# INFERENTIAL PATHS IN SOCIAL PERCEPTION

by

STEPHEN A. NORMAN

B.A., University of Waterloo, 1972

M.A., University of Waterloo, 1974

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in the Department

of

Psychology



We accept this dissertation as conforming

to the required standard

[redacted]

R.A. Hoppe

[redacted]

J.D. Ayers

[redacted]

C.W. Tolman

[redacted]

D. Knowles

[redacted]

M.E. Enzle

[redacted]

G.A. Milton

STEPHEN A. NORMAN

UNIVERSITY OF VICTORIA

Supervisor: Dr. R.A. Hoppe



The present research explored the use of inferential paths in social perception. An inferential path is a series or chain of inferences that a person makes when assessing the meaning of social behaviour. A review of literature suggested that the effects of inferential paths are primarily psycholinguistic in nature. Two particular inferential paths were identified and examined experimentally in two pilot studies. In these studies subjects were shown behaviour and guided through different inferential paths. It was found that the conclusions drawn by subjects about the behaviour they saw depended on the inferential path through which they were guided. In the second of these studies, evidence was obtained to suggest that subjects who were not specifically guided through the inferential paths, probably use them anyway.

A final experiment looked at the possibility that role requirements dictate the inferential path taken by those who are specifically guided through a path. Role requirements describe the needs people have when they occupy particular roles in a social situation. Previous research demonstrated that role requirements, like inferential paths, are related to person perception. In general, when subjects interact with another person, or anticipate such interaction, they state that they know that person's traits, dispositions or personality, better than subjects who do not have to interact. In other words, part of the role requirements of people who interact with others is the perception of knowing those with whom they interact. Trait attributions satisfy these requirements. They provide knowledge of the other person. The final experiment indicated that in part, this knowledge is inferred via inferential paths.

Results were discussed with respect to various possible models of person perception. The model closest to the data holds that role requirements activate cognitive processes which in turn determine person perception.

[redacted]

R.A. Hoppe

[redacted]

J.D. Ayers

[redacted]

C.W. Tolman

[redacted]

D. Knowles

[redacted]

M.E. Enzle

[redacted]

G.A. Milton

Table of Contents

List of Tables

# List of Figures

# Acknowledgements

I extend great appreciation to my committee, particularly Lex Milton and Chuck Tolman, all of whom went through much more than the motions in giving their advice and encouragement.

To Dale Miller, many thanks for being himself, and for always making experimentation in social psychology feel a lot more interesting than I suspect it really is.

Congratulations to Louise on my completion. For five years, she has suffered the cruelty of attribution theory by typewriter, but is still with me.

Final thank you's are for my advisor, Ron Hoppe. Ideals may not exist, but Ron is the closest to the "unwavering band of light" I've found in the business. He ushered and orchestrated me through the whole thing and it didn't hurt a bit.

# ATTRIBUTION THEORY

Of central concern to the field of psychology is the analysis of the causes of behaviour. While it is generally recognized that behaviour is complexly determined, its causes are roughly cast into two categories by theorists. One category comprises factors external to the individual, such as environment, nurture, conditioning, social structure, etc. The other category emphasizes factors internal to the individual such as personality, nature, purposiveness, etc.

However, in a simple but elegant statement, Heider (1958) pointed out that psychologists are not the only people to analyse the causes of behaviour--that in fact, determining the causes of behaviour is an important activity for any human being. The process by which people determine and/or perceive the causes of their own and others' behaviour has since become a field of study in its own right and is currently known as attribution theory.

Attribution theory is not concerned with the issue of whether or not people determine the correct causes of behaviour. This, ironically, has been left implicitly as a metaphysical question. The only concern of the theory is the causes to which people attribute behaviour and the process by which they do this.

Attribution theory describes two types of causes to which the naive attributor refers. Internal causes include intentions, dispositions, and personality, while external causes include environment, situation and circumstances. In other words, attribution theory contends that people assign or attribute behaviour to factors either internal or external to the person.

From Heider (1958) we derive two more fundamental premises of the theory. It is assumed that the causes of behaviour perceived by the attributor must 1) be plausibly derived from available evidence, and 2) fit the wishes of the attributor. For example, according to the first point, we may not attribute a friend's poor performance on an exam to the occurrence of sunspots if we discern no plausible cause-effect relationship between these two events. According to the second point, we may also avoid attributing the failure to the poor advice we may have given our friend just prior to the exam, since we would not wish to perceive ourselves as the cause of a friend's misfortune. We may, however, satisfy both requirements of attribution theory by attributing the failure to the friend's innate stupidity, thus making a plausible inference and saving our own self-image.

Current research in attribution has evolved along these two basic lines. The first has looked at how attributions depend on evidence available to the attributor, resulting in a number of cognitive models. The second has focussed on the impact of social motivation on attributions.

The common research paradigm of attribution is simple. Most studies involve an actor, or the person whose behaviour is in question, and the observer, who determines the causes of the actor's behaviour. (Actors can also monitor their own behaviour, that is, be observers of themselves.) Experiments typically involve the manipulation of the evidence available to the observer concerning the actor, and/or a manipulation of the motivational state of the observer. Dependent measures usually involve the extent to which the observer perceives the causes of the actor's behaviour to be internal or external to the actor.

## Cognitive Positions

### Detective Models

Cognitive positions in attribution depict naive causal analysis as a rational process and are perhaps best described as "detective models". Most of these positions (Bem, 1967, 1972; Jones and Davis, 1965; Kelley, 1967, 1971, 1972) converge on the proposition that as a particular possible cause of behaviour becomes less plausible, other possible causes are perceived as more plausible (and vice versa). Several experiments have tested this notion (Enzle, Hansen and Lowe, 1975; Jones, Davis and Gergen, 1961; Jones and Harris, 1967; McArthur, 1972; Miller and Norman, 1975) and have found that when the behaviour of the actor cannot be plausibly explained by the actor's circumstance or situation, or if other subjects or entities in the actor's environment cannot be seen as causing the behaviour, then the observer attributes the behaviour to the actor or to the actor's disposition, or traits, For example, Jones, Davis and Gergen showed observers an actor in a job interview. In one set of conditions, the job was to be an astronaut, and the prime qualification was to be happy spending long periods of time alone. When actors indicated that they were afraid to be alone, observers attributed this to a real fear of the actor (internal attribution), since there was presumably no external reason for expressing fear. When actors claimed to have no fear of solitude, observers were less convinced of the veracity of the actor's statements since they could also be attributed to circumstances (the job required a "solitary type").

### Attentional Process

Another important cognitive aspect of attribution is attention. Newtson (1973) had observers monitor a sequence of behaviours of an actor.

He manipulated the amount of attention observers paid to the behaviour by having them press a key to an event recorder whenever they thought the actor had completed one meaningful act and had started another. In one condition observers were told to press the key as often as possible by considering as minute sequences of behaviour as possible as a meaningful act. In another condition they were to make the sequences as long and global as possible. Those that processed the actor's behaviour in minute detail were more likely to believe that the behaviour provided evidence of the actor's traits or personality, that is, made more internal attributions.

Aside from the amount of attention directed towards behaviour, the directional focus of behaviour is also important. Jones and Nisbett (1971) argued that when observers monitor an actor's behaviour they focus on the actor's behaviour, while the actor's environment provides a background. On the other hand, actors, because of the physical location of their sensory apparatus, focus attention on their environment. Basing several experiments on these ideas, Nisbett, Caputo, Maracek and Legant (1973) and Storms (1973) predicted (and found) that actors would tend to attribute their own behaviour to their environment or circumstances (external attribution) while observers would tend to attribute that same behaviour to dispositions of the actor.

## Motivational Variables

### Self-Serving Biases

Prominent in the attribution literature are discussions of self-serving biases, or the ego defensive functions of attribution. Simply stated, these positions propose that we are prone to take responsibility (attribute cause to ourselves) for success and other positive events, but to

avoid taking responsibility (attribute cause to our environment) for failures or other negative events.

Weiner and Kukla (1970) reported that actors, particularly those high in Nach, tended to attribute success but not failure at achievement tasks to their ability. In an experiment in the field of interpersonal influence, Schopler and Layton (1972) had actors attempt to give advice to another person, in order to get that person to perform well at a task. Actors were more likely to perceive themselves as the cause of the other person's performance if the quality of the performance changed as a result of their intervention than if it remained the same. However, within the former condition, self-attributions by actors were stronger when the other person's performance improved than when it decreased in quality.

A third area of research involving self-serving biases is defensive attribution. Shaver (1970) proposed that we avoid assigning responsibility to others when this reflects on our own relationships with the social environment. He told observers about a person who was potentially responsible for an accident which caused severe misfortune to another person. Observers believing that they were similar to the potential perpetrator were less likely to assign responsibility to the perpetrator than those who felt dissimilar. According to Shaver's defensive attribution model, this effect occurs because observers in the "similar" condition avoid the cognition that people like them could cause harmful accidents.

Effective Control

A second aspect of motivation investigated with respect to attribution theory concerns effective control. One of the basic motivations thought to underlie attributions is the need to understand and predict or control one's social environment (Kelley, 1971). Presumably such a need may be sub-

ject to individual differences and so Mirels (1970) devised a scale which is designed to detect consistent differences among individuals in their concern for controlling their environment.

Several experiments (Miller and Norman, 1975; Miller, Norman and Wright, 1978; Norman and Holmes, 1978) have also examined situational variations in the arousal of the need for effective control. Following Jones and Nisbett (1971), and expanding the basic attribution paradigm, Miller and Norman distinguished between active and passive observers. Active observers were engaged in interaction with the actor while passive observers merely monitor the actor's behaviour from a passive perspective. It is reasonable to suppose that active observers will take a greater interest in understanding and predicting the actor's behaviour than will passive observers. Consequently, they should expend more effort at searching out the consistencies in the actor's behaviour, and so should be more likely to believe that they know the actor's dispositions and personality. The belief that they "know" the actor should satisfy the need to understand and predict his behaviour. Miller and Norman found that active observers made more confident statements about the dispositions of an actor than did passive observers. Moreover, this effect was not dependent on active observers simply paying closer attention to behaviour than passive observers. Miller, Norman and Wright controlled attentional factors and still obtained these differences between observers. (Moreover, differences were greater among observers who scored high on Mirels' scale.) Further supporting their theoretical contentions, it was found that observers who did not interact with the actor but expected to interact in the future, also made more confident internal attributions than passive observers. In addition, Norman and Holmes (1978) found that observers who

received rewards contingent on the actor's behaviour also made stronger attributions that passive observers, even when they did not interact with actors. Similarly, Berscheid, Graziano, Monson and Devmer (1976) argued that anticipation of interaction itself intensifies the attribution process, resulting in stronger inferences about the actor.

In summary, observers having interest in predicting or controlling the actor's behaviour (non-passive observers) make attributions that are more internal than those who do not (passive observers).[1]

The present experiments are designed to investigate these observer differences further in the context of the phenomenon of subjective generalization. When integrated with attribution theory, subjective generalization theory makes a number of interesting points about attributions not easily derived from current attribution approaches.

## Subjective Generalization

Subject generalization describes the process whereby an observer takes a single instance of some event to indicate that the event occurs at a greater level of generality.[2] The study of subjective generalization is not concerned simply with logical verbal behaviour. For instance, the statement "The man hit the child", implies inductively that "The man hits children", but it does so subjectively.

A body of research on subjective generalizations reviewed by Kanouse (1971) was recently supplemented by Podeschi and Wyer (1976). This research typically presents observers with an assertive statement in a written form, and asks whether or not they feel it warrants a particular generalization. A number of conclusions can be drawn from the results of these experiments.

First, observers were more willing to generalize over the objects of sentences than over the subjects of sentences. For example, given the

statement "The man hit the child", observers are more willing to agree that "The man hits children" than they are to agree that "Men hit the child." This effect has been reliably demonstrated employing countless different statements presented in several written formats with persons and things and abstract objects (e.g., "gleeps", "X", etc.) serving as sentence subjects and sentence objects. Statements have been presented in both active and passive voices.

Both Kanouse and Podeschi and Wyer explain the effect in terms of the different linguistic properties or semantics of subjects and objects. Essentially, it is claimed than when an object or person is cast linguistically as a subject it becomes a member of class which is more heterogeneous than when it is cast linguistically as an object. In other words, sentence subjects are not as similar to each other as sentence objects. Therefore the actions of one subject do not imply the actions of other subjects, but subjects are perceived as likely to act similarly toward a number of other objects. Evidence to this point is offered by Kanouse (1972). He presented observers with statements such as "Artists detest businessmen" and asked them to quantify the objects, that is, to give the quantities that were implicit in the sentence. In the example given they were asked to state how many artists must detest businessmen before the sentence is acceptable as an assertion, or alternatively, how many businessmen must be detested by artists for a similar conclusion to follow. Quantifiers were larger for subjects than objects. Since subjects are not similar to each other, observers required that many cases be known to apply before accepting the generalization. On the other hand, since objects are highly similar, only a few cases need by observed before accepting the generalization. (The reader may note a similarity to the difference between sampling a population with high variance and one with

low variance.)

Returning to the attributional context, this result has immediate implications. First it must be assumed that sentence subjects are cognitively the same as actors. Consequently, if actors exhibit some action towards an object or some social environment, it implies that they will behave similarly towards other objects or in other environments. It does not imply, to such an extent, that other actors will behave similarly towards the same objects or in the same environments. According to the cognitive models of attribution, this implicitly locates the cause of the behaviour as internal rather than external to the actor. It may be expected then, that there is a bias in observers to attribute behaviour to factors internal to the actor. This is in fact, a common finding in attribution research (e.g., Jones and Nisbett, 1971; McArthur, 1972).

These points emphasize the fact that generalizations are an important part of the attribution process. Say an observer decides that an actor has a disposition toward others; for instance, aggressiveness. Presumably, the observer may have decided that the disposition exists in the actor after having viewed a limited number of sequences of behaviour in which the actor's behaviour was, to the observer, of an aggressive nature. However, by saying that the actor is an aggressive person, observers are saying that they expect the actor to behave aggressively in subsequent contexts and circumstances. The behaviour of the actor then, has been generalized beyond the evidence immediately available to the observer.

It may be concluded then, that attribution comprises two distinct processes. In the first, the observers generalize the behaviour of the actor to other objects, environments or circumstances. In the second, they infer a general disposition internal to the actor to explain this

generalized behaviour. Evidence bearing on these conclusions was reported by Kanouse and Gross (1970). These authors took a linguistic analogue of the attribution process and separated it into the two components described above.

Kanouse and Gross (1970)

Kanouse and Gross recognized that a generalization over sentence objects is a linguistic analogue of the generalization of the actor's behaviour in attribution. As a linguistic analogue of the inference of disposition, Kanouse and Gross offered the transfer from manifest to subjective verbs. Manifest verbs describe actions (e.g., hit, buy, avoid, carry, play, etc.). Subjective verbs describe states, feelings and sentiments (e.g., like, love, hate). (This distinction is similar to Heider's (1958) unit-sentiment dimension.) Inferring a subjective verb from a manifest verb is similar to inferring a disposition from an action. For example, the statement "The man dislikes children" might be inferred by an observer from "The man hits children." By switching the manifest action (hits) to a subjective state (dislikes) the behaviour of the actor (the man) is explained. He hits children because he dislikes them.

Kanouse and Gross also note a linguistic property of verbs demonstrated by research reviewed by Kanouse (1971) and replicated by Podeschi and Wyer. Observers are more willing to generalize statements containing manifest verbs than those containing subjective verbs. For example, observers given the statement "The man hit the child" are willing to infer that "The man hits children." Observers given the statement "The man dislikes the child" are not so willing to infer that "The man dislikes children".

In their experiment, Kanouse and Gross asked observers to generalize over sentence objects and to infer a subjective verb from a manifest verb. For example, they may have been asked if "The man dislikes children" follows from "The man hit the child." However, observers were asked the question in one of two fashions. Each represented a different inferential path that the observer was to follow in moving from premise to conclusion. An example of the two paths are below.

A The man hit the child.

Does the man hit children?
Does the man dislike children?

B The man hit the child.

Does the man dislike the child?
Does the man dislike children?

In both paths, A and B, observers are asked to both generalize over objects and switch a manifest verb to a subjective verb. However, in path A they must generalize behaviour first while in B they must alter verbs, or characterize behaviour first.

It was assumed that the likelihood that observers would infer subjective verbs from manifest verbs was essentially the same for both paths. Notice however, that in path A observers must generalize a statement with a manifest verb, while in path B the verb is subjective. Accordingly, observers should be more willing to make the generalization in path A than in path B. Data confirmed these hypotheses. Kanouse and Gross found no differences between paths A and B in agreement with the intermediate statements. However, observers guided through path A were more likely to agree with the final statement than those guided through path B. In other words, to follow our example, observers were willing to infer a generalized disposition of the man, that is disliking for children in

general, if (and only if) they generalized the manifest behaviour first. If they first explained or characterized the man's behaviour at a low level of generality, they were not willing to go on to generalize that explanation or characterization to other objects. Kanouse (1971) referred to this effect as a primacy effect of attribution. He suggested that once observers had explained behaviour, cognitive processing ceased. This tendency of observers to stop considering further hypotheses once they have explained behaviour has often been noticed in attribution literature (see Jones and Goethals, 1971 for a review).

Summary

Data on subjective generalization has implications for the observer in the traditional attributional paradigm. First, there should be a tendency to generalize an actor's behaviour to other objects rather than to other actors.

Secondly, observers should explain behaviour at the level of generality at which they believe it to occur. If they do not generalize behaviour, they should explain it at a low level of generalization. Furthermore, they should explain behaviour at a generalized level only if they generalize first. There is a subtle distinction between this second implication and the usual implicit assumption of attribution. Here it is being assumed that an observer will perceive a disposition in an actor that described behaviour towards a limited array of objects. Attribution theory usually implies that when an observer infers disposition, that he or she expects the actor to behave in a similar way towards a large array of objects.[3]

Pilot studies were conducted to assess the extent to which the principals drawn from Kanouse's (1971) work would generalize to attributional situations, before examining their implications for attribution theory.

## PILOT STUDY 1

Passive observers are different from those in experiments reported by Kanouse (1971) since they view behaviour that has not been coded for them in linguistic terms. The passive observer typically monitors the behaviour of an actor towards another actor or an object. This can be defined as a manifest relation between subject and object and is linguistically similar to the first statement in items employed by Kanouse and Gross (1970). It must be assumed then, that the primary behavioural information will be to some extent, linguistically encoded by the observer. If observers see a man hit a child, that will first be encoded verbally as "The man hit the child". In explaining the behaviour, observers may be guided down one of two inferential paths. In the first they generalize to other objects, for example, to "The man hits children", and then alter the manifest verb to a subjective one, thus inferring disposition on the part of the subject. This will be referred to as the Generalizing path since by this process observers generalize first. The resultant inference in our example would be "The man dislikes children".

By the second possible path, observers first attribute a manifest action to a subjective state, that is they characterize the actor's behaviour. In the given example they would first infer "The man dislikes the child" from "The man hit the child", and then generalize to "The man dislikes children". This will be referred to as the Characterizing path since characterization occurs before generalization.

According to Kanouse and Gross, attributors in a generalizing condition should be more willing to make a generalized dispositional inference than those in a characterizing condition. The former will explain behaviour at a generalized level since they generalize it first (before ex-

plaining it). Those in a characterizing condition should explain behaviour at the specific level at which it is presented and so be less willing to make a more generalized dispositional inference.

A third condition arises when observers are left to construe behaviour spontaneously, that is, when they are not guided down an inferential path. This will be referred to as the Spontaneous path. In this condition, observers must follow either of the two paths described above. If this assumption is true, then two results should follow. First, it was argued that when observers are guided down particular inferential paths, those who are induced to generalize first, should be more likely to make a generalized dispositional inference than those who characterized first. If observers without such guidance follow one of the two inferential paths spontaneously, the strength of this inference should match that of one of two observers whose inferences are manipulated. If inferences are averaged over a number of observers, the average strength of the final inference for "spontaneous" observers should fall between the averages of the other two groups. The actual differences between the two groups of "guided" observers and the group of spontaneous observers in this case will depend on which of the two paths passive observers are most likely to take in the spontaneous condition.

The second result that should apply concerns inferences about the causal role of the sentence object. Presumably, observers employing the characterizing path, at some stage, consider the possibility that the actor (sentence subject) is in a subjective state that is particular to the sentence object, that is, a state which is uniquely conditioned by the particular object toward which behaviour is directed. Observers following a generalizing path are less likely to consider this possibility.

Therefore, those in the former condition should be more likely to see the sentence object as causal in the interaction between subject and object. Moreover, the strength of this inference should correlate negatively with the strength of generalized dispositional inferences, since the paths are assumed to be mutually exclusive--observers follow one or the other. Consequently, to the extent that they make a strong dispositional inference, observers should not attribute behaviour to the object.

To summarize, observers in a Generalizing condition should be more willing to make a global dispositional inference on the basis of the actor's behaviour than observers in a Characterizing condition who in turn should be more willing to agree that the object (the person or thing that is "acted upon") was a causal element in the actor's behaviour. On both dependent variables, spontaneous observers should fall somewhere in between the two groups who follow a prescribed inferential path. Moreover, for this group there should be a negative relationship between the two dependent variables.

These three conditions comprised the experimental design of the experiment. However, a fourth condition was added to test another assumption generated by Kanouse's (1971) discussion. Observers in this condition (the Generalizing-subject condition) employed a generalizing path but the generalization was over sentence subjects rather than sentence objects. In the example being used, observers would be asked to infer "Men hit the child" from "The man hit the child". Kanouse (1971) concluded that inductive inferences are stronger over sentence objects than over sentence subjects. Consequently it should be expected that, given a behavioural item such as "The man hit the child". observers should be more likely to infer that "The man hits children". than "Men hit the child".

## Method

### Subjects

Forty-three Introductory Psychology students (28 female and 15 males) participated in the experiment either singly or in groups of two or three. Data from three of them were not retained since they failed to respond to all of the questions serving as dependent measures. They were solicited through a lottery whereby one of them (selected at random) would receive $100.00 for his or her participation.

### Materials

A videotape, 2 minutes and 57 seconds long, was prepared. The scene was a room (about 4 x 4 meters), empty except for a small armchair. The tape depicted a 3 year old male in free play, with 3 stuffed toys resembling Sesame Street characters. Subjects were shown this tape on a 50 cm black and white television monitor, while seated in a small (about 3 x 4 meters) room.

### Procedure

The number of subjects scheduled for each experimental session varied randomly from one to three (few sessions had three subjects). They were told that the experiment was designed to examine the things that people look at and think about when they see other people behave. Subjects were given a description of the videotape (similar to the one above) and then asked to watch it under one of four different conditions.

Conditions were set up to mirror the different inferential paths used by Kanouse and Gross. The behaviour in the tape showed a child playing with a particular stuffed toy. This is analagous to the initial statements in Kanouse and Gross' items in that there is a manifest action with particular objects. The different conditions corresponded to the inter-

mediate statements in the various inferential paths. In a Characterizing condition, subjects were asked to watch the tape while considering the question "Does the child like the particular stuffed toys shown in the tape?" In a Generalizing condition, the question subjects were asked to consider was "Would the child play with other stuffed toys in the same way as he plays with the particular stuffed toys shown in the tape?" In a Spontaneous condition, subjects were merely asked to watch the tape carefully. Consequently, they were left to construe the events in the tape any way they wished.

In the fourth condition (the Generalizing-subject condition), subjects were asked to consider the question "Would other children play with the particular stuffed toys the same way as the child in the tape?" This question asked them to generalize over sentence subjects.

When subjects understood their instructions they were shown the tape. Afterwards, they were asked to answer some questions. All questions were asked verbally by the experimenter and were answered on six-point Likert scales with the ends labelled "definitely" and "definitely not". Responses were written on a score sheet provided.

The first question asked was part of the intermediate step of each causal path. Subjects in the Characterizing condition, were asked "Do you think the child likes the particular stuffed toys shown in the tape?" In the Generalizing condition, subjects were asked "Do you think the child would play with other stuffed toys in the same way as he played with the stuffed toys shown in the tape?" Those in the Spontaneous condition were not asked a corresponding question since they were not supposed to be guided towards any particular intermediate step.

To correspond to the final step of the inferential paths, all sub-

jects in these three conditions were then asked to make a generalized dispositional inference with the question "Do you think the child in the tape likes stuffed toys in general?" This constituted the major dependent variable of the experiment. The second main dependent variable assessed the degree to which observers attributed the child's behaviour to the particular toys he played with. The question was "Do you think that there was something about the particular stuffed toys that made them especially attractive or likeable to the child?"

Subjects in the Generalizing-subject condition were asked only a question corresponding to the intermediate step of the inferential path. The question was "Do you think other children about the same age would play with the particular stuffed toys the same way as the child in the tape?"

In summary, subjects were asked to construe the events in the tape by one of the four inferential paths. (See Table 1 for a summary of the procedure of the experiment in a flowchart format.) The main conditions were Characterizing, Generalizing and Spontaneous paths. In the first two, subjects had a particular question to think about while they viewed the tape and they were asked to respond to that question afterwards. This constituted the intermediate step of these two inferential paths. Subsequently, subjects were asked 1) to make generalized dispositional inferences and 2) to attribute behaviour to the objects of the behaviour. In the Generalizing-subject condition they were merely asked to generalize over the sentence subject. Their response was to be compared to the extent to which subjects in the Generalizing condition generalized over the sentence object (as assessed by the question corresponding to the intermediate step of that inferential path).

Table 1. Summary of Procedure (Pilot Study 1)

| Condition | | | |
|---|---|---|---|
| Generalizing | Characterizing | Spontaneous | Generalizing-Subject |
| All subjects receive a general description of the videotape | | | |
| Asked to consider whether child's (actor's) behaviour would <u>generalize</u> to other stuffed toys. | Asked to consider whether child (actor) <u>likes</u> the particular toys in the tape. | No instructions. | Asked to consider whether other children (actors) would play with toys in the same way as the actor in the tape. |
| All subjects are shown the videotape | | | |
| All subjects except those in the Spontaneous conditions are asked the extent to which they agree with the question they were asked to consider while watching the videotape. | | | |
| Subjects asked the extent to which the actor likes stuffed toys in general. | | | -- |
| Subjects asked the extent to which the particular toys in the videotape were a cause of the actor's behaviour | | | -- |

Ten subjects were randomly assigned to each condition. After running five subjects in each condition, it became apparent that the experimental manipulations were too weak. On debriefing, many subjects indicated that the instructions were not particularly salient. Since it was important that the entire behavioural episode be viewed under a particular set, the instructions were strengthened.

After subjects were told the particular question they were to consider while viewing the tape, they were told that it was very important to think about this question and nothing else. The experimenter suggested that they could do this by repeating the question over and over again to themselves while watching the tape.

Following the collection of dependent measures, all subjects were thoroughly debriefed and asked not to discuss the purpose of the experiment with other potential subjects. They were also asked the extent to which their phenomenal experience was similar to the experimenter's hypotheses.

## Results

Table 2 shows the mean strengths of observers' inferences as a function of inferential paths. (Data from all ten subjects per condition are included.) First comparisions at the intermediate steps of inferential paths (see footnote 1, Table 2) revealed no differences between Generalizing and Characterizing conditions (Means: 4.60 vs. 4.00, $F(1,27)=1.50$, ns). A comparision of Generalizing and Generalizing-subject conditions (Means: 4.60 vs, 2.00, $F(1.27)=28.17$, $p < .001$) indicated that observers were more willing to generalize behaviour over objects than over subjects. Both of these results replicate the corresponding finding of Kanouse and Gross.

Also complimenting Kanouse and Gross' findings is the fact that generalized dispositional inferences were stronger in the Generalizing condi-

Table 2

Strength of Observers' Generalizations and Attributions (Pilot Study 1)

| Measure | Condition | | | |
|---|---|---|---|---|
| | Generalizing | Characterizing | Spontaneous | Generalizing-subject |
| Intermediate[1] Statements | 4.60 | 4.00 | --- | 2.00 |
| Generalized Dispositional Inference | 5.00 | 3.20 | 4.40 | --- |
| Attribution to Sentence Object | 6.00 | 4.20 | 5.40 | --- |

Note:- Larger values indicate stronger generalizations and attributions.

1. These means indicate observers' agreement with the questions they were asked to consider while viewing behaviour. Those questions were analagous to the intermediate statements or questions in items used by Kanouse and Gross.

tion than in the Characterizing condition. (Means: 5.00 vs. 3.20, $\underline{F}(1, 27)=14.58$, $p < .01$). As hypothesized, the mean for the Spontaneous (4.40) condition fell between those for the Generalizing and Characterizing conditions and was not significantly different from the mean for the Generalizing condition ($\underline{F}(1,27)=1.62$, ns), but was different from the mean for the Characterizing condition ($\underline{F}(1,27)=6.48$, $p < .05$).

Contrary to hypotheses, observers in the Generalizing condition were also more likely to attribute behaviour to the toys than were those in the Characterizing condition (Means: 6.00 vs. 4.20, $\underline{F}(1,27)=16.82$, $p < .001$) although as expected, the mean for observers in the Spontaneous condition fell between those for the other two conditions (5.40). Again, it was not different from the means for the Generalizing condition ($\underline{F}(1,27)=1.86$, $p < .05$) but was different from the means for the Characterizing condition ($\underline{F}(1.27)= 7.48$, $p < .025$).

Finally, contrary to predictions, the correlation between generalized dispositional inferences and attributions to the object for observers in the Spontaneous condition was positive, though not significant ($\underline{r}$ (8)=.45, ns).

## Discussion

The basic findings of subjective generalization experimentation were replicated. Observers were more willing to generalize over sentence objects than over sentence subjects. This may be 1) because sentence subjects are cognitively, a more heterogeneous class than objects or 2) because people are a more heterogeneous class than things, or 3) a combination of both of these.[4] The most likely possibility is that there is a combination of both effects since both have been demonstrated independently. Podeschi and Wyer showed that things are seen as belonging to more homogeneous classes than people. Alternatively, Kanouse (1968)

showed that sentence subjects are perceived as more heterogeneous than sentence objects, even when both are people (e.g., Artists detest businessmen.).

The difference between Generalizing and Characterizing conditions in generalized dispositional inferences replicates Kanouse and Gross' finding. Observers explained behaviour at the level of generalization at which it was perceived. In the Generalizing condition observers first were led to generalize behaviour to other objects and were then willing to infer a disposition of the actor that extended to objects at the generalized level. In the Characterizing conditions observers attributed acts to a disposition at the specific level of generality at which behaviour was observed and then did not go on to generalize the subjective relationship between subject and object to further objects.

An intriguing possibility here, is that people will infer dispositions that refer only to a specific object or subgroup of objects. They may not see that disposition as guiding behaviour toward other similar objects with which they have not seen the actor behave. This is contrary to the implicit assumptions in many attributional approaches. When an observer infers that an actor has a disposition, it is usually thought that the observer will perceive that the actor's behaviour will be guided by that disposition through a variety of contexts and with a variety of objects. The present results suggest that observers may infer that the actor is disposed to behave in a consistent manner only with objects that the observer has seen the actor behave with already.

The remaining results do not confirm hypotheses. Attributions to objects are stronger in the Generalizing condition than in the Characterizing condition and for the Spontaneous condition there is a non-sig-

nificant positive correlation between generalized dispositional inferences and attributions to the objects. (Correlations were also non-significant in the Generalizing and Characterizing conditions.) Clearly then, conditions that elicited generalized dispositional inferences, also elicited attributions to the objects. This did not occur at the level of the individual observer since correlations within conditions were non-existent.

Among reasons for these findings, three are prominent. First, perhaps a multiple necessity schema was employed by observers (Kelley, 1972). In other words, observers may have regarded the actor's behaviour as so atypical as to require more than one cause or explanation. (See the discussion of causal schemata, Appendix 1, for an explanation.) This however, assumes that a child playing with toys is an uncommon event or that simply liking toys does not justify playing with them. A second possibility is that while observers can be manipulated through inferential paths, they do not follow them spontaneously and exclusively.

A third and more likely possibility is that the verb used, "like", is not one that was salient to observers. It is likely that the predicted effects can only occur when the verb employed in the manipulations and questions is one that would occur to observers spontaneously. Consider the Characterizing condition. Here observers spent about 3 minutes viewing the behaviour of the actor while considering the question of the actor's liking for the toys. During this time they may have extracted information from the tape which was non-supportive of an affirmative answer to this question. It is likely then that they decided that there was not a great deal of liking for the toys, and therefore, there was no reason to agree that the particular toys in the tape were especially likeable, nor

that the child liked toys in general. In other words, observers would be likely to respond to both dependent measures similarly, thus the positive relation between them. Concurring with this argument are informal data from the debriefing session. A large proportion of subjects commented that "liking" was not a salient feature of the actor's behaviour, but that "aggressiveness" was.

If this third explanation is accepted as accounting for the unexpected results on attribution to the object, then it must also be accepted as an alternative explanation for the results on the measure of global dispositional inferences. The difference between Characterizing and Generalizing conditions may have occurred because observers in the former condition extracted information from the actor's behaviour indicating a lack of liking. Those in the latter condition did not consider the question of liking until after viewing behaviour and so may not have had much of the information available to observers in the Characterizing condition. Consequently, since observers in the Generalizing condition have less information which contradicted the notion that the actor likes toys, they should be more willing than those in the Characterizing condition to agree that the actor does like toys in general, and seems attracted by the toys in the tape.

To further explore this possibility, a second study was conducted.

## PILOT STUDY 2

It was noted that subjects in the preceding experiment felt that aggressiveness was a salient feature of the actor's behaviour. Accordingly, if the explanation for the unexpected results of Pilot Study 1 has some validity, predicted results should occur when the verb "like" is replaced with the verb "is aggressive". The second experiment repeated the

Characterizing, Generalizing and Spontaneous conditions with this change incorporated into the design.

## Method

### Subjects

Twenty-four subjects (14 females and 10 males) were solicited from the same population and through the same lottery as subjects in Pilot Study 1. They participated either singly or in pairs.

### Materials

These were in all respects identical to those of Pilot Study 1.

### Procedure

There were only three changes from the procedure of Pilot Study 1 (see Table 3 for a summary of the procedure).

First, the Generalizing-subject condition was dropped. Secondly, instructions and dependent measures were changed to reflect the switch from "liking" to "aggressiveness". Thus, while viewing the tape, subjects in the Characterizing condition were asked to consider the question "Is the child an aggressive child with the particular stuffed toys in the tape?" There were no instruction changes in the Generalizing condition.

The question asked subjects immediately after viewing the actor's behaviour measured agreement with the intermediate statement of the inferential paths. Consequently, changes were also necessary for this measure in only the Characterizing condition. These subjects were asked "Do you think he was an aggressive child with the particular stuffed toys in the tape?" To assess global dispositional inferences, all subjects were asked "Do you think he is an aggressive child with stuffed toys in general?" The last question asked, "Do you think there was something about the stuffed toys in the tape that caused the child to be especially

Table 3. Summary of Procedure (Pilot Study 2)

| Condition | | |
|---|---|---|
| Generalizing | Characterizing | Spontaneous |
| All subjects receive a general description of the videotape | | |
| Asked to consider whether child's (actor's) behaviour would generalize to other stuffed toys/toys[1]. | Asked to consider whether child (actor) is being aggressive with the particular toys in the tape. | No instructions. |
| All subjects are shown the videotape | | |
| Subjects asked extent to which they agree with the question they were asked to consider while watching the videotape. | | --- |
| Subjects asked the extent to which the actor would be aggressive with stuffed toys/toys[1] in general. | | |
| Subjects asked the extent to which the particular toys in the videotape were a cause of the actor's behaviour. | | |

[1]For half of the subjects in each condition the generalization was to other stuffed toys and for the other half the generalization was to other toys.

aggressive that is, more aggressive than he would be with other stuffed toys?"

Finally, a second independent variable was added to the design to ensure that the strength of generalizations are not simply a function of the magnitude of the generalization subjects are asked to make. (This problem is addressed more fully later and in Appendix 1.) Half of the subjects participated in the experiment according to the procedure described above. For the other half, the generalization steps of the inferential paths were altered. Instead of being asked to generalize from the particular stuffed toys in the tape to "other stuffed toys", they were asked to generalize to "other toys". Appropriate changes were also made to the relevant instructions and dependent measures.

The resultant experiment design was a 2 x 3 factorial simultaneously manipulating the level of Generalization and Inferential Path. Four subjects were randomly assigned to each of the 6 conditions.

## Results

Table 4 gives the mean agreement with the questions employed as dependent measures as a function of experimental condition.

On the measures corresponding to the intermediate statements of each causal path, there was no effect of Path or of Generalization or of their interaction (all, $F<1$). Since Generalization would only be expected to affect responses in the Generalizing condition, this simple comparison was also made. Again no difference emerged ($F<1$). These results are consistent with those of Pilot Study 1 and Kanouse and Gross.

The level of generalization factor had no effect on the other two dependent measures--dispositional inferences and attributions to the object--and so it was dropped from subsequent analyses. This finding is

Table 4. Strength of Observers' Generalization and Attributions (Pilot 2)

| Measure | Level of Generalization | | | | | |
|---|---|---|---|---|---|---|
| | High | | | Low | | |
| | Inferential Path | | | | | |
| | Generalizing | Characterizing | Spontaneous | Generalizing | Characterizing | Spontaneous |
| Intermediate Statement | 3.25 | 4.00 | --- | 4.50 | 3.75 | --- |
| Generalized Dispositional Inference | 4.00 | 2.25 | 4.00 | 4.25 | 3.25 | 3.75 |
| Attribution to Sentence Object | 2.25 | 3.50 | 3.50 | 2.25 | 4.25 | 3.25 |

consistent with results reported by Reich (1974). She found that the strength of subjective generalizations are not a function of the magnitude of the generalization that subjects are asked to make, but instead are a function of the linguistic properties outlined by Kanouse (1971). (See Appendix 1 on subjective generalization for a fuller description of this experiment.)

As predicted, subjects in the Generalizing condition made stronger generalized dispositional inferences than did those in the Characterizing condition (Means: 4.13 vs. 2.75, $F(1,21)=6.83$, $p < .05$), as did those in the Spontaneous condition (Mean: 3.88, $F(1,21)=4.57$, $p < .05$). Generalizing and Spontaneous conditions did not differ ($F < 1$).

Again in agreement with predictions, subjects in the Characterizing condition made stronger attributions to the object than did those in the Generalizing condition (Means: 3.88 vs 2.25, $F(1,21)=8.45$, $p < .01$). There was a marginal difference between the Generalizing and Spontaneous conditions (Means: 2.25 vs. 3.38, $F(1,21)=4.05$, $p < .06$). Characterizing and Spontaneous conditions did not differ ($F < 1$).

Correlations between generalized dispositional inferences and attribution to the object were negative in all three Inferential Path conditions. They were -0.54 for the Generalizing condition, -0.56 for the Characterizing condition and -0.63 for the Spontaneous condition. While these values are all non-significant (df=6), their consistency is encouraging for the hypotheses.

## Discussion

Taken together, the two preceding pilot studies provide evidence for the proposed model of person perception. This model consists of two stages, one of generalization and one of inference of disposition. Either stage

may occur first, but inferring disposition will reduce the likelihood of generalization.

Differences between Generalizing and Characterizing conditions show that it is possible to manipulate the attribution process to conform to the prescriptions of the model. Data from the Spontaneous condition further suggests that attributors left to construe events freely will also engage in similar processes. Moreover, correlational data support the contention that the two inferential paths are mutually exclusive (i.e., the attributor follows one or the other, but not both).

The Generalizing and Characterizing paths may be thought of as two ways an observer might consider or process information about the behaviour. While these two processes have been described as sets of formal experimental operation, they can also be understood intuitively as common phenomenal experiences. Imagine, for example that a child has just taken a big bite out of an apple and quickly spits the apple out and makes an unpleasant face. Is the apple sour or does the child just dislike fruit? Depending on the setting events we could probably be convinced of either conclusion.

If we know that the child likes bananas, we might not be able to conceive of the child responding negatively to fruit in general. This leaves the phenomenal perception that there is something wrong with the apple--that the child is responding to some unpleasant quality of the environment. Notice however, that when this is viewed from the subjective generalization literature, it also seems to suggest the existance of a disposition towards the apple. The response to the apple is negative because of dislike. This does not mean that the child dislikes other fruit or even other apples. Here, there is a departure between most attributional perspectives and subjective generalization. The former position holds that dispositions

are not perceived when cause is externally located because dispositions are necessarily relevant to a variety of environmental entities; in this case, fruit in general. Subjective generalization theory implies that dispositions can be perceived when behaviour is attributed externally.

Now imagine that before we see the child and the apple we learn that this an initial exposure to fruit. Here we are much more likely to imagine that the child would respond similarly to fruit in general and seems to dislike it. Now disposition and attribution are consonant. The cause of the behaviour and the disposition both seem to lie in the child.

In one of these cases cause is attributed to the apple and in the other it is not. In both cases a disposition is perceived. It is important to notice that, contrary to what may seem apparent to attribution theory, the perception of a generalized disposition is not necessarily a stronger internal attribution than the perception of a specific disposition. For example, the perception of an intense love of one person for another would seem to infer more about the internal state of an actor than would the perception of a mild approval of an individual for a large group of others.

## MAIN EXPERIMENT

The theory and research discussed so far has made a number of points. Before proceeding with the discussion, the more important of these will be made explicit. First, research reviewed already reveals that observers will make attributions that serve their needs for information. This research found that observers who (for various reasons) must be able to predict the behaviour of an actor, will make inferences that emphasize the stable dispositions of that actor. These internal attributions allow observers the sense that the actor is a predictable feature of the social

environment.

Secondly, the pilot studies suggest that the findings of Kanouse and Gross (1970) apply in an attributional context. It was found that: (a) there are at least two steps involved in the attribution process as it is traditionally studied. In one step, the actor's behaviour is generalized to unobserved objects and in the other step it is explained by reference to stable dispositions in the actor.

(b) these two steps may be combined in two different ways to yield two inferential paths. In one the observer generalizes behaviour first and explains it second. In the other behaviour is explained before the explanation is generalized. In this second path, generalization is unlikely to occur.

These two inferential paths may be thought of as two different cognitive processes by which information about an actor may be construed.

Putting all of this together, we arrive at the simple conclusions that, (1) motivations based on informational needs will affect attributions; (2) the cognitive process by which the behavioural information is construed will also affect attributions.

Conceptual Hypothesis

Now, to integrate the motivational and cognitive aspects, it may be proposed that the cognitive process engaged in by the observer depends on that observer's informational needs. More simply, it can be hypothesized that the cognitive process evoked in the observer will depend on what it is the observer wants to know about the actor.

This hypothesis assumes that observers of social interaction have at their disposal a number (at least two) of different schemata by which they can process behavioural information. The particular process observers

employ is then dependent on the information they need to effectively fill the requirements of their roles.

Considering two of the inferential paths discussed--generalizing and characterizing--it can be seen that they yield different information about the actor. The generalizing path yields the perception of an actor with a disposition to behave in a consistent manner towards a number of objects. The characterizing path, on the other hand, gives the perception of an actor whose behaviour is, to some extent, caused by the object of that behaviour, and whose dispositions do not relate to a broader range of objects.

In other words, the generalizing path results in information about how an actor will behave in a variety of situations and the characterizing path results in information on how the actor will behave in a restricted range of situations. The general plan of the present research was to put observers in situations where they require (in order to fulfill role requirements) the information yielded by one of the two inferential paths. According to the above hypothesis, the observers' role requirements should activate cognitive processing along the appropriate inferential path.[5]

Before these hypotheses can be more explicitly explained, it will be necessary to overview the design of the experiment.

Design Overview

The hypothesis was explored in a 2 x 3 factorial design which manipulated (1) observer's role with respect to the actor, and (2) the inferential path employed by the observer.

Again, one of the two factors manipulated in this design is the Role of the observer vis-a-vis the actor, and as a result, the information needed by the observer about the actor. Observers took one of two roles --that of an interviewer or a negotiator. An interviewer, in the common

sense of the word, is an observer who monitors the behaviour of an actor (or an interviewee) with the hope of being able to predict how the actor will behave outside of the interview situation, and more importantly, towards other people. The role of Interviewers in the present experiment was similar. These observers interacted with the actor with the knowledge that in the immediate future they would see the same actor interact with another person. They believed that it was their job to predict the actor's behaviour in this second interaction.

According to the foregoing arguments, Interviewers should be interested in the generalized dispositions of the actor, that is, in a context other than that in which the actor has been observed. Consequently, they should be expected to employ the Generalizing path described in Experiment 2, in which behaviour is generalized and then explained.

Negotiators have informational needs that are different to those of interviewers. In the common sense, a negotiator interacts with an actor (who is usually another negotiator) and has a need to predict the actor's behaviour in the same immediate situation. To these observers, speculation on how the actor would behave towards other people is unnecessary and perhaps undesireable. It may be expected then, that negotiators will focus on the dispositions of the actor as they relate to the immediate situation. If so, according to the data from the two pilot studies, they will not subsequently generalize those dispositions.

In the present experimental design, Negotiators interacted with actors with the knowledge that they would interact again in the immediate future with the same actor. It was predicted that Negotiators would follow the inferential path in which they first explain the actor's behaviour and then generalize the explanation. Of course, it was anticipated that they would not make this generalization. This is the Character-

izing path.

It should be emphasized that the Negotiator and Interviewer roles were selected because they correspond to the Characterizing and Generalizing paths. More specifically, observers in these roles differ only in their expected relationship with the actor, and the information they need to act effectively in that relationship. Negotiators need the information yielded by the Characterizing path and Interviewers need the information yielded by the Generalizing path. Accordingly, Interviewers should make stronger generalized dispositional inferences than Negotiators, if they are in fact more likely to follow the Generalizing path than Negotiators. Also, following the arguments presented in the two pilot studies, Negotiators should be more likely to attribute the actor's behaviour to the object. In the present experiment however, the object of the actor's behaviour is the observer. Consequently, Negotiators should be more likely to see themselves as responsible for the actor's behaviour than should Interviewers. (The dependent measures in this experiment are modelled after those used in Experiment 2. They appear in Appendix 3.)

The second factor in the design is Inferential Path. This factor is deployed in the same way as it was in Experiment 2. In the Characterizing condition, observers were asked to consider whether the actor's behaviour indicated an ungeneralized disposition. (See Appendix 3, Question 1.) Observers in the Generalizing condition were asked to consider whether the behaviour of the actor would generalize to other people (i.e., other observers in a similar role) (see Question 2, Appendix 3). No instructions were given in the Spontaneous condition.

From the results of the second pilot study, it should be expected that observers in the Generalizing condition will draw stronger generalized dispositional inferences than will observers in the Characterizing

condition, who in turn should be more likely to attirbute the actor's behaviour to themselves (the object). Means for Spontaneous observers should fall between those for the other two conditions.

To review the experimental design to this point, the two factors are both designed to manipulate the inferential path used by observers. The Role factor attempts to do so by manipulating needs for information, while the Path factor attempts to more directly intervene in or influence the observer's cognitive processes. It was not expected that these two factors would combine additively to determine the observer's attributions. Instead the factors should interact. In the Characterizing and Generalizing conditions the inferential path employed by observers is controlled. As a result, the motivational differences between Inverviewers and Negotiators can not manifest itself in the use of different paths. In these conditions then, Role differences should diminish because of control over cognition. In the Spontaneous condition, no control over cognition is attempted. Here differences resulting from motivation (that is, needs for information) should be most pronounced.

In summary, all observers, both Interviewers and Negotiators, interacted with an actor. As they did so, they were asked to follow one of the three inferential Paths: Characterizing, Generalizing or Spontaneous. Interviewers interacted with the understanding that they would watch this actor interact with another person in the immediate future. They believed that they were to predict the actor's behaviour in this second interaction. Negotiators interacted with the understanding that they would interact again in the immediate future with the same actor. Thus, Interviewers and Negotiators differed only with respect to the relationship they expected to have with the actor in the immediate future.

Specific Predictions

Inferential Path. For the Inferential Path factor predictions are the same as those for the pilot studies. Observers taking the Generalizing condition should make stronger dispositional inferences than those in the Characterizing condition who, in turn, should be more likely to attribute the behaviour of the actor to themselves. Mean rating by Spontaneous observers on both dependent variables should lie between those of the other two conditions, and for these observers there should be a negative correlation between the two measures.

Role. The hypothesis does not require a main effect of role on either dependent measure since this factor is not expected to have an effect on attributions in the Generalizing and Characterizing conditions. In the Spontaneous condition, Interviewers should make stronger dispositional inferences than Negotiators who should be more likely to attribute the actor's behaviour to themselves than Interviewers.

Role by Inferential Path Interaction. The conceptual hypotheses predict an interaction between the two factors. This interaction has a complicated form. Within each Role condition there should be a different pattern of Inferential Path effects that depend on differences in the Spontaneous condition.

In the Interviewer condition, it is expected that Spontaneous observers will follow the Generalizing path, that is, they will generalize the actor's behaviour to other observers. If this is the case their responses to the dependent measures should be similar to those of observers in the Generalizing condition. In other words, within the Interviewer condition, Spontaneous and Generalizing observers' responses should differ from those of Characterizing observers.

In the Negotiator condition it is expected that Spontaneous observers will follow the Characterizing path, that is, they should characterize the actor's behaviour by referring to some disposition. Consequently, within the Negotiator condition, Spontaneous observers' responses to the dependent measures should be similar to those of Characterizing observers and different from those of Generalizing observers.

The predicted interaction then, derives from two components, one within the Interviewer condition and one within the Negotiator condition. In the former, Spontaneous and Generalizing observers' inferences on both dependent measures should be different from those of Characterizing observers (stronger dispositional inferences and weaker attributions to the object), while in the latter, Spontaneous and Characterizing observers' inferences on both dependent measures should be different from those of Generalizing observers (stronger attributions to the object and weaker dispositional inferences).

## Method

### Subjects

Twenty-four male and 44 female undergraduates were solicited through advertisement of the lottery already described (at this point, a second prize of $35.00 was added to this lottery). They participated in pairs.

The two observers in each pair served as actors for each other--each observered the other's behaviour. Even so, the unit of analysis for the experiment is the individual rather than the dyad. This is because the perceived behaviour of actors was controlled, and subjects were randomly and independently assigned to experimental conditions. The only variable on which members of each pair were match was time.

Four males and four females were not in the experiment proper. In-

stead they participated in one of four "pilot" sessions. These were conducted to ensure that instructions were well understood and followed by subjects.

Bargaining Situation

Subjects were told that while they would be paid for their participation in the experiment via the lottery, the number of "chances" or "tickets" they received would depend on the outcome of events in a bargaining session.

The goal of the bargaining situation used is the allocation of 25 chances or tickets in the lottery. On each trial of the session, each bargainer selects from a set of 10 options, the offer he or she wishes to make to his or her opponent. These offers are listed below.

| Offer | Person A Gets | Person B Gets |
|---|---|---|
| 1 | 17 chances | 8 chances |
| 2 | 16 " | 9 " |
| 3 | 15 " | 10 " |
| 4 | 14 " | 11 " |
| 5 | 13 " | 12 " |
| 6 | 12 " | 13 " |
| 7 | 11 " | 14 " |
| 8 | 10 " | 15 " |
| 9 | 9 " | 16 " |
| 10 | 8 " | 17 " |

Bargainers make their offers without knowing the offers of their opponents. After both have made an offer both choices are made known to both bargainers. The session ends when both make the same choice. Subjects were told that if this had not occurred after 15 trials both participants in a session would receive 8 chances in the lottery.

In general then, bargainers must decide how to allocate 25 chances in the lottery. If they fail to do so in 15 attempts, they both receive the worst possible outcome from the bargaining situation.

Laboratory Description

Two rooms were used for the experiment. In one, the two subjects in each session bargained. The other was used to separate them while they read written instructions before the bargaining session and while they completed questionnaires containing dependent measures.

While bargaining subjects sat at opposite ends of a long table, a partition in the centre of the table obstructed their view of each other. Seated at the centre of the table, the experimenter could see both subjects and the subjects could see the experimenter.

In front of the experimenter was a multi-track tape recorder. Each track on the tape contained instructions for a different experimental condition. Via a switching apparatus, appropriate tracks on this tape were fed to headphones worn by both subjects and the experimenter.

A copy of the sheet listing possible bargaining offers was taped to the table in front of each subject (see Appendix 4). Each subject also had a set of ten cards displaying the numbers 1 through 10. To make an offer on each trial during bargaining, the subject held up one of these cards to the experimenter. When both subjects had made their offers known, the experimenter used a similar set of cards to indicate to each subject the offer of his or her opponent for that trial.

Procedure (See Table 5)

On arriving for the experiment subjects were led to one of the two rooms described above. They were assigned to one of the six experimental conditions using a table of random permutations. This ensured that the cells of the experimental design would be filled at an equal rate.

Subjects were given a set of typed instructions appropriate to their condition and left for 4-5 minutes to read them. (See Appendix 2 for

Table 5 Summary of Procedure (Main Experiment)

| Role | Interviewers | | | Negotiators | | |
|---|---|---|---|---|---|---|
| Path | Generalizing | Characterizing | Spontaneous | Generalizing | Characterizing | Spontaneous |
| General Instructions | Ss in pairs, are shown the structure of the bargaining situation and told there will be 2 sessions. First session is practice. Told they are Person B and the other person is Person A. | | | | | |
| Role Manipulation | Ss are told that in the second session they will watch Person A bargain with another person for lottery chances. S's job will be to predict A's offers. Chances S receives to lottery depends on accuracy of predictions. | | | Ss will bargain with A again in the second session. Number of lottery chances received by S depends on outcome of bargaining. | | |
| Path Manipulation | Ss asked to consider if A would behave the same way towards other people as A does towards B during first session. | Asked to consider if A's behaviour indicates a particular disposition towards B while bargaining in first session. | No instructions | Same as corresponding Interviewer Condition | Same as corresponding Interviewer Condition | No instructions |
| Main Stimuli | During first session both Ss believe they are B and other is A and they are bargaining with each other. A does not exist and Ss are bargaining with a programmed set of offers delivered by the experimenter. Programme delivers "competitive" offers. | | | | | |
| Dependent Measures | Recall of manipulation instructions measured. | | | | | |
| | Ss answer question posed by Path manipulation | Ss answer question posed by Path manipulation | No question | Same as corresponding Interviewer Condition | Same as corresponding Interviewer Condition | No question |
| | Ss asked if A possesses a generalized disposition (1st main dependent measure), and if they (B) were a cause of A's behaviour (2nd main dependent measure). | | | | | |

copies of these instructions.) They reminded subjects of the lottery and then outlined the way the bargaining situation works. Everyone was told that (1) there would be two bargaining sessions, (2) that they would be Person B and the other person in the pair of subjects would be Person A, and (3) that the first session was a practise session and would not count in the allocation of lottery chances.

Role Manipulation. The typed instructions contained the role manipulation. Interviewers were told that in the second bargaining session Person A would bargain with another person and that their task would be to predict each offer made by Person A just before it was made. Negotiators were told that they would bargain with Person A again in the second session. Subjects in both Role conditions were told that bargainers would actually allocate lottery chances in the second session. Interviewers were told that the number of chances they received in the lottery would depend on the accuracy of their predictions in the second session.

Inferential Path Manipulation. Instructions for the path manipulation also appeared in the typed instructions. Subjects in the Characterizing and Generalizing conditions were asked to keep a certain question in mind while they bargained in the first session. This question corresponded to the intermediate step of each inferential path. In the Characterizing condition it was "is Person A being unfair with you?". The question for the Generalizing condition was "would Person A make the same offers to someone else as he or she is making to you?". In the spontaneous condition subjects were not asked to consider any particular question.

Bargaining Session. To ensure that the instructions were understood, subjects were asked to paraphrase them to the experimenter. In addition, they were given an index card with a two or three sentence description of

their role in the experiment.

Next the two subjects at each experimental session were brought together and seated at opposite ends of the table mentioned in the laboratory description. They were told that they would bargain by holding up one of the ten cards to the experimenter who would record their offer and then relay it on to their opponent. A sheet was provided on which they were to record the offers made during bargaining. At this point subjects were asked to put on the headphones on which they heard the taped instructions transcribed in Appendix 3. These instructions announced the first bargaining session and called the subjects' attention to the copy of the bargaining offers in front of them (see Appendix 4), and to the ten cards they used to communicate their offers. Then subjects were reminded of the question used to manipulate Inferential Path. The rest of the tape paced the bargaining session. Trials were about 45 seconds long. On each trial, the trial number was announced and subjects were asked to select an offer and show the appropriate card to the experimenter. The experimenter wrote down both offers and then held up cards to indicate to each subject the apparent (see section on Control of Actor's Behaviour) choice of his or her opponent. On even numbered trials subjects were reminded of the questions corresponding to the Inferential Path conditions.

Bargaining then, was paced by the voice on the tape. When asked to subjects made their offers for each trial by holding up the appropriate numbered card. The experimenter, after recording both choices held up cards to indicate to each subject the offers of their opponent. Thus subjects learned their opponents' offers only after making their own. Bargaining continued for 15 trials.

Control of the Actor's Behaviour. For all subjects, Person A was the actor. All subjects then, were Person B. In order to control the behaviour

of the actor as seen by the observer, the experimenter gave false feedback to bargainers concerning the offers of their opponents. When holding up the numbered cards, the experimenter did not relay the real offers of actors but instead relayed a predetermined schedule of offers. Observers received offers from the actor according to the table below.

| Trial | A's Offer |
|---|---|
| 1 | 5 |
| 2 | 2 |
| 3 | variable |
| 4 | 3 |
| 5 | 4 |
| 6 | 2 |
| 7 | variable |
| 8 | 4 |
| 9 | 4 |
| 10 | variable |
| 11 | 5 |
| 12 | 4 |
| 13 | 3 |
| 14 | variable |
| 15 | 4 |

On trials marked "variable", Person A, the actor, apparently made an offer that was one step less fair (more in A's favour) than B's offer from the previous trial. In the event that A and B made the same offer, A's choice was again made one step less fair than B's previous offer. This prevented a premature end to the bargaining session by insuring that agreement was never reached. The schedule of offers was designed to present Person A as "unfair" but still partially responsive to B.

Dependent Measures. After the 15th trial of the bargaining sessions, the experimenter announced to the subjects that they would be asked to answer some questions about the first session before proceeding to the second. One of the two subjects was led to the other of the two rooms (see Laboratory Description).

Dependent measures were contained in a brief questionnaire (see Appendix 5). The first page explained how to respond to the 7-point Likert type scales employed. Subjects were asked not to go on with the questionnaire if confused at this point, but to ask the experimenter any questions they had. On the next page, subjects in Characterizing and Generalizing conditions were asked to write down the question they were asked to think about during the first session. The next page asked all subjects to write down what they expected to do in the second session. A 7-point scale asked those in the Characterizing and Generalizing conditions the extent to which they agreed with the questions manipulating Inferential Path.

The final two pages contained the main dependent measures. The first asked subjects the extent to which the actor, Person A, would be unfair with people in general. The second asked subjects the extent to which they perceived themselves as a cause of the actor's behaviour.

Debriefing. After they completed the questionnaires, subjects were informed that the experiment was over. Both subjects in each dyad were given an equal number of lottery chances (thirteen).

Details of the purpose and nature of the experiment and deceptions were revealed and participants were requested not to discuss the experiment with other potential subjects.

Pilot Testing. The experiment was conducted with four pairs of subjects for exploratory purposes. The procedure was supplemented with extensive debriefing. Generally, subjects understood the instructions they received and indicated that the manipulations aroused no suspicion. A more specific concern was the use of the word "unfair" in the manipulations and questions. Pilot Studies 1 and 2 indicated that a salient verb appropriate to the behaviour of actors must be used before the anticipated effects of Inferential Path will occur. During debriefing, a number of other characteriza-

tions of the actor's behaviour were suggested to subjects (unreasonable, competitive, etc.) but none of these were seen as more appropriate than "unfair".

Some changes were made to the bargaining session as a result of pilot testing. First the session was cut to 10 trials. It was apparent that trials 11 to 15 were redundant. Subjects were not advised of this cut before bargaining--they expected the session to last 15 trials until reaching the end of the 10th trial when they were informed that the session was cut short.

The second change concerned the control of the actor's behaviour. On trials 2 and 6 the actor's offer was a non-contingent "offer number 2". This was changed to "offer number 4", because some pilot subjects felt that the receipt of "offer number 2" from the actor might arouse some suspicion although non reported that they themselves were suspicious.

One more change did not affect the experiment itself. Pilot subjects expressed disappointment on learning that the second bargaining session would not take place. Subsequently, after dependent measures were collected, Interviewers' role was changed to that of Negotiators and subjects engaged in a second bargaining session to allocate lottery chances.

With these changes the experiment was conducted with 62 subjects randomly assigned to the six experimental conditions with the qualification that each cell of the experimental design be filled at an equal rate. Data from one pair of subjects at one session were dropped when it was learned that the two were friends. This left ten subjects per experimental condition. Six in each were female and four were male.

## Results

Analyses of data will be reported with respect to two main factors; Role and Inferential Path. For the most part, the effects of Sex were trivial and so a discussion of sex effects appears in Appendix 6.

### Behaviour

Actors. A test of hypotheses requires that the behaviour of actors be constant across conditions. To check this, a multivariate analysis of variance (MANOVA) of the actor's bargaining offers was conducted using Role and Path as independent variables and the actor's 10 offers as 10 dependent measures. The averaged offers of actors across the 10 trials appear in Table 6. MANOVA revealed no effect of Role, Path or their interaction. Summary tables of these analyses appear in Table 7.

Observers. A similar analysis was conducted on the behaviour of observers. Averaged offers of observers appear in Table 6. Again a MANOVA (see Table 7) revealed no significant effects.

Together, the analyses of actors' and observers' behaviour involved 60 univariate F-tests. Of these, three were significant ($p < .05$). Since this is the number of significant univariate results that would be expected by chance when doing 60 such tests, no interpretation of these effects is offered.

### Manipulation Checks

Subjects responded to open-ended items in which they wrote down the question they were asked to think about during the first session (Generalizing and Characterizing conditions only) and their expected role in the second session. All subjects answered correctly.

In addition, those in the Generalizing and Characterizing conditions

Table 6. Averaged Bargaining Offers

| | Trial | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Actors | 4.53 | 3.70 | 4.30 | 3.08 | 3.97 |
| Observers | 6.49 | 6.13 | 6.17 | 5.73 | 5.70 |
| | 6 | 7 | 8 | 9 | 10 |
| Actors | 3.73 | 4.00 | 3.87 | 3.82 | 4.22 |
| Observers | 5.77 | 5.82 | 5.67 | 5.97 | 5.73 |

Table 7. Multivariate Analysis of Actors' and Observers' Bargaining Behaviour

| Source | df(num) | df(err) | F | p(less than) |
|---|---|---|---|---|
| Actor | | | | |
| Role(R) | 10 | 45 | 1.52 | .16 |
| Path(P)(Roots 1-2) | 20 | 90 | 1.14 | .33 |
| (Root 2) | 9 | 45.5 | 1.06 | .41 |
| RxP(Roots 1-2) | 20 | 90 | 0.65 | .86 |
| (Root 2) | 9 | 45.5 | 0.66 | .74 |
| Observer | | | | |
| Role(R) | 10 | 45 | 0.56 | .84 |
| Path(P)(Roots 1-2) | 20 | 90 | 0.79 | .72 |
| (Root 2) | 9 | 45.5 | 0.58 | .81 |
| RxP(Roots 1-2) | 20 | 90 | 1.39 | .15 |
| (Root 2) | 9 | 45.5 | 0.75 | .67 |

were asked to indicate on a 7-point scale the extent to which they agreed with the questions they were asked to consider while bargaining. Mean responses appear in Table 8. Analysis of variance revealed no effects of Role ($F(1,36)=0.33$, $p < .57$), of Path ($F(1, 36)=0.12$, $p < .73$) or their interaction ($F(1,36)=0.01$, $p < .91$). The lack of effects here is important because it means that differences on subsequent measures are not dependent on differences on this initial measure. In other words, differential agreement with the final statement of an inferential path is not dependent on differential agreement with intermediate steps.

Main Dependent Measures

Questions serving as the main dependent measures asked subjects (1) whether they thought the actor would be unfair with people in general, and (2) whether they thought they had been a cause of the actor's behaviour. The first question was designed as a measure of dispositional inference about the actor. The second asked subjects to make an attribution to the object of the actor's behaviour. Cell means for each measure appear in Table 9. These means are plotted in Figure 1 in the bivariate data space. This figure depicts the relationships and differences between condition on both dependent measures simultaneously. The straight line distance between any two conditions represents the difference that is tested by a MANOVA on both dependent measures.

A series of MANOVA's was conducted to test differences related to hypotheses. For all of these the factors of interest were Role and Inferential Path. However, since there were more females than males in each condition, each effect in the experimental design is confounded with its interaction with sex. For example there is a small amount of variance shared by Role and the Role by Sex interaction. Consequently,

Table 8. Observer's Mean Agreement with the Questions They Were Asked to Consider While Bargaining

| Role | Inferential Path | |
|---|---|---|
| | Generalizing | Characterizing |
| Interviewers | 5.40 | 5.20 |
| Negotiators | 5.10 | 5.00 |

Table 9. Means on Main Dependent Measures

| Measure 1: Dispositional Inferences | Inferential Path | | |
|---|---|---|---|
| Role | Generalizing | Characterizing | Spontaneous |
| Interviewers | 4.90 | 3.60 | 4.60 |
| Negotiators | 5.00 | 3.40 | 3.80 |
| (Total) | (4.45) | (3.50) | (4.20) |
| **Measure 2: Attributions to the Object** | **Inferential Path** | | |
| Role | Generalizing | Characterizing | Spontaneous |
| Interviewers | 2.60 | 3.60 | 2.80 |
| Negotiators | 3.10 | 4.00 | 4.60 |
| (Total) | (2.85) | (3.80) | (3.70) |

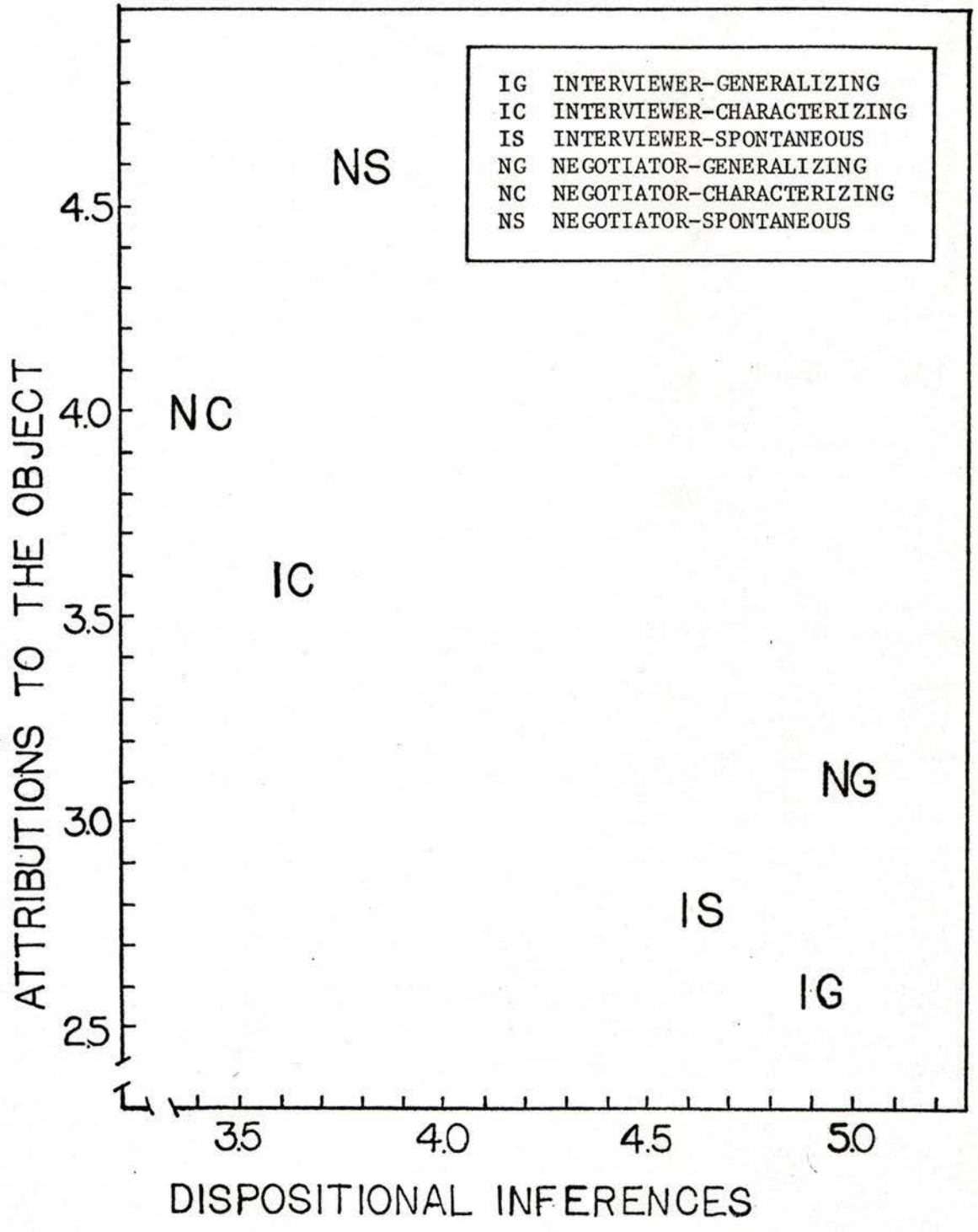


FIGURE I. MEANS FOR EXPERIMENTAL CONDITIONS FOR MAIN DEPENDENT VARIABLES (MAIN EXPERIMENT)

effects were tested twice; once with the confounding interaction with sex removed, and one without this variance removed. In most cases the difference between these tests is trivial.

Path Effects

The results of multivariate tests of the effects of Path on both dependent measures appear in Table 10. The overall effect of Path, with the Path by Sex interaction removed, is clearly significant ($F(4,94) = 3.53$, $p < .01$, Roots 1 through 2). Discriminant function co-efficients are positive for one of the dependent measures and negative for the other. This indicates that the two univariate effects of Path lie in opposite directions as would be expected from an inspection of Figure 1.

A breakdown of the Path effect reveals a strong difference between Characterizing and Generalizing conditions. (When the interaction of this effect with Sex is removed, ($F(2,47)=6.63$, $p < .003$). Discriminant function co-efficients indicate that this effect arises because those in the Generalizing condition made stronger dispositional inferences but weaker attributions to the object than those in the Characterizing condition. It can be seen from Figure 1 that means when Role effects are collapsed, means for those in the Spontaneous condition lie between means for the Generalizing and Characterizing conditions on both dependent measures.

(The difference between Generalizing and Spontaneous conditions proved to be marginally significant when its interaction with Sex was removed ($F(2,47)=3.13$, $p < .053$) and discriminant function co-efficients were again in opposite directions. However when the interaction with Sex was left in the effect, the differences between these two conditions proved ambiguous ($F(2,47)=2.55$, $p < .09$). The difference between Characterizing and Spontaneous conditions was clearly non-significant with or

Table 10. Multivariate Analysis of Main Dependent Measures (Path Effects)

| Source | df(num) | df(err) | F | p(less than) | S.D.F.C.[1] |
|---|---|---|---|---|---|
| Path | | | | | |
| I With Sex X Path Included | | | | | |
| Roots 1-2 | 4 | 94 | 3.07 | .020 | |
| Dispositional Inferences[2] | 2 | 48 | 5.02 | .010 | .787 |
| Attributions to Object[2] | 2 | 48 | 2.78 | .072 | -.462 |
| Root 2 | 1 | 47.5 | 0.74 | .397 | |
| II With Sex X Path Removed | | | | | |
| Roots 1-2 | 4 | 94 | 3.53 | .010 | |
| Dispositional Inferences[2] | 2 | 48 | 5.91 | .005 | .818 |
| Attributions to Object[2] | 2 | 48 | 2.93 | .063 | -.417 |
| Root 2 | 1 | 47.5 | 1.22 | .275 | |
| Generalizing versus Characterizing | | | | | |
| I With Sex X Path Included[2] | 2 | 47 | 5.95 | .005 | |
| Dispositional Inferences[2] | 1 | 48 | 10.04 | .003 | .810 |
| Attributions to Object[2] | 1 | 48 | 4.60 | .037 | -.429 |
| II With Sex X Path Removed[2] | 2 | 47 | 6.63 | .003 | |
| Dispositional Inferences[2] | 1 | 48 | 11.80 | .001 | .849 |
| Attributions to Object[2] | 1 | 48 | 4.30 | .043 | -.369 |

[1]Standard Discriminant Function Co-efficients (refer only to univariate tests).

[2]Univariate tests.

without Sex removed ($F(2,47)=1.15$, 1.35 respectively). These two contrasts are of course ambiguous since they are not independent of the difference between Characterizing and Generalizing conditions.)

Finally, as expected there was a negative correlation between the two dependent measures within the Spontaneous condition ($r(18)=-.53$, $p < .05$).

On the whole these results conform closely to those of Pilot Study 2. Generalizing and Characterizing conditions differed in the predicted directions and the Spontaneous condition means were between those of the other two conditions and not unambiguously different from either.

Role Effects

The results of multivariate tests of Role on both dependent measures appear in Table 11. The main effect of Role was not clearly significant. With the Sex by Role interaction removed, the effect was absent ($F(2,47)= 2.355$, $p < .11$). With the interaction not taken out, the Role effect was marginally significant ($F(2,47)=3.06$, $p < .06$), with the effect due almost entirely to differences in attributions to the object. Accordingly, Figure 1 indicates that within all three Path conditions, Negotiators gave higher ratings on this variable than did interviewers (although the tests suggests that this difference is non-significant).

The expected effects of Role were with respect to its simple effects within each Path condition. Specifically, it was predicted that Role would have an effect in the Spontaneous condition, but not necessarily in the Generalizing and Characterizing conditions. Accordingly, there were no effects of Role in the Generalizing or Characterizing conditions, with or without Sex effects removed (All: $F < 1$). In the Spontaneous condition, Role affected dependent measures in the predicted direction

Table 11. Multivariate Analysis of Main Dependent Measures (Role Effects)

| Source | df(num) | df(err) | F | p(less than) | S.D.F.C.[1] |
|---|---|---|---|---|---|
| Role | | | | | |
| I With Role X Sex Included[2] | 2 | 47 | 3.06 | .056 | |
| Dispositional Inferences[2] | 1 | 54 | 1.35 | .426 | -.098 |
| Attribution to Object[2] | 1 | 54 | 6.19 | .016 | .973 |
| II With Role X Sex Removed[2] | 2 | 47 | 2.36 | .106 | |
| Dispositional Inferences[2] | 1 | 48 | 0.85 | .772 | .101 |
| Attribution to Object[2] | 1 | 48 | 4.76 | .034 | 1.020 |
| Role Within Generalizing Condition | | | | | |
| I With Role X Sex Included[2] | 2 | 47 | 0.37 | .692 | |
| Dispositional Inferences[2] | 1 | 48 | 0.24 | .878 | .410 |
| Attribution to Object[2] | 1 | 48 | 0.64 | .429 | 1.011 |
| II With Role X Sex Removed[2] | 2 | 47 | 0.60 | .551 | |
| Dispositional Inferences[2] | 1 | 48 | 0.26 | .616 | .664 |
| Attribution to Object[2] | 1 | 48 | 0.72 | .401 | .915 |

Table 11. (Continued)

| | | | | | |
|---|---|---|---|---|---|
| Role Within Characterizing Condition | | | | | |
| I With Role X Sex Included [2] | 2 | 47 | 0.21 | .809 | |
| Dispositional Inferences[2] | 1 | 48 | 0.10 | .759 | -.260 |
| Attribution to Object[2] | 1 | 48 | 0.41 | .526 | .908 |
| II With Role X Sex Removed [2] | 2 | 47 | 0.08 | .928 | |
| Dispositional Inferences[2] | 1 | 48 | 0.00 | .950 | .072 |
| Attribution to Object[2] | 1 | 48 | 0.15 | .697 | 1.014 |
| Role Within Spontaneous Condition | | | | | |
| I With Role X Sex Included [2] | 2 | 47 | 4.22 | .021 | |
| Dispositional Inferences[2] | 1 | 48 | 1.53 | .222 | -.207 |
| Attribution to Object[2] | 1 | 48 | 8.26 | .006 | .932 |
| II With Role X Sex Removed [2] | 2 | 47 | 3.23 | .048 | |
| Dispositional Inferences[2] | 1 | 48 | 0.90 | .349 | -.149 |
| Attribution to Object[2] | 1 | 48 | 6.46 | .014 | .955 |

[1]Standard Discriminant Function Co-efficients (refer only to univariate tests).

[2]Univariate tests.

($F(2,47)=3.23$, $p < .05$, with Sex effects removed, $F(2,47)=4.22$, $p < .02$ without Sex effects removed). However, the discriminant function co-efficients suggest that most of the effect is due to differences in attributions to the object.

Finally, there was a significant Role by Sex interaction. This is discussed in Appendix 6.

Path by Role Interaction

No multivariate tests of the overall interaction of Role and Path were significant (All: $F < 1$, See Table 12). However, the hypotheses predict a particular breakdown of this interaction. Specifically, it was argued that in the Spontaneous condition, Interviewers would follow the Generalizing path and Negotiators the Characterizing path. This means that for Interviewers, those in Generalizing and Spontaneous conditions should be different from those in the Characterizing condition, while for Negotiators those in the Characterizing and Spontaneous conditions should be different from those in the Generalizing condition.

This can be seen in Figure 1. The six means are roughly cast into two groups or clusters of three. Those in the Interviewer-Spontaneous condition, like those who were in the Generalizing conditions, made strong dispositional inferences but weak attributions to the object. On the other hand, those in the Negotiator-Spontaneous condition, like those in the Characterizing conditions, made weaker dispositional inferences and stronger attributions to the object.

An overall multivariate test of this particular interaction yielded significance ($F(4,94)=2.52$, $p < .05$, without sex effects removed, $F(4,94)=2.52$, $p < .05$, with sex effects removed). In addition, discriminant function co-efficients indicate that both measures contributed about equally

Table 12. Multivariate Analysis of Main Dependent Measures (Role X Path Interaction)[1]

| Source | df(num) | df(err) | F | p(less than) | S.D.F.C.[1] |
|---|---|---|---|---|---|
| Role X Path | | | | | |
| I Role X Path X Sex Included | | | | | |
| Roots 1-2 | 4 | 94 | 0.86 | .493 | |
| Dispositional Inferences[2] | 2 | 48 | 0.50 | .609 | -.310 |
| Attribution to Object[2] | 2 | 48 | 1.56 | .222 | .882 |
| Root 2 | 1 | 47.5 | 0.14 | .707 | |
| II Role X Path X Sex Removed | | | | | |
| Roots 1-2 | 4 | 94 | 0.77 | .547 | |
| Dispositional Inferences[2] | 2 | 48 | 0.54 | .589 | -.344 |
| Attribution to Object[2] | 2 | 48 | 1.28 | .286 | .863 |
| Root 2 | 1 | 47.5 | 0.32 | .573 | |
| Predicted Pattern (see text) | | | | | |
| I Interaction with Sex Included | | | | | |
| Roots 1-2 | 4 | 94 | 2.52 | .046 | |
| Dispositional Inferences[2] | 2 | 48 | 2.91 | .064 | .575 |
| Attribution to Object[2] | 2 | 48 | 3.68 | .033 | -.697 |
| Root 2 | 1 | 47.5 | 0.17 | .678 | |
| II Interaction with Sex Removed | | | | | |
| Roots 1-2 | 4 | 94 | 2.52 | .046 | |
| Dispositional Inferences[2] | 2 | 48 | 3.28 | .046 | .637 |
| Attribution to Object[2] | 2 | 48 | 3.30 | .046 | -.639 |
| Root 2 | 1 | 47.5 | 0.25 | .618 | |

[1]Standard Discriminant Function Co-efficients (refer only to univariate tests).

[2]Univariate tests.

to the effect, but in opposite directions as would be expected.

## Discussion (Main Experiment)

An analysis of observers' behaviour and actors' programmed behaviour indicated that all observers were exposed to an actor who bargained competitively compared to themselves. Furthermore, this rate of competitiveness was uniform across experimental conditions. In addition there was a uniform rate of agreement with the questions observers were asked to consider while bargaining. These two findings ensured that obtained differences in person perception were not a result of different behaviours on the part of actors or observers, or of different rates of acquiescence resulting from experimental manipulations.

Predictions concerning Inferential Path were confirmed. Collapsing over Role, observers in the Generalizing condition made stronger dispositional inferences than did those in the Characterizing condition who in turn, made stronger attributions to the object of behaviour. Ratings by Spontaneous observers did, as predicted, lie between those of the other two conditions and there was a negative correlation between the two dependent measures in this condition.

There appears to be an exception to this pattern present in Figure 1. In the Negotiator condition Spontaneous observers seem to have made stronger attributions to the object than Characterizing observers. However, a test reveals no evidence of a real difference between these two conditions ($F < 1$). In summary then, path differences are consistent with, and replicate those of the second pilot study.

While the role observers took with respect to the actor had no overall effect on their inferences, there was, as predicted, an effect of Role in the Spontaneous condition. This effect was in the predicted direction on

both of the main dependent measures, but most of the difference between Negotiators and Interviewers derives from attributions to the object. Role effects were clearly absent in the other two Path conditions. This would suggest that any potential effect of an observer's role on cognitive processes (or more precisely, the inferential path employed by observers in these conditions) was diminished by intervention into these processes by the direct manipulation of inferential path. However, some ambiguity in interpretation is posed by the fact that Role effects were not significantly greater in the Spontaneous condition than in the other two Path conditions. This problem will be dealt with in more detail later in the discussion.

The conceptual hypothesis that an observer's role with respect to the actor would influence the way they processed information was tested in a specific interaction of Role and Path. It was found that the pattern of Path effects was related to Role. Spontaneous observers who were Negotiators made inferences like those taking the Characterizing path, but Spontaneous observers who were Interviewers made inferences like those taking the Generalizing path.

While these statistical effects are quite complicated, the conceptual interpretation is quite simple. Observers watched actors behave and were asked to make inferences about the actor. Their inferences were affected in two ways. One was a direct manipulation of what observers thought about while they monitored behaviour. The other was an indirect manipulation of the same thing. This was brought about by putting observers into different structural relationships with actors, thereby varying the kind of knowledge that would best allow them to best fulfill the requirements of their role.

## General Discussion

The point of departure for the present research is the finding that an observer's role with respect to the actor influences person perception. This effect was thought to have a motivational character. Part of the requirement of many roles is the need to be able to predict and/or control the behaviour of the actor. This ability requires knowledge of the stabilities in the actor's behaviour, that is, the actor's dispositions.

There appear to be at least four ways that perception can be affected by role. First, in the absence of any other information, an observer may have expectations about the way an actor will behave. Expectations might subsequently affect perception in a number of ways. Through a process of perceptual assimilation (Jones and Gerard, 1967), observers may consider information that confirm their expectations and discount contradictory information. Alternatively, an active observer's expectations may lead to the behavioural assimilation of the actor, that is, active observers may elicit the behaviour they expect from the actor (Kelley and Stahelski, 1970). Self-fulfilling prophecies may involve one or both of these processes.

A second effect of role concerns information selection. Zadny and Gerard (1973), for instance, reported an experiment in which subjects appeared to attend to and retain mainly information needed to fulfill a future role requirement. Aside from the content of the information selected, Newtson (1973) demonstrated that observers may also control the amount of information they extract from the actor's behaviour. Ross and DiTecco (1975) suggested that these processes of information may well account for the effects of role on perception. Those who for some reason want to know the actor may simply pay closer attention to information indicative of the actor's traits or dispositions.

Thirdly, role may affect the way information is processed. This notion requires that there be more than one way of deriving meaning, or inferring more than is directly experienced, from the actor's behaviour. Such multiplicity of processes is not well recognized in attribution theories. One exception is Kelley's (1972) notion of causal schemata. However, different schemata are thought to be evoked by different types of information rather than different observer roles. Another possible exception comes from research in self-perception. Weiner, Frieze, Kukla, Reed, Rest and Rosenbaum (1971) argued that people high in Nach are likely to attribute their successes at achievement tasks to their ability and effort, while those low in Nach attribute their successes more to external factors of luck and ease of tasks. In other words, different groups of attributors are deriving different meaning from the same information, or inferring different things about themselves from the same experiences. Here again however, cognitive processes are not evoked by the requirements of different roles but instead by some individual difference factor of self-concept.

Finally, it is plausible to suppose that person perception is subject to distortion. Motivations borne of role requirements may induce distortions in the meaning of an actor's behaviour, or the extent to which behaviour is evidence of disposition. Such distortion would be difficult to verify experimentally since it is implied that distortions are non-veridical and that other perceptions are therefore veridical. Of course, there is no basis at present on which to assess the veridicality of attributions. On the other hand, it is likely that many irrational processes are involved in person perception. Consider for example, a context in which there is no covariation between the information observers have and the perceptions they form.

The present research was of course, concerned with the third of these ways that role may affect person perception--that role requirements may influence the way information is processed. Two inferential paths were examined as possible cognitive processes that might be employed by observers involved in social interation.

The effects of manipulation Inferential Path were clear. Observers guided through the generalizing path made stronger dispositional inferences than did observers guided through the characterizing path. This difference was not dependent on differential agreement with the questions used to manipulate the path taken by observers. With these questions there was a uniform rate of agreement (and a high rate of agreement) across conditions.

This effect extends the findings reported by Kanouse and Gross (1970). In this and in the three preceeding experiments it has been found that the inference of characteristic, trait or disposition depends on the way the observer considers information derived from the actor's behaviour. More specifically, it appears that when observers first consider the generality of behaviour they are more likely to infer a general characteristic or disposition of the actor than when they consider characterizing the behaviour first at an ungeneralized level. In other words dispositions or characterizations of behaviour seem to be inferred at the level of generality behviour is assumed to occur.

In the linguistic analogue of attribution abstracted from the work reported by Kanouse (1971) this effect is explained in terms of the greater willingness of observers to make generalizations over manifest actions than over subjective states. This in turn can be explained by a semantic-cognitive interpretation of data that may be culled from the discussions of Kanouse (1971) and Podeschi and Wyer (1976). It states that manifest

relations are subject to restraints that do not affect subjective states and relations. For instance, it is possible to like as many boats as one wants (subjective state) but our environment dictates that we may have only a limited number of boats (manifest relation). Consequently, a person who likes only a few boats cannot be said to like boats because there is nothing to stop that person from liking most or all boats. On the other hand, it is physically impossible for a person to have most or all boats, and so we say that a person has boats without implying all boats. In effect then, this explanation holds that manifest and subjective verbs mean different things because the actions they represent are subject to different constraints in the environment.

Another explanation of path differences, offered by Kanouse (1971), has a motivational flavour. It is argued that the impetus behind attribution is the need to explain social events. In a sense, subjective states explain manifest relations. For instance, a man may hit a child because he dislikes children. If this is given, then it follows that an observer who infers a subjective state has explained the actor's behaviour. With the need to explain satisfied, the observer should stop the attributional process. Consequently, observers who follow the characterizing path should not go on to make a generalization about the actor's dispositions. Those who follow the generalizing path do not explain behaviour by making a generalization and so they must go on to infer a subjective state or disposition before the attributional process is complete.

Present data do not allow for a test of one of these explanations over the other. Moreover, the two are not competing explanations and may represent parallel processes. Whatever the explanation(s) the findings have a methodological implication for person perception research. In any such research involving multiple dependent measures, the possibility of order

effects is very real. Whenever an observer is asked to make a judgment about the dispositions possessed by an actor it will matter what questions have already been asked of that observer, especially if these earlier questions query generality or causes of behaviour.

There were three additional results in the second pilot study and in the main experiment that supplemented and reinforced findings concerning path effects. First, observers in the Characterizing condition were more likely to see the object of the actor's behaviour as causal than were observers in the Generalizing condition. This adds some credence to the contention that observers actually followed the inferential paths described. An analysis of the content of cognition predicted by the two paths implies that only those taking the characterizing path are likely to consider the object of behaviour as a cause.

Secondly, observers in the Spontaneous condition appeared to follow one of the two inferential paths even though they were not specifically guided towards them. In all three experiments it was found that the strength of inferences of observers in this condition fell between the limits established by the other two conditions. Their dispositional inferences were never stronger than those of observers taking the generalizing path or weaker than those of observers taking the characterizing path. Their attributions to the object of behaviour were never stronger than those of observers taking the characterizing path or weaker than those of observers taking the generalizing path.

A third finding reinforced the contention that observers in the Spontaneous contention followed one of the inferential paths[6]. In the main experiment and in the second pilot study, there was a negative correlation between dispositional inferences and attributions to the object, implying that observers followed one of the two paths, but not both, and

not neither. This result is important because it suggests that path effects are more than a linguistic "trick" and that they represent cognitive processes used by observers to deal with information about behaviour.

The parallels between inferential paths and many other cognitive processes thought to be involved in the attribution process are obvious. The generalizing path leads to conclusions about an actor that emphasize internal causes of behaviour while the characterizing path yields an external attribution. Most other cognitive positions in attribution also attempt to distinguish internal from external causes. The notion of inferential paths represents a departure from these other approaches, however, when it comes to assignment of traits to the actor. The latter positions imply that traits or dispositions are perceived only when an internal attribution has been made, and so for these, the question is whether a trait has or has not been assigned and the confidence with the assignment is made. The idea of inferential paths suggests that traits are always perceived and the question is the level of generality at which the observer assumes them to apply to the actor's behaviour. An appropriate measure of trait attribution then, may be to ask an observer to what extent an actor's behaviour outside the immediate setting would be conditioned by a particualr trait.

The use of inferential paths as a theoretical device permits other interesting speculations about person perception. It may be that we are more likely to characterize behaviour that is specifically directed towards us, than behaviour directed towards others. This is not unlike Jones and Davis' (1965) hypothesis that the correspondence of inferences is related to personalism.

When behaviour is specifically directed towards us, we are the object

of that behaviour. When behaviour is directed towards someone else, that other person is the object of the behaviour. Two additional considerations are necessary. It must be assumed that people see themselves as more unique entities than others, that is, that they perceive similarities among others as greater than similarities between themselves and others. Secondly, it should be recalled that inductive generalization depends on the homogeneity of the class of entities over which the generalization is made (Kanouse, 1971; Podeschi and Wyer, 1976). On these bases it can be predicted that when actors direct behaviour towards observers, rather than other people, observers are less likely to generalize and therefore, perhaps more likely to take the characterizing path when they think about the actor's behaviour. This is presumably because they perceive themselves as a member of a relatively heterogeneous class. (Another way to put the argument is to suggest that we are inclined to see ourselves as subjects, or sources of action, rather than objects, or recipients of action. Kanouse (1971) reports that generalizations are made over subjects less frequently than over objects.)

Turning now to the effects of role, it is useful to consider the data in terms of possible models of person perception. One such possibility is that needs arising from role requirements activate different cognitive processes (or in the present case, inferential paths) which in turn determine perception.

A second model is possible. Role may have no effect on cognitive processes but may instead determine perception directly by affecting expectations or information selection. Thirdly, it is possible that role may affect cognitive processes and also directly affect perception.

According to the first of these models, the direct manipulation of cognitive processes should result in the convergence of role effects.

When cognition is not directly controlled, as in the Spontaneous condition, role effects should be apparent. This pattern of results appeared in the analyses. However, role effects were not significantly larger in the Spontaneous condition than in the Characterizing and Generalizing conditions. Consequently there is a lack of strong evidence to support any claim that attempts to control cognitive processes totally removed role effects. In other words, on the basis of these data, it is not possible to rule out entirely, the possibility that role affected perception directly, exclusive of the mediating effects of cognitive processes.

On the other hand, the second model does not apply; that is, role does not appear to directly affect perception without also affecting cognitive processes. First, there was no relationship between role and perception when cognition was controlled. Secondly, differences between Spontaneous and Characterizing conditions for Interviewers and between Spontaneous and Generalizing conditions for Negotiators, suggests that role did in fact influence cognition.

The third model is not completely supported since there is no clear overall effect of role. On the whole then, it appears that the major effect of role in the main experiment was to activate cognitive processes which in turn determined perception. The possibility that role also had a more direct influence on perception cannot be ruled out on the basis of the data at hand, although there is no direct evidence for this additional effect.

Additional Considerations

The foregoing arguments attempt not to stray too far from the data reported. However, if the general interpretation is accepted, the further speculations are warranted.

The data suggest that activation of cognitive processes can be both active or passive.[7] By this it is meant that the attributor can play a more or less important role in deciding how to construe information about behaviour of others. A similar conclusion could also be drawn from experiments by Newtson (1973). In one of these experiments (as was described above) the size of the units or chunks into which observers broke behaviour of an actor determined the strength of dispositional inferences they made about that actor (see Introduction--Attentional Processes). In this experiment then, observers responded passively to an external manipulation of how to construe the behaviour of the actor. Similarly in the present experiments, cognition was passively activated in observers in Characterizing and Generalizing conditions.

In a subsequent experiment Newtson varied the ambiguity of the actor's behaviour and showed that observers responded by spontaneously varying the rate at which they unitized or chunked the actor's behaviour. Similarly, subjects in the Spontaneous conditions actively selected cognitive processes on the basis of role requirements. Both studies, and others (Miller and Norman, 1975; Miller, Norman and Wright, 1978) underscore the point that understanding attribution processes in person perception involves more than a treatment of the cognitive processes involved. It also requires a consideration of the motivations behind attributions.

(Parenthetically, it is worth noting that Newtson's and the present studies, while agreeing on the active nature of activation of cognitive processes, disagree on the more fundamental nature of those processes. According to Newtson, observers initially entertain all possible hypotheses about an actor and then use information derived from the actor's behaviour to reject those that are not confirmed by this information. According

to this information theory approach, the observer becomes more and more certain of his or her final conclusion as alternatives are rejected.

The present study suggests that observers may instead consider one hypothesis at a time, and look for information that fits that hypothesis rather than information that rejects alternatives. Specific hypotheses operant in the present experiment are embodied in the intermediate statements of each inferential path.)

The evidence that inferential paths can be manipulated passively is clear from the present studies as well as from those by Kanouse and Gross (1970). Also studies of cognitive tuning (Zajonc, 1960) and studies by Newtson (1973) make it fairly clear that observers can activate cognitive processes directly. However, the evidence that observers actively select inferential paths is more indirect and so bears closer examination.

The evidence comes mainly from differences as a function of role requirements in the Spontaneous condition. Role requirements may also be expected, under some conditions, to also affect expectations, information selection or distortion (these were outlined previously). This in turn may have affected person perception.

Of these three possibilities, it is unlikely that distortion or expectations could have mediated the effect. In the Characterizing and Generalizing conditions (where these factors were <u>not</u> controlled) there were no differences as a function of role requirements on any of the three dependent measures. If role requirements lead to different expectations or motivated distortion in either condition, it is likely that differences would be found on the measure corresponding to the intermediate steps of inferential paths.

The third possibility is that of information selection, and this factor is almost certainly inextricably linked to inferential paths. As was mentioned before, inferential paths, unlike unitization, are likely to lead the observer to consider a particular hypothesis--either that the actor's behaviour evidences generality or some specific disposition. It is likely that if observers are entertaining some hypothesis, they will seek information that bears on the hypothesis. This is of course a natural confounding, and information selection is part of the cognitive processes implied by inferential paths.

While information differences are a possible explanation of data, they are neither necessary nor plausible. First it is clear from Kanouse and Gross' (1970) data, that observers will move cognitively through inferential paths with no information at all that bears on the questions posed by these paths, other than that provided by their assumptions about the way the environment is constructed. Furthermore, Kanouse (1971) and Podeschi and Wyer (1976) would maintain that even those assumptions may be linked to the language used to describe them rather than some valid sampling of experiences.

Secondly, observers in the present studies were given very little information that bore on the questions they were asked to consider. In the main experiment they recorded all the behaviour of the actor as well as their own and they had access to this recording while they responded to the post-interaction questionnaire.

Nevertheless, the probability that information selection and cognitive process or inferential path are bound together allows for a closer look at the operation of inferential paths. The present interpretation, for example suggests that given the opportunity, Interviewers would be

more likely than Negotiators to ask for information regarding the behaviour of the actor in other settings in order to better assess the generality of the actor's behaviour. Alternatively, in situations where a great deal of information is presented, observers who are thought to take a particular inferential path, should be more likely to recall information confirming the questions posed by that path that observers thought to use other inferential paths.

Aside from the question of information selection differences, the role differences found do confirm the basic hypothesis posed by Miller and Norman (1975) that active observers' perception of others are task relevant, that is, person perceptions are formed in order to allow them to deal with future situations and interactions. Miller and Norman simply compared active observers for whom perceptions could serve this function, with passive observers for whom perceptions would serve no such function. The present experiment compared active observers for whom person perception could serve different functions, and found those perceptions to differ.

This suggests another, and probably more appropriate direction for future research. If observers are thought to follow particular inferential paths when monitoring the behaviour of an actor, it should be possible to make some predictions about their subsequent behaviour. For instance, if an observer, while monitoring an actor's behaviour, takes an inferential path in which a generalization is made, that observer should expect the actor to behave similarly in other situations. The observers' <u>own</u> behaviour should then, evidence anticipation of that expected behaviour from the actor.

If on the other hand, the observer took an inferential path in which no generalization was made, subsequent behaviour should show less evidence of a strong expectation.

Summary

While at least three possible models of person perception can be posed, data clearly favour the interpretation that role requirements activated cognitive processes on inferential paths which in turn determined perception.

Since inferential paths were manipulated two different ways, directly and indirectly through role requirements, it appears that their activation can be both an active or passive response on the part of the observer.

Finally, it appears reasonable that the activation of different inferential paths itself activates the selection or search for information required to draw the inferences involved. This suggests that more detailed study of inferential processes could be based on an examination of what kinds of information observers request of actors, and how they respond to actors.

Footnotes

1. It is not being argued that a need for effective control always leads to internal attributions. In many cases this need may be best served by making external attributions. This may happen, for instance, if internal factors were already well understood by the observer, but external factors were ambiguous.
2. This literature also deals with deductive inferences. See Appendix 1 for discussion of this research.
3. The reader may recognize a similarity between this distinction and the distinction between trait and interactionist positions in personality theory.
4. It may also be that the actor's behaviour was not normative, or in Jones and Davis' (1965) terms, had surprise value. This would lead to a dispositional inference because consensus information (Kelley, 1967) is lacking.
5. In this respect the hypothesis is not unlike the notion of cognitive tuning (Zajonc, 1960).
6. This and preceding comments suggest that data in Spontaneous conditions should be distributed bimodally. In the main experiment, the Role effect within this condition certainly suggests such a distribution, but sample sizes in the pilot studies are too small to allow for a test of bimodality.
7. This distinction is unrelated to the distinction between active and passive observers.

References

Abelson, R.P. & Kanouse, D.E. Subjective acceptance of verbal generalizations. In S. Feldman (Ed.), Cognitive consistency: Motivational antecedents and behavioral consequences. New York: Academic Press, 1966.

Anderson, N.H. Cognitive algebra. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 7). New York: Academic Press, 1974.

Azjen, I. & Fishbein, M. A Bayesian analysis of the attribution process. Psychological Bulletin, 1975, 82, 261-277.

Bandler, R.J., Madaras, G.R. & Bem, D.J. Self-observation as a source of pain perception. Journal of Personality and Social Psychology, 1968, 9, 205-209.

Beckman, L.J. Effects of students' performance on teachers' and observers' attribution of causality. Journal of Educational Psychology, 1970, 61, 76-82.

Bem, D.J. Self-perception: An alternative view of cognitive dissonance phenomena. Psychological Review, 1967, 74, 183-200.

Bem, D.J. Self-perception theory. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 6). New York: Academic Press, 1972.

Berscheid, E., Graziano, W., Monson, T. & Dermer, M. Outcome dependency: Attention, attribution and attraction. Journal of Personality and Social Psychology, 1976, 34, 978-989.

Cialdini, R.B. & Mirels, H.L. Sense of personal control and attributions about yielding and resisting persuasion targets. Journal of Personality and Social Psychology, 1976, 33, 395-402.

Condry, J. Enemies of exploration: Self-initiated versus other initiated learning. Journal of Personality and Social Psychology, 1977, 35, 459-477.

Dowdle, M.D. Differences in attributions of personality as a function of the type of interaction between actor and observer. Paper presented at APA convention, Montreal, 1973.

Enzle, M.E., Hansen, R.D. & Lowe, C.A. Causal attribution in the mixed-motive game: Effects of facilitory and inhibitory environmental forces. Journal of Personality and Social Psychology, 1975, 31, 50-54.

Festinger, L. A theory of cognitive dissonance. Stanford Calif: Stanford, 1957.

Fillenbaum, S. Psycholinguistics. Annual review of psychology, 1971, 22, 251-308.

Gergen, K.J. & Jones, E.E. Mental illness, predictibility and affective consequences as stimulus factors in person perception. Journal of Abnormal and Social Psychology, 1962, 22, 95-102.

Gilson, C. & Abelson, R.P. The subjective use of inductive evidence. Journal of Personality and Social Psychology, 1965, 2, 301-310.

Heider, F. The psychology of interpersonal relations. New York: Wiley, 1958.

Howe, E.S. Verb tense, negatives and other determinants of the intensity of evaluative meaning. Journal of Verbal Learning and Verbal Behavior, 1966, 5, 147-155.

Jones, E.E. & Davis, K.E. From acts to dispositions: The attribution process in person perception. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 2). New York: Academic Press, 1965.

Jones, E.E., Davis, K.E. & Gergen, K.J. Role playing variations and their informational value for person perception. Journal of Abnormal and Social Psychology, 1961, 63, 303-310.

Jones, E.E. & Goethals, G.R. Order effects in impression formation: Attribution context and the nature of the entity. Morristown N.J.: General Learning Press, 1971.

Jones, E.E., Goethals, G.R., Kennington, G.E. & Severance, L.J. Primacy and assimilation in the attribution process. Unpublished, Cited in Jones and Goethals (1971).

Jones, E.E. & Harris, V.A. The attribution of attitudes. Journal of Experimental Social Psychology, 1967, 3, 1-24.

Jones, E.E. & Nisbett, R.E. The actor and the observer: Divergent perceptions of the causes of behavior. Morristown N.J.: General Learning Press, 1971.

Jones, E.E. & Gerard, H.B. Foundations of social psychology. New York: Wiley, 1967.

Jones, E.E., Rock, L., Shaver, K.G., Goethals, G.R. & Ward, L.M. Pattern of performance and ability attribution. Journal of Personality and Social Psychology, 1968, 10, 317-340.

Jones, J.M. & Abelson, R.P. Semantic generalization of sentences as a function of verbs, auxiliaries, and class relevance. Paper read at Eastern Psychological Association convention, Boston, 1968. (Cited in Kanouse, 1971).

Kanouse, D.E. The effect of verb type on the cognitive processing of english sentences. Unpublished dissertation, Yale University, 1968. (Cited in Kanouse, 1971).

Kanouse, D.E. Language, labelling and attribution. Morristown N.J.: General Learning Press, 1971.

Kanouse, D.E. Verbs as implicit quantifiers. Journal of Verbal Learning and Verbal Behavior, 1972, 11, 141-147.

Kanouse, D.E. & Abelson, R.P. Language variables affecting the persuasiveness of simple communications. Journal of Personality and Social Psychology, 1967, 7, 158-163.

Kanouse, D.E. & Gross, D. From specific acts to general dispositions. Unpublished manuscript, University of California, Los Angeles, 1970. (Cited in Kanouse, 1971).

Kelley, H.H. Attribution theory in social psychology. Nebraska Symposium On Motivation, 1967, 14, 192-241.

Kelley, H.H. Attribution in social interaction. Morristown N.J.: General Learning Press, 1971.

Kelley, H.H. Causal schemata and the attribution process. Morristown N.J.: General Learning Press, 1971.

Kelley, H.H. & Stahelski, A.J. The social interaction basis of cooperators' and competitors' beliefs about others. Journal of Personality and Social Psychology, 1970, 16, 66-91.

Kelly, G.A. A theory of personality: The psychology of personal constructs. New York: Norton, 1963.

Klemp, G.O. Jr. The influence of selected verb characteristics on the acceptance of generic assertions. Journal of Verbal Learning and Verbal Behavior, 1974, 13, 355-364.

Kun, A. & Weiner, B. Necessary versus sufficient causal schemata for success and failure. Unpublished manuscript, University of California, Los Angeles, 1971.

Leaf, W.A. & Abelson, R.P. Unpublished data. Cited in Kanouse (1971).

Leaf, W.A. Subjective processes in the acceptance of verbal generalizations. Unpublished dissertation, Yale University, 1969. (Cited in Kanouse,1971).

Lepper, M.R., Greene, D. & Nisbett, R.E. Undermining childrens' intrinsic interest with extrinsic rewards: A test of the overjustification hypothesis. Journal of Personality and Social Psychology, 1973, 28, 129-137.

Lerner, M.J. The desire for justice and reactions to victims. In J. Macaulay & L. Berkowits (Eds.), Altruism and helping behavior. New York: Academic Press, 1970.

Lerner, M.J. & Matthews, G. Reactions to the suffering of others under conditions of indirect responsibility. Journal of Personality and Social Psychology, 1970, 15, 57-62.

McArthur, L.A. The how and what of why: Some determinants and consequences of causal attribution. Journal of Personality and Social Psychology, 1972, 22, 171-193.

McArthur, L.Z. The lesser influence of consensus than distinctiveness information on causal attribution: A test of the person-thing hypothesis. Journal of Personality and Social Psychology, 1976, 33, 733-742.

Miller, D.T. Ego-involvement and attributions for success and failure. Journal of Personality and Social Psychology, 1976, 34, 901-906.

Miller, D.T. & Norman, S.A. Actor-observer differences in perceptions of effective control. Journal of Personality and Social Psychology, 1975, 31, 503-515.

Miller, D.T., Norman, S.A. & Wright, E. Need for effective control and distortion in person perception. Journal of Personality and Social Psychology, 1978, in press.

Miller, D.T. & Ross, M. The self-serving bias in attribution: Fact or fiction? Psychological Bulletin, 1975, 28, 213-225.

Mirels, H.L. Dimensions of internal versus external control. Journal of Clinical and Consulting Psychology, 1970, 34, 226-228.

Murphy, G. Personality: A biosocial approach to origins and structure. New York: Harper and Row, 1947.

Newcomb, T. Social psychology. New York: Holt, Rinehart and Winston, 1950.

Newtson, D. Attribution and the unit of perception of ongoing behavior. Journal of Personality and Social Psychology, 1973, 28, 28-38.

Nisbett, R.E., Caputo, G.C., Legant, P. & Maracek, J. Behavior as seen by the actor and as seen by the observer. Journal of Personality and Social Psychology, 1973, 27, 154-164.

Norman, S.A. A mathematical model to predict attributions for sequences of behaviors. Unpublished, University of Victoria, 1975.

Norman, S.A. & Holmes, J.G. Effects of relationships between actors and observers. Unpublished, University of Victoria, 1978.

Pepitone, A. Motivational effects in person perception. Human Relations, 1950, 3, 57-76.

Podeschi, D. & Wyer, R.S. Jr. Acceptance of generalizations based on inductive and deductive evidence. Journal of Personality and Social Psychology, 1976, 34, 496-509.

Reich, C. The generalization of assertions throughout a cognitive network. Canadian Journal of Psychology, 1974, 28, 288-299.

Riddell, B.J. Investigation of the attribution process. Unpublished dissertation, University of Calgary, 1976.

Ross, M. & DiTecco, D. An attributional analysis of moral judgements. Journal of Social Issues, 1975, 31, 91-109.

Schopler, J. & Layton, B.D. Determinants of the self-attribution of having influenced another person. Journal of Personality and Social Psychology, 1972, 22, 326-332.

Shaver, K.G. Defensive attribution: Effects of severity and relevance on the responsibility assigned for an accident. Journal of Personality and Social Psychology, 1970, 14, 101-113.

Sicoly, F. & Ross, M. Faciliation of ego-biased attributions by means of self-serving observer feedback, Journal of Personality and Social Psychology, 1977, 35, 734-741.

Smedslund, J. The concept of correlation in adults. Scandinavian Journal of Psychology, 1963, 4, 165-173.

Storms, M. Videotape and the attribution process: Reversing actors' and observers' points of view. Journal of Personality and Social Psychology, 1973, 27, 165-175.

Taylor, S.E. & Fiske, S.T. Points of view and perceptions of causality. Journal of Personality and Social Psychology, 1975, 32, 439-445.

Thibaut, J.W. & Ross, M. Commitment and experience as determinants of assimilation and contrast. Journal of Personality and Social Psychology, 1969, 13, 322-329.

Walster, E. Assignment of responsibility for an accident. Journal of Personality and Social Psychology, 1966, 3, 73-79.

Wortman, C. Causal attributions and personal control. In J.H. Harvey, W.J. Ickes & R.F. Kidd (Eds.), New directions in attribution research. Hinsdale, N.J.: Lawrence Erlbaum Associates, 1976.

Weiner, B., Frieze, I., Kukla, A., Reed, L., Rest, S. & Rosenbaum, R.M., Perceiving the causes of success and failure. Morristown N.J.: General Learning Press, 1971.

Weiner, B. & Kukla, A. An attributional analysis of achievement motivation. Journal of Personality and Social Psychology, 1970, 15, 1-20.

Zadny, J. & Gerard, H.B. Attributed intentions and informational selectivity. Journal of Experimental Social Psychology, 1974, 10, 34-52.

Zajonc, R.B. The process of cognitive tuning in communication. Journal of Abnormal and Social Psychology, 1960, 61, 159-167.

Zajonc, R.B. Cognitive theories in social psychology. In G. Lindzey & E. Aronson (Eds.), Handbook of social psychology (Vol. 1, 2nd ed.), Reading, Mass.: Addison-Wesley, 1968.

# Appendix 1 Survey of the Literature

A Current Approaches in Attribution

B Subjective Generalization

C Relationships Between Attribution and Subjective Generalization

Note. This discussion is presented as an appendix since much of it is only tangentially related to the present research.

## CURRENT APPROACHES IN ATTRIBUTION

In dealing with social perception, attribution theories claim that we arrive at conclusions about people through a causal analysis of their behaviours. Following Heider (1958) these theories are predicated on the assumption that, 1) we are compelled to search out to our own satisfaction, the causes of behaviour in order to achieve the perception of a stable and predictable social environment and 2) that we attribute the causes of behaviours to properties of the person who behaves, the social environment in which the person behaves, or both.[1]

### Cognitive Approaches

Cognitive models in attribution are designed to identify the cognitive processes involved when an observer attempts to identify the causal nexus of behaviour. In other words, they are meant to describe what people actually think about while they are deciding why a behaviour has occurred. Taken as a whole, these models imply that attributions by and large, follow the rules of logic. Initial exposure to attribution theories often leaves the reader with the impression that they are little more than logic applied to person perception. In fact Kelley's (1967) anova model (discussed later) is explicitly based on the logic of experimental design. There are six major systematic cognitive positions in current literature which are reviewed below.

#### Correspondent Inferences

The earlier positions on attribution (Bem, 1967, 1972; Jones and Davis, 1965; Kelley, 1967, 1971, 1972) conform to Heider's notions quite closely. Jones and Davis (1965) proposed a theory of correspondent inferences. According to this position, on seeing behaviour, we are inclined to look for the circumstances or environmental conditions that may have caused the behaviour. In other words, we look for information that tells us the extent

to which the behaviour is normative given the setting in which it occurred. If we perceive that the behaviour does not fit the setting according to these criteria, it is perceived as intentional, i.e., the actor (the person behaving) rather than the setting is perceived as causal. The perception of intention serves as data for the further inference that the behaviour corresponds to a trait or disposition possessed by the actor.

Support for the correspondent inferences hypothesis derives to some extent from its intuitive appeal and its ability to provide post-hoc explanations in a variety of experimental settings, but it has also received direct empirical support. Jones and Harris (1967) had subjects listen to, or read speeches written by another person and then estimate the writer's attitude towards the issue addressed in the speech. When the subjects were told that the writer had chosen the topic of the speech, they attributed the statements made to the writer's real attitudes to a greater extent than when they were told that the topic of the speech had been arbitrarily assigned.

A number of other experiments (e.g., Jones, Davis and Gergen, 1961) have employed a similar paradigm. Subjects were typically shown a behaviour which either conformed or did not conform to the norms of the situation in which it occurred. The common finding is that behaviour is attributed to the dispositions of the actors more often when it deviates from normative expectations.

Kelley's Anova Model

Kelley (1967) also concentrated on processes involved when we locate the cause of another person's behaviour, but did not emphasize the assignment of traits. Called the "analysis of variance model," this approach

proposes that when we see a person perform a particular act towards a particular entity (a stimulus toward which a response is directed) or in a particular situation, we take into account distinctiveness, consensus and consistency information when attributing the behaviour to the person or to the entity or situation.

A distinctive act is one that occurs only in the presence of other entities. Therefore an action is more likely to be attributed to the entity or situation when distinctiveness is high. Consensus is high when other people perform a similar act toward the same entity or in the same situation. Consensus, then also strengthens an attribution to factors external to the actor. Consistency information specifies whether or not the person responds to the entity in a similar fashion at other times. Consistent actions are also attributed to the entity or situation. Kelley's model, then, is adapted from the traditional experimental design. A manipulation of experimental conditions provide distinctiveness information. Replication across subjects leads to consensus and replication across time indicates consistency.

McArthur (1972) conducted an exhaustive test of Kelley's model by providing subjects with written descriptions of an action performed by a person toward an entity or in a situation and provided distinctiveness, consensus and consistency information and asked subjects to assign cause to the person, the entity or the situation or a combination of any or all of these sources. Kelley's model was essentially confirmed although most attributions were to combination of sources, and attributions to the person were more common than the model would predict. A chief criticism of the model lies in the fact that when confronted with a piece of behaviour we rarely have access to the types of information necessary for the analysis

Kelley describes. While it seems reasonable to suppose that people would make normative assumptions on these points, Kelley's model does not deal with the acquisition of this information.

Attribution in Interaction (Discounting principles)

Kelley (1971) deals with the application of attribution principles to interaction. In a model developed for this purpose, possible causes of behaviour are cast into a two-dimensional classification. On one dimension causes are either internal or external to the actor (i.e., the actor or something in the actor's social environment). The other dimension classifies causes as either facilitative or inhibitory with respect to a particular action.

Along with this classification, two principles guide attribution. One is the discounting principle whereby the role of one possible cause is discounted when others are also possibly present. Thus if an actor behaves consistently with constraints of his environment, we discount the role of possible internal causes of that behaviour. Alternatively, we discount the role of external causes when we perceive actors behaving in accordance with what we assume to be their internal motivations.

The augmentation principle is the opposite of the discounting principle. It comes into play when a person's behaviour is contrary to a cause thought to be present. For example, if a behaviour occurs in the presence of an inhibitory cause, the roles of possible facilitative causes are augmented in importance when compared to a case when inhibitory causes are not thought to be present. Alternatively, the failure of a person to act in the presence of facilitative causes leads to augmentation of the role of inhibitory causes.

This model is for the most part an extention of Jones and Davis'

(1965) theory. For instance, the Jones and Harris (1967) experiment could be construed as a demonstration of the discounting principle. Subjects presumably discounted the role of facilitative internal causes of behaviour of those speech writers who were assigned a topic.

Some support for the model was found by Enzle, Hansen and Lowe, (1975). Subject pairs interacted in a gaming situation which strongly rewarded either cooperative or competitive behaviour. Each member of the pair received false feedback about the other member's behaviour and was thus led to believe that the other's strategy in the game was either strongly competitive or strongly cooperative. When strategies were congruent with the reward structure of the game, subjects more often attributed the cause of the other's behaviour to environmental factors (presumably the game) than to the other person. When there was a discrepancy between game and strategy, this effect was in the opposite direction. While these results support Kelley's (1971) model, and Jones and Davis' (1965) theory, further findings by Enzle et al did not support the latter position--attributions did not extend to dispositions. Estimates of the actor's dispositions or traits of likeability or trustworthiness were not affected by the consistency between game and strategy. This lack of relationship between the attribution of cause to an actor and assignment of behaviourally relevant traits (e.g., trustworthiness, etc.) is a recurrent finding (e.g., Taylor and Fiske, 1975) in attribution research.

Causal Schemata

In the same way that Kelley's (1971) model is more general in scope than Jones and Davis' (1965) former model, his subsequent theorizing (Kelley, 1972) is more general still. This more recent article proposes the existence of various causal schemata which are learned from experience

with cause and effect events. Kelley avoids specifying the structure of each schema that may exist. Instead he outlines two types of schemata which may operate independently or combine in various ways to fit the many conditions which evoke schemata. To account for the types of causal analyses described by correspondent inferences, discounting, augmentation and the analysis of variance model there is the multiple sufficiency schema. Simply stated, this schema holds that when each of two causes are sufficient to cause an effect (a behaviour), the known absence or impotence of one of those causes implies the presence of the other. A second main class is the multiple necessity schema. This covers cases where each of a set of causes are relatively impotent on the effect or behaviour is unlikely. In either case, more than one cause is perceived to be necessary to produce the effect. These two basic schemata are generalized by expanding them to cases where causes and effects are graded in intensity rather than being simply present or absent.

Little research has been generated by Kelley's (1972) causal schemata paper. Perhaps this is because the theory is, for the most part, a vague heuristic device, and because there are methodological difficulties in demonstrating the existence of causal schemata. Consequently, research referring to this position can also be explained without strict adherence to causal schemata notions. An example of its use can be found in an article by Kun and Weiner (1972) who note that when subjects were told of a person who succeeded at an <u>extremely</u> difficult task, they attributed success to <u>both</u> ability and effort (multiple necessity) on the part of the actor. When the task was only moderately difficult, attributions were to <u>either</u> ability or effort (multiple sufficiency), but not both.

Self-Perception

Bem (1967) made a contribution to attribution with self-perception theory. Focussing on attributions for one's own behaviour he suggests that a process similar to that described in the theory of correspondent inferences applies. Bem argues that to know our own attidudes, we consider our own behaviour just as we would look to another's behaviour to assess their attitudes. To the extent that the setting or situation does not account for our own behaviour we attribute it to constancies or dispositions in ourselves. In a more recent formulation, however, Bem (1972) suggests that the process may only occur in situations where we have not already considered or become aware of our attitudes towards some object. Supporting Bem's position are results from an experiment by Bandler, Madaras and Bem (1968). Subjects were connected to a shock apparatus and told either they must avoid it by pushing a button or they could choose to avoid it by pushing a button (in this latter condition the "free-choice manipulation" was employed). Consistent with Bem's theorizing, those who had no external explanation for pressing the button, that is those who chose to press it, estimated the shocks to be more painful than those who were told to press the button. In other words, subjects extimated their attitude toward the shock from their behaviour and the setting in which they behaved. More direct evidence comes from intrinsic motivation research (Lepper, Greene and Nisbett, 1971). Typically, subjects (children) are paid or not paid to perform tasks that they normally enjoy doing, such as fingerpainting, etc. In subsequent free-play situations those who have not been paid to engage in the activity, engage in more of that activity than those who have been paid. Presumably this is because those who are paid attribute their behaviour to the extrinsic reward while those who are not attribute it to their

own liking for the activity.

A more recent review of intrinsic motivation research (Condry, 1977) makes similar conclusions. A number of experiments have consistently found that persistence and quality of performance decreases when rewards are given to a person to perform a task that was previously engaged in for non-extrinsic reasons. The attributional explanation of the phenomenon is that the person discounts their own liking for the activity when extrinsic rewards for its performance are introduced.

Actor-Observer Differences

In essence, Bem's position is that the process underlying self-perception is essentially the same as the correspondent inference or discounting process proposed for the perception of others. Jones and Nisbett (1971) suggested that the attribution of actors for their own behaviour may be fundamentally different from those of observers. Actors' attentions are constantly focussed on their social environments, while the attention of the observer is focussed on the actor. Thus, for attentional reasons actors can be expected to locate the causes of their behaviour primarily in their environments while observers would locate the cause of the same behaviour in the dispositions of the actor. The most convincing support for actor-observer differences comes from Storms (1973). Actors engaged in a conversation with another person while observers monitored the conversation. Actors attributed their behaviour during the experiment to the circumstances of the experiment while observers were more likely to attribute it to the disposition of the actor. Subsequently, some actors were shown a videotape of the conversation from the observer's point of view while observers saw a videotape from the actor's viewpoint. The attributions of these subjects differed in the

opposite direction to those of the subjects not shown the videotapes. Observers' attributions referred less to the dispositions of the actor than did the self-attribution of actors. Thus attributions were reversed when the focus of attention was reversed.

Summary

Taking these six attributional positions together, it can be seen that they share a number of characteristics. All assume some form of cognitive process which accepts the perception of behaviour as input and renders a causal inference as output. Aside from causal schemata theory (Kelley, 1972) which proposes two basic processes, all positions assume the actual process to be a constant. Consequently, they assume (usually implicitly) that variation in output is a result of variation in input. In other words, differences in attributions are explained by constant cognitive processes and differences in information. While several writers have purported to demonstrate distortion, irrationality or motivational effects in person perception (e.g., Pepitone, 1950; Gergen and Jones, 1963; also see Miller and Ross, 1975 for an extensive listing of literature on self-serving biases in attribution), some theories have gone so far as to claim that such effects do not exist (Azjen and Fishbein, 1975; Kelley, 1971) and that all apparent illogical attributions can eventually be explained by some more complex cognitive approach (e.g., Murphy, 1947; Newtson, 1973). Newtson for example, refers to units of perception to explain variations in attributions (i.e., variation in the output of the attributional process). A unit of perception is defined by Newtson as a meaningful act. Therefore, the size of a unit can vary. For instance, if a person gets up from a chair, closes a door and returns to the chair, this can be construed as one meaningful act (large unit) or as several small meaningful acts in sequence (small acts). Newtson proposes that

when need for information is high we chunk behaviour into smaller units in order to generate more information. Thus, if the observers break the behaviour of an actor into very small units, more information has been generated about the actor and in a sense, more is "known" about the actor, and more confident statements about the personality or disposition of the actor can be made. Unitization is then essentially an attentional phenomenon. When observers make stronger dispositional inferences about an actor it is because they have attended to the actor's behaviour more closely and have come to "know" the actor better.

Nevertheless, more recent research (Miller, 1976; Miller, Norman and Wright, 1976; Sicoly and Ross, 1977) has demonstrated effects that cannot be described by purely cognitive models. Instead, these effects appear to be the result of motivational biases.

## Motivational Approaches

Motivational approaches in attribution derive from a number of sources. Heider (1958) claimed that a perceived cause of behaviour must fit the wishes of the perceiver as well as being plausibly derived from evidence. This has become known as the ego-defensive function of attributions. This position holds that attributors assign causality in such a way as to promote a positive self-image and to avoid a negative self-image.

A second aspect of motivation thought to influence the attribution process involves the need to understand, predict and control one's environment. The need to make sense out of one's world is an implicit part of many social psychological theories. Cognitive dissonance theory (Festinger, 1957), justice theory (Lerner, 1970), balance theory (Newcomb, 1950; Heider, 1958), and the theory of personal constructs (Kelly, 1954) among others, all assume either implicitly or explicitly that the cognitive activity accompanying social behaviour is largely geared towards arriving at a par-

simonious view of the environment. A similar motive is assumed for attribution theory (Kelley, 1971). The attributional process uncovers the cause and effect relations in a person's experiental world, and so serves to foster their perception that they can understand, predict and control the events that affect them.

The following discussion reviews some of the literature bearing on these positions.

Self-Serving Biases

There are basically two types of self-serving biases discussed in current literature. The first deals with attributions for one's own behaviour. In a common paradigm, subjects are given a task to complete. A typical finding (Weiner and Kukla, 1970) is that subjects attribute success to their own ability but failure to a momentary lack of effort at the task (especially those high in achievement motivation). A second type of experiment has subjects attempting to influence the behaviour, or performance of another person. Beckman (1970) had subjects attempt to teach arithmetical concepts to children. When the children's performance in using the concepts improved, subjects attributed the success to themselves to a greater extent than when performance began and remained at a low level despite the subject's attempt to help the child. Similarily, Schopler and Layton (1972) had subjects attempt to influence another person. Subjects accepted more responsibility for the person's subsequent behaviour if it evidenced some change than if no change occurred, but accepted the most responsibility if the change was in a positive direction.

Miller and Ross (1975) pointed out that much of the research on self-serving biases has not been successfully replicated in subsequent experiments. Moreover, these effects that are robust are subject to a non-motivational explanation derived from Smedslund (1963). When judging the

strength of a relationship between cause and effect, subjects apparently ignore cases when an effect occurs in the absence of a cause, or a cause is not followed by an effect. Judgments of contingency then are based on occurrences of both cause and effect. More importantly, this effect occurs in circumstnaces not subject to ego-defensive biases.

Consequently, if subjects in the aforementioned studies assume that their attempts at influence are likely to result in a successful effect, failures will be perceived as mere anomalies, providing no evidence about their responsibility. Only when their attempts at tasks or influence are successful will the event be considered relevant evidence for a cause-effect relationship. Negative correlations between their attempts and the results of their attempts cannot be perceived because evidence of negative correlation is not taken into account when searching out cause-effect relationships. In summary, Miller and Ross advise of the necessity for caution in interpreting self-serving biases in attribution independent of cognitive processes. On the other hand, both (Miller, 1976; Sicoly and Ross, 1977) have reported biases in attribution which are not subject to a cognitive explanation.

The second type of self-serving bias is called defensive attribution (Shaver, 1970). Basically, this research concludes that attributions for other's behaviour is also subject to self-serving biases. Walster (1966) for example, argued that we may be motivated to find a cause for events which cause suffering to others. The more severe the event, the more likely we are to attribute blame (or find a scapegoat) to someone who can plausibly be taken as a perpetrator. Doing so minimizes our perception that harmful events are capricious and that we ourselves can be helpless victims of such events.

A similar type of defensive attribution has been argued by Shaver

(1970). His subjects were told of an accident in which a minor oversight by one person resulted in a severe misfortune for another. The more subjects perceived themselves to be similar to the perpetrator, the less responsibility they assigned the perpetrator for causing the accident. Defensive attribution argues that this effect minimizes a person's concern that they too could be the cause of a similar accident.

Ross and DiTecco (1975) suggested that the defensive attribution literature is not necessarily evidence of motivational effects. First, they cite literature showing that people often make self-attributions for unforseen, unintended events. Lerner and Matthews' (1967) subjects expressed feelings of guilt when, by a random selection procedure, people other than themselves were chosen to receive electric shocks. To account for these types of results as well as apparent defensive attributions, Ross and DiTecco suggest that subjects cannot always assimilate all of the information presented to them in typical experiments. Instead, experimental manipulations may induce particular perceptual sets, and cause subjects to attend to a subset of the cues available in the experimental setting. Sometimes then, they may attend only to information leading to "self-serving" attributions, and other times to information leading to attributions that are damaging to the self-image.

A recent reconceptualization of this body of literature by Wortman (1976) argues that much of these data can be understood as evidence for the proposition that people tend to believe they and others have control over the environment and that attributions are formed in consonance with, or perhaps to promote, this belief.

Effective Control

The notion of effective control refers to a need to be able to understand and predict and/or control the events in one's social environment.

It is likely that this need is not a constant, but varies from person to person (Cialdini and Mirels, 1976) and from situation to situation. Miller and Norman (1975) suggested that these situational variations in the arousal of a need for effective control would have consequences for attributions made for an actor's behaviour. An observer who is engaged in interaction with an actor (an active observer) should be more interested in predicting and controlling the behaviour of the actor than an observer (a passive observer) who passively views the interaction between actor and active observer. In other words, a need for effective control should be aroused more in active observers than in passive observers. The implication is that active observers should make stronger or more confident inferences about the personality or disposition of the actor than should passive observers. They will either search the actor's behaviour for evidence of stable dispositions or distort the extent to which the actor's behaviour provides this evidence. By perceiving the actor's stable dispositions, the active observers are also able to perceive that the actor is predictable. (In other words, they "know" what type of person the actor is.)

The predicted difference between active and passive observers was reported by Miller and Norman (1975) in a situation where actors and active observers bargained in a conflict situation, and has seen replication in other experiments (Dowdle, 1973; Norman and Holmes, 1978; Miller, Norman and Wright, 1978; Riddell, 1976).

Other observers who do not interact with the actor, but who should be expected to have an interest in understanding and predicting the actor's behaviour, also make stronger dispositional inferences than passive observers. One of these is an observer who expects to be interacting with the actor in the future (Miller, Norman and Wright, 1978). Another is one whose reward outcomes are dependent on the actor's behaviour (Norman and

Holmes, 1978).

Ross and DiTecco (1975) pointed out that all of these effects can be explained by assuming that passive observers simply fail to pay attention to the actor's behaviour and so cannot make dispositional inferences because of a lack of information about the actor. Other observers (non-passive)[2] pay closer attention to the actor's behaviour and make more confident attributions because they have more information on which to base them. This explanation then, argues against a motivational approach and claims that the differences between active and non-active observers are cognitively mediated by differences in attention.

To demonstrate a non-cognitive difference between observers, Miller, Norman and Wright (1978) included in their design, two groups of passive observers both of whom monitored an actor's behaviour. Consequently, it was assumed that attention was equal in both groups. Just before observers were asked to make inferences about the actor, observers in one of the two groups were told that they would have to interact with the actor in a few minutes. This means that the motivational manipulation was introduced after observers had had a chance to view the actor's behaviour. Observers expecting to interact made stronger inferences about the actor than did the other group of observers. Moreover, this effect was stronger among subjects who evidenced a high need for personal effective control on a scale devised by Mirels (1970).

Summary

Motivational involvement appears to have some effect on attributions. A considerable body of evidence suggests that attributions are subject to self-serving biases in the attributor although much of this evidence is subject to alternative explanation. There may simply be a bias to perceive people (self and other) as having more control over the environment

than objective data would suggest.

A need to understand, predict and control one's social environment also affects attributions. Evidence indicates that the relationship between actor and observer (i.e., whether the observer is active or passive, etc.) is a determinant of how strongly this need is aroused. There may also be consistent individual differences in the motive (or at least in how strongly it may be evoked by situational parameters).

The distinction between different types of observers and the finding that there are corresponding differences in the strength of dispositional inferences, is the starting point for the present research. The cognitive models discussed explain these differences by suggesting that non-passive observers process either more information than, or different information from passive observers. Motivational approaches suggest that non-passive observers will also select and distort information according to their needs when making attributions. (Ironically, the summary of present research leads back to Heider (1958) who said that perceived causes must be plausibly derived from available information and must also fit the wishes of the perceiver. The first of these criteria is described by cognitive models, and the second by motivational approaches.)

A third approach will explore the role of <u>subjective generalizations</u> in attributional differences among observers. There are three reasons for doing this. First, generalizations are assumed by all theories to be part of the attributional process. When observers attribute behaviour to a disposition they are assumed to believe that the behaviour in question is <u>generalizable</u> to other situations and times. For instance, if actor A hits another person and observer B decides that A is an aggressive person, B is taken to have assumed that A hits other people as well, or hits in other situations, and will likely hit in the future. If B believed the act

to be an isolated incident, then B will presumably not infer an enduring disposition in A.

The research on subjective generalizations in person perception is reviewed in the next section. The evidence suggests that generalizations depend on a number of psycholinguistic variables. The cognitive processes that are connected with subjective generalizations suggest that observers may arrive at different attributions because they process the same information in different ways. Specifically, it will be argued that different observers will interpret the same behaviour to mean different things through these different cognitive processes. This can be contrasted to the cognitive and motivational approaches already discussed. Cognitive approaches typically argue that different observers process different information the same way and consequently arrive at different conclusions. Motivational approaches add to this by suggesting that information is also distorted during and after processing.

Also, since the variables predicting generalizations are verbal in substance, they may be especially suited to predicting attributions. To the extent that observers encode behavioural information verbally, these variables should be determinants of their inferences.

## SUBJECTIVE GENERALIZATION

Subjective generalizations describe the process whereby we take a particular instance or single event to imply that the event occurs at a greater level of generality than observed.

The research reported below is restricted in scope to that which has an application to attribution theory. Basic data suggests that the level of generality inferred from a statement depends on the grammatical features of the statement itself. Common to these surface features of assertive statements is the notion of implicit quantification. This idea

holds that the level of generality to be inferred from a simple statement is inherent in the way the statement presents information to the perceiver.

## Basic Findings

Gilson and Abelson (1965) investigated the variables affecting people's willingness to accept a generalization on the basis of limited information. They presented their Ss with questions of the form "Do subjects verb objects?"[3] An example is "Do supermarkets sell flowers?" or the more abstract "Do gleeps have fung?". Each question was preceded by three pieces of evidence, one supporting the conclusion and two contradicting it. (Contrary evidence was included to avoid ceiling effects resulting from uniform agreement with items.) An example of a single item is:

> Altogether there are three kinds of tribes - Southern, Northern, Central.
>
> > Southern tribes have sports magazines.
> > Northern tribes do not have sports magazines.
> > Central tribes do not have sports magazines.
>
> Do tribes have sports magazines?

This asks the S to make a subjective inductive generalization over the sentence subject. Other items asked for a subjective inductive generalization over sentence objects. For example:

> Altogether there are three kinds of magazines - sports, news, fashion.
>
> > Southern tribes do not have sports magazines.
> > Southern tribes do not have news magazines.
> > Southern tribes have fashion magazines.
>
> Do Southern tribes have magazines?

Besides varying these two evidence forms the items contained different combinations of 8 subjects, 8 objects, and 8 verbs. Items were constructed so that each verb appeared once with each object and each subject, forming a Latin square design of 128 items.

Results were clear-cut. Ss were more willing to generalize over objects than over subjects. Secondly, while the verb used in the item has a powerful effect on generalizations, the particular subject or object had little or no effect. While not enough different verbs were used to assess the reason for their effects, it was argued by the authors that positive verbs seemed to produce more agreement than negative verbs although this effect was weak. The verb like then, produced more agreement than the verb hate. It was also argued that manifest verbs produced more agreement than subjective verbs. The manifest-subjective distinction is the same distinction made by Heider (1958) between manifest and sentiment relations. This means the verb have produces more agreement than the verb like.

Abelson and Kanouse (1966) replicated these results and went on to investigate subjective deduction with the same technique. Independent variables were the same as those used by Gilson and Abelson but items were cast in a deductive form. An example is:

All bees are flying, stinging, furry insects.

Tribes buy flying insects.
Tribes buy stinging insects.
Tribes do not buy furry insects.

Do tribes buy bees?

This item asks for a subjective deductive generalization over the sentence object. Items were also designed to test the effects of object-specific evidence.

The effects found by this experiment were, in all respects, in the opposite direction to those found for inductive inferences. Ss were more willing to accept generalizations about sentence subjects than about

sentence objects. Again sentence subjects and objects did not cause variations in agreement while verbs did. However, negative verbs elicited more agreement than positive and subjective verbs more agreement than manifest.

Some of these verb differences were replicated by Kanouse and Abelson (1967) who presented Ss with communications in paragraph form which gave either inductive or deductive arguments. Embedded in the arguments were two verbs, either positive or negative and manifest or subjective. Not all combinations of these variables were employed, but it was found that the most persuasive arguments were those which used positive manifest verbs in an inductive argument or negative subjective verbs in a deductive argument.

A further replication is reported by Jones and Abelson (1967) who used items which were exclusively supportive of the proposed generalization. (Notice that the items used by Gilson and Abelson and Abelson and Kanouse contained some statements supporting the conclusion and some contradicting the conclusion.) Support was also provided by Leaf and Abelson (1971) who demonstrated the phenomena again with items expressed in the passive rather than the active voice, ruling out order effects as the cause of generalization differences.

## Implicit Quantifiers

While the verbs differences (i.e., on manifest-subjective and positive-negative dimensions) and evidence form differences (induction-deduction) and their various interactions appear to be stable findings, no completely unifying explanation has been offered. Kanouse (1968, 1972) proposed the concept of "implicit quantification" to explain verb differences. He suggests that sentences contain implicit quantifiers which

are affected primarily by verbs. For instance, the statement "People buy wigs" contains implicit quantification of the subject and object (people and wigs) which is defined by the verb "buy". Since one seems justified in making the statement "People buy wigs" if a few people buy a few wigs, implicit quantifiers are low. The generalization that "people buy wigs" should be accepted with relatively few confirming cases.

Ss in Kanouse's studies were presented with assertive statements of the "subjects verb objects" format and asked to select from alternatives like "a few", "some", "many", or "all", the minimal level of quantification necessary to accept the assertion. Thus if Ss felt that the assertion "Supermarkets sell flowers" is justified when "a few" supermarkets do so, they would select "a few" as the implicit quantifier for the sentence subject. Implicit quantifiers were also assessed for sentence objects. It was found that verbs strong in inductive generalizing power (such as positive-manifest verbs) elicited low level quantifiers while verbs weak in inductive generalizing power (such as negative-subjective verbs) drew high levels of quantification. Again sentence subjects and objects were not important, showing that it is verbs which define the level of implicit quantification.

Kanouse (1971) uses these findings then, to conclude that subjective generalizations are mediated by the implicit level of quantification given by a verb. This accounts for both induction and deduction. In the case of manifest verbs relatively few cases are required to make the inductive generalization, so manifest verbs are inductively strong. Consequently, they are weak deductively since, given the general case, it is not necessary that any particular case must follow. For subjective verbs many cases are required to accept the generalization so their inductive power is weak. Consequently, given the general case any particular case must

follow so deductive power is high.

Some examples will illustrate the argument. 1) If artists buy a few magazines, then artists buy magazines (inductively strong manifest verb). 2) If artists buy magazines, they need not buy a particular magazine (deductively weak manifest verb). 3) Artists must hate many magazines before artists hate magazines (inductively weak subjective verb). 4) If artists hate magazines, then they probably hate a particular magazine (deductively strong subjective verb). Similar arguments are made for the affective sign of the verb. Implicit quantifiers defined by positive verbs are lower than those given by negative verbs. Artists must hate many magazines to hate magazines. If they do hate magazines, then they hate a particular magazine. However, it is only necessary to like a few magazines to like magazines, so liking magazines does not necessarily imply liking for a particular publication. A similar effect of affective sign obtains for manifest verbs (e.g., approach-avoid).

Leaf (1969) provided some convinging evidence for the implicit quantification hypothesis. Upon making quantifiers explicit (e.g., many artists hate a few magazines, some artists buy a few magazines) verb differences either disappeared or were greatly diminished.

Basis of Implicit Quantification

Kanouse (1971) goes on to propose some of the particular features of verbs that give rise to different implicit quantifiers. Dealing with the manifest-subjective difference, he suggests that low implicit quantifiers occur when the relationship between subject and object defined by the verb, limits the availability of the subject or the object. Buying an object for instance, limits one's ability to buy more objects as well as the availability of the purchased object to others. Therefore the

action of buying objects is completed with relatively few cases. The potential for buying is quickly used up. (If it wasn't, presumably buying may continue.) On the other hand, disliking an object leaves one with ample resources to dislike other objects and leaves the object to be disliked by others. Therefore implicit quantifiers for manifest verbs are lower than those for subjective verbs since manifest relations typically involve fewer cases than subjective relations.[4]

While this explanation is plausible, no data have been reported that bear on its assumptions. Kanouse's explanation of the assymmetry in positive and negative verbs has a similar empirical status. Since the difference between positive and negative verbs in Abelson and Kanouse's study is weak in the inductive case, it is explained only in the deductive case. Here the notion of a "good gestalt" is employed. While a good gestalt is easily destroyed by a single bad part, a poor grouping of elements cannot be made good by the existence of a single good element. This means that given an assertion that a positive relation exists between a class of subjects and a class of objects, any evidence to the contrary is extremely damaging to the deduction that a positive relationship exists between subordinate groups of subjects and objects. If the superordinate relationship is negative, it is again unlikely that any part can be positive. For instance, if music is lyrical, tuneful and rhythmic, the information that A dislikes tuneful things is very damaging to the deductive inference that "A likes music", even if A likes lyrical, rhythmic things. On the other hand, the information that A likes lyrical things but dislikes tuneful, rhythmic things does little damage to the assertion that "A dislikes music".

Turning to the data indicating differences in generalizations over

sentence subjects versus objects, Kanouse suggests that 1) sentence subjects are usually actors, and objects the acted upon, and 2) that we believe there is more variability or less class homogeneity in how people act and feel, than in how they are acted upon or felt about. An assertion then, gives more distinctive information about the actor or sentence subject than about the acted upon or sentence object. Consequently, implicit quantifiers are greater for people or things defined by sentence structure as subjects than as objects. If we are told then, that "Artists detest businessmen", we should perceive that a particular quality of artists as detesters, rather than businessmen as detestable, is defined. Consequently, we should agree that there are fewer artists than businessmen who are exceptions to the statement. Implicit quantifiers for sentence subjects are in fact greater than those for sentence objects for sentences like "Artists detest businessmen".

Additional support for this explanation arises when it is realized that object-specific evidence is the same as Kelley's (1967) distinctiveness information and subject-specific evidence is consensus information. McArthur (1976) found that Ss were more willing to base attributions on distinctiveness information than on consensus information. In other words, Ss were more willing to base generalized statements on information about objects, than on information about subjects.

## Related Evidence

Some more data in support of Kanouse's (1971) linguistic interpretation is reported by Reich (1974). She tested subjective generalizations of statements similar to those being discussed (e.g., X buy robins). Ss were asked to generalize to superordinate or subordinate classes of objects (i.e., make inductive or deductive generalizations) that were either

one step or two steps removed from the stimulus object. For example, given the statement "X buys robins" Ss would be asked "Does X buy birds?" or "Does X buy animals?". If subjective generalizations reported by Kanouse (1971) occur in part because of generalization to classes of objects with similar stimulus properties, then generalizations to classes one step removed should be more frequent than generalizations to classes two steps removed. It should be easier then to generalize to birds than to animals in the previous example. This was not the case. Generalizations to classes one or two steps removed were equally frequent, and when they occurred, generalizations were a function of linguistic properties. This is an important finding since it indicates that the results reported by Kanouse (1971) are not based on stimulus similarity but on linguistic similarities. In other words, generalizations are greater over objects than subjects, not because objects bear a greater physical similarity to each other than do subjects, but because they have been cast linguistically as objects. It is the role of words in the sentence structure that matters, not the particular physical objects or subjective states they represent.

Other research in psycholinguistics has also produced evidence consistent with the present analysis of subjective generalization. In investigating the determinants of the intensity of evaluative meaning, Howe (1966) has shown that intensity drops with the addition of modifiers such as "often" and "most", both of which denote a high level of occurrence. Thus, "often buys" may imply less frequent behaviour than "buys". This is consistent with the notion of implicit quantification. Verbs with high implicit quantifiers would be expected to decrease in intensity of meaning when quantifiers are made explicit.

Statements critical of Kanouse's (1971) analysis of subjective generalization have with one exception (Podeschi and Wyer, 1976) been restricted to re-interpretations of underlying causes. Fillenbaum (1971) for example, sees the need for an account of verb differences at a deeper semantic level than implicit quantification entails.

A series of experiments of Podeschi and Wyer (1976) thoroughly investigated the effects outlined by Kanouse (1971). Using a completely crossed factorial design with items modelled after Gilson and Abelson, they assessed the effects of evidence type (subject or object specific), generalization type (deductive or inductive) and verb differences (manifest or subjective and positive or negative).

All of the results reported by Kanouse (1971) were replicated except that positive verbs elicited greater generalization than negative verbs for both deduction and induction. (Kanouse reported that this effect holds only for deduction and is reversed for induction.) Podeschi and Wyer attribute their effect to a general positivity bias. Zajonc (1968) argues that independently of information, people assume favourable rather than unfavourable relations among persons and objects and so are more willing to accept the validity of positive statements. Secondly, their explanation of the manifest-subjective verb difference differs from Kanouse's. They suggest that a manifest relationship assumes the existence of a subjective one (e.g., to buy something, we must like it). Consequently, implicit quantifiers are higher for subjective relations since they are more common than manifest relations.

Differences in evidence type (object _vs_ subject specific) for _induction_ are also explained by Podeschi and Wyer as implicit quantifier effects. They suggest that _a priori_, people are more likely to see objects (things) as being similar to each other than subjects (people). This means that

generalization to objects is enhanced while generalization to subjects, because of heterogeneity, is suppressed, and implicit quantifiers for objects are higher than those for subjects.

Evidence type differences (subject vs object specific) for deduction, according to Podeschi and Wyer depend on how Ss interpret evidence. Referring to the example given from the Abelson and Kanouse (1966) study for example, Ss are told that "bees are flying, stinging, furry insects". This can be interpreted as "flying and stinging and furry" (conjunctive) or as "flying or stinging or furry" (disjunctive). Clearly, when evidence such as "tribes do not buy flying insects" is presented contradicting an assertion such as "tribes buy bees", it is more damaging if the properties of bees are seen as conjunctive than if they are seen as disjunctive. The authors go on to argue that if persons or subjects are seen as more heterogeneous than objects or non-persons, then evidence pertaining to subjects should be more often interpreted as disjunctive leading to greater agreement with generalizations dealing with subject-specific evidence. Data agree with this hypothesis.

The same notion is meant to account for manifest-subjective verb differences in deduction. For instance, if the assertion is "tribes buy bees", then contrary evidence is very damaging in the deduction case since to do so, tribes must buy flying and stinging and furry insects, i.e., they must buy the whole bee. With subjective verbs this is not the case. They can, for instance, like the first two properties and not the third and be said overall to like bees. In disjunctive cases Podeschi and Wyer propose that the confirming cases are averaged as in an impression formation task (Anderson, 1974).

In a second experiment the implicit quantifiers assigned to subjects and objects as a function of verbs were investigated. The results repli-

cated Kanouse's (1968, 1972) own work on implicit quantifiers except for the positivity effect found in the first experiment. A third experiment lends support to the assumption that subject-person categories are seen as more disjunctive than object-thing categories.

Podeschi and Wyer are largely in agreement with Kanouse on an implicity quantifier explanation of data although they differ in their explanations of the determinants of implicit quantifiers. The major difference concerns the positive-negative verb effect. Kanouse (1971) reported that the effect interacts with generalization type (inductive vs deductive) while Podeschi and Wyer found it to be constant across conditions. One possible reason for this may be the particular verbs used. This in fact, appears to be the only substantive difference between the two experiments that is related to the discrepancy in results. Specifically, Podeschi and Wyer made more use of verbs such as "like" and "dislike" while Kanouse's data are more often based on more polarized forms such as "love" and "hate". Consequently, the positive verbs used by Kanouse, Abelson, and their colleagues, are more often lexically marked than those used by Podeschi and Wyer. A marked form is one that implies the existence of a quality while an unmarked form is one that does not. For instance, for the adjectives good and bad, bad is the marked form because badness implies more about an entity than goodness. If asked "how good is A?" we are not likely to interpret the question as implying that A is good rather than bad, but if asked "how bad is A?" the question implies A is bad and the question is how bad. Since marked forms imply more about the quality of sentence objects than unmarked forms, Klemp (1970) predicts and finds that marked positive verbs should elicit more generalization than unmarked positive verbs re-

gardless of generalization type (negative verbs are nearly always marked). Markedness does not, of course, give an a priori account of the discrepancies between Kanouse (1971) and Podeschi and Wyer. It predicts only that Kanouse should have received greater agreement for positive verbs than Podeschi and Wyer. An experiment simultaneously manipulating positivity, markedness and subject vs object specific evidence does not exist. (Incidentally, Klemp tested the effects of affective sign and replicated findings reported by Kanouse (1971).)

### Summary

The preceding review suggests that features of sentences and sentence structure are strongly related to the willingness of a perceiver to agree with generalizations they imply. (Results reported by Kanouse, Abelson and colleagues often indicate large portions of variance accounted for.)

The implications for attributions are clear. In order to make a strong generalized inference about the dispositons of an actor, the observer must also infer that the behaviour is typical of the actor.

The following section presents evidence for this assumption and suggests that generalization may in fact be a necessary pre-condition of a general dispositional inference.

## RELATIONSHIPS BETWEEN ATTRIBUTION AND SUBJECTIVE GENERALIZATION

### Kanouse and Gross (1970)

The major flaw in Kelley's (1967) ANOVA model, and to some extent the other cognitive models, was that it assumed a detailed knowledge on the part of the observer, of persons and entities in the attributional situation. Kanouse (1971) suggested that the psycholinguistic features of assertions govern the assumptions we make in the absence of such knowledge. How these features may affect attributions was suggested by

Kanouse and Gross (1970). A dispositional attribution according to the psycholinguistic framework involves generalizing an act (i.e., a manifest verb) towards an object, to a disposition (a subjective verb) towards other similar objects. To use an example from Kanouse and Gross, a dispositional attribution is called for when we are asked to explain the fact that "O destroys Reader's Digest" with the inference "O hates magazines". Since this attribution involves two inferences, from Reader's Digest to magazines, and from destroys to hates, it can be done in one of the two following ways:

A O destroys Reader's Digest

Does O destroy magazines?
Does O hate magazines?

or B O destroys Reader's Digest.

Does O hate Reader's Digest?
Does O hate magazines?

A asks an observer subject to make an inductive generalization on the basis of object-specific evidence with a manifest verb. B asks for the same with a subjective verb. (It is assumed that the transfer from manifest to subjective verbs is constant across both forms A and B.) Since manifest verbs elicit greater agreement than subjective verbs (for induction), form A should elicit greater agreement than form B. Kanouse and Gross tested this hypothesis by presenting Ss with several items like form A and B, thus inducing them to follow one of two particular inferential paths. There was no difference in agreement with intermediate sentences as a function of inferential path, but there was differential agreement with final statements in the predicted direction.

Kanouse and Gross also ran a number of other conditions in this

experiment. In the condition already discussed, items have manifest verbs in the first sentence and a particular object. In the third sentence the verb is subjective and the object is more general. The difference between inferential paths was whether Ss were asked to switch objects first or verbs first. This was the manifest-subjective condition.

In a subjective-subjective condition, no inferential path differences emerge. An example of items in this condition is:

A A hates Reader's Digest.

Does A abhor Reader's Digest?
Does A abhor magazines?

B A hates Reader's Digest.

Does A hate magazines?
Does A abhor magazines?

Generalizations are always over subjective verbs in this condition.

In a third, intentionality condition, path difference did occur. In the following example there was more agreement with the final statement with inferential path A.

A O destroys Reader's Digest.

Does O destroy magazines?
Does O want to destroy magazines?

B O destroys Reader's Digest.

Does O want to destroy Reader's Digest?
Does O want to destroy magazines?

Again, agreement is stronger when generalizations are over manifest verbs.

These effects may be accounted for by a primacy effect in attribution according to Kanouse. More specifically, agreement with the final statement is strongest in paths in which the intermediate statement does least to explain the initial statement. For example "O destroys magazines",

does not explain "O destroys Reader's Digest" and so Ss go on to agree with the final statement (O hates magazines) which explains both of the former statements. On the other hand, "O hates Reader's Digest" explains in some sense "O destroys Reader's Digest", and so there is no explanatory power gained by generalizing from "O hates Reader's Digest" to "O hates magazines". In the subjective-subjective condition, the intermediate sentences do no appear to differ in explanatory power and so no path differences emerge. In the intentionality condition, the arguments also apply since the intention implied by "wants to destroy" explains in some sense, the act of destroying.

Kanouse (1971) concludes from these results, as does Heider, that explaining behaviour is a basic goal of attributors. If they explain behaviour at a low level of generality (pertaining to few objects) they will not go on to generalize to further objects. On the other hand, if behaviour is first generalized via psycholinguistic variables to larger object class, it still must be explained and will be explained at this higher level of generality. These effects compliment a large body of attribution literature suggesting that primacy effects are prevelant (Jones, Goethals, Kennington and Severence, 1971; Jones, Rock, Shaver, Goethals and Ward, 1968; Norman, 1975; Thibault and Ross, 1969). (See Jones and Goethals (1971) for a review.) Once an explanation is found for behaviour, it is remarkably resistant to change in the face of new information.

## Conclusion

The research on generalizations by Abelson, Kanouse and their colleagues makes several important points about the attribution process. First, it emphasizes the separation of the process into two distinct parts. One of these describes the extent to which an observer perceives

an act to be typical of an actor (or is generalizable). The other is the extent to which the observer infers a disposition (subjective verb) from an action (manifest verb).[5]

Secondly, generalizations are stronger over objects than subjects (for induction). The basis of this effect is presumed to be the assumption of attributors that subjects or actors represent a less homogeneous class than do objects, or the acted upon. This means that it is more difficult for attributors to perceive similarities among subjects than objects. Implicit quantifiers are lower for objects than subjects because few objects need to similarly "verbed" by subjects for the generalization to apply. (For example, "Helen buys wigs" need imply that only that one or two wigs are bought. On the other hand, "People buy wigs" implies that at least several people do so.)

Attribution research has often noticed a similar effect. In experiments where the observer is presented with an actor (subject) acting on his social environment (the object or acted upon) attributions to the actor are much more common (e.g., McArthur, 1972). Presumably, this is because the actions are seen as more generalizable to other social environments than to other actors.

Thirdly, the evidence suggests that observers may explain actions at low levels of generality or at high levels of generality, but to explain behaviour at a high level of generality, the generalization must occur first.

For example, attributors might state that an actor may tear up a particular magazine (Reader's Digest) because they dislike that magazine. They may also claim that an actor will tear magazines in general because they dislike magazines in general. On the other hand, they will only explain tearing of Reader's Digest by a dislike of magazines in general

if they first generalize the manifest behaviour to magazines in general. They will not generalize to magazines if they first explain the actor's behaviour towards one particular publication.

In summary, it appears that behaviour can be explained by attributors either at the level at which it occurs or at an inferred greater level of generality. The level of generality at which behaviour is explained is the level at which the perceiver presumes it to occur. In turn, this perceived level of generality depends on the implicit information that the attributor receives (i.e., implicit quantifiers or implicit homogeneity of classes of subjects or objects).

The present experiments were designed to investigate the applicability of these derivations to an attribution context. In the most basic of these contexts a passive observer is shown the behaviour of an actor and asked to explain it. Even this differs from the contexts reported by Kanouse (1971) in which Ss were presented information in a highly stylized written format describing imaginary (although perhaps hard to imagine) behaviours.

Footnotes

1. Recently there has been some ambiguity in the literature regarding the meaning of the term "attribution". Strictly speaking, this refers to the process whereby a person perceives the causal nexus of a behaviour. This means that it is behaviours which are attributed to causes. However, this process often results in the perception of some trait or disposition in the person behaving. For instance, Person A exhibits behaviour X because he possesses trait Y. Consequently, some authors (e.g., Anderson, 1974) have used the terms to refer to the assignment of a trait to a person, often bypassing the causal analysis altogether. This second usage of the term is not included in the present discussion.
2. Where used, the term "non-passive" describes observers who are motivationally involved with actors. This includes active observers, observers who expect to interact, those whose reward outcomes are affected by actors, etc.
3. Since the ensuing discussion involved extensive references to sentence subjects, any reference to experimental subjects will be made in abbreviated form (e.g., S) to avoid confusion.
4. The reader may note a similarity to Kelley's (1972) analysis of attribution in interaction. It may be assumed that if a subjective relationship only applies to a few cases, it may not be said to exist at all since there are no external-inhibitory forces at play as there are in the case of manifest relations (i.e., availabity).
5. It is not being argued that dispositions are subjective verbs and actions are manifest verbs. The verbs are meant to be a linguistic analogue to attribution processes.

## Appendix 2 Written Instructions to Subjects

This experiment is set up to look at bargaining and negotiations. Two people will be bargaining with each other, and there will be two bargaining sessions.

To Interviewers:

You will be involved in the first bargaining session but will just watch the second.

To Negotiators:

You will be involved in both bargaining sessions.

To all Subjects:

As you know, people participating in this experiment will have a chance to win money in a lottery. This money is payment for participation. The first prize is $100. and the second prize is $35.

To make the bargaining session more interesting people will bargain for the number of tickets to the lottery they will receive. There will be 25 tickets available to the two bargainers and they must arrive at an agreement on how to divide these tickets between them. The listing below explains how the bargaining works

| Offer | Person A gets | Person B gets |
|---|---|---|
| 1 | 17 | 8 |
| 2 | 16 | 9 |
| 3 | 15 | 10 |
| 4 | 14 | 11 |
| 5 | 13 | 12 |
| 6 | 12 | 13 |
| 7 | 11 | 14 |
| 8 | 10 | 15 |
| 9 | 9 | 16 |
| 10 | 8 | 17 |

Suppose you are Person B. You would choose one of the ten offers listed above. For example, you might choose offer number 7. This means that you want the other person (Person A) to get 11 tickets while you get 14 tickets. However, Person A will also be making you an offer at the same time. If he or she also chooses offer number 7, the bargaining will be over. You will get 14 tickets and Person A will get 11 tickets. If Person A does <u>not</u> make the same offer to you as you make to him or her, the bargaining will continue. Both you and Person A will make a second offer to each other. Again, if you make the same offers the bargaining will be over.

The bargaining session will continue until you and Person A make the same offer to each other. If you have not done this after 15 attempts (or offers) the bargaining session will be over and you will both get 8 tickets. In other words, you and Person A must come to an agreement on how

to divide the tickets within 15 trials, or both of you will get 8 tickets to the lottery.

Once again, there will be two sessions. In the first you will be Person B and will bargain with Person A. This first session will be a practice or warm-up session. You will not actually be bargaining for lottery tickets or chances in this first session. Nevertheless, you should make your choices as if you were actually bargaining for the tickets.

To Interviewers:

In the second session Person A will bargain with another person. In this session the bargainers will actually be deciding how to divide up the lottery tickets. You will watch this second session. Your job will be to predict what offers Person A will make. Just before each offer is made you will write down the offer that you think Person A is going to make. The more accurate your predictions are, the more lottery tickets you will receive for yourself. Remember, you make these predictions only during the second session. In the first, you will be in a practise session with Person A.

To Bargainers:

In the second bargaining session, you and Person A will bargain again. This time you will actually be negotiating for the lottery tickets. The rules for this second session are the same as those for the first. Remember, the first session is a practise session, and in the second session you actually negotiate for lottery tickets.

Generalizing Condition:

While you negotiate in the first session, we would like you to keep a certain question in mind. The question is, would Person A make the same offers to other people as he or she is making to you? Try to keep this question in mind throughout the first session. To help you do this, the question will be repeated to you a number of times over a set of headphones as you bargain. You will also receive additional instructions on how to make your offers while bargaining.

Characterizing Condition:

While you negotiate in the first session, we would like you to keep a certain question in mind. The question is, is Person A being unfair with you? Try to keep this question in mind throughout the first session. To help you do this, the question will be repeated to you a number of times over a set of headphones as you bargain. You will also receive additional instructions on how to make your offers while bargaining.

Spontaneous Condition:

During the first session you will be wearing a set of headphones. You will receive additional instructions over these headphones on how to make your offers while bargaining.

To all Subjects:

If you have any questions about what you are to do, ask the experimenter before bargaining starts. Once you have started you will not be able to ask questions because of the headphones.

Finally, please do not speak to the other person in the experiment until the bargaining sessions are complete.

## Appendix 3 Tape Instructions to Subjects

This is the first bargaining session. On the sheet of paper taped to the table in front of you is a listing of the ten offers you may choose from while bargaining. Also in front of you are 10 numbered cards. To make your offer hold up the appropriate numbered card so that the experimenter can see it. When both of you have made an offer, the experimenter will record your choices, and then hold up another numbered card to let you know what your opponent has offered you.

Generalizing Condition:

Remember that you were asked to think about the question, would Person A make the same offers to other people as he or she is making to you?

Characterizing Condition:

Remember that you were asked to think about the question, is Person A being unfair with you?

All Conditions:

We will start in a few seconds.

-5 second delay-

This is trial 1. Decide on what offer you wish to make to Person A.

-10 second delay-

Hold up the appropriate numbered card to the experimenter. The experimenter will record your choice and then hold up a card to let you know your opponent's offer.

-10 second delay-

This is trial 2. Decide on your offer and hold up the appropriate card.

Generalizing Condition:

Remember the question you should keep in mind is, would Person A make the same offers to other people as he or she is making to you?

Characterizing Condition:

Remember the question you should keep in mind is, is Person A being unfair with you?

-25 second delay-

This is trial 3. Decide on your offer and hold up the appropriate card.

Subsequently, odd numbered trials are the same as trial 3, and even numbered trials are the same as trial 2.

## Appendix 4 Table of Bargaining Offers Given to Subjects

### BARGAINING OFFERS

| OFFER # | PERSON A GETS | PERSON B GETS |
|---|---|---|
| 1 | 17 chances | 8 chances |
| 2 | 16 " | 9 " |
| 3 | 15 " | 10 " |
| 4 | 14 " | 11 " |
| 5 | 13 " | 12 " |
| 6 | 12 " | 13 " |
| 7 | 11 " | 14 " |
| 8 | 10 " | 15 " |
| 9 | 9 " | 16 " |
| 10 | 8 " | 17 " |

## Appendix 5 Dependent Measures

Page 1. Given to all Subjects

On the following pages are a few simple questions about the bargaining session. Please answer them in order and please don't go back to change any of your answers once you have given them. Some of the questions are answered by placing a mark on a seven point scale. For example, consider the question:

Did session one take a long time?

| | | | | | | |
|---|---|---|---|---|---|---|
| definitely not | | | | | | definitely |

If you thought session one did take a long time you would mark the scale towards the right hand end. If you thought it was a short session, you would mark the scale towards the left hand end. If you thought the session was not particularly long or short, you would mark the scale towards the centre. If you have any questions please ask the experimenter before going on.

Page 2. Given to Generalizing and Characterizing conditions only

What was the question you were asked to consider during the first session?

_____

_____

Page 3. Given to all subjects

What did the experimenter say that you will be doing in the second session?

Page 4. Given to Generalizing condition only

Do you think Person A would make the same offers when bargaining with other people as he or she made to you?

_____ _____ _____ _____ _____ _____ _____

definitely not

definitely

Page 5. Given to Characterizing condition only

Do you think that Person A was unfair with you during the first bargaining session?

| | | | | | | |
|---|---|---|---|---|---|---|
| _____ | _____ | _____ | _____ | _____ | _____ | _____ |
| definitely not | | | | | | definitely |

Page 6. Given to all subjects

Do you think Person A would be unfair with people in general?

definitely not _____ _____ _____ _____ _____ _____ _____ definitely

Page 7. Given to all subjects

There are a number of things that may have been responsible for Person A's behaviour. In other words the offers that Person A made may have been caused by a number of factors. How responsible do you think you were for the offers Person A made during the first bargaining session?

_____ _____ _____ _____ _____ _____ _____

definitely not — definitely

## Appendix 6 Sex Effects

Of the ten subjects in each experimental condition, six were female and four were male. Cell means with Sex included appear in Table 13. While Sex can be considered a factor in the design, unequal cell frequencies create some confounding among factors. Specifically, each partition of the design is confounded with its interaction with sex.

Consequently, each test of significance must be conducted twice; once with a confounded factor included and once with it removed. The second test is similar to a covariance analysis. The only factor excluded from this necessity is of course, the main effect of sex.

### Main Effect

A multivariate test of the Sex factor revealed no effect ($F(2,47)=2.38$, $p < .10$). There was however an effect of Sex on attributions to the object ($F(1,48)=4.44$, $p < .04$), indicating that females were less likely than were males to see themselves as a cause of the actor's behaviour. This difference must be interpreted with caution however, since the multivariate test was not significant.

### Interactions

The multivariate effect of the Sex by Role by Path interaction was clearly non-significant both with or without the Role by Path interaction included (Both: $F < 1$). Univariate tests were also clearly non-significant (All: $p > .30$).

Similarly, the multivariate Sex by Path interaction was non-significant with Path effects removed ($F(4,94)=1.26$, $p < .292$, Roots 1-2; $F(1, 47.5)=2.07$, $p < .156$, Root 2) and with Path effects included ($F(4,94)= 0.77$, $p < .546$, Roots 1-2, $F(1,47.5)=0.91$, $p < .346$, Root 2).

There was a clearly significant multivariate interaction between

Table 13. Means on Main Dependent Measures (Sex Included)

| Role/Sex | Inferential Path | | | |
|---|---|---|---|---|
| | Generalizing | Characterizing | Spontaneous | (Total) |
| | Measure 1: Dispositional Inference | | | |
| Interviewers | | | | |
| Male | 2.75 | 4.75 | 4.00 | (3.83) |
| Female | 4.17 | 5.00 | 5.00 | (4.72) |
| Negotiators | | | | |
| Male | 3.50 | 6.25 | 4.25 | (4.67) |
| Female | 3.33 | 4.17 | 3.50 | (3.67) |
| | Measure 2: Attributions to the Object | | | |
| Interviewers | | | | |
| Male | 4.25 | 2.75 | 4.25 | (3.75) |
| Female | 3.17 | 2.50 | 1.83 | (2.50) |
| Negotiators | | | | |
| Male | 3.75 | 3.50 | 5.00 | (4.08) |
| Female | 4.17 | 2.83 | 4.33 | (3.77) |

Role and Sex with Role effects removed ($F(2,47)=3.26$, $p < .047$) and with Role included ($F(2,47)=3.97$, $p < .026$). Table 14 summarizes this effect as well as its constituent simple effect. The right-most column in Table 13 gives the summary means for the effect. A test of the simple effects of sex showed that within the Interviewer condition, females were more likely to make a dispositional inference, and less likely to see themselves as a cause of the actor's behaviour, than were males ($F(2,47)=4.29$, $p < .020$).

The interaction was also broken into simple effects of Role. These are not of course, independent on the simple effects of Sex described above. A significant effect of Role for females revealed that those in the Interviewer condition made stronger dispositional attributions and weaker attributions to the object than did those in the Negotiator condition ($F(2,47)=4.93$, $p < .011$). A similar effect for males was not found ($F(2,47)=1.40$, $p < .257$).

Table 14. Multivariate Analysis of Main Dependent Measures (Sex X Role Interaction)

| Source | df(num) | df(err) | F | p(less than) | S.D.F.C.[1] |
|---|---|---|---|---|---|
| Role X Sex | | | | | |
| I Role Removed | 2 | 47 | 3.26 | .047 | |
| Dispositional Inferences[2] | 1 | 48 | 6.14 | .017 | .892 |
| Attribution to Object[2] | 1 | 48 | 1.64 | .207 | -.291 |
| II Role Included | 2 | 47 | 3.97 | .026 | |
| Dispositional Inferences[2] | 1 | 48 | 6.69 | .013 | .810 |
| Attribution to Object[2] | 1 | 48 | 3.07 | .086 | -.429 |
| Sex Within Interviewer Condition | 2 | 47 | 4.29 | .020 | |
| Dispositional Inferences[2] | 1 | 48 | 3.05 | .087 | -.400 |
| Attribution to Object[2] | 1 | 48 | 7.43 | .009 | .829 |
| Sex Within Negotiator Condition | 2 | 47 | 2.06 | .139 | |
| Dispositional Inferences[2] | 1 | 48 | 3.67 | .061 | 1.018 |
| Attribution to Object[2] | 1 | 48 | 0.08 | .781 | .370 |
| Role Effect For Males | 2 | 47 | 1.40 | .257 | |
| Dispositional Inferences[2] | 1 | 48 | 1.99 | .165 | .965 |
| Attribution to Object[2] | 1 | 48 | 0.34 | .563 | .566 |
| Role Effect For Females | 2 | 47 | 4.93 | .011 | |
| Dispositional Inferences[2] | 1 | 48 | 4.79 | .034 | -.519 |
| Attribution to Object[2] | 1 | 48 | 7.49 | .009 | .744 |

[1]Standard Discriminant Function Co-efficients (refer only to univariate tests).

[2]Univariate tests.

# Vita

Name: Stephen A. Norman

Date of Birth: September 1 1950 Place of Birth: Dover, Kent, England

Educational Institutions Attended:

| | |
|---|---|
| University of Waterloo | Sept 1969 to August 1974 |
| University of Victoria | Sept 1974 to August 1978 |

Degrees Awarded:

| | | |
|---|---|---|
| B.A. (Hons) | 1972 | University of Waterloo |
| M.A. | 1974 | University of Waterloo |

Awards:

Ontario Graduate Scholarship 1972/1973

University of Victoria Scolarship 1974/1975 and 1975/1976

Publications:

Miller, D.T. & Norman, S.A. Actor-Observer differences in perceptions of effective control. Journal of Personality and Social Psychology, 1975, 31, 503-515.

Miller, D.T., Norman, S.A. & Wright, E. Need for effective control and distortion in person perception. Journal of Personality and Social Psychology, 1978, in press.

PARTIAL COPYRIGHT LICENSE

I hereby grant the right to lend my dissertation(the title of which is shown below) to users of the University of Victoria Library, and to make single copies only for such users or in response to a request from the library of any other university, or similar institution, on its behalf or for one of its users. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by me or a member of the University designated by me. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Title of Dissertation

INFERENTIAL PATHS IN SOCIAL PERCEPTION

Author [redacted]

Stephen A. Norman

August 1978

(Date)