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BEHAVIORS, ATTITUDES AND TRAITS AS INFORMATION
UNITS IN PERSON PERCEPTION

By

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ABSTRACT

BEHAVIORS, ATTITUDES AND TRAITS AS INFORMATION UNITS IN PERSON PERCEPTION

By

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Person perception research, following seminal work by Heider (1958) and Asch (1946), can be roughly divided into two basic approaches: person attribution and attribute organization research. Lines of investigation in each of these approaches have proceeded in independent but parallel directions. A model is proposed which views person perception as an inference process between three distinct units of information available to the perceiver: the actor's behaviors, attitudes, and traits. It is postulated that each of these units has some probability of mediating information presented to the perceiver in behavioral, attitudinal, or trait form. Person attribution and attribute organization studies are seen as focusing on different types of inferences with the same perceptual objective.

Attribute organization studies have focused on the structure of trait inferences mediated by other traits. The implication of the proposed model is that the structure of these inferences would differ if the inferences were mediated by attitudes or behaviors. Person attribution studies imply that these units differ with respect to the specificity of information provided to the perceiver and

that the inference process goes more naturally from behaviors to attitudes to traits rather than vice-versa. Two experiments were designed to explore these arguments.

In Experiment One, 60 upper-division psychology students made 290 likelihood judgments that a particular unit was to be inferred from another. Examination of the factor structures of these inferences indicated that structural representations of trait inferences were different when the inferences were mediated by attitudes and behaviors.

In Experiment Two, 48 upper-division psychology students were divided into twelve groups corresponding to the nine basic inferences proposed and three no-mediator control conditions. Each group responded to discrimination learning tasks which required subjects to learn a particular behavior, attitude, or trait given stimuli in one of these three forms. More correct answers were made on the behavior-to-attitude, behavior-to-trait, and attitude-to-trait inferences supporting the argument that these units differ in the property of specificity of information. Implications of these findings for person perception research are discussed.

ACKNOWLEDGMENTS

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INTRODUCTION

This study examines the similarities between attribution theory and "implicit personality" approaches to person perception. The major objective of the study is to propose a process model for integrating seemingly unrelated findings in these areas of research. In addition, basic assumptions of attribution and "implicit personality" approaches to person perception research are tested with the framework of the model. Prior to the presentation of the model, it would be useful to trace the development of person perception research, noting the importance of the original work in laying the foundations of the model.

Historical perspective

With the publication of "Forming impressions of personality" by Solomon Asch in 1946, the study of person perception became prominent in social psychology. Prior investigations of personality variables seemed to assume that a person's attributes such as kindness or generosity were somehow inherent to that person and perceptible to the sophisticated observer. Asch, operating from a Gestalt tradition, asserted that such trait information depends greatly on the context or the entire stimulus set of traits the observer is given to interpret. His finding that minor changes in the traits ascribed to a hypothetical stimulus person produced radically different personality impressions

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strongly suggested that the observer or perceiver may be as legitimate a focus of research as the person observed.

It would be misleading to contend, however, that perceiver variables had previously been entirely ignored. Tagiuri (1969) indicated that investigations in such research areas as the perception of emotions in facial expressions (e.g., Woodward, 1938) and "empathic" judgment (e.g., Estes, 1938) were numerous. These studies were often concerned with identifying the variables associated with "accurate" judges. While identification of such variables was germane to person perception, the basic arguments in such studies implied the existence of objectively measurable stimulus referents discernible to the accurate, i.e., sophisticated perceiver.

The early studies did not seem to recognize that all observers of persons might use similar processes in integrating person stimuli, independent of the measurability of those stimuli. In addition, studies of the accurate perceiver were confronted with many problems. The results were often incoherent and ungeneralizable from one study to another (Tagiuri, 1969). This state of affairs was related to a number of issues surrounding the methods and assumptions of these studies.

Bruner and Tagiuri (1954) noted that systematic biases in judgment may have confounded many of the accuracy studies. Among such errors were the "halo effect" (Thorndike, 1920), which reflects a tendency to rate persons in several categories in terms of a global impression of goodness and badness. Another bias, the "logical error" (Newcomb, 1931), is

a judge's preconception of what traits go with other traits.
Bruner and Tagiuri have argued that the accuracy of a parti-
cular judge may merely reflect his use of the bias used most
often by other judges. Bender and Hastorf (1953) contended
that what passes for "social sensitivity" or accuracy might
simply be similarity between the judge and the person judged.
Cronbach (1955) also called into question the reliability of
accuracy measures. Thus, perceiver variables involving
biases and similarity may have been confounded with "accu-
racy", and it was uncertain that accuracy could be measured.

The goal of identifying accurate observers obscured the
fact that all persons perceive others. With respect to that
fact, the investigation of those processes, including error
tendencies, which characterize both the sophisticated and
the unsophisticated observer seemed to be a better, more
general approach to understanding person perception. The
work of Fritz Heider (1958) was historically important in
establishing the notion that the naive observer of others
proceeds to interpret interpersonal events in the same way
as the more sophisticated observer.

Heider based his observations on the premist that there
are formal similarities between the perception of persons
and the perceptions of objects. Borrowing from the "lens
model" of Brunswik (1956), Heider argued that the proper-
ties of the distal stimulus, the object to be perceived,
are only perceptible through the proximal stimulus. The
proximal stimulus is an aggregate of stimulus characteris-
tics of the object and other stimuli from the

environment. Assuming that stable representations of the properties of the object are sought, the perceiver sorts the proximal stimuli to arrive at some notion of the constant properties of the distal object.

Experimental verification for the analogy between object and person perception was provided in related experiments by Heider (1944) and Michotte (reported in 1963). They were able to demonstrate that naive subjects were quite willing to infer properties such as "bullying" or "following" from the size and movement of triangle figures and blackened dots in animated drawings. It therefore seemed that naive observers responded to non-person stimuli as if they were persons. The attribution of stable characteristics to the triangles and dots was also implied by these responses. It seemed that the goal of the perceivers was to achieve stability and meaning in what were, at face value, ambiguous stimuli.

The scientific psychologist was chosen by Heider as the prototypic sophisticated observer of persons. Presumably, the psychologist proceeds in much the same fashion as that described by the lens model. Faced with a diverse and often confusing stimulus set, the psychologist arrives at constancies in the person or events observed. More specifically, the psychologist observes human behavior, seeks to determine the motives or intentions behind that behavior and attributes those motives to some underlying disposition in the person. The underlying disposition is then presumed to have been the antecedent of the elicited behavior.

The Asch experiment and Heider's generalizations have

greatly influenced both the volume and the direction of person perception research in the past two decades. Studies emanating from the work of Asch and from the work of Heider have proceeded in independent but parallel directions.

Asch's work spawned a wealth of investigations into the impression formation process and into implicit personality theories adopted by perceivers. The term "naive, implicit personality theory" was originally used by Bruner and Tagiuri to describe the perceivers' assumptions about interrelationships among personality traits. As it is more broadly conceived, implicit personality refers to the manner in which perceivers systematically interrelate attributes of other persons in an attempt to understand why they behave as they do (Schneider, 1973). Impression formation research, likewise, has focused on the process of assigning and integrating attributes in making judgments about persons. Both research areas can thus be seen to fall into the general class of investigations of attribute organization.

Heider's notions regarding the observer as naive psychologist fostered a large volume of scientific research under the general rubric of attribution theory. This work has focused on the assignment of underlying dispositions and motives to explain social events. More recently, this research has been expanded to include the attribution of casuation in general and a number of studies have focused on the assignment of dispositions to the self. That area of attribution research which deals with the assignment of dispositions to other people is most clearly tied to

concepts involved in attribute organization. For that reason person attribution seems to be a more precise heading for studies considered in the present analysis.

Person perception: an information analysis

In spite of their common roots in Gestalt tradition (Deutsch and Krauss, 1965) and the corollary interest in orderliness and stability in person perception, person attribution and attribute organization studies have not been systematically related. For example, Heider (1958) did not attempt to integrate the findings of attribute organization research in his work, and Hastorf, Schneider and Polefka (1973) did not relate the two approaches in their well-known work on person perception.

Recently, studies which borrow from both the attribute organization and person attribution areas in person perception have appeared (Jones and Goethals, 1972; Kanouse and Hanson, 1972; Himmelfarb, 1975). While these studies suggest specific ways in which these approaches are compatible they do not seem to add to an integrated understanding of person perception research.

Perhaps a beginning in the direction of relating person attribution and attribute organization research lies in the view of man as an information processor. This view is common to both approaches. Specifically, both areas focus on the perceiver's ability to "explain" information presented about others. Explanation is used here to represent the tendency to "make sense of,", i.e., infer stable properties in, a variety of stimuli.

The two approaches differ with respect to the nature of the stimulus information and the particular kind of inference required. For attribute organization studies the stimuli are most often descriptive adjectives or traits and the observer is asked to infer other traits (Schneider, 1973). In person attribution research, the person observed (actor) typically performs some behavior from which the perceiver infers the actor's intentions and attitudes. If the intentions are judged not to have resulted from some external circumstance, the perceiver may infer a basic underlying trait which is thought to have provoked the behavior (Jones and Davis, 1965).

In the context of the present analysis, behaviors are simply defined as something a person does, or, an act that a person commits. Attitudes are defined as a person's affective response toward some object or concept. Traits are descriptive words ascribed to a person.

Person attribution and attribute organization studies thus emphasize cognitive inference processes. They contrast principally in the unit of information given as data - behaviors, attitudes, traits - and the unit which is inferred --attitudes and traits. A more detailed description of theory and research on attitude organization and person attribution may provide a better understanding of the distinctions and interconnections between these units.

As stated above, attribute organization research has focused almost exclusively on traits. In a comprehensive review of the implicit personality theory literature, Schneider (1973) asserts that concern with the trait

interrelationships:

> "may be largely an historical accident resulting from the importance of traits in personality theory and personality assessment research, and from the fact that much of the early research in the field was stimulated by Asch's impression formation research where traits had been used merely as a convenience."

In point of fact, Schneider contends, we have little empirical basis for considering traits as the "natural" unit of person cognition. We presently have no empirical justification for assuming that person perceivers "feel more comfortable with traits as opposed to more behavioral or typological units."

In fact, however, the ubiquity of traits in impression formation and implicit personality research (c.f., Messick and Kogan, 1966; Warr and Knapper, 1968; Rosenberg, Nelson and Vivekananthan, 1968), seems too great to be accidental. It may be the case that the importance attached to traits in implicit personality theory follows from some special informational value which traits have for person perceivers. Traits have an abstract quality and capacity for generality not usually associated with behaviors and attitudes. That generalizability makes them ideal as encoders of experience. Assuming after Heider that perceivers seek stable, constant properties in the stimulus environment, traits may provide inferential stability and encoding organization to the person perceiver.

Insight into the information value of traits is found in George Kelly's (1955) theory of personal constructs, an important impetus for attribute organization research. The

fundamental postulate of this theory is that "a person's pro-
cesses are psychologically channelized by the ways in which
he anticipates events." The person anticipates events by
"construing", or, placing an interpretation on replica-
tions of those events. For Kelly, the construct is an ab-
straction employed to make sense out of events, and the
examples he presents are most often trait adjectives, par-
ticularly when the situation is interpersonal.

While the question of whether traits are the natural
unit of cognition may be moot, Kelly suggests that traits
are used for encoding and mediating the experience that a
person encounters. The "interpretation" placed on future
events, where it pertains to person perception, is clearly
a mediating response which allows the person observer to
order and encode current data for the purpose of predicting
future interaction with others. Thus, if traits are proto-
typic "constructs", Kelly's arguments place them in a posi-
tion of great theoretical importance as basic encoders of
experience in implicit personality research.

While traits as cognitive units appear to be effective
encoders, their informational value as stimuli presented to
the perceiver is suspect. The very generality which enhances
traits as "conclusions" in the inference process limits their
utility as decoders or as basic data. Rodin (1972) found
that trait information was not as useful as behavioral and
attitudinal information in revealing identities among pro-
fessiorial colleagues. Mischel, Jeffrey, and Patterson
(1974) found that subjects in a prediction task preferred

trait information over behavioral information only when pre-
dicting to situations which were dissimilar to those for
which behavioral information was available. Traits as
stimuli therefore seem to lack the clarity and specificity
that other information units such as behaviors and attitudes
may provide.

Schneider, after Bruner and Tagiuri (1954) strongly
suggests that attribute organization research would be im-
proved by analysis of which cognitive units perceivers use
in which circumstances. The implication of the preceding
arguments is that perceivers use traits often as encoders
of person stimuli, far less often as stimulus information.
In that sense, the emphasis in attribute organization
research on traits as encoders may have been justified,
while the emphasis on traits as stimuli may have omitted
other important information units such as behaviors and
attitudes.

Behaviors and attitudes are the focus of research in
person attribution. As previously noted, the inference
generally required in attribution research proceeds from a
behavior and its effect to the actor's attitude. While the
orientation of person attribution is derived from Heider
(1944; 1958), a more formal presentation of the inference
process is given by Jones and Davis (1965).

Jones and Davis view the perceiver as proceeding in an
intent-act-effect sequence as follows: The perceiver ob-
serves the effects of an actor's behavior, determines that
the actor had both the knowledge of the effects and the

ability to perform the behavior, and concludes that the
actor had some intention or attitude in performing the be-
havior. In addition, the perceiver may choose to attri-
bute some "underlying disposition" to the actor.

An example of this process would be as follows: An
observer reads in the newspaper that a freshman college
athlete has chosen not to remain in college and to sign
with a professional team. The effect of the athlete's sign-
ing is perceived to be financial security. The observer
assesses that the athlete was motivated for this outcome
and concludes that he likes or values money, at least more
than he likes the benefits associated with a college educa-
tion. The perceiver might also decide that the athlete is
financially indisposed, or alternatively, greedy and self-
seeking, depending on other circumstantial information.

While this example tends to oversimplify the process,
the emphasis placed on the behavior-to-attitude link is
clear (cf., Jones and Harris, 1967; Snyder and Jones, 1974).
In some detail, Jones and Davis discuss the conditions under
which the observer makes "correspondent" inferences, i.e.,
attitudinal inferences which maximize the utility of be-
havioral information. In a recent revision of the theory,
Jones and McGillis (1976) assert that the correspondent in-
ference model of attribution theory has been almost exclu-
sively concerned with attitudes. There is a strong sense
in which attitudes in the attribution process perform the
same encoding function as traits in implicit personality
theory. An actor's likes and dislikes are viewed as

assisting the perceiver in explaining and interpreting the actor's behavior.

There is some unfortunate ambiguity, however, regarding the definition of an "underlying disposition" or "attribute" in Heider's original exposition and in the Jones and Davis model. The question concerns whether an intention is sufficiently stable to be considered a disposition or whether such stability requires some more permanent information unit, such as a personality trait. Jones and Davis, while clearly focusing on the intentional inferences, cite traits, e.g., "dominant" and "aggresive" as examples of dispositions. It would seem important to establish that traits may be involved in the attribution model of person perception so that the connection between this model and the model implied by implicit personality theory studies would be more apparent.

There is some suggestion that dispositional attributions take the form of an attitude-to-trait inference in attribution theory. Jones and McGillis concede that intentional inferences may not be the final step in the person inference process, hinting that there is some more stable inference which represents the underlying disposition. They further note that the perceiver's decision that a given behavior was caused by circumstances internal to the actor is a necessary precursor to dispositional attributions. The notion of "internal cause" requires some consideration of Kelley's (1967, 1973) version of attribution theory.

Kelley posits that internal causes will be attributed when the actor performs a behavior in the face of several

different controlling stimuli (low distinctiveness), when other persons do not perform the behavior (low consensus), and when the behavior is performed many times in many different settings (high consistency). MacArthur (1972) found empirical support for this argument and, in addition, found that the distinctiveness variable was most important in determining internal causation.

Kruglanski (1975) in a major explication of the internality-externality issue, argues that the basic determinant of the internality of an act is the inferred intentionality. That is, if the behavior is perceived as being enjoyed for its own sake, the perceiver will infer that the actor intended the act and therefore likes or dislikes elements associated with the act. If, on the other hand, the behavior is seen as being performed for the attainment of some other objective, the act is externally motivated. These arguments can be integrated with the results of MacArthur's study. If a behavior is performed in the face of many controlling stimuli, these stimuli are seen as insufficient to have caused the act and the actor is inferred to feel some positive affect toward elements associated with the act. Once the attitudinal inference is made, "something" internal to the actor may be inferred as prefacing or provoking the attitude. The argument of the present paper is that the "something" is very much like a trait. This trait attribution process depicts traits as inferred from attitudes.

Unfortunately, the issue of which traits may be inferred from which attitudes has not been explored in attribution

research. In fact, it is unclear in the theory that the perceiver does any more than make the attitudinal inference, decide that the behavior was internally caused, and terminant the inference process. Whether a more general cause is sought, in the form of a trait attribution, is open to question.

In any event, the very important notion of causality serves to elucidate the encoding relationship between the behaviors, attitudes, and perhaps traits in attribution theory. Heider (1944, 1958) proposed that perceivers invoke causation as a way of explaining behavior. Thus, some attitude or trait in the actor is viewed by the perceiver as causing or evoking behavior. Jones and Davis' (1965) intent-act-effect sequence orders intent first to represent the fact that the attributed intention or attitude is ultimately viewed by the perceiver as having caused the act. To return to the previous example, the athlete's affinity for money, or his greed, may be seen as the cause of his signing with a professional team.

Causation, when invoked in this fashion by the perceiver, is clearly a symbolic response which functions to connect or encode diverse information about the actor. Heider describes this process in the naive observer as mediation. The attribution of an attitude or a trait is therefore seen as a mediating response between the data available to the perceiver providing for a unified, stable impression of the actor.

Mediation processes are also suggested in the inferences required of subjects in attribute organization research. In

impression formation studies, subjects are typically pre-
sented with a list of stimulus traits characteristic of a
hypothetical person. They are then asked to assign to that
stimulus person values on other trait continua, e.g., good-
bad, likable-dislikable. These studies frequently examine
the effects on those ratings of the stimulus context vari-
ables such as stimulus set-size, stimulus order, and charac-
teristics of various traits in the list, e.g., centrality.
Impression formation studies thus investigate the extent
to which traits are inferred from other traits.

In implicit personality studies, mediation processes
are suggested by the methods used to obtain trait inter-
relationships. One general technique (Osgood, Suci, and
Tannenbaum, 1957) require subjects to rate stimulus persons,
e.g., physician or intelligent person, on several trait con-
tinua. From ratings across stimulus elements, the investi-
gator obtains a matrix of trait intercorrelations, which are
similarity measures. In this procedure, trait judgments are
mediated by specific person elements.

A second procedure, developed by Rosenberg (Rosenberg,
Nelson and Vivekananthan, 1968; Rosenberg and Olshan, 1970)
asks subjects to group traits which would describe a dis-
tinct unspecified person. Similarity measures are calcu-
lated based on the differences of trait groups for different
subjects. In this procedure, measures of the similarity
between traits are mediated by other traits.

Direct distance measures comprise a third general pro-
cedure. In this technique, subjects simply judge the

similarity in meaning of trait A and trait B. Here the mediation process used by the subject is unclear. It is possible that subjects respond to the number of behaviors which both traits imply in common, or, perhaps, to the number of related traits each trait has in common with the other.

Thus, for the most part, the research in attribute organization has been concerned with trait-to-trait inferences. The concern in impression formation studies with context effects and the centrality of various traits in trait lists indicates an emphasis on the use of traits as mediators in these judgments as well. In the implicit personality studies which use correlations across stimulus persons to establish trait inferences, these stimulus persons would appear to be used as mediators. However, such generalized stimulus persons are often themselves described using traits, i.e., "an intelligent person." While in some direct co-occurrence studies the mediating unit is left to the imagination of the subject there is some indication that the subjects may be using traits as mediators. Todd and Rappoport (1964) compared direct co-occurrence methods with correlational techniques and found a high correlation between trait association measures generated from these procedures.

In summary, mediation processes are suggested in both the person attribution and attribute organization approaches to person perception, and seem to be likely possibilities for the relation between the units of person cognition. In person attribution studies, attitudes and, to some extent, traits, mediate behavioral observation. The implication of

attribute organization research is that traits are similarly invoked as mediators of trait information. A brief examination of mediation as it is more commonly studied in concept learning may be helpful in further establishing similarities in the two approaches to person perception.

Mediation processes

S-R mediational theories of concept learning (Kendler and Kendler, 1968) propose that a mediator is a common indirect response to a set of stimulus instances which link the instances to an overt response. The members of the stimulus set need not have a common element or dimension but are viewed as related by a single symbolic response made to all. The process can be illustrated by a simple example. A banker, an accountant, a lawyer, an insurance salesman, and an investment counsellor all belong to the same conceptual class - namely, people who handle one's financial affairs -- not because of common dimensions, though these are present, but because one makes common responses to all of them.

The most notable use of a mediation construct in psychology is Charles Osgood's (1952) formulation of meaning. For Osgood, a "disposition" is a fractional anticipatory goal response (after Hull, 1943) which links stimuli in the environment to stimuli produced by that implicit response, which in turn elicit the overt response. This representation thus divides the usual S-R paradigm into two phases. The first is an association of signs with the mediator, or an "interpretation". The second stage is the association of mediated self-stimulation with overt instrumental acts,

i.e., "the expression of ideas" (Osgood, Suci and Tannenbaum, (1957).

An example might serve to illustrate the application of this process to person perception. I may meet a man who dresses in expensive clothes, buys lunch for a large group, and drives an expensive automobile. My implicit response is that this is an affluent person, and I associate the above stimuli with other "signs", e.g., he might be able to provide employment opportunities: I might therefore consider asking him for a job.

In this illustration, "affluent" is a trait inference or attribution based on behavioral observation. The attribution of "affluent" to "ability to provide employment opportunities" is also an inference not necessarily given by the original behavior. It should be noted that in both cases the mediating inferences are probabilistic and not unique. For instance, my implicit response to the behavioral stimuli could as easily have been "ostentatious", and my overt reaction in that instance would have been to withdraw from his company.

The major implication of the foregoing arguments is that units of information, i.e., behaviors, attitudes, and traits, are related through their roles as stimuli and as mediators in person perception. Systematic relationships between attribute organization and person attribution approaches to person perception are clearly suggested in terms of the mediation processes hypothesized to be used by the perceiver.

Implications for a mediational model of person perception.

The assumption that behaviors, attitudes and traits are central units of information in person inference processes is so commonly made that their identification as mediators seems almost trite. Nevertheless, such an identification provides a basis for integrating major person perception areas. To that end, the exposition of the units of information in person inference and the implications of the mediation process are crucial to a basic understanding of social cognition.

To be sure, the selection of behaviors, attitudes and traits as distinct information units may be arbitrary. Recently, however, some examples of that distinction have been evident in the person perception literature. Thompson, Phillips, and Gard (1977)[1] for example, have investigated the differences between traits and relations (attitudes and behaviors) as stimuli in several basic impression formation studies. Marcus (1977), in studies of self-schemata, and Abelson (1977), in a presentation of script theory, point to qualitative differences in social inference between knowing a persons' traits and a person's attitudes. Kanouse and Abelson (1967) and MacArthur (1972), separated objective behaviors and "subjective" behaviors, which were ostensibly attitudes. The attribution research and theory cited previously though not making the distinction explicit, certainly suggests basic differences in informational value between behaviors and attitudes.

Certain rather obvious differences in the properties of these units lends support to treating the units as

informationally distinct. Behaviors, for example, are observable, while attitudes and traits are unobservable. Attitudes and traits must either be inferred or reviewed in communication from another observer. In addition, attitudes and traits seem to have an abstract property suited for mediated associations that the specificity of behaviors does not allow. Conversely, traits presented as stimuli, may not provide the observer with specific information as do behaviors and attitudes.

If behaviors, attitudes, and traits are viewed as distinct types of information, we may postulate that they are related by the extent to which one unit mediates another. While previous arguments have suggested that some units are more likely to have served as a mediator in particular research paradigms, there is no reason to expect that any unit may always be used or that other units are never used. It seems more reasonable instead to propose that a particular unit has some probability of "bringing to mind" or implying another. In that case, a continuous probability model of inference, similar to that developed by Wyer (1974), is suited for examining mediation processes. The provision of continuity would allow any unit to be a mediator for any other unit while also allowing some units to have greater chances of being inferred than others. The probabilistic nature of stimuli-to-mediator inferences is in keeping with Osgood's representation of a mediator summarized above.

In fact, aside from the significance imputed to particular inferences in the person attribution and attribute

organization paradigms, there is no reason to assume that any unit cannot serve as a mediator for another. It seems entirely possible, for example that an observer might be given a trait judgment about a person and want to infer the actor's attitude, or, an observer may be informed by another that a person has some attitude, and may wish to predict that person's behavior, i.e., infer what the actor would do. Indeed, there are reasons to suspect that such inferences are quite common. Millions of advertising and political campaign dollars are spent inculcating positive attitudes toward products and candidates with the prediction that the public will behave in a particular way, i.e., buy the product, vote for the candidate.

In less pedestrian terms, the social psychological literature abounds with examples of hypothesized inferential processes between traits, attitudes, and behaviors. Contributions to the attitude change literature can be viewed as an attitude-to-attitude mediation as, for example, in congruity theory, where the attitude toward a source and target of a message are mediated by the evaluative content of the message. Fishbein's and Ajzen's (1975) "intention to act" model is clearly an attitude-to-behavior inferential model. These models obviously involve many additional assumptions about the perceiver as actor but are entirely consistent with an information unit analysis.

If, as has been argued, each unit stands in some inferential probabilistic relation to each other unit, then the mediation processes between behaviors, attitudes, and traits

can be represented as a nine-cell matrix of conditional prob-
abilities presented in Table 1. Each cell of the matrix rep-
resents the probability of using one unit as a mediator
given one unit as a stimulus. The columns of the matrix
correspond to the type of unit presented as stimuli to the
perceiver and the rows correspond to the mediating unit.
Thus, the pr (T/B) cell corresponds to the likelihood of
using traits as mediators when given behavioral stimuli.

It is clear upon examination of Table 1 that traditional
person perception research has been concerned with a small
portion of this matrix. Person attribution research has
focused primarily on the pr(A/B), and the pr(T/A) and the
pr(T/B) cells, attribute organization studies on the pr(T/T)
cell. The composition of the matrix implies that, depending
on which unit of information we receive and which unit of
understanding we require, all of the cells are potentially
involved in person perception.

This is not to say that the concentration of traditional
person perception areas on the above cells is misplaced.
This research has been based upon particular theoretical
conceptions concerning the directions of trait, attitudinal,
and behavioral inferences. The clear argument of attribu-
tion theory, in terms of the present information unit analy-
sis, is that person perception is an inductive, "upward"
process. Induction here refers to the perceiver's tendency
to use more general information units to mediate person
stimuli. Thus, in person attribution studies, attitudes
or intentions mediate behaviors and stable trait attributes

TABLE 1

An information unit model of person perception

Stimulus Unit

Mediator	Behaviors	Attitudes	Traits
Behavior	pr(B/B)	pr(B/A)	pr(B/T)
Attitudes	pr(A/B)	pr(A/A)	pr(A/T)
Traits	pr(T/B)	pr(T/A)	pr(T/T)

mediate attitudes. This argument implies that the level of generality of each unit increases from behaviors to attitudes to traits. Stated another way, the capacity of an attitude to summarize information is greater than that of a behavior and a trait may have a greater summarizing capacity than an attitude. Conversely, it should be more difficult to mediate information using a specific unit since a more general unit encodes more than a single instance of that specific unit. That is, trait-to-attitude, trait-to-behavior and attitude-to-behavior inferences should be difficult for perceivers.

The information specificity-generality issue does not seem to have been explicitly examined (cf. Kanouse, 1971). However, the argument that person perception is characterized more by induction than deduction may aid in resolving some apparent contradictions in the results of two research areas with similar perspectives. Fischoff (1976), has noted the apparent inability of subjects to make sound probabilistic judgments in standard decision theory paradigms contrasted with subjects' facility in attribution judgments. He concludes that attribution theory is primarily concerned with explanation, decision theory, with prediction. Stated in terms of the information unit analysis, attribution research asks subjects to mediate behaviors with attitudes and traits. Judgment research seems to require subjects to infer behaviors from behaviors (Fischoff, 1975) or behaviors and traits from other traits (Kahneman and Tversky, 1973).

As previously suggested, the mediation of trait stimuli

by attitudes and behaviors should be difficult for subjects in person inference studies. Implicit personality research has not focused upon the pattern of attribute organization which might result from examining trait similarity based on behavioral or attitudinal mediation. Schneider, in calling for "situational" mediators, has in part suggested that such investigation has been lacking. In fact, the stability of attribute structures found across attribute organization studies may have been due to the fact that all of these studies examined trait mediation processes. Furthermore, Mischel (1973) has argued that many of the traditionally accepted findings in the area of personality psychology simply represent a picture of psychologists' beliefs about which traits "go together" in people. These beliefs are often held without actual observation of subjects' behaviors. The implication of these arguments is that trait structures resulting from mediation by behaviors might be very different from those mediated by other traits.

Attribute organization studies have also observed similar dimensional structures in trait inferences. Rosenberg and his colleagues (Rosenberg, Nelson and Vivekananthan, 1968; Rosenberg and Sedlak, 1972), for example, consistently find that trait judgments cluster around two basic dimensions: "social good-bad" and "intellectual good-bad." While these dimensions may indeed be general to trait usage, the present paper has argued that traits have informational properties, e.g., abstraction, that are distinct from those of attitudes and behaviors. In keeping with the previous

arguments, it seems reasonable to ask whether similar struc-
tures would be found if the inferences were of attitudes-to-
other-attitudes or of behaviors-to-other-behaviors. In
addition, basic dimensions in inter-unit inferences, e.g.,
attitudes-to-traits, might also be examined to assess the
generality of the dimensions of trait usage found in implicit
personality studies.

A final note should be made regarding the issue of des-
criptive and evaluative judgments in person perception. The
model presented thus far has made no claim about the valence
of the mediators. However, attribution literature (Kanouse
and Hanson, 1972) and attribute organization (Peabody, 1967;
Felipe, 1968) often focus on evaluative aspects of the per-
son inference process. While the model could easily be
applied to both positive and negative stimuli and mediators,
it would seem more important to demonstrate that mediation
processes are at work in positive or neutral stimuli before
more complex questions are examined. Thus, the present
study will concentrate on more descriptive inferences made
in person perception, holding evaluative inferences con-
stant.

Methods for investigating inferential processes in person
perception

The methods used to study inference processes in tra-
ditional social psychology can be divided into basically
two varieties: mutliple-stimulus item judgments or labora-
tory experiments.

The first commonly used procedure is to ask subjects

to make a large number of judgments over several combinations of stimuli of interest. In attribute organization studies, these judgments usually take the form of trait redundancy (Wyer, 1968) trait similarity and distance (Rosenberg and Sedlak, 1972), or semantic differential ratings (Warr and Knapper, 1968). The results of these judgments are typically subjected to clustering and scaling procedures or to factor analytic methods. These procedures result in the identification of basic dimensions of inference. A typical criticism of this methodology is aimed at the subjectivity involved both in choosing the stimulus items and in identifying the dimensional structure. The experimenter may arbitrarily limit the kinds of inferences made or may misinterpret the structure of those inferences. The subjectivity criticism does not seem to be wholly justified when one considers the previous observation that many of these studies find highly similar patterns in the structure of the inferences. The procedure remains widely used in person perception studies.

Another variation is exemplified by Gollob's (1974) S-V-O model of social cognition. The experimental subject is required to make many judgments but the structure is provided through manipulation of stimulus arrangements according to an analysis of variance design. While studies using these methods eliminate much of the subjectivity of the previous procedure, they are often open to the claim that subjects may be responding to the demands of the experimental situation.

Some explication of the demand characteristics argument

is in order here. That subjects will work assiduously to fulfill what they perceive to be requirements of an experiment is a widely observed phenomenon (cf. Orne, 1962). Experimental compliance may be translated by the subject into behavior which conforms to the experimental hypotheses of interest, to the extent that the subject detects the hypotheses. Evidence that experimenters are able to communicate the hypotheses, however subtly, is well documented (Rosenthal, 1966). Repeated measure designs, where subjects respond to items in practically all of the conditions of the experiment, especially where the items are inferences to be made or problems to be solve, often provide the subject with ample opportunities to detect or infer the experimental predictions. As a result one is never certain that predicted findings in such an experiment reflect genuine responses to the independent variables of interest of compliant responses in the experimental situation.

A final variation of the multiple-item procedure, is the construction of an artificial language (cf. Kanouse, 1971). Often fictitious persons or nonsense syllables are given in the stimulus sentences. The subject is asked to judge many items but is expected to be less suspicious about the intent of the experiment since he or she spends much of the time concentrating on the artificial language. One could, however, argue that the provision of an artificial language increases the suspicion of the subject and in many respects makes the results more open to the demand characteristics argument.

A second widely used and more traditional procedure for investigating attribute inferences is that of the laboratory experiment. In this type of experiment a subject is typically presented with a single, relatively detailed description of a behavioral situation and is asked to make a set of inferences. The descriptions used in the study represent factorial combinations of the variables being investigated, and a completely between-subjects design is used. For example, in a study by Jones, Davis and Gergen (1961) subjects were asked to listen to one of four job interviews. These interviews were with an applicant who was either inner-or other-directed and who either conformed to role expectations or did not.

The between-subjects design of such laboratory studies permits the assumption that a given subject is unaware of the other conditions in the experiment. Thus, the demand characteristics argument is less persuasive. The number of variables investigated is greatly limited, since larger numbers of subjects are required than in repeated-measure designs. Consequently, simple 2x2 experiments like the one described, are quite common.

The inferences that the subjects are asked to make in such an experiment may require consideration of several other important variables which are extraneous to the hypotheses of interest. In Jones, et al.'s job interview situation, variables such as the candidate's qualifications and manner of presentation would seem to differentially affect subjects' judgments. Typically, as is the case in this

study, these variables are held constant. Often this results in highly restricted inferences of limited generality.

In addition, Schneider (1973) has suggested that the typical tasks in attribution experiments are somewhat artificial. In the Jones, Davis and Gergen experiment, for example, the subjects may not have been convinced that they were listening to real job interviews but rather to a contrived experimental manipulation. Thus, subjects may be more suspicious about the experimental hypotheses in experiments which do not preserve a sense of task reality. In that case, while they are unaware of the tasks performed by other groups in the design, subjects may still conform to expectations about their behavior.

An alternative to these methods which may remove many of these difficulties is suggested by a procedure used in experimental psychology. In the present study, it has been postulated that mediation processes are used in person inferences. These processes were originally hypothesized to explain results found in concept learning tasks. One of the most widely used concept formation tasks is discrimination learning. The subject is presented with two stimuli, one which is an instance of the concept and the other which is not. Either through knowledge of results or direct reinforcement the subject is informed of the correct member of the pair. Choosing between a number of such pairs, the subject learns the concept. Evidence for a mediation process is provided if the concept is learned quicker than would be expected by rote memorization.

Discrimination learning clearly eliminates the problem of demand characteristics since the ostensible purpose of the experiment is to make correct answers. Subjects have little time or need for suspicion or for the detection of experimental hypotheses. Furthermore, while some subjectivity may be involved in selecting stimuli between conditions, the learning task provides a straightforward, objective measure of performance in the number of correct answers or the number of errors.

Recently, other social psychological studies have used learning paradigms to investigate the use of rules or schema in social cognition (Cottrell, 1976; Thompson, Gard and Phillips, 1977)[2]. The discrimination learning task seems especially suited for the demonstration of mediation processes in person perception. In terms of the present study, it would be possible to establish that an information unit like an attitude functions as a better mediator than a behavior. Such a demonstration would require that more correct answers are made in discriminating stimuli which differentially imply an attitude than in discriminating those which differentially imply a behavior.

More specific to the previous arguments, the sequence of person inference proceeding from behaviors-to-attitudes-to-traits implied by attribution theory suggests that performance on the learning task will be greater where behaviors are mediated by attitudes, behaviors are mediated by traits, and attitudes are mediated by traits than where attitudes are mediated by behaviors, etc. This argument

is equivalent to the statement that the matrix in Table 1
is asymmetric, the lower triangular cells will be charac-
terized by mediation processes relative to the upper trian-
gular cells.

In summary, the present study has been divided into
two experiments. It was previously noted that attribute
organization studies seemed to identify uniform dimensions
in trait association inferences. Experiment One will examine
differences in structures of inferences for each of the nine
judgment types proposed to be involved in person perception
(See Table 1). More germane to the attribute organization
findings, Experiment One will focus specifically on similar-
ities and differences in the structure of trait associations
when the mediators vary from traits to attitudes and behav-
iors. Such an examination is expected to lend support to,
or raise doubt about, the generality of attribute structures
found in inference studies.

In Experiment Two it is proposed that if behaviors,
attitudes, and traits are viewed as information units in
the person inference process, then the units are related by
the extent to which they mediate one another in that process.
The arguments advanced and theoretical positions noted above
suggest that attitudes and especially traits will be more
likely to function as mediators in person perception. More
importantly, mediation processes, in terms of performance
on a discrimination learning task, will be more evident in
inferences which proceed from behaviors-to-attitudes-to-
traits than in a reverse direction, supporting an inductive
facility in person inferences.

Experiment One

Method

Overview of experimental procedures. A judgment task was
created for two purposes: 1) to obtain a structural repre-
sentation of inferences made between and within each type of
information unit; and 2) to select stimuli for the discrimi-
nation learning task in Experiment Two. The judgment task
was elaborately constructed to accommodate the more detailed
requirements of the discrimination learning task. For
example, it was important that the stimuli for the judgment
task be subject-generated to protect against the imposition
of a prior mediational structure on the stimuli ultimately
chosen for the discrimination learning task. Thus, while
the stimulus selection procedures described in detail here
may seem excessive the reader should be aware of the dual
selection purposes. With that in mind, the procedures are
divided into subheadings corresponding to the selection of
stimuli and the administration of the judgment task respec-
tively.

Selection of stimuli for the judgment task. The objective
of the stimulus selection for the judgment task was to ob-
tain from subject protocols ten behaviors, ten attitudes,
and ten traits which would eventually be used in making
likelihood judgments. The selection procedure incorporated
two steps for this purpose. First, one group of subjects
generated a population of behaviors, attitudes, and traits
associated with college students. A second group of subjects
supplied more behaviors, attitudes, and traits which were

implied by single units sampled from the first set. The selection of stimulus units for the judgment task could thus be made to ensure that an example of a given unit, e.g., a behavior, was mentioned equally often in response to all three units.

Twenty-four introductory psychology students participating for course credit were asked to write ten of each cognitive unit--behaviors, attitudes, and traits--common to college students. Each set was written on a separate sheet of paper which recounted the instructions for that unit. The following is an example of the "behavior" instructions:

> "Everyone interacts with people and different people are seen in different ways.
>
> On the blank space (or the backside) of this page, we would like you to write at least ten behaviors that you might observe in college students with whom you interact. You should begin each sentence with 'A college student...' and describe something that he or she does.
>
> Try to think of behaviors which might be involved in various phases of college life (dorm or apartment living, dating, classwork, etc.) Use your imagination, but avoid writing obscure examples.
>
> Sample: 'A college student writes on bathroom walls.'"

The "attitude" instructions were identical to the above except that the subjects were requested to begin the sentence with "A college student likes or dislikes...," "feels" was substituted for "does" and the word "attitudes" supplanted "behaviors". The example was "A college student likes classical music."

In the trait instructions, "traits which might be attributed to college students" were requested. The

sentences were to begin with "A college student is...", and the example was "A college student is kind."

In short, behaviors were operationally defined as something a person does, attitudes as something a person likes or dislikes, and traits as a descriptive word. To ensure that the order of the units requested did not systematically effect the responses, the pages each containing behavior, attitude, or trait instructions were presented in the six possible orders. In all, 107 distinct behaviors, 153 attitudes, and 141 traits were generated. From this population of responses, 20 traits, 20 attitudes, and 20 behaviors were selected at random.

In the second part of the experiment, subjects were given a booklet containing the 20 selected units in a single category and were asked to supply either behaviors, attitudes or traits implied by each unit presented. The booklets instructed subjects to write four examples of one of the three units -- behaviors, attitudes or traits -- which were likely to be implied by the given 20 units, each on a separate page of the booklet. The cover sheet described which of the units the subject was to infer for the entire booklet. In all, there were nine such booklets, one requesting four inferred behaviors for each of the 20 attitudes, another requesting four traits for each of the 20 behaviors, etc. The following is an example of the cover sheet instructions for the attitudes-to-traits-booklet.

"On the following pages are a number of attitudes that are typical of college students. We would like you to write four traits (usually descriptive

adjectives) which, in your opinion, would be
likely to be attributed to a person who holds
each of these attitudes. The traits should
begin with 'be... .'

Sample: A college student who dislikes authority
might be likely to:

1) be anti-authoritarian.
2) be violent.
3) be funny.
4) be dissatisfied."

Thirty-six introductory psychology students partici-
pating for course credit were randomly assigned to one of
the nine booklet conditions. Booklets were administered in
several group sessions with varying numbers of subjects.
Approximately 120 traits and attitudes and 80 behaviors
were so generated. Of these, ten behaviors, ten attitudes,
and ten traits were selected as stimuli for the judgment
task.

For the most part, the ten of each unit which were
selected were mentioned often in response to each unit
category. For example, an attitude would be selected if
it was frequently implied in each of the sets of behavior,
attitude and trait stimuli. It was not difficult to select
ten traits and ten attitudes according to this criterion.
The implied behaviors, however, did not always meet the
criterion, so the experimenter was required to select three
or four which, in his judgment, could potentially be equally
implied by behaviors, attitudes and traits.

In any event, the selected traits, attitudes and
behaviors seemed generally to be characteristic of a normal
college student's experience. More specifically, each

selected unit seemed roughly equally likely to characterize or not characterize any given student. Table 2 presents the ten selected behaviors, attitudes and traits.

Administration of the judgment task. In this phase of the experiment, the objective was to obtain judgments of the likelihood that each chosen behavior, attitude, or trait implied every other behavior, attitude or trait. The 30 selected behaviors, attitudes, and traits form the rows and columns of a judgment matrix. The matrix is composed of nine sub-matrices corresponding to the cells in the diagram in Table 1, e.g., pr(B/B), pr(A/T), etc. A total of 900 separate conditional probability judgments comprise the matrix, 300 in any row or column and 100 in each sub-matrix.

In an effort to reduce the judgments made by a subject to an administratively feasible number, each subject was asked to respond to one row or one column of the matrix eliminating items which asked for the implication of identical units. Thus, each subject was asked to make all inferences to one particular category (column) or was given one particular category as stimuli (row), for a total of 290 probability judgments.

The items were presented on viewer terminals interfaced with a Hewlett-Packard 2000 computer. Items were presented one at a time after each judgment was made and no more than three items could be seen on the screen at any given time.

The order of presentation was randomized within each submatrix and the order in which the submatrices were

TABLE 2

Behaviors, attitudes and traits selected for the judgment task

Behaviors	Traits	Attitudes
works part-time	friendly	enjoys school
relaxes often	smart	likes social functions
decorates room nicely	helpful	likes attention
reads newsmagazines	independent	appreciates solitude
studies on weekend nights	happy	dislikes competition
joins many clubs	hardworking	enjoys dorm living
listens to others' problems	considerate	likes people
budgets time and money	studious	likes interesting books
tutors	outgoing	appreciates order and organization

presented was counterbalanced.

The format for each item was as follows:

If a student X, how likely is it that he or she Y?, where X is a particular behavior, attitude, or trait, and Y is some other behavior, attitude or trait from the list. For example, if the attitude was "enjoys school" and the behavior was "works part-time", the item read "If a student enjoys school, how likely is it that he or she works part-time?" The "if" unit was considered the stimulus input, while the inferred unit was considered the mediator.

Subjects were asked to respond to the items using an 11-point scale from "0" to "10" where "0" represented extremely unlikely and "10" represented extremely likely. In addition, subjects were instructed that the scale values represented the number of chances or frequency of occurrence in ten. That is, if the subject could think of ten persons who were characterized by the "if" unit, the scale value chosen should correspond to the number of the ten who could be characterized by the inferred unit.

Sixty students who had been enrolled in upper-division psychology courses volunteered as subjects in response to a telephone invitation. Ten subjects responded to the items in each row or column of the judgment matrix yielding 20 respondents in each submatrix.[1] The average completion time was approximately 55 minutes.

Results

Using a procedure for the analysis of trait similarity judgments suggested by Bryson (1974), mean probability

judgments for stimulus units were correlated across the set
of mediating units resulting in nine correlation matrices
coresponding to behaviors mediated by behaviors, attitudes,
and traits, attitudes mediated by behaviors, attitudes and
traits and traits by behaviors, attitudes and traits. A
principal components analysis was performed on each matrix
and two factors were rotated using a varimax procedure. In
the nine matrices, the median per cent of variance accounted
for by two factors was 70%. Three factor solutions were
also examined but were eliminated from consideration since
often the eigenvalue of the third factor was less than 1.0.
In addition, three factors did not seem to increase inter-
pretability.

Since structural representation in attribute organi-
zation studies pertained to trait usage, factor structures
of the traits-mediated-by-traits, traits-mediated-by-atti-
tudes, and traits-mediated-by-behaviors matrices were
examined. Table 3 presents the factor loadings for two
factors for each of these matrices.

For the traits mediated by traits matrix, high load-
ings on Factor 1 reflected an extreme social good-bad fac-
tor exemplified best by an outgoing-quiet distinction.
Factor 2 suggests more of a warmth element in another social
good-bad factor. Intellectual good-bad seemed to be reflec-
ted, if at all, in a reversal of the signs of Factor 1.

Where traits were mediated by attitudes and behaviors,
the factor structures are far less interpretable. Factor 1
of the traits-mediated-by-attitudes matrix might have been

TABLE 3

Factor loadings for two-factor solutions[1] of intertrait correlation matrices computed across behaviors, attitudes, and traits

	Traits		Attitudes		Behaviors	
	F_1	F_2	F_1	F_2	F_1	F_2
Friendly	.86	.41	.08	.93	-.02	.65
Smart	-.54	-.31	.95	.21	.84	.15
Helpful	.60	.57	.90	.38	.91	.25
Independent	.21	-.76	-.88	-.18	-.76	.02
Happy	.66	.03	.07	-.93	-.98	.10
Quiet	-.91	.25	.98	.05	.75	-.41
Hardworking	-.63	-.35	.87	-.29	.03	.86
Considerate	.27	.87	-.89	.02	.58	-.46
Studious	-.83	-.31	-.74	.12	-.43	.80
Outgoing	.92	-.17	-.76	.29	-.12	-.47
Eigenvalue	5.10	1.87	6.15	2.13	4.40	2.34

Note 1: principal components solution with varimax rotation

interpreted as the opposite of Factor 1 in the traits media-
ted by traits matrix, except for the surprisingly negative
loadings for "independent" and "studious". Factor 1 for
the traits mediated by behaviors suggests a "suffering
servant" dimension while Factor 2 seems more interpretable
as a competence, conscientiousness dimension.

In any case, the relationship between these structures
is weak. Correlations between factors computed across
loadings for each variable were generally low, ranging from
.10 to .56. The median correlation was .27. Thus, trait
association varied greatly with the information unit used to
mediate trait inferences.

The only interpretable indication of a social good-bad,
intellectual good-bad dimensional representation was found in
the factor structure of the attitudes-mediated-by-attitudes
matrix. The first factor was characterized positively by
"likes social functions" with a loading of .96 and negatively
by "appreciates solitude" with a loading of .-85. Factor 2
had as its highest loading variables "appreciates order and
organization", .94, "likes interesting books," .93, and
"enjoys TV documentaries," .89.

Finally suggestive evidence that traits and attitudes
were more useful in mediation was found in the process of
selecting stimuli for the judgment task. Subjects seemed
to find difficulty in generating behaviors implied by other
behaviors, attitudes, and traits. The number of behaviors
written was greatly lower than the number of attitudes and
traits at each stage of the stimulus selection process. In

many cases, the subjects responded with traits and attitudes when behaviors were requested.

Discussion

The most important result of this study is that factor structure of person inferences varied greatly with the type of information unit given and inferred. The inclusion of attitudes and behaviors in trait inferences altered trait associations markedly. There is little evidence in the present study to indicate that trait-to-trait inferences are the only, or even the most basic, inferences in person perception. These results seem to support Schneider's (1973) arguments regarding the need to consider situational variables and other information units in implicit personality theory studies. Clearly, investigations of attribute organization must examine the role of attitudinal and behavioral inferences before advancing any notion of general dimensions in person perception.

In keeping with this argument, the results also provided little support for the generality of the social good-bad, intellectual good-bad dimensional structure found by Rosenberg and his colleagues. Not only was this the case when attitudes and behaviors functioned as stimulus and inferred units, but it was also true of trait-to-trait inferences, the inference nearly exclusively used in investigations of implicit personality theories. The structure of the traits-mediated-by-traits matrix seemed to differentiate two social good-bad dimensions; one which could be loosely characterized as a "fraternity" factor, and the

other which emphasized the considerate but submissive nature of persons. The factor structures of other matrices, when interpretable, seemed also to differentiate two ostensibly social dimensions, though not with consistently similar content. The failure to find an intellectual dimension is particularly curious in this study, since college students were the persons about whom the inferences were made.

It is not reasonable to argue that a restrictive stimulus selection accounted for this result. Several examples in each set of information units would seem intuitively to have been highly correlated with an intellectual good-bad dimension. "Smart" and "studious" were in the trait set, "enjoys school", "likes interesting books", and "enjoys TV documentaries" were attitudinal units, and "studies on weekend nights", "tutors", and "reads news-magazines" were behavioral units.

In any case, the results of Experiment One have established the existence of differences in the structure of person inferences which involve different information units. However, very little can be said about the nature of these differences. In fact, at this stage, there is little more than the suggestion that mediation processes were used by the subjects. Furthermore, no specific differences between the informational properties of behaviors, attitudes and traits are evident. Experiment Two is designed to investigate the nature of mediation processes used by person perceivers.

Experiment Two

Method

Overview of experimental procedures. In order to test the
hypotheses proposed in Experiment Two, it was necessary to
construct a discrimination learning task which would test
for differences in mediation processes when behaviors,
attitudes, and traits are used both as stimulus units and
mediators. Construction of this task required several
prior stimulus selection procedures, many of which were
detailed in Experiment One. Before discussing the remaining
methods the requirements for the discrimination learning task
and the method adopted to meet those requirements will be
outlined briefly.

The discrimination learning task required subjects to
combine and differentiate various stimuli about another
person. Mediation was assumed to be at work when the sub-
ject processed the information in such a way as to make
fewer errors than would be expected by rote learning. Thus,
in constructing this task, it was first important to estab-
lish a combinatory rule and to choose an appropriate stimu-
lus set size.

A transitive or hierarchical rule seemed to capture the
theoretically continuous nature of the stimulus units. It
seemed unwise to use a dichotomous, absolute instance--non-
instance combining rule, since the conception of the person
inference process developed in this study was based on con-
tinuous probabilistic implication. Thus, a person charac-
terized in the stimulus set could be often friendly, less

often, studious, and even less often independent rather than always friendly and never independent. Use of the transitive rule required each stimulus unit in a set to be paired with every other unit in that set. In the discrimination learning task, a trial would be defined by presentation of all pairs to the subject.

Six units were chosen for a stimulus set. The number was chosen to compare to Miller's (1962) seven-unit chunk. However, it seemed that the population of stimuli necessary to select seven units was cumbersome, requiring far too many items for the judgment task. Furthermore, the 21 all-possible-paired combinations of seven units were, in the author's experience, too lengthy to comprise a single trial. The selection of six units seemed to allow for easier selection of stimuli and more management administration.

The final requirement of the discrimination learning task was that the stimulus set be scaled for probabilistic implication. The scaling would be expected to produce sic units, monotonically ordered in terms of implication of a single other unit. For a given unit x, and six units a-f, $pr(x/a) > pr(x/b) > pr(x/c) > pr(x/d) > pr(x/e) > pr(x/f)$.

The probability judgment task used in Experiment One was suited for this task and was adopted as the scaling procedure. The judgment task, it will be recalled, required subjects to estimate the probability that one behavior, attitude, or trait is characteristic of a person, given another behavior, attitude or trait characteristic of that person. The mean probability judgment would be the scale

value for that pair of units. The subjects performing the final discrimination learning task were thus "decoding" a scaled implication structure established by the judgment subjects.

As has been noted, the initial stimuli for the judgment task were subject-generated. Furthermore, college living was chosen as a reasonably unrestrictive cognitive domain for selecting the judgment stimuli. Finally, the behaviors, attitudes, and traits selected were positive or neutral in evaluation.

The description of the data collection procedures for Experiment Two has been divided into two phases: the selection of stimuli for the discrimination learning task, and the discrimination learning task.

Selection of stimuli for the discrimination learning task.
As noted in the description of the requirements for the dis-crimination learning task, the judgment task was to provide six "input" units in each submatrix which differentially implied one other unit, the "mediator". In terms of the wording of the judgment items the given unit, or, "if" statement, was labelled the input unit and and the inferred unit was the mediator. It should be noted that this choice is somewhat arbitrary, since all possible non-duplicate pairs were judged. A cursory examination of the correlation between the order of mean probability judgments of elements presented as "if" statements with the order of those same elements presented as the inferred unit indicated that the items were acceptably symmetric.

For each mediating unit, the ten stimulus units were ranked in order of their mean probability rating. Mediating units in each submatrix were first eliminated if the difference between the highest and lowest mean stimulus ratings was less than three to four scale units. For each mediating unit meeting this criterion, an attempt was made to identify four additional stimulus units whose mean probability ratings were relatively equally dispersed between the highest and lowest ratings. This resulted in the selection of six stimulus units for each mediating unit for which the stimuli met the above criteria. A further requirement applied was that the standard errors of the probability ratings for these six stimulus units be approximately equal. For approximately 70% of the mediating units, it was not possible to select six stimulus units meeting the above criteria. These mediating units were eliminated from further consideration.

The selection within each submatrix of one particular mediator which had met the above criteria required attention to additional factors. Three cells in the total matrix contained stimulus units in the same unit category with behavior, attitude, and trait mediators. Thus, it was possible that the same order of stimulus units could be observed across the behavior, trait, or attitude mediators. Single mediators were chosen to represent each of these three units from within the mediator-stimulus unit sets which met the criteria described above. That mediator was selected so as to minimize the degree of overlap between the stimuli in its set and the stimuli of other mediating units. In instances

where identical stimuli were chosen across mediators the relative position of these stimuli in the order was required to be varied.

It must be noted that corrections for overlap in stimulus order were only approximately satisfied. Where possible, mediators of different categories which ordered a given category of stimuli were eliminated from consideration. However, in one case, no mediator could be found which satisfied both the criterion of range and dispersion of mean probability ratings and of dissimilar stimulus orders. In that case, it seemed more important to select a mediator according to the ratings criterion.

In any event, it could be said that, for the most part, the stimulus orders were unique to a given mediator across the sample of 30 behavior, attitude, and trait mediators used in the judgment task. While the procedures in this study may guarantee that the stimuli could not be so ordered for any other mediator in the sample, they do not rule out the possibility that the stimulus orders may elicit some mediator in the population.

Finally, in order to provide a no-mediator control condition for the discrimination learning task, six behaviors, six attitudes, and six traits were simply chosen and ordered to be dissimilar to orders established for the behavior, attitude, and trait mediators. The discrimination learning instruments composed of these units defined a rote-learning baseline against which the other mediation units were compared. Table 4 presents the selected stimulus units

TABLE 4

Stimulus sets for each selected mediator, the mean probability ratings
and the standard error of the mean ratings[1]

BUDGETS TIME AND MONEY	Mean Probability Judgment	S.E.
works part-time	7.50	.276
studies on weekend nights	7.15	.293
lives off-campus	6.65	.293
reads news magazines	5.75	.280
listens to others' problems	5.40	.380
relaxes often	3.80	.352

LIVES OFF-CAMPUS		
dislikes competition	6.53	.345
enjoys school	5.00	.216
likes interesting books	4.53	.599
likes attention	4.11	.382
likes people	3.58	.428
enjoys dorm living	1.95	.310

RELAXES OFTEN		
happy	7.30	.272
independent	5.85	.302
smart	5.40	.343
helpful	4.80	.304
studious	4.35	.357
hardworking	3.95	.303

TABLE 4 (cont'd.)

	Mean Probability Judgment	S.E.
LIKES ATTENTION		
joins many clubs	7.95	.235
decorates his or her room nicely	6.65	.284
listens to others' problems	6.25	.420
works part-time	5.35	.310
budgets time and money	4.80	.287
studies on weekend nights	4.05	.432
APPRECIATES SOLITUDE		
likes interesting books	6.94	.303
appreciates order and organization	6.47	.333
enjoys school	5.53	.322
likes social functions	3.82	.439
enjoys dorm living	3.24	.511
likes attention	2.35	.308
DISLIKES COMPETITION		
quiet	6.45	.420
considerate	5.90	.270
friendly	5.40	.343
happy	4.90	.383
hardworking	3.95	.359
smart	3.65	.293

TABLE 4 (cont'd.)

	Mean Probability Judgment	S.E.
STUDIOUS		
studies on weekend nights	8.45	.256
tutors anyone who asks	7.80	.247
budgets time and money	6.65	.302
lives off-campus	5.85	.302
joins many clubs	4.85	.437
relaxes often	4.00	.355
FRIENDLY		
likes people	8.65	.281
enjoys dorm living	7.20	.360
likes attention	6.35	.391
dislikes competition	5.55	.412
appreciates order and organization	5.25	.266
appreciates solitude	4.60	.399
HELPFUL		
considerate	8.20	.225
outgoing	6.95	.285
hardworking	6.40	.373
smart	5.60	.351
independent	5.15	.357
quiet	4.75	.280

Note 1: Mediators are in upper-case letters, stimuli are in lower case

TABLE 5

Stimulus sets for the no-mediator control condition

BEHAVIORS

relaxes often
studies on weekend nights
joins many clubs
tutors anyone who asks
decorates his or her room nicely
reads newsmagazines

ATTITUDES

appreciates order and organization
likes attention
likes social functions
likes interesting books
dislikes competition
likes people

TRAITS

quiet
outgoing
happy
studious
smart
independent

their means, standard errors, and the mediator for each
experimental condition. Table 5 presents the selected
stimulus units for the no-mediator control conditions.
Discrimination learning task. With the addition of the
three no-mediator control cells the matrix illustrated by
Table 1 was expanded to a 3 x 4 matrix with behaviors,
attitudes, and traits as input units, and behaviors, atti-
tudes, traits and no-mediator control as mediating units.
Within each cell, a programmed learning instrument was
created on a computer which paired the six input units for
a total of 15 discrimination items. Each set of 15 items,
designated as one trial, was presented four times in
succession. The items were presented in a different ran-
dom order for each trial for each subject. The item format
for behavior and attitude stimuli was as follows:

1. The college student unit.

2. The college student unit.

For trait stimuli, the phrase "is known to be" prefaced
the trait unit. The following was an example of an item
in the attitude stimuli conditions:

1. The college student likes social functions.

2. The college student enjoys school.

As noted earlier, the transitive rule was to be
learned. The stimulus unit with the highest mean probabil-
ity rating vis-a-vis the mediating unit was correct in
every pair and the number associated with the correct answer
was random within each cell. The instruments were, in
addition, designed for interactive administration.

Items were presented on a viewer terminal screen for ten seconds. When an answer was detected, or if no answer was forthcoming in the ten second interval, the correct answer and its number were displayed underneath the options on the viewer screen for another ten seconds. However, the inter-item interval could be shortened by depression of the carriage return key on the terminal console. Thus, the length of time required to complete the instrument could be adjusted to suit the individual subject.

In addition to the discrimination learning instruments, a practice instrument was designed to familiarize subjects with discrimination learning, the transitive rule, and the computer terminal operation. In the practice instrument, all possible pairs of the names of five animals varying in size were presented on a viewer terminal according to the following format:

1. Raccoon

2. Hippo

For this instrument, the correct answer was always the smallest of the animals. Ten items composed the practice instrument.

Forty-four students who had been enrolled in upper-division psychology courses responding to telephone invitations and four volunteers from a graduate level business course served as subjects. Four subjects were randomly assigned to each cell in the experiment.

Subjects, individually upon arrival, were seated at viewer terminals and administered the practice instrument.

They were asked to guess the correct answer by simply typing the number of the selected option on the terminal console. Having completed the practice instrument, subjects were requested to guess the correct dimension (size) and the positive instance (smallest) for the animal stimuli in the task. The experimenter then informed the subject that the main task was similar, except that the concept or dimension pertained to persons.

Instructions presented on the viewing screen for the main discrimination learning task informed the subject that the experiment was designed to determine the extent to which subjects could discover a fairly specific piece of information about a person. To that end, two pieces of information about a particular college student would be presented, one which was correct and one which was incorrect for that pair only. The subject was encouraged to guess the correct answer on each item and, as in the practice instrument, discern the requested information from the pattern of correct answers. In addition, the instructions stated that the subject would be asked to write the information following completion of the instrument.

Upon completion of the instrument, each subject was asked to supply the information requested in the instructions. Each subject was allowed three such conjectures.[2] The subject was then debriefed and excused.

The major measure of the operation of mediation processes was the number of errors per trial. The open-ended protocols also provided measures of the identification of

the concept and of the extent to which some information units were supplied over others.

Results

The results indicated strong support for the argument that person inference proceeds more confidently from specific information units to general units than from general to specific. A significant difference in mean errors committed on the task was found when the attitudes-to-trait, behaviors-to-trait, and behaviors-to-attitude cells were compared with the attitudes-to-behavior, traits-to-behavior, and traits-to-attitude cells, t(36) = 3.20 p<.05. The mean total errors for each of the twelve cells in the design and the marginal means are presented in Table 6.

In order to assess the particular effects of behaviors, attitudes and traits as stimuli and as mediators on learning in the discrimination paradigm, a 3x4x4 analysis-of-variance was performed on the number of errors committed in the task. There were two between-subject factors: input, with levels corresponding to behaviors, attitudes and traits; and mediator, with levels corresponding to behaviors, attitudes, traits and no-mediator control. Trials, with four levels,was a within-subject factor.

Results indicated a main-effect for trials F(3,108) = 54.53, p<.01. Mean errors per trial are presented in Table 7. Tests for the differences between mean errors per trial using Dunn's procedure indicated that more errors were committed in Trial 1 than on all subsequent trials and more errors were committed on Trial 2 than on Trial 4. Thus,

subjects were, in general, able to learn the discrimination task with some facility.

More pertinent to the hypotheses of the study, a marginally significant main effect was found for the mediator condition, $F(3,36) = 2.22$, $p<.11$. Subjects in the traits mediation condition committed fewer errors than those in the no-mediator control condition, $t(36) = 2.05$, $p<.05$. Attitude mediators also produced significantly fewer errors than control, $t(36) = 2.03$, $p<.05$.[3] While it must be recognized that these tests are not independent, the indication is that attitudes and traits served as mediators in the discrimination learning task and behaviors did not. In addition, in keeping with the argument that trait stimuli are less useful in the inference process, there is some nonsignificant indication that trait stimuli procedure more errors than attitudinal or behavioral stimuli.

Few of the subjects were able to identify correctly the specific mediator on the open-ended responses. No relationship could be found between the response of a particular information unit on the open-ended protocols and performance on the discrimination learning task. Since the stimuli could have been mediated by a concept other than the chosen unit, it is instructive to examine the percentages of subjects who responded with each of the units. In describing the person characterized by the pattern of stimuli in the discrimination learning task, 78% of the subjects responded with traits, either exclusively or in part, 32% with attitudes, 15% with behaviors, and 12% with

TABLE 6

Mean total errors for each between-subject cell and marginal means

Stimulus Input

Mediator		Behaviors	Attitudes	Traits	
	Behaviors	16.50	15.75	16.75	16.33
	Attitudes	11.25	11.50	13.50	12.08
	Traits	11.75	9.25	15.00	12.00
	Control	16.25	15.00	22.25	17.83
		13.74	12.88	16.88	

Note 1: $\underline{n} = 4$

Note 2: $MS_e = 11.974$

TABLE 7

Mean errors for each trial

Trials	1	2	3	4
	6.23	3.33	2.79	2.21

categorical nouns. It seems that these percentages provide
ample evidence for considering the three information units
as pervasive in person perception processes. In addition,
attitudes and traits were inferred more often than behaviors.

Discussion

In general, the results provide support for the dis-
tinct identification of traits, attitudes, and behaviors as
information units in person perception. In each phase of
the present study--in stimulus selection, and in the two
experiments--differences in the subjects' use of these
units were evident. The clear implication of the present
study is that person perception processes probably involve
each of the three units and studies in the area should
attend to the differences between them. Several findings
in Experiment Two indicate rather specific differences in
behaviors, attitudes, and traits in making inferences about
persons.

Behaviors, for instance, do not appear to be effective
mediators of information presented about others. Subjects
in the behavior mediation condition performed no better
than the no-mediator control groups on the discrimination
learning task. The simplest explanation for this failure
seems to be that behaviors, being rather specific as infor-
mation units, are infrequently inferred from any person
stimuli and are therefore less salient. In fact, on the
open-ended descriptions of the person characterized by the
stimulus items in the discrimination learning task, subjects
in behavior mediation groups most often wrote attitudes

and traits. Apparently, the rank order of the stimuli, although obtained in exactly the same fashion in behavior mediation tasks as in the attitude and trait mediation tasks, did not elicit an appreciably salient mediator of any sort.

The fact that behaviors are less salient mediators in person inference may aid in understanding some rather puzzling findings in social psychology. Fischoff (1975), for example, found that subjects, when informed of an outcome of some fictitious battle between nations, were perfectly able to"explain" the outcome by drawing from typological and behavioral data. Uninformed subjects found the "prediction" of the outcome difficult despite having the same information available to them. While Fischoff uses the construct of "hindsight" to interpret these data, one could argue that the informed subjects found no difficulty in making inferences from the behavioral outcome to other more general information while the uninformed group found the opposite inference far more difficult.

In a more methodological vein, the variable support shown for predicting behaviors from attitudes in many studies (Wicker, 1969) may be confounded by an experimenter's perception of which behaviors are implied by attitudes in the study. Subjects in these studies may potentially perform many behaviors implied by their attitudes. These behaviors may or may not coincide, however, to those chosen, i.e., inferred, by the experimenter.

In the present study, attitude and trait mediation

subjects made significantly fewer errors on the discrimination learning task than the no-mediation control groups, indicating that attitudes and traits serve as encoders of person stimuli. It seems reasonable to argue that the abstract property of both units allows for a more flexible and therefore more frequent integration of information about others. That flexibility makes attitudes and traits salient and useful as mediators.

It seems curious that no differences in performance on the discrimination learning task were found between attitude mediator and trait mediator conditions. Traits, as had been previously argued from the implications of implicit personality research and attribution arguments, were thought to serve more effectively as "underlying dispositions" for the person perceiver than were attitudes. It will be recalled, however, that when the distinction between the specificity or generality values of traits and attitudes as information units is made (Thompson, Phillips, and Gard, 1977;[1]Abelson, 1977), it is made with respect to differences in their stimulus properties, not in terms of encoding or mediating properties. The non-significant trend for more discrimination errors in the trait stimuli conditions relative to attitude stimuli conditions suggests that there is modest justification for the stimulus property distinction here. That either traits or attitudes are more effective as mediators cannot be unequivocally shown in this experiment.

While the data indicate no differences between the

relative effectiveness traits and attitudes as encoders of person stimuli, there is some indication that traits are more often used as mediators. Procedurally, in the present study, there was no objective way to determine the actual mediator used by the subject. In that light, it is entirely possible that the subject formed some impression of the person charac- terized by the stimuli in the discrimination task in trait terms, even though the order of the stimulus set implied a selected attitude. For example, in the trait-to-attitude cell, where the stimuli were ordered in terms of the probabil- ity of implication of the attitude, "dislikes competition," one subject wrote the trait, "shy" on the open-ended person description. The fact that traits were written on the open- ended forms more often than attitudes suggests that they were used more frequently as mediators.

In addition, when the number of errors were controlled for the time required to complete the task, only traits differed significantly from control (see footnote 3). More- over, less errors were made in the attitudes-to-traits inference condition than in any other in the discrimination learning task, a fact which attests to the facility of that inference. Thus, there is a strong implication in this study that, while an attitude is sufficient to explain behavior, it is likely that the "underlying disposition" is ultimately encoded and stored as a trait attribution.

An important observation should be made regarding the unexpectedly good performance of subjects in the no- mediator control groups on the discrimination learning

task. While the mean number of errors made by control subjects on trial one was not appreciably less than the number expected by chance, $\bar{x} = 7.5$, the errors on trial two were reduced by half. This learning rate far exceeded the experimenter's expectation of rote performance. In this light, there may be slight justification for the claim that the discrimination task, using only six stimulus units, was too easy to adequately separate the performances of the control and experimental subjects.

There were instead some more persuasive intuitive indications that the control tasks were not learned completely by rote memorization. Subjects found no difficulty in writing responses--most often traits--on the open-ended description. Most of these subjects seemed quite surprised when informed during the debriefing that there was no ostensible mediator to the set of stimuli in the discrimination task. Apparently, these subjects did use mediators to aid their performance.

That the subjects construed mediators was understandable since in the no-mediation condition as in the others subjects were told to look for a "fairly specific piece of information" about the person described by the stimuli. In that sense, they were responding to experimental demand. That they may have found the mediators useful, however, may simply attest to the skillful capacity of person perceivers to find stability and organization in diverse and ostensibly meaningless stimuli. On the other

hand, the control subjects found mediators less useful than the attitude and trait mediation subjects in the discrimination task. Taken together, these findings support the argument that while mediators will be often elicited, some are more salient than others.

More specific to the methodology, the good performance of subjects in the control groups may have accounted to some extent for the marginality in the mediation main effect. That is, the requirements for a true control condition may not have been met. Perhaps the exclusion of the instruction requiring the subject to look for information about the person in all groups would provide the necessary control. No-mediation subjects might then be less prone to generate mediators. It is important, in any case, that a true rote memorization baseline be established and there is some evidence that it was not so in the present study.

Perhaps the most fundamental result of Experiment Two is the strong support shown for a behaviors-to-attitudes-to-traits model of person inferences. The cells in which behaviors were mediated by an attitude, behaviors mediated by a trait, and attitudes mediated by a trait produced significantly fewer errors than cells in which these units were reversed. While this finding is not altogether independent of the previously discussed mediation main effect, it provides for a slightly different perspective on the person inference process.

Although Heider (1958) never quite stated his generalizations in these terms, the strong implication of his

model of interpersonal perception is that person inferences are basically inductive. Induction is especially suggested in Heider's application of Brunswik's lens model noted previously. In this sense, the unit of information used to stabilize and organize environmental stimuli has, of necessity, a more general meaning than that provided by the stimuli themselves. Thus, for example, noting that a person who shakes others' hands and smiles is friendly or happy is analogous to noting that a cube composed of a cardboard is a box.

However, caution should be taken in generalizing from these results. The reader must recall that a single unit was chosen as the mediator in each cell. While the findings are unlikely to have been due to variance associated with particular units, that possibility cannot be ruled out. Ideally, each of the twelve cells in the design should have been tested with more than a single mediator. Subject availability considerations restricted the number of effects tested in the study. Therefore, the reader should note the limitation on the generality of the results.

Nevertheless, the collective results of Experiment One and Experiment Two have a number of important practical and theoretical implications for research in person perception. The next section of the paper addresses these implications and summary comments follow.

Implications of results. The present study, in Experiment Two, has specifically demonstrated that perceivers are more facile in making inductive rather than deductive inferences.

In that context, it appears that the attribution research focus on inferences proceeding from behaviors to attitudes and traits has perhaps justifiably emphasized a more "natural" perceptual process. Fischoff's (1976) previously noted assertion that attribution research generally finds person perceivers to be highly proficient is in line with this notion.

Less understood, in terms of the results of both experiments, is the focus of the attribute organization research on trait-to-trait inferences. The poor performance of subjects in the traits-mediated-by-trait cell on the discrimination learning task was quite surprising. The trait-to-trait inference has been so prevalent in implicit-personality research that it was predicted that subjects would perform well on the task. Furthermore, with respect to the judgment task in Experiment One, the factorial structure of the traits-mediated-by-traits matrix was dissimilar to the structures of matrices in which the judgments involved other units.

It seems that attitudes do serve as effective mediators of person stimuli and that behaviors and attitudes provide useful and probably frequent stimuli in person inferences. The clear indication in both of the experiments presented here is that many findings in implicit personality and impression formation research, in failing to include behavioral and attitudinal judgments, may be far less general than has been assumed. Indeed, the argument of the present study is that any investigation into

person perception processes ought to clearly identify the particular informational judgment(s) the subjects are asked to make and, further, to generalize only to those specific inferences.

An additional implication of this study is that both person attribution and attitude organization studies have focused on a small portion of the inferences actually made by perceivers and have virtually ignored some frequently encountered inferences in person perception. The finding that upward, inductive inferences are easier and possibly more common for person perceivers does not imply that other inferences are infrequently made. At least, the nine inference modes considered here (see Table 1) should be incorporated into research dealing with the person perception.

Consider, as an example, the traits-to-behavior and attitudes-to-behavior inferences often made in graduate school letters-of-recommendation. Trait words such as "hardworking", "studious", and "smart", or attitudes such as "likes the class" are often the only pieces of information passed on about the applicant. The decision by the admissions committee to accept or reject the applicant will largely depend on the behavioral implications of those traits and attitudes. The results regarding behavioral mediators and trait stimuli in this study suggest that the admissions committee would find it difficult to make an unambiguous decision. This ambiguity may perhaps explain the notorious lack of utility reference letters are reputed to have in admission decisions, both from the perspectives
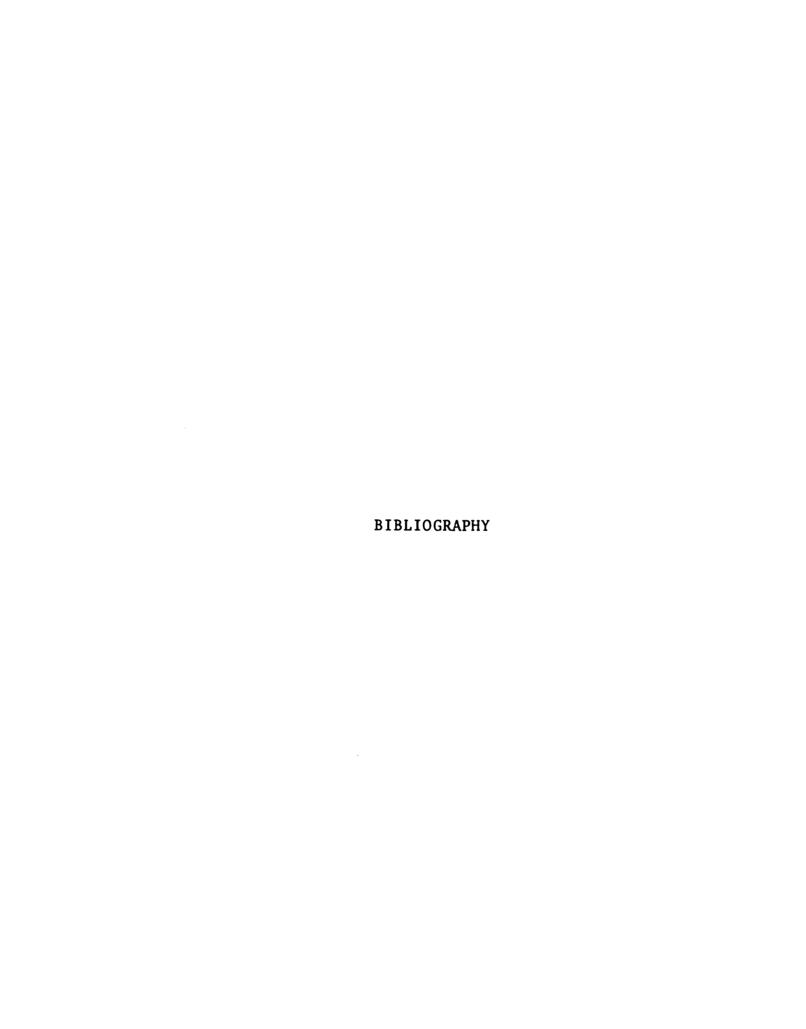
of the applicant and the decision maker. The example clearly points to the importance of investigating inferences other than those emphasized in attribution and implicit personality research.

The reference letter example also suggests an important limitation to the present study. Subjects were told nothing regarding the source of the stimulus information. It was simply assumed that the subjects would accept the information as valid and credible and there were no indications that this assumption was not met. Reference letters are received, however, from known and unknown, liked and disliked sources. Preliminary results from Thompson, Phillips, and Gard (1977)[1] suggest that ambiguous descriptive judgments force perceivers to consider other information such as the evaluation of the source. Inability to mediate the trait or attitudinal information with a behavior therefore requires the committee to strongly consider an evaluation of the writer prior to the decision.

The model also may seem to be limited in that it excludes other person stimuli. Nevertheless, while the model proposed here has focused on behaviors, attitudes, and traits an information units, it does not rule out the inclusion of other important stimuli such as facial expressions, eye contact, and physical attractiveness. For example, the research of Ekman and his colleagues (Ekman, Freison and Ellsworth, 1972) has examined the extent to which perceivers are able to encode facial expressions into attitudes and traits. These variables were excluded

more for economy than for reasons related to judgments of importance. They are clearly significant contributors to person perception research.

In fact, integration of all findings relevant to this behavior, attitude and trait mediation model would go beyond the scope of a single paper. In many ways, the model was developed for heuristic purposes. The major import of the study is that it provides a way of integrating areas of person perception research which have proceeded independently despite obvious similarities. More generally, the proposed model suggests that most research in person perception can be viewed from a single perspective.

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Reference Notes

1. Thompson, E. G., Phillips, J. L., and Gard, J. W.
   Trait and relational information in the impres-
   sion formation process (in preparation)

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   Experimental tests of the S-V-O model of social
   cognition (in preparation)

Footnotes

1. Four subjects were inadvertently administered incorrect
   submatrices. Thus, the judgments of only 17 subjects
   were recorded in the attitudes-to-attitudes sub-
   matrix and the data from 19 subjects were recorded
   in the traits-to-attitude submatrix.

2. Originally, half of the subjects in the experimental
   conditions were told the exact information unit
   requested, i.e., the mediator category for the
   assigned cell. The other half were free to supply
   any sentence about the person. Since the latter
   "uninformed" group was expected to supply more
   traits on the open ended protocols, it had been
   hypothesized that their performance on the discri-
   mination learning task would exceed that of subjects
   in the "informed" behavior and attitude mediator
   groups. It became clear, however, that there were
   no differences in the patterns of the open-ended
   responses between these groups. Furthermore, no
   differences could be found in performance on the
   discrimination learning task. Finally, limited
   subject availability reduced the projected cell sizes
   to two subjects per cell. For these reasons, the
   informed-uninformed manipulation was ignored.

3. When the total errors were covaried with time required
   to complete the task, only trait mediation conditions
   were significantly different from controls.

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