down a list of two different categories of people. In the blank space beside each category below, please write the initials, nicknames, or some identifying symbol for a person of your acquaintance who fits that category. Be sure to use to use a different person for each category.

1. A person your own age and sex whom you like _____
2. A person your own age and sex whom you dislike _____

Spend a few moments looking over this list, mentally comparing and contrasting the people you have in mind for each category. Think of their habits, their beliefs, their mannerisms, their relations to others, any characteristics they have which you might use to describe them to other people.

If you have any questions about the kinds of characteristics we are interested in, please ask them.

Do not turn the page until instructed to do so.

Please look back to the first sheet and place the symbol you have used to designate the person in category 1 here _____.

Now describe this person as fully as you can. Write down as many defining characteristics as you can. Pay particular attention to his/her habits, beliefs, ways of treating others, mannerisms, and similar attributes. Remember, describe him/her as completely as you can, so that a stranger might be able to determine the kind of person he/she is from your description. Use the back of this page if necessary.

This person is:

Please look back to the first sheet and place the symbol you have used to designate the person in category 2 here _____.

Now describe this person as fully as you can. Write down as many defining characteristics as you can. Pay particular attention to his/her habits, beliefs, ways of treating others, mannerisms, and similar attributes. Remember, describe him/her as completely as you can, so that a stranger might be able to determine the kind of person he/she is from your description. Use the back of this page if necessary.

This person is:

APPENDIX B

MEMBER INFORMATION QUESTIONNAIRE

MEMBER INFORMATION

Name: _____

Age: _____

Sex: _____

Year in school: _____

Major: _____

Home Town: _____

Hobbies: _____

Favorite sports teams (professional or college):

football: _____

basketball: _____

baseball: _____

APPENDIX - C

MEMBER ATTITUDES QUESTIONNAIRE

MENDER ATTITUDES

Name _____

Please place a check in the blank beside the statement which most nearly expresses your opinion with regard to each topic listed.

1. Fraternities and Sororities (Check One)
   ___I am very much against fraternities and sororities as they usually function.
   ___I am against fraternities and sororities as they usually function.
   ___To a slight degree, I am against fraternities and sororities as they usually function.
   ___To a slight degree, I am in favor of fraternities and sororities as they usually function.
   ___I am in favor of fraternities and sororities as they usually function.
   ___I am very much in favor of fraternities and sororities as they usually function.

2. Integration in Public Schools (Check one)
   ___Racial integration in public schools is a mistake, and I am very much against it.
   ___Racial integration in public schools is a mistake, and I am against it.
   ___Racial integration in public schools is a mistake, and I am mildly aganist it.
   ___Racial integration in public schools is a good plan, and I am mildly in favor of it.
   ___Racial integration in public schools is a good plan, and I am in favor of it.
   ___Racial integration in public schools is a good plan, and I am very much in favor of it.

3. Premarital Sex (Check one)
   ___In general, I am very much in favor of premarital sex.
   ___In general, I am in favor of premarital sex.
   ___In general, I am mildly in favor of premarital sex.
   ___In general, I am mildly against premarital sex.
   ___In general, I am against premarital sex.
   ___In general, I am very much against premarital sex.

4. Classical Music (Check one)
   ___I dislike classical music very much.
   ___I dislike classical music.
   ___I dislike classical music to a slight degree.
   ___I enjoy classical music to a slight degree.
   ___I enjoy classical music.
   ___I enjoy classical music very much.

5. The home provides adequate outlets for a woman's creative and intellectual expression -- she need not look outside the home. (Check one)
   ___I strongly agree with the above statement.
   ___I agree with the above statement.

5. ___I slightly agree with the above statement.
___I slightly disagree with the above statement.
___I disagree with the above statement.
___I strongly disagree with the above statement.

6. Drinking (Check one)
___In general, I am very much in favor of college students drinking alcoholic beverages.
___In general, I am in favor of college students drinking alcoholic beverages.
___In general, I am mildly in favor of college students drinking alcoholic beverages.
___In general, I am mildly opposed to college students drinking alcoholic beverages.
___In general, I am opposed to college students drinking alcoholic beverages.
___In general, I am very much opposed to college students drinking alcoholic beverages.

7. Smoking Marijuana (Check one)
___In general, I am very much in favor of smoking marijuana.
___In general, I am in favor of smoking marijuana.
___In general, I am mildly in favor of smoking marijuana.
___In general, I am mildly against smoking marijuana.
___In general, I am against smoking marijuana.
___In general, I am very much against smoking marijuana.

8. American Way of Life (Check One)
___I strongly believe that the American way of life is not the best.
___I believe that the American way of life is not the best.
___I feel that perhaps the American way of life is not the best.
___I feel that perhaps the American way of life is the best.
___I believe that the American way of life is the best.
___I strongly believe that the American way of life is the best.

9. The domestic duties in a household are the primary responsibility of the wife and mother. (Check one)
___I strongly agree with the above statement.
___I agree with the above statement.
___I slightly agree with the above statement.
___I slightly disagree with the above statement.
___I disagree with the above statement.
___I strongly disagree with the above statement.

10. Preparedness for War (Check one)
___I strongly believe that preparedness for war will not tend to precipitate war.
___I believe that preparedness for war will not tend to precipitate war.
___I feel that perhaps preparedness for war will not tend to precipitate war.
___I feel that perhaps preparedness for war will tend to precipitate war.

10. ___I believe that preparedness for war will tend to precipitate war.
___I strongly believe that preparedness for war will tend to precipitate war.

11. Legalizing Marijuana (Check one)
___In general, I am very much in favor of legalizing marijuana.
___In general, I am in favor of legalizing marijuana.
___In general, I am mildly in favor of legalizing marijuana.
___In general, I am against legalizing marijuana.
___In general, I am against legalizing marijuana.
___In general, I am very much against legalizing marijuana.

12. Welfare (Check one)
___I am very much opposed to increased welfare legislation.
___I am opposed to increased welfare legislation.
___I am mildly opposed to increased welfare legislation.
___I am mildly in favor of increased welfare legislation.
___I am in favor of increased welfare legislation.
___I am very much in favor of increased welfare legislation.

13. Strict Discipline (Check one)
___I am very much against strict disciplining of children.
___I am against strict disciplining of children.
___I am mildly against strict disciplining of children.
___I am mildly in favor of strict disciplining of children.
___I am in favor of strict disciplining of children.
___I am very much in favor of strict disciplining of children.

14. A Volunteer Army Instead of a Draft (Check one)
___I am very much in favor of a volunteer army.
___I am in favor of a volunteer army.
___I am mildly in favor of a volunteer army.
___I am mildly opposed to a volunteer army.
___I am opposed to a volunteer army.
___I am very much opposed to a volunteer army.

15. The woman's role in contemporary society needs to be redefined. (Check one)
___I strongly agree with the above statement.
___I agree with the above statement.
___I slightly agree with the above statement.
___I slightly disagree with the above statement.
___I disagree with the above statement.
___I strongly disagree with the above statement.

16. Abortion (Check one)
___I strongly support the right of a woman to obtain an abortion if she so desires.
___I support the right of a woman to obtain an abortion if she so desires.
___I slightly support the right of a woman to obtain an abortion if she so desires.
___I am slightly against a woman obtaining an abortion if her life is not in danger.

16. ___I am against a woman obtaining an abortion if her life is not in danger.
___I am strongly against a woman obtaining an abortion if her life is not in danger.

17. Professor and Student Needs (Check one)
___I feel that university professors are completely indifferent to student needs.
___I feel that university professors are indifferent to student needs.
___I feel that university professors are slightly indifferent to student needs.
___I feel that university professors are slightly concerned about student needs.
___I feel that university professors are concerned about student needs.
___I feel that university professors are very concerned about student needs.

18. Limiting Population Growth (Check one)
___I strongly believe that couples should limit themselves to two children.
___I believe that couples should limit themselves to two children.
___I feel that perhaps couples should limit themselves to two children.
___I feel that perhaps couples should feel free to have more than two children.
___I believe that couples should feel free to have more than two children.
___I strongly believe that couples should feel free to have more than two children.

19. Money (Check one)
___I strongly believe that money is not one of the most important goals in life.
___I believe that money is not one of the most important goals in life.
___I feel that perhaps money is not one of the most important goals in life.
___I feel that perhaps money is one of the most important goals in life.
___I believe that money is one of the most important goals in life.
___I strongly believe that money is one of the most important goals in life.

20. Political Beliefs (Check one)
___I am very conservative in my political beliefs.
___I am conservative in my political beliefs.
___I am slightly conservative in my political beliefs.
___I am slightly liberal in my political beliefs.
___I am liberal in my political beliefs.
___I am very liberal in my political beliefs.

APPENDIX D

INTERPERSONAL JUDGMENT SCALE

INTERPERSONAL JUDGMENT SCALE

Name: _____

Reaction to: _____

1. Intelligence (Check one)

___I believe that this person is very much above average in intelligence.
___I believe that this person is above average in intelligence.
___I believe that this person is slightly above average in intelligence.
___I believe that this person is average in intelligence.
___I believe that this person is slightly below average in intelligence.
___I believe that this person is below average in intelligence.
___I believe that this person is very much below average in intelligence.

2. Knowledge of Current Events (Check one)

___I believe that this person is very much below average in his (her) knowledge of current events.
___I believe that this person is below average in his (her) knowledge of current events.
___I believe that this person is slightly below average in his (her) knowledge of current events.
___I believe that this person is average in his (her) knowledge of current events.
___I believe that this person is slightly above average in his (her) knowledge of current events.
___I believe that this person is above average in his (her) knowledge of current events.
___I believe that this person is very much above average in his (her) knowledge of current events.

3. Morality (Check one)

___This person impresses me as being extremely moral.
___This person impresses me as being moral.
___This person impresses me as being moral to a slight degree.
___This person impresses me as being neither particularly moral nor particularly immoral.
___This person impresses me as being immoral to a slight degree.
___This person impresses me as being immoral.
___This person impresses me as being extremely immoral.

4. Adjustment (Check one)

___I believe that this person is extremely maladjusted.
___I believe that this person is maladjusted.
___I believe that this person is maladjusted to a slight degree.
___I believe that this person is neither particularly maladjusted nor particularly well adjusted.

4. ___I believe that this person is well adjusted to a slight degree.
___I believe that this person is well adjusted.
___I believe that this person is extremely well adjusted.

5. Personal Feelings (Check one)
___I feel that I would probably like this person very much.
___I feel that I would probably like this person.
___I feel that I would probably like this person to a slight degree.
___I feel that I would probably neither particularly like nor particularly dislike this person.
___I feel that I would probably dislike this person to a slight degree.
___I feel that I would probably dislike this person.
___I feel that I would probably dislike this person very much.

6. Working Together in an Experiment (Check one)
___I believe that I would very much dislike working with this person in an experiment.
___I believe that I would dislike working with this person in an experiment.
___I believe that I would dislike working with this person in an experiment to a slight degree.
___I believe that I would neither particularly dislike nor particularly enjoy working with this person in an experiment.
___I believe that I would enjoy working with this person in an experiment to a slight degree.
___I believe that I would enjoy working with this person in an experiment.
___I believe that I would very much enjoy working with this person in an experiment.

APPENDIX E

EXPERIMENTAL COMMUNICATION

POSITIVE COMMUNICATION

Message	Problem #	Numerical Difficulty Rating
Here is the first one. Good luck.	1	9
Correct. Good job. Try #2.	2	14
Right! You're making good time. Here's the third one.	3	20
Correct again. Get this one and you're over halfway done.	4	43
Correct! You're really good at this. Try #5.	5	49
Right. Good work. Here's the 6th one.	6	55
Right! Here's the last one. Good luck.	7	94
I'm sorry, but that's not right. Try again -- I know you can get it.	"	"
Sorry, but that's not right either. It's tough, but give it another try. Good luck.	"	"
--- time expires ---		

NEGATIVE COMMUNICATION

Message	Problem #	Numerical Difficulty Rating
Here's the first one.	1	9
Correct. Here's #2.	2	14
OK, but you're taking too much time. Speed it up on #3.	3	20
It's about time. Correct. Get a move on.	4	43
Come on, what's holding you up?	"	"
Finally! Even though you got it right you are using way too much time. Get going on this one.	5	49
Right, but go faster. Bear down!	6	55
OK. Here's the last one, but try not to use so much time on this one.	7	94
WRONG -- you have wasted a lot of time but you might as well keep working till you get it right.	"	"
Wrong again. Try again, but you don't have much time left.	"	"
--- time expires ---		

APPENDIX F

INFORMATION PROCESSING QUESTIONNAIRE

INFORMATION PROCESSING

_____
Member Number

We are now interested in how information about members of networks gets transferred and processed in this particular kind of network. In order to get some reading on this, please fill out the following questionnaire in reference to: _____.

We have listed below five kinds of explanations for a person's behavior.

Different people account for another's behavior in different ways. Please read the explanations below and decide which explanations you prefer for explaining and understanding the behavior of _____.

In the space to the left of the explanations, give each explanation a rating from 0 to 100 according to how good you think it is. If you think an explanation would provide an extremely poor way of accounting for his/her behavior, put a 0 in the blank to the left. If you think it would provide a means for accounting for his/her behavior that is somewhere between extremely poor and excellent, choose some appropriate number; for example, if you think the explanation is neither goor nor bad, put a rating of 50 in the blank to the left of that explanation. If you think an explanation would provide an excellent way of accounting for his/her behavior, put a 100 in the blank to the left of the explanation.

Remember, you are filling this questionnaire out in reference to _____.

Rating (from 0 to 100)		Rank Order (from 1 to 5)
_____	A. Personality explanation. He/she typically acts in these ways because of specific qualities or aspects of him/her as a person. This is the type of person he/she is.	_____
_____	B. Explanation based on circumstance. He/she acts in these ways because of the particular circumstances. Something about the external circumstances caused him/her to act in this way.	_____
_____	C. Mood explanation. He/she acts in these ways because of a temporary mood (or some temporary state) that he/she is in at this particular time.	_____
_____	D. Motivational explanation. He/she acts in these ways because he/she has certain needs, wants, desires that motivate their actions. That is, there is some underlying motivational state that leads him/her to act in these ways.	_____
_____	E. Explanations based on other person. He/she acts in these ways because he/she behaves differently to different types of persons. That is, the type of person they are with causes them to act differently.	_____

After you have rated all five explanations, go back and rank them in the order you prefer, using the blank to the right of the explanation. That is, place the number 1 after the explanation you most prefer, the number 2 after the explanation you prefer second best, the number 3 after the explanation you prefer third best, the number 4 after the explanation you prfer fourth best, and the number 5 after the explanation you least prefer.

A person's actions can be seen to be caused either by the pressures and expectations in the situation that he or she is involved in or by underlying characteristics of the person involved. If you had to make a choice, which would you say were more important for this person's behavior?

(Check one)

almost exclusively circumstances of the situation	almost exclusively circumstances of the situation but also slightly this person's underlying characteristics	almost exclusively this person's underlying characteristics but also slightly the circumstances of the situation	almost exclusively this person's underlying characteristics

An important aspect of communication in different kinds of organizational networks is how some members see other members and their behavior. Of special interest are the explanations members have of other members' behavior. In the space provided below please write out the explanation(s) you prefer for explaining and understanding the behavior of _____. Please describe you explanation as fully and completely as you can. Use the back of this sheet if necessary.

INTERPERSONAL JUDGMENT SCALE

Name: _____

Reaction to: _____

1. Intelligence (Check one)

___I believe that this person is very much above average in intelligence.
___I believe that this person is above average in intelligence.
___I believe that this person is slightly above average in intelligence.
___I believe that this person is average in intelligence.
___I believe that this person is slightly below average in intelligence.
___I believe that this person is below average in intelligence.
___I believe that this person is very much below average in intelligence.

2. Knowledge of Current Events (Check one)

___I believe that this person is very much below average in his (her) knowledge of current events.
___I believe that this person is below average in his (her) knowledge of current events.
___I believe that this person is slightly below average in his (her) knowledge of current events.
___I believe that this person is average in his (her) knowledge of current events.
___I believe that this person is slightly above average in his (her) knowledge of current events.
___I believe that this person is above average in his (her) knowledge of current events.
___I believe that this person is very much above average in his (her) knowledge of current events.

3. Morality (Check one)

___This person impresses me as being extremely moral.
___This person impresses me as being moral.
___This person impresses me as being moral to a slight degree.
___This person impresses me as being neither particularly moral nor particularly immoral.
___This person impresses me as being immoral to a slight degree.
___This person impresses me as being immoral.
___This person impresses me as being extremely immoral.

4. Adjustment (Check one)

___I believe that this person is extremely maladjusted.
___I believe that this person is maladjusted.
___I believe that this person is maladjusted to a slight degree.
___I believe that this person is neither particularly maladjusted nor particularly well adjusted.

4. ___I believe that this person is well adjusted to a slight degree.
___I believe that this person is well adjusted.
___I believe that this person is extremely well adjusted.

5. Personal Feelings (Check one)
___I feel that I would probably like this person very much.
___I feel that I would probably like this person.
___I feel that I would probably like this person to a slight degree.
___I feel that I would probably neither particularly like nor particularly dislike this person.
___I feel that I would probably dislike this person to a slight degree.
___I feel that I would probably dislike this person.
___I feel that I would probably dislike this person very much.

6. Working Together in an Experiment (Check one)
___I believe that I would very much dislike working with this person in an experiment.
___I believe that I would dislike working with this person in an experiment.
___I believe that I would dislike working with this person in an experiment to a slight degree.
___I believe that I would neither particularly dislike nor particularly enjoy working with this person in an experiment.
___I believe that I would enjoy working with this person in an experiment to a slight degree.
___I believe that I would enjoy working with this person in an experiment.
___I believe that I would very much enjoy working with this person in an experiment.

APPENDIX G

NETWORK REORGANIZATION QUESTIONNAIRE

NETWORK REORGANIZATION

A communication network can change in several ways. Its shape can change so that members are in contact with different members. This is an "external" change. On the other hand, its shape can remain the same while the relations between the members change. This is an "internal" change. We are interested in such "internal" changes in this network. Such things as how well the network has attained its goal, the satisfaction of the members in the network, and the nature of the interpersonal relations among the members all play a major role in "internal" changes.

Many studies have reported that these "internal" changes usually take place when feedback is given to the central member(s) of the network by other members. And we have found that this feedback is most relevant if it is about certain items rather than others. The feedback items that are important for "internal" changes are listed on the "Feedback Checklist" on the next page.

In order to get some idea of how this network can change internally, you are to construct a message that will be sent to the central member(s) of this network (member #1 _____). In this message you may want to comment on items included in the "Feedback Checklist".

Please read each item on the "Feedback Checklist" and respond according to the directions.

When you have completed the "Feedback Checklist" go on to the next page. Here you will write out the message you wish to send to the central member(s). The message will be the only item sent to him/her — your "Feedback Checklist" will not be sent.

FEEDBACK CHECKLIST

_____
Member Number

Enter the response that best represents your view.

1. Problems chosen by the selector were: _____.

9 much too easy
8
7 slightly too easy
6
5 about right
4
3 slightly too difficult
2
1 much too difficult

2. The selector's contribution to the accomplishment of this task was: _____.

9 high -- was very helpful
8
7
6
5 medium -- was neither especially helpful nor especially not helpful
4
3
2
1 low -- was not at all helpful

3. The selector tended to create an interpersonal relationship with the problem-solver that was: _____.

9 negative -- did not contribute to good teamwork and member satisfaction
8
7
6
5 neutral -- neither contributed to nor detracted from good teamwork and member satisfaction
4
3
2
1 positive -- contributed to good teamwork and member satisfaction

4. The manner in which the selector attempted to motivate the problem-solver was: _____.

9 appropriate and effective
8
7
6
5 neither especially appropriate and effective nor especially inappropriate and ineffective
4
3
2
1 inappropriate and ineffective

MESSAGE

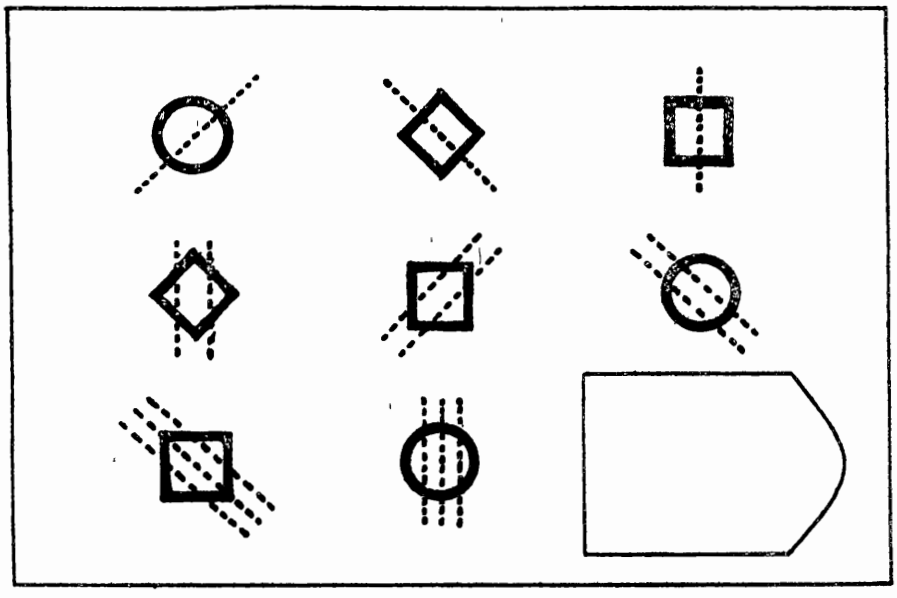
Write out below the message you wish to send to the selector.
Use the back of this page if necessary.

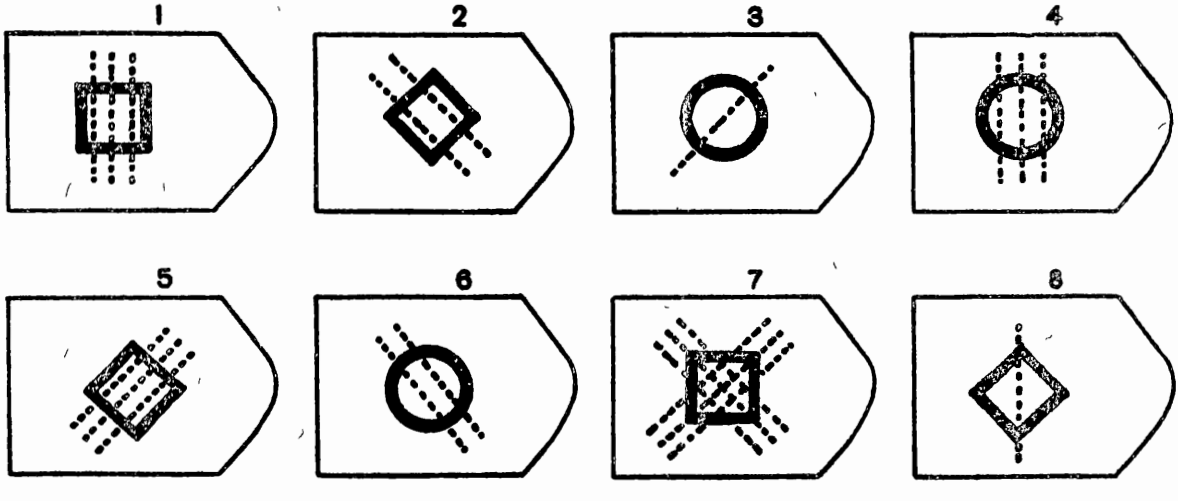
TO: _____(member number)
FROM: _____(member number)

APPENDIX H

EXPERIMENTAL PROBLEMS

9





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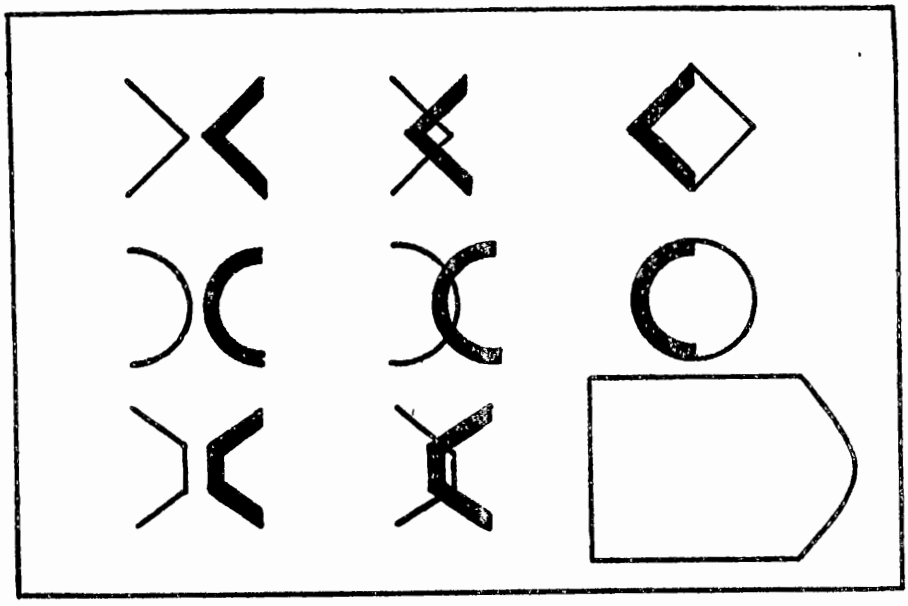

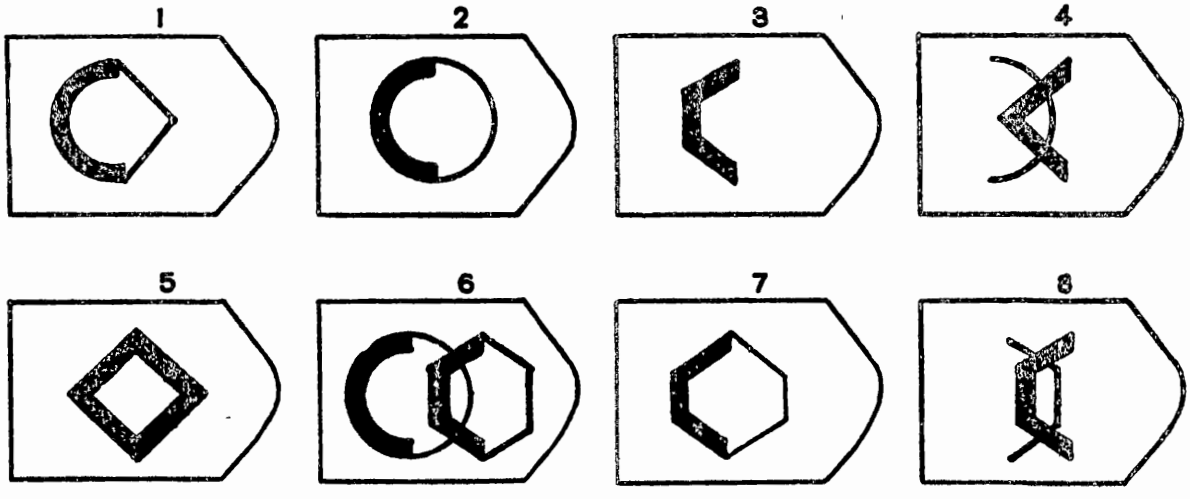

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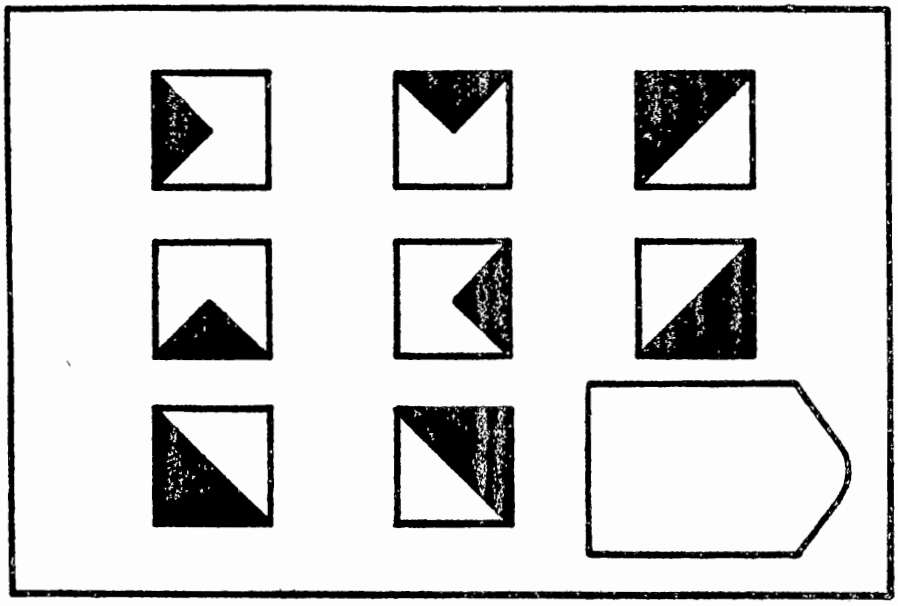

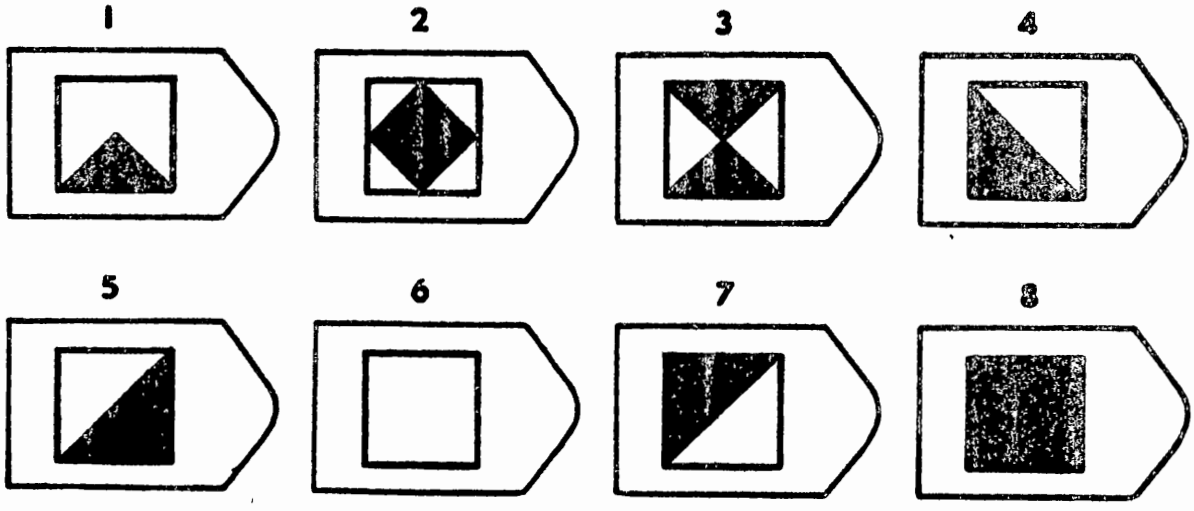

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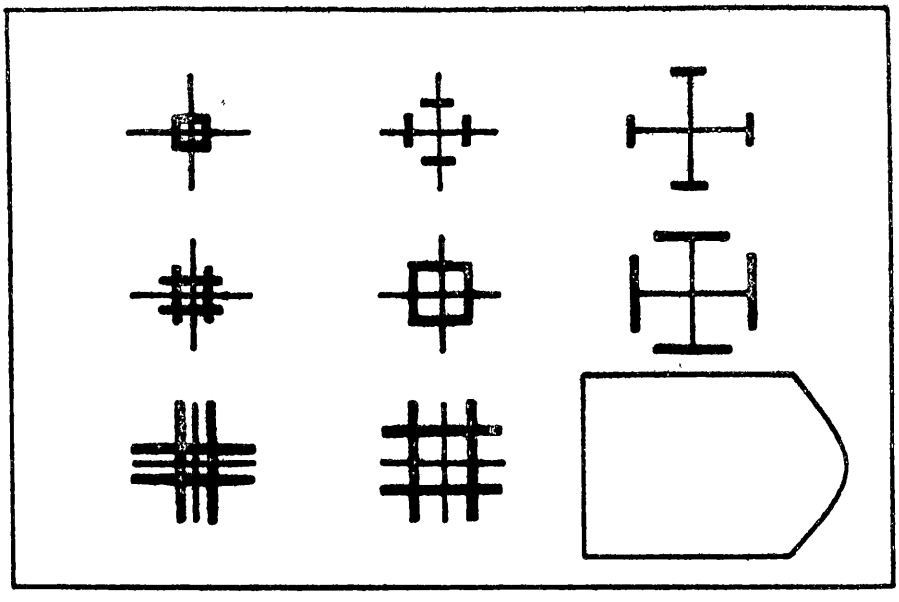
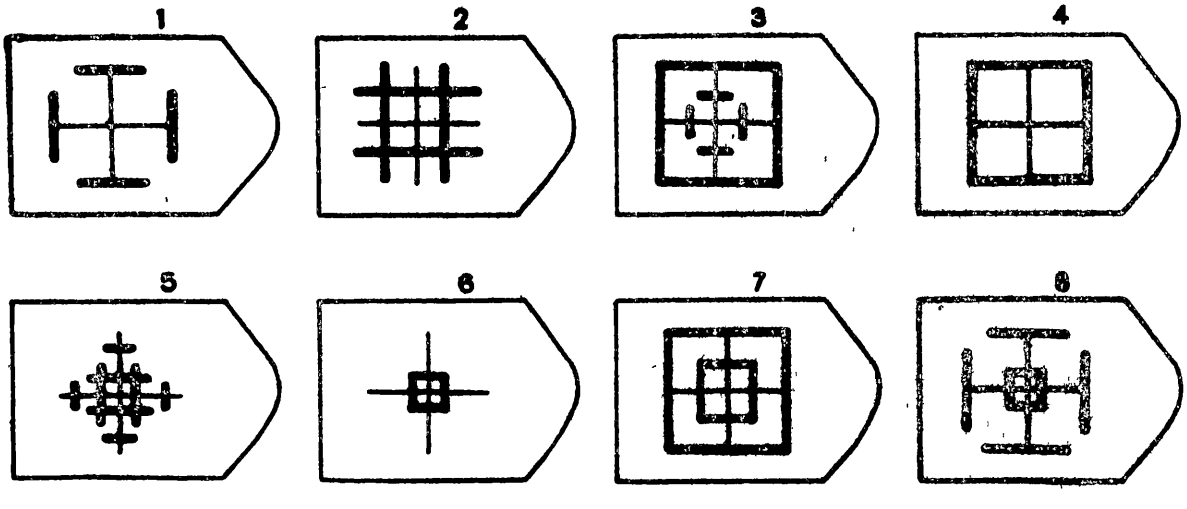
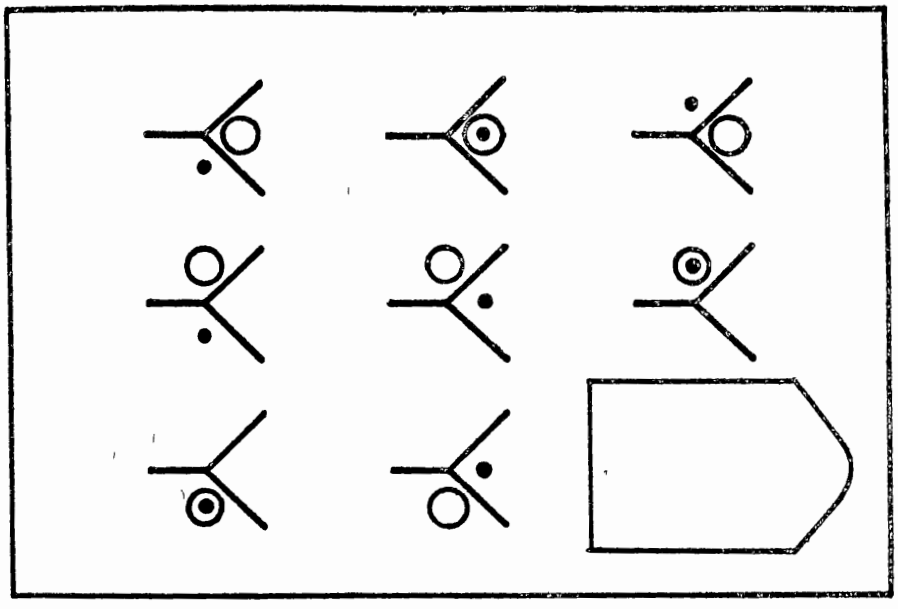
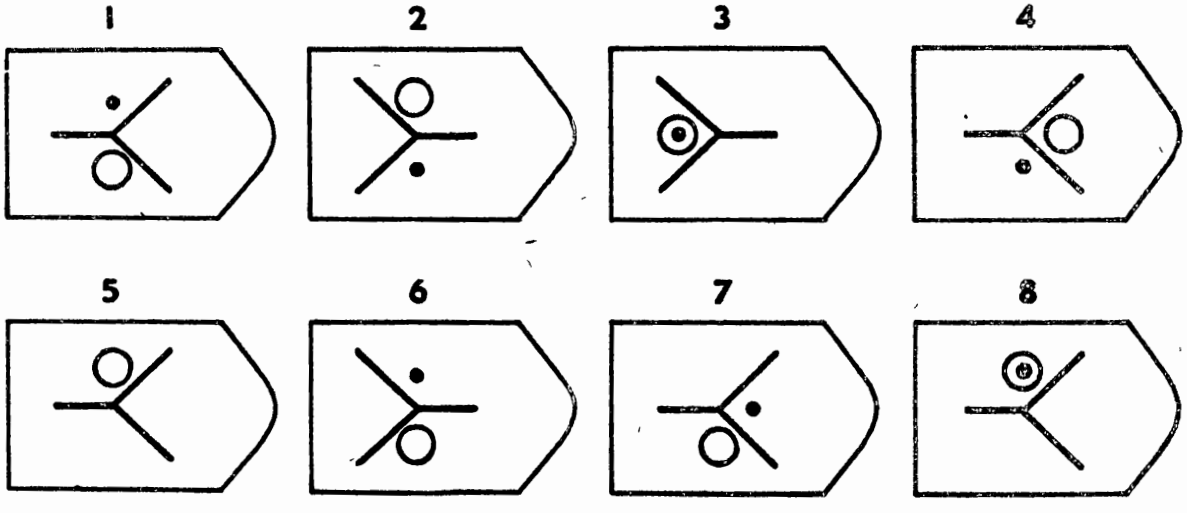




49





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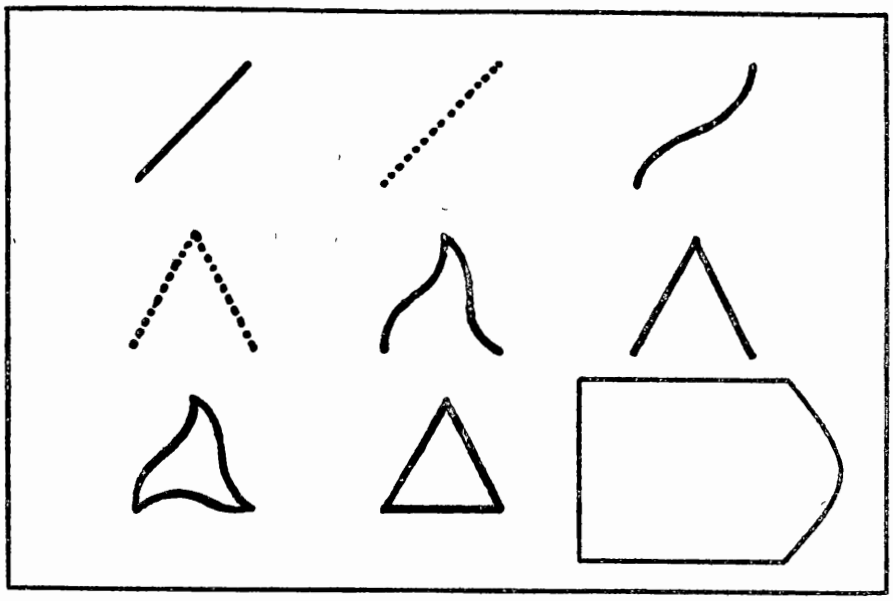

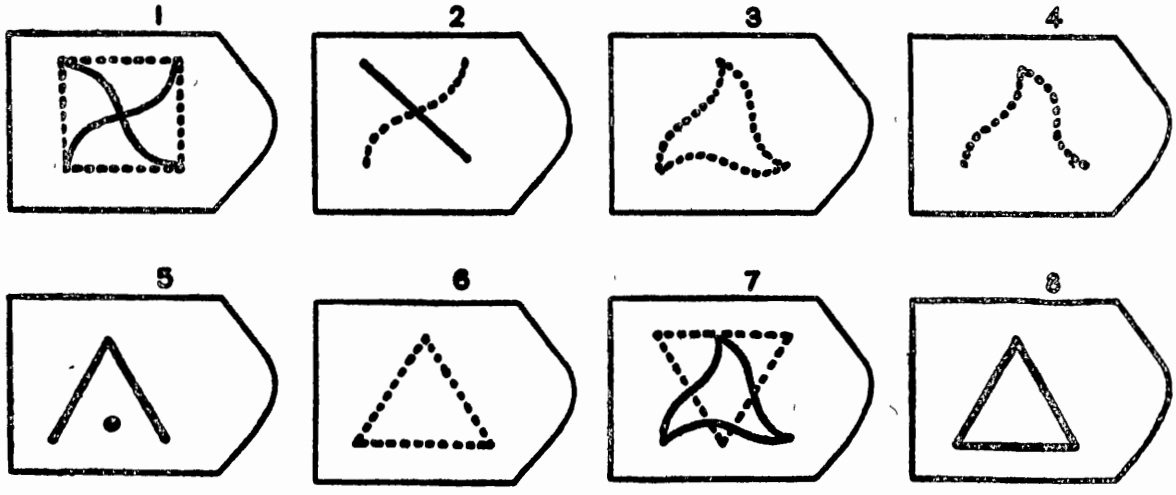

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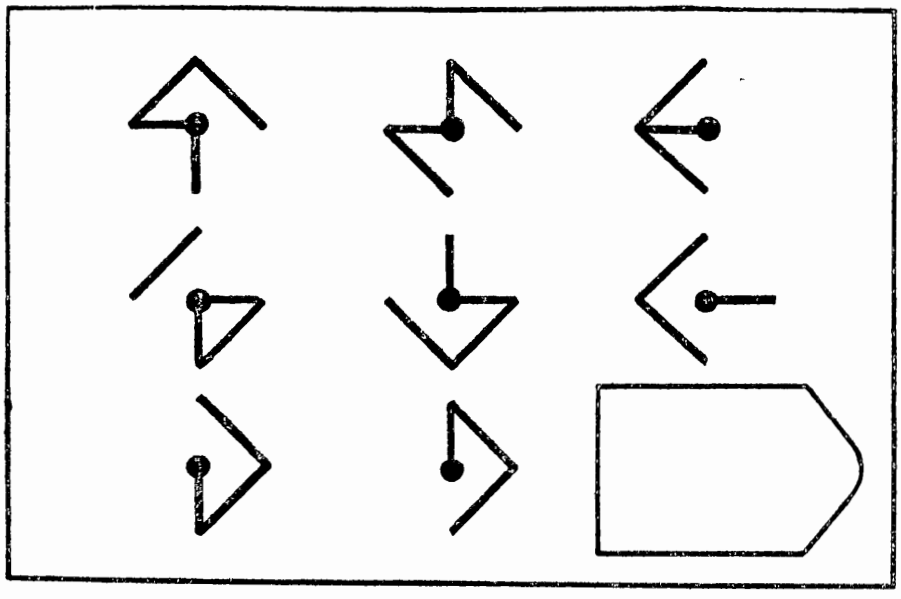
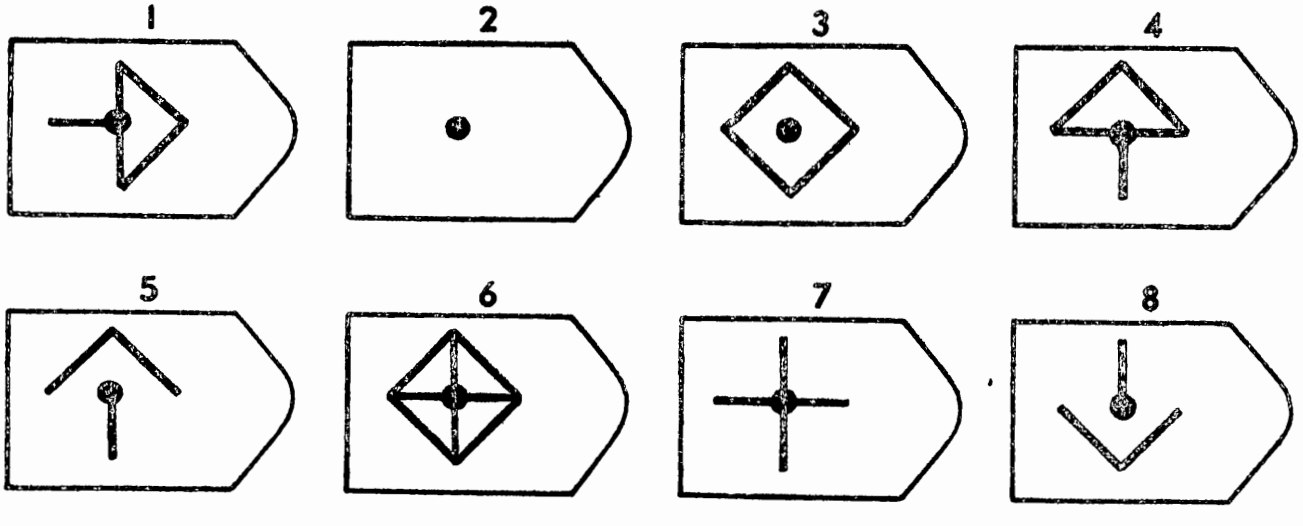
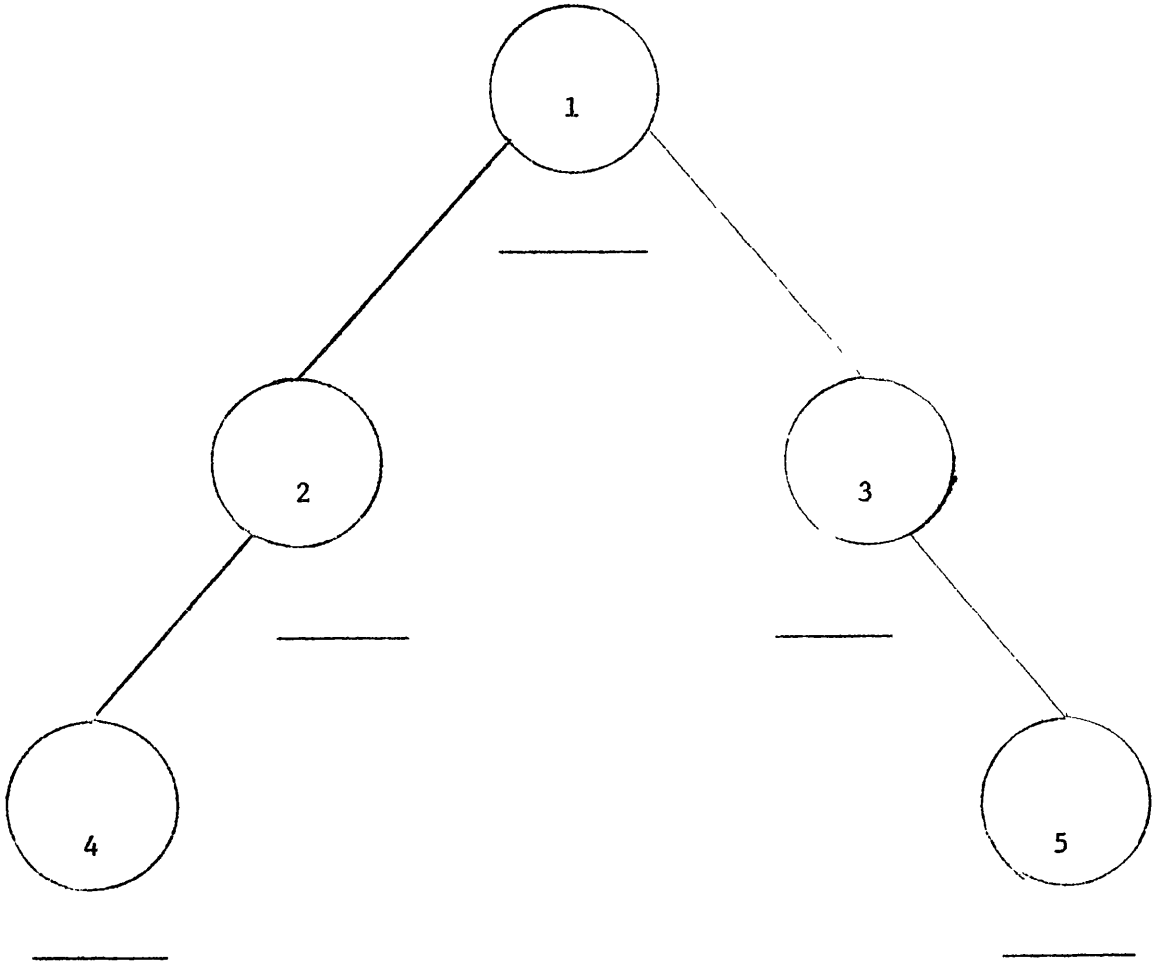




APPENDIX I

EXPERIMENTAL TASK INSTRUCTIONS

CHAIN



PRO`LEM-SOLVING TASK

This task involves the completion of a pattern of symbols arranged in a matrix. The goal is to select one of eight possibilities that will be an appropriately correct completion of the pattern in the matrix. For instance, in the matrix below one of the eight choices at the bottom will correctly complete the pattern above.

0	00	000
00	000	0000
000	0000	

1. 0	2. 0000000	3. 000000	4. 000
5. 00	6. 00000	7. 0000	8. 00000000

There are 100 possible problems. The task is to complete seven(7) in fifteen(15) minutes. The problems range in difficulty from "1" (very easy) to "100"(very difficult). The range of difficulty for all problems is:

1-35	small difficulty
36-70	medium difficulty
71-100	extreme difficulty

One member of the network will serve as the problem "Selector", two will function as "Problem-Solvers", and two will be "Observers". Each problem will be selected by a member of the network(the Selector) and sent to other members(the Problem-Solvers) for completion. The Selector may include with the problem any information he desires in the form of written messages. The Selector knows the correct answers for each problem and will let the Problem-Solvers know whether they have correctly solved the problem or not. The Problem-Solvers may also communicate with the Selector if they so desire by means of written messages also.

Those who are Observers in this task will receive all information that is exchanged between the Selector and the Problem-Solvers. Observers are to keep a record of the problems chosen, their difficulty, whether they were completed correctly, and arrange all messages in their correct temporal sequence.

PROBLEM-SOLVER

As a Problem-Solver you are to complete each problem as it is sent to you by the selector. You have fifteen(15) minutes to complete seven(7) problems. When you have completed each problem you are to send your answer back to the Selector who will let you know if you answered correctly or incorrectly. If correct, the next problem will be sent to you. If incorrect, you are to keep working on the same problem until you answer it correctly. You may request any information you desire from the selector by means of written messages. He will reply as he chooses.

SELECTOR

Your task is to make the assignment of problems to the problem solvers and to report to them if their answer is correct or incorrect. You have 100 problems that you can choose any seven to send to the problem solvers. You and they have fifteen(15) minutes in which to solve seven(7).

You may of you desire send any messages that you desire to them at any time---with or without a problem. Problem solvers may also send messages to you. The book you have been given contains the 100 possible problems. It is important that you try to get the 7 problems done in the 15 minutes.

problems 1- 35	small difficulty
problems 36-70	medium difficulty
problems 71-100	extreme difficulty

You send send any problems or messages you desire.

OBSERVER

As an Observer you are to record for each problem:

1. the numerical difficulty rating for each problem chosen
2. the verbal description of the problem's difficulty (i.e., easy, medium, or extreme difficulty)
3. whether it was correctly answered by the problem-solver
4. all written messages between the selector and the problem-solver -- recording them by name of writer and arranged in the order they were originally sent.

Please use the attached sheets to record this information.

Later on you will be asked to complete a questionnaire based upon this information.

Problem # _____
1,2,3,4,5,6, or 7

Difficulty: _____
numerical designation

_____
verbal designation
(easy, medium, extreme)

Please record all written interchanges below.

APPENDIX J

SUMMARY TABLES FOR ANALYSES OF VARIANCE

Table 27

Summary Table Analysis of Variance

Repeated Measures on Causal Loci

Source	SS	DF	MS	F	p
Between					
Relation	1202.773	1	1202.773	0.907	
Action	1015.615	1	1015.615	0.766	
Involvement	184.131	1	184.131	0.139	
Complexity	20.787	1	20.787	0.016	
R x A	70.464	1	70.464	0.053	
R x I	932.458	1	932.458	0.073	
A x I	1704.184	1	1704.184	1.285	
R x C	295.410	1	295.410	0.223	
A x C	349.045	1	349.045	0.263	
I x C	574.389	1	574.389	0.433	
R x A x I	5625.897	1	5625.897	4.242	.044
R x A x C	484.620	1	484.620	0.365	
R x I x C	1466.815	1	1466.815	1.106	
A x I x C	14669.618	1	14669.618	11.060	.001
R x A x I x C	1739.546	1	1739.546	1.312	
Error	80907.075	61	1326.346		
Within					
Causal Loci	43475.000	4	10868.750	15.384	.001
CL x Relation	2604.203	4	651.051	0.922	
CL x Action	6180.631	4	1545.158	2.187	
CL x Involvement	525.176	4	131.294	0.186	
CL x Complexity	1448.438	4	362.109	0.513	
CL x R x A	13701.589	4	3425.398	4.849	.001
CL x R x I	485.963	4	121.491	0.172	
CL x A x I	4592.189	4	1148.047	1.625	
CL x R x C	1742.168	4	435.542	0.617	
CL x A x C	1801.299	4	450.325	0.637	
CL x I x C	2328.512	4	582.128	0.824	
CL x R x A x I	5180.990	4	1295.248	1.833	
CL x R x A x C	141.447	4	35.362	0.050	
CL x R x I x C	6481.877	4	1620.469	2,294	
CL x A x I x C	6154.625	4	1538.656	2.178	
CLxRxAxIxC	712.205	4	178.051	0.252	
Error	172383.805	244	706.491		

Table 28

Summary Table Analysis of Variance

Internal-External Attribution Scale

Source	SS	DF	MS	F	p
Relation	22.390	1	22.390	7.099	.01
Action	3.281	1	1.041	1.041	
Involvement	0.619	1	0.619	0.196	
Complexity	0.160	1	0.160	0.051	
R x A	58.403	1	58.403	18.519	.001
R x I	0.249	1	0.249	0.079	
A x I	9.448	1	9.448	2.996	
I x C	0.508	1	0.508	0.161	
R x C	2.849	1	2.849	0.903	
A x C	0.716	1	0.716	0.227	
R x A x I	1.773	1	1.773	0.562	
R x A x C	2.190	1	2.190	0.695	
R x I x C	12.559	1	12.559	3.983	.05
A x I x C	16.313	1	16.313	5.173	.026
R x A x I x C	0.675	1	0.675	0.214	
Error	192.371	61	3.154		

Table 29

Summary Table Analysis of Variance

Personality

Source	SS	DF	MS	F	p
Relation	598.216	1	598.216	0.814	
Action	1614.899	1	1614.899	2.197	
Involvement	144.245	1	144.245	0.196	
Complexity	357.773	1	357.773	0.487	
R x A	3969.437	1	3969.437	5.401	.023
R x I	9.311	1	9.311	0.012	
A x I	168.039	1	168.039	0.229	
R x C	315.476	1	315.476	0.429	
A x C	0.659	1	0.659	0.001	
I x C	334.751	1	334.751	0.456	
R x A x I	2271.447	1	2271.447	3.091	
R x A x C	60.694	1	60.694	0.083	
R x I x C	5160.415	1	5160.415	7.022	.01
A x I x C	5140.877	1	5140.877	6.995	.01
R x A x I x C	202.637	1	202.637	0.276	
Error	44831.419	61	734.941		

Table 30

Summary Table Analysis of Variance

Circumstances

Source	SS	DF	MS	F	p
Relation	228.085	1	228.085	0.339	
Action	4262.969	1	4262.969	6.349	.014
Involvement	43.580	1	43.580	0.065	
Complexity	451.662	1	451.662	0.673	
R x A	4134.683	1	4134.683	6.158	.016
R x I	39.281	1	39.281	0.059	
A x I	492.519	1	492.519	0.734	
R x C	322.148	1	322.148	0.479	
A x C	46.402	1	46.402	0.069	
I x C	26.434	1	26.434	0.039	
R x A x I	20.567	1	20.567	0.031	
R x A x C	51.953	1	51.953	0.077	
R x I x C	4.770	1	4.770	0.007	
A x I x C	9.379	1	9.379	0.014	
R x A x I x C	1305.975	1	1305.975	1.945	
Error	40956.393	61	671.416		

Table 31

Summary Table Analysis of Variance

Mood

Source	SS	DF	MS	F	p
Relation	3.798	1	3.798	0.005	
Action	1068.370	1	1068.370	1.274	
Involvement	202.672	1	202.672	0.242	
Complexity	398.619	1	398.619	0.475	
R x A	1215.481	1	1215.481	1.449	
R x I	646.298	1	646.298	0.771	
A x I	5327.255	1	5327.255	6.352	.014
R x C	451.662	1	451.662	0.539	
A x C	581.925	1	581.925	0.694	
I x C	1797.719	1	1797.719	2.144	
R x A x I	8153.959	1	8153.959	9.723	.003
R x A x C	264.168	1	264.168	0.315	
R x I x C	985.899	1	985.899	1.176	
R x A x I x C	0.099	1	0.099	0.000	
Error	51156.681	61	838.634		

Table 32

Summary Table Analysis of Variance

Motivation

Source	SS	DF	MS	F	p
Relation	177.934	1	177.934	0.159	
Action	4.797	1	4.797	0.004	
Involvement	37.064	1	37.064	0.033	
Complexity	13.234	1	13.234	0.012	
R x A	1419.694	1	1419.694	1.276	
R x I	60.772	1	60.772	0.055	
A x I	268.815	1	268.815	0.242	
R x C	127.354	1	127.354	0.115	
A x C	1032.676	1	1032.676	0.928	
I x C	666.268	1	666.268	0.599	
R x A x I	297.113	1	297.113	0.267	
R x A x C	5.586	1	5.586	0.005	
R x I x C	382.238	1	382.238	0.344	
A x I x C	6117.753	1	6117.753	5.498	.022
R x A x I x C	654.187	1	654.187	0.588	
Error	67878.715	1	1112.766		

Table 33

Summary Table Analysis of Variance

Other Persons

Source	SS	DF	MS	F	p
Relation	2798.944	1	2798.944	3.523	
Action	245.214	1	245.214	0.309	
Involvement	281.748	1	281.748	0.355	
Complexity	247.934	1	247.934	0.312	
R x A	3032.759	1	3032.759	3.817	
R x I	662.759	1	662.759	0.834	
A x I	39.748	1	39.748	0.050	
R x C	820.937	1	820.937	1.033	
A x C	488.682	1	488.682	0.615	
I x C	77.731	1	77.731	0.098	
R x A x I	63.799	1	63.799	0.080	
R x A x C	243.666	1	243.666	0.307	
R x I x C	2165.267	1	2165.267	2.725	
A x I x C	8570.332	1	8570.332	10.786	.003
R x A x I x C	288.854	1	288.854	0.364	
Error	48467.678	61	794.552		

Table 34

Summary Table Analysis of Variance

Communication: Quantity

Source	SS	DF	MS	F	p
Relation	18.362	1	18.362	2.743	
Action	1.012	1	1.012	0.151	
Involvement	0.814	1	0.814	0.122	
Complexity	0.001	1	0.001	0.000	
R x A	3.808	1	3.808	0.569	
R x I	0.334	1	0.334	0.049	
A x I	0.005	1	0.005	0.001	
R x C	36.538	1	36.538	5.458	.023
A x C	5.360	1	5.360	0.801	
I x C	8.434	1	8.434	1,259	
R x A x I	7.058	1	7.058	1.054	
R x A x C	0.665	1	0.665	0.099	
R x I x C	2.937	1	2.937	0.439	
A x I x C	2.135	1	2.135	0.319	
R x A x I x C	3.313	1	3.313	0.495	
Error	408.388	61	6.695		

Table 35

Summary Table Analysis of Variance

Communication: Negative Reinforcement--Person

Source	SS	DF	MS	F	p
Relation	0.992	1	0.992	1.801	
Action	7.512	1	7.512	13.633	.001
Involvement	1.146	1	1.146	2.079	
Complexity	0.542	1	0.542	0.984	
R x A	0.621	1	0.621	1.128	
R x I	0.279	1	0.279	0.057	
A x I	1.634	1	1.634	2.965	
R x C	0.008	1	0.008	0.015	
A x C	0.279	1	0.279	0.507	
I x C	0.621	1	0.621	1.128	
R x A x I	0.542	1	0.542	0.984	
R x A x C	0.014	1	0.014	0.025	
R x I x C	0.052	1	0.052	0.095	
R x I x C	0.052	1	0.052	0.095	
A x I x C	0.992	1	0.992	1.801	
R x A x I x C	0.000	1	0.000	0.000	
Error	33.612	61	0.551		

Table 36

Summary Table Analysis of Variance

Communication: Negative Reinforcement--Circumstances

Source	SS	DF	MS	F	p
Relation	0.776	1	0.776	0.679	
Action	7.197	1	7.197	6.297	.015
Involvement	0.453	1	0.453	0.397	
Complexity	0.453	1	0.453	0.396	
R x A	0.008	1	0.008	0.007	
R x I	1.866	1	1.866	1.633	
A x I	0.014	1	0.014	0.012	
R x C	4.239	1	4.239	3.709	
A x C	0.659	1	0.659	0.577	
I x C	0.776	1	0.776	0.679	
R x A x I	0.659	1	0.659	0.577	
R x A x C	4.829	1	4.829	4.226	.044
R x I x C	2.477	1	2.477	2.168	
A x I x C	0.365	1	0.365	0.319	
R x A x I x C	1.682	1	1.682	1.472	
Error	69.714	61	1.143		

Table 37

Summary Table Analysis of Variance

Communication: Positive Reinforcement--Person

Source	SS	DF	MS	F	p
Relation	0.505	1	0.505	0.519	
Action	18.161	1	18.161	18.703	.001
Involvement	0.270	1	0.270	0.278	
Complexity	0.087	1	0.087	0.089	
R x A	1.471	1	1.471	1.514	
R x I	7.492	1	7.492	7.715	.007
A x I	0.024	1	0.024	0.025	
R x C	3.309	1	3.309	3.407	
A x C	4.179	1	4.179	4.303	.042
I x C	0.030	1	0.030	0.031	
R x A x I	2.824	1	2.824	2.908	
R x A x C	0.011	1	0.011	0.011	
R x I x C	3.122	1	3.122	3.215	
A x I x C	0.000	1	0.000	0.000	
R x A x I x C	7.025	1	7.025	7.235	.009
Error	59.233	61	0.971		

Table 38

Summary Table Analysis of Variance

Communication: Positive Reinforcement--Circumstances

Source	SS	DF	MS	F	p
Relation	0.082	1	0.082	0.231	
Action	0.958	1	0.958	2.712	
Involvement	0.677	1	0.677	1.917	
Complexity	1.449	1	1.449	4.103	.047
R x A	0.139	1	0.139	0.393	
R x I	0.542	1	0.542	1.534	
A x I	0.152	1	0.152	0.430	
R x C	0.072	1	0.072	0.204	
A x C	1.249	1	1.249	3.354	
I x C	0.114	1	0.114	0.323	
R x A x I	0.017	1	0.017	0.048	
R x A x C	0.735	1	0.735	2.082	
R x I x C	0.357	1	0.357	1.011	
A x I x C	0.891	1	0.891	2.523	
R x A x I x C	1.063	1	1.063	3.007	
Error	21.550	61	0.353		

Table 39

Summary Table Analysis of Variance

Communication: Adoption--Person

Source	SS	DF	MS	F	p
Relation	0.581	1	0.581	1.218	
Action	0.052	1	0.052	0.109	
Involvement	0.002	1	0.002	0.005	
Complexity	0.097	1	0.097	0.204	
R x A	0.581	1	0.581	1.218	
R x I	4.614	1	4.614	9.676	.003
A x I	0.255	1	0.255	0.535	
R x C	3.979	1	3.979	8.343	.005
A x C	0.030	1	0.030	0.063	
I x C	0.030	1	0.030	0.063	
R x A x I	0.235	1	0.235	0.493	
R x A x C	0.015	1	0.015	0.032	
R x I x C	1.423	1	1.423	2.984	
A x I x C	0.097	1	0.097	0.204	
R x A x I x C	0.069	1	0.069	0.144	
Error	29.091	61	0.477		

Table 40

Summary Table Analysis of Variance

Communication: Adoption--Circumstances

Source	SS	DF	MS	F	p
Relation	1.618	1	1.618	2.309	
Action	0.068	1	0.068	0.096	
Involvement	0.173	1	0.173	0.247	
Complexity	0.047	1	0.047	0.068	
R x A	0.491	1	0.491	0.699	
R x I	6.701	1	6.701	9.562	.003
A x I	0.008	1	0.008	0.011	
R x C	0.529	1	0.529	0.755	
A x C	0.167	1	0.167	0.238	
I x C	0.071	1	0.071	0.102	
R x A x I	0.228	1	0.228	0.326	
R x A x C	0.132	1	0.132	0.189	
R x I x C	0.529	1	0.529	0.755	
A x I x C	0.569	1	0.569	0.813	
R x A x I x C	0.024	1	0.024	0.035	
Error	42.748	61	0.701		