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EVALUATIVE INTERPERSONAL RESPONSES
AND ATTRIBUTIONS OF ATTITUDE:
A TEST OF LEARNING THEORY VARIABLES

A Thesis
Presented to the
Faculty of
California State College
San Bernardino

In Partial Fulfillment of
the Requirements for the Degree

in
Psychology
Master of Arts

Robert D. Mone


June 1982

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Approved by:


Chairperson


Date

ABSTRACT

A short verbal exchange between a male and a female student, ostensibly taped during an initial meeting at a campus computer dating service was the stimulus delivered to the 80 college women who served as subjects in this study. In the initial phase of the experiment the number (2, 5), latency (2 sec, 4 sec) and direction (positive, negative) of the female students' attitude relevant responses were manipulated. Only direction of response had a significant effect on the attitudes attributed to the female student. In phase 2 of the experiment, subjects were asked to listen to the same tape again. Half were exposed to the same tape and half to the same dialogue with the alternative response latency. The results support the hypotheses that casual observers attend to latency and direction of response in attributing interpersonal attitudes.

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INTRODUCTION

The specific focus of this paper is an experimental investigation of the effects of varying the direction, frequency, and latency of an actor's evaluative interpersonal responses, on the strength of the attitudes attributed to that actor. In broader focus, however, the experiment may be seen as an attempt to forge some empirical links between theories of attribution and general learning theory in an area where both approaches have been applied. The goal of this introductory section is first to review attribution theory, especially the work done on the attribution of attitudes. This will be followed by a review of learning theory based models of attitude acquisition and change. These reviews attempt to clarify the logic of the hypotheses tested in this experiment.

Attribution Theory

Attribution theory grew from the study of person perception. Fundamentally, it deals with the social perceptions of ordinary people and the manner in which they organize and extract meaning from the social events occurring in their environments (Harris & Harvey, 1981). Fritz Heider, the acknowledged progenitor of attribution theories, is a gestalt psychologist. He and gestalt psychology have exerted a pervasive influence on research and theorizing in the area of attribution. Thus no review of attribution theory, however cursory, would be

complete without some mention of gestalt psychology.

According to gestalt psychologists, a scientific analysis of the objective characteristics of an entity will not yield an understanding of how the entity will be perceived (Deutch and Krauss, 1965). A basic assumption of gestalt psychology is that perception is fundamentally a synthesizing and organizing process which is imposed by an organism upon the stimuli which impinge upon its sensory systems. Consequently, an objective analysis of a stimulus field would fail to detect the organization routinely contributed by a perceiving organism. Another basic assumption of the gestaltist is that perceptual organization is not haphazard, but directed toward achieving some optimal state of order and simplicity (Deutch & Krauss, 1965). Given these two basic assumptions the task of gestalt psychology is to delineate the mechanisms of perceptual organization and specify the limits of their application.

Two such mechanisms are "perceptual grouping" and "assimilation and contrast". Perceptual grouping is a mechanism which allows the organization of a stimulus field on the basis of a multiplicity of principles. These principles include, common fate, similarity, proximity, common boundary, good form, cause and effect, past experience and expectancy (Deutch & Krauss, 1965). These principles allow the grouping of stimuli into fewer categories than the original number of stimuli and build in, among the categories established, sys-

tematic, symmetrical or balanced relationships. Analogous processes have been postulated in the study of short term memory. The process of "chunking" (Miller, 1959) is directly analogous to grouping and the process of "subjective organization" (Tulving, 1962) is analogous to supplying systematic relatedness among categories. In either case, perception or short term memory, fewer categories and systematic relatedness among categories are postulated as facilitating and economizing cognitive work.

The mechanism of assimilation and contrast involves simultaneously maximizing and minimizing perceptual differences, and accounts for perceptual differentiation and the establishment of figure-ground relationships.

Essentially, the task Heider set for himself was to transplant these notions from his gestalt psychology of perception to the arena of social psychology. Heider's (1958) first steps in this process were to suggest that attempting to understand social interactions, or simplify a field of social stimuli, generally involves grouping the stimulus field into causes and effects; and further grouping causes into personal and impersonal causes. This grouping, Heider suggested, is followed by a naive analysis of action. Heider termed the analysis "naive" because it is carried out by ordinary people with no formal training concerning the principles of scientific psychology. Nevertheless, Heider characterized the analysis as a relatively systematic and

rapid review of an actor's motivation, effort, and ability in conjunction with a review of the environmental forces favoring or opposing the action.

According to Heider (1958), a strong perceptual bias operates during the organization of a field of social stimuli which strongly favors the inference that something about the actor(s) in the field caused action. The naive analysis of action is a process through which adjustments for this bias can be made. If the naive analysis ends in an attribution of intention to a person, the cause of the action is economically assumed to reside within that person. In short, the person is assumed to have a personal disposition to act in the manner observed. Much of the recent attribution research has tended to equate "personal dispositions" with attitudes.

Heider's application of gestalt principles to social psychology has several unique characteristics. For example, his analysis emphasized the application of the mechanism of perceptual grouping and he focussed on the perception of social behavior rather than on social behavior itself. These characteristics reduced the testability of his attribution theory. That is, the functional mechanisms were phenomenological; causes and their perception were locked away inside the minds of the actors and the observers. Consequently, experimental manipulations which could test his theory were difficult to devise.

The theory of correspondent inferences developed by Jones

and Davis (1965) was specifically intended to improve the testability of Heider's theory of social psychology. It did so by focussing analytical attention on the effects of an actor's actions rather than on the observers perceptual process.

It has been suggested (Cowan, Note 1) that Jones and Davis (1965) took the gestalt out of attribution theory. It is proposed here, however, that Jones and Davis merely shifted from perceptual grouping as the mechanism of choice in the organization of social perceptions to the mechanism of assimilation and contrast. This shift is easy to characterize. According to the theory of correspondent inferences the unique dispositional character of an actor can be inferred from the effects of an action, if that action has effects not common to the available alternative actions. For example, if an actor chose to own one of two identically equipped automobiles, which only differed in that one was yellow and the other red, the color could confidently be inferred to be the criterion upon which the choice was made. However, the more effects the action taken had that were not common to the available alternative actions (say the automobiles had different sized engines and different interiors, as well as different color paint jobs) the less confidently could a causal inference be drawn about the actor's disposition.

Just how informative such non-common effects will be

partially depends upon the social desirability of the effects. Highly desirable non-common effects reveal only that the actor behaved as others would have behaved. Thus choosing a new Porche over an old Falcon, offered for the same price, reveals little about an actor that could not have been guessed before the action was taken. However non-common effects low in social desirability reveal something unique about the actor. Choosing the old Falcon over the Porche suggest the actor is unusual.

Jones (1978) has since suggested that the theory of correspondent inference is actually a theory of information gain. The inference that an actor's character is distinctive in some regard is only justified if some unexpected behavior is revealed, either directly or indirectly. In this case, an expectancy has been violated, and information has been gained over and above that which could have been reliably guessed correctly based on the expectancy. Jones goes on to suggest that an expectancy may be category based or target based. That is, an expectancy may be based on the behavior of other actors who share some category membership with the actor being observed. Or, the expectancy may be based on past observations of the actor who is the attributional target (Jones & Berglas, 1976).

In any event, the social perception process by assimilating or contrasting it with the actions of other actors or with the previous actions of the same actor.

This utilization of the assimilation and contrast mechanism in explaining the social perception process is even more evident in Kelley's ANOVA model of attribution (Kelley, 1967). According to Kelley, observers attribute causal significance for an action on the basis of an attribution data table. Such a table is a three dimensioned conceptual cube which allows the observer to systematically vary the ground against which the action in question is viewed. One dimension allows the observer to contrast the actor against other possible actors. Another dimension allows for contrasts among entities, the recipients of the action. The third dimension allows for contrast among settings, or time and modality features of the action. Kelley holds that the object of this systematic review of an action is a search for consensus, consistency, and distinctiveness. Consensus and consistency are consistent with the concept of assimilation, while distinctiveness is analogous to the older gestalt concept, contrast.

This emphasis on assimilation and contrast as the principle mechanism through which meaning is extracted from a field of social stimuli has focussed interest on contextual issues. That is, a person's acts are always perceived within a context of alternatives, or options, the nature of which should powerfully influence the attributions made to that person. Interest in such contextual issues is very evident in research concerning the attribution of attitudes.

Attribution of Attitudes

Jones and Harris (1967) reported three experiments in which they attempted to demonstrate the dependence of attitude attributions on contextual variables. In the first experiment, the action observed by the subjects was an essay expressing either a favorable or an unfavorable attitude toward Castro's Cuba. Although this involved a direct manipulation of the actor's behavior, the actor being the essay writer, it was conceptualized by Jones and Harris as a manipulation of prior probability, or expectancy. The other independent variable was choice. Either the essay expressed a position that had been assigned to its writer or a position that had been freely chosen by its writer. In either case the writer was ostensibly a student.

The experiment had a 2 X 2 factorial design with two levels of prior probability (high, low) and two levels of choice (choice, no choice). In line with Correspondent Inference Theory, Jones and Harris hypothesized that attitude attributions would be correspondent (inferred directly from behavior) only in the choice condition and only where the expectancy was violated. In the no-choice condition the essay would not be informative regarding the writer's attitude. This was so because an alternative non-common effect of writing such an essay, in addition to self-expression, would be to satisfy the demands of a teacher. Therefore, the attributors would discount the evidence as not being indicative

of the actor's attitude and make attributions based on the initial expectancy or the highest prior probability.

The results failed to support Jones and Harris' predictions. Choice or no-choice, attitudes were attributed in line with the opinions expressed in the essays. In short, the attributions were correspondent with behavior regardless of context. This pattern of results was labeled, "the over-attribution effect."

The second experiment was a replication of the first but with many more subjects and eight additional control groups. Three of these control groups manipulated the salience of the no-choice constraints. Prior to making attitudinal attributions to the writer, the subject was required to write an essay and not given a choice about which opinion to espouse. Five other control conditions involved essays with balanced presentations of pro and con arguments. Supposedly, these essays had been written despite instructions to express only a pro or only a con position. The results of the replication confirmed the results of the first experiment. Even in the highly salient no-choice context, the attitudes attributed were in line with the behavior observed. Only those individuals in the no-choice condition whose essays were balanced or ambivalent were attributed attitudes contrary to the assigned direction of their essays. This result was labeled, "the foot dragging effect."

In experiment 3 there was a topic change to racial segre-

gation and the mode of action changed from a classroom essay to a tape recorded debate presentation. Prior probability was manipulated by having the presentation delivered by a Southern or Northern sounding gentleman. These individuals either supported or opposed segregation, and did so, either under conditions of choice or no-choice. As before, the attitudes attributed to the actors fell in line with their behavior regardless of the choice manipulation.

Over-attribution, inadequate discounting, or what would ultimately become known as the "fundamental attribution error" had been established as a reliable phenomenon.

Jones, Worchel, Goethal and Grumet (1971) suggested that there were two important weaknesses in the Jones and Harris (1967) series of experiments. First, the manipulation of expectancy was not experimentally based. Rather, it was based on a hunch about what the subject/observer would expect from the actors. Second, the strength of the attitude relevant behavior was not systematically varied. The variation that did occur however suggested that it might account for significant amounts of attributional variance. To address these weaknesses the Jones, et. al (1971) experiment varied expectancy by presenting information about the writer's attitudes on other similar issues, and consistently presented him as being very liberal or very conservative. The strengths of the essays were varied at two levels, strong and weak. Choice and direction of presentation were also varied. Thus,

the experiment had a 2 X 2 X 2 X 2 factorial design with two contextual variables (choice and expectancy) and two behavioral variables (direction and strength of essay).

The results reaffirmed that the direction of the essay had a significant effect upon attitude attributions even under the no-choice condition. However, the impact of the essay's direction on the attributions made was greater in the choice condition than in the no-choice condition. In line with the results of Jones and Harris' second experiment; weak essays, under the no-choice conditions, lead to attitude attributions opposite the attitudes espoused in the essay. For example, a weak pro-Castro essay presented in a no-choice pro-Castro condition was taken as evidence of a basically anti-Castro attitude. Again, this was referred to as "The foot dragging effect." These experimental results indicate that except where the behavioral cues are weak attributors are much more sensitive to behavioral cues and much less sensitive to contextual cues.

In defense of the gestalt view Kelley (1971) and Lopes (1972) both suggested that the essay paradigm is flawed because the essays are actually written by experimenters rather than by legitimate actors being forced to espouse unfamiliar views. Thus, the no-choice essays are perceived as too smooth, or too polished, to have been concocted by someone who honestly held an opposing view. Kelley suggested that the over-attribution effect might be accounted for by the presentation of strong behavioral cues and relatively weak contextual cues.

To test these possible artifactual explanations of the over-attribution effect, Snyder and Jones (1974) report a series of five experiments. The first experiment involved essays which were either pro-Castro or pro-marijuana legalization. Half the writers in each condition were primed with three plausible "pro" arguments which they could use in their essays. The other subjects were not so primed. Finally, the essays written on each issues were collected and distributed among the subjects who had written essays on the other issue. The two groups of subjects were housed in separated rooms during the experiment. Upon distribution, half of the essays were presented as having been primed and half as not having been primed. This manipulation of perceived priming was crossed with actual priming. Thus the experiment had a 2 X 2 X 2 factorial design, crossing issues, actual priming, and perceived priming.

Subjects in this experiment served as both actors and observers. Furthermore, the subjects attitudes on the relevant issues were measured prior to and after writing their essays. This measurement allowed Snyder and Jones to determine if there was any systematic attitude change as a function of writing the essays, and to determine more accurately the extent of any over-attribution. That is, the attitude attributed to a writer minus the writers own attitude yielded a more sensitive measure of over-attribution.

The results showed neither attitude change (in the direc-

tion of the opinion espoused in the essay) nor any effects due to actual or perceived priming. It did, however, clearly demonstrate the over-attribution effect.

The second experiment reported by Snyder and Jones was essentially a replication of the first with a much larger number of subjects (139 instead of 38). The results were the same.

In the third experiment the hypothesis advanced was that the essay writers might actually be changing their attitudes as a function of essay writing but might be reluctant to change their response from the pre to the post attitude measurement. In short, it was hypothesized that the attributors might be more accurate than the actors. To test this possibility only half of the subjects were asked to register their attitudes prior to writing an essay. No significant differences were detected between the post essay writing attitudes of subjects who had, and subjects who had not, committed themselves on a pre essay writing attitude measure. The over-attribution effect however was clearly present.

Having attributors write essays under constraining circumstances on one issue may not sensitize them to the effects of those same constraints on essay writers dealing with another issues. In the fourth experiment all subjects wrote and read essays on the same side of the same issue under the same constraints. Furthermore, all attributors were aware that the essays they were reading were the product of

the same circumstances under which they had written their own essay. Although as actors these subjects did not attribute any attitude change to themselves as a function of having written their essays, as observers, they systematically attributed attitudes to actors in line with the opinions expressed in the essays.

The final experiment reported by Snyder and Jones crossed three levels of constraint (choice, no-choice, forced priming) with two levels of essay direction (pro and con socialized medicine). The priming condition differed from the one that had been used in earlier experiments in that subjects were forcefully directed to use the arguments with which they were primed. The results demonstrated that the attitudes attributed to essay writers were most correspondent in the choice condition, and significantly correspondent in the no-choice condition but not significantly affected by essay direction in the forced priming condition. Snyder and Jones concluded that "...when behavior closely corresponds to detail constraints, their impact on the actor receives fuller recognition" (p. 596).

Taken as a whole, the experimental evidence on the attribution of attitudes supports the conclusion that casual observers are very sensitive to behavioral cues. So much so, that unless the behavioral cues are weak or ambiguous, they exert a prepotent influence over the attribution process. Put somewhat differently, it appears that the casual observer,

Fritz Heider's "naive psychologist", displays a behavioristic bias while inferring personal dispositions. Heider, in fact, acknowledged this bias and characterized it as "behavior engulfing the field" (Heider, 1944). Given these results the question arises; Just how sophisticated are naive psychologists? How thoroughly do they grasp the causal network relating attitudes to behavior? Can they intuit the relationships between attitudes and behavior that have been established in the laboratory? The experiment presented in this paper attempts to address these questions.

Learning Theories of Attitude

Gordon Allport (1935) traced the use of the term attitude in psychological literature to its introduction in connection with reaction time studies. An attitude, or a motor attitude as it was originally termed, was an explanatory device hypothesized to exist in order to account for the discovery that reaction times were reliably shorter when subjects were instructed to attend to the motor, rather than the perceptual, aspect of a reaction time task.

Learning oriented theorists have attempted to accommodate the attitude concept into their theories by emphasizing its relationship to overt behavior. Doob (1947) conceived of an attitude as "an implicit, drive-producing response considered socially significant in the individuals society." (p. 136) That is, Doob considered an attitude to be an implicit response which could serve as an internal stimulus to which overt, as

well as cognitive responses, could be learned. Construing attitudes as responses implied that they could be influenced by all the same variables and procedures that influence other responses. Unfortunately, Doob's analysis of the nature of an attitude was purely theoretical and lacked direct experimental support.

Staats and Staats (1957) were among the first to provide experimental support for a learning theory of attitudes. Their theoretical formulations differed from Doob's in that they held that attitudes, implicit mediating responses of an evaluative nature, were classically conditioned, while attitudinally relevant overt behaviors were operantly conditioned. Their experimental investigations demonstrated that nonsense syllables, (CS analogs) which were initially judged to be affectively neutral, would, in the manner of a conditioned stimulus, take on the ability to elicit an affective response (CR analog) via repeated pairings with an affect eliciting word (UCS analog). Following Doob, the Staats demonstrated that socially significant stimuli, such as national names and common male names, could similarly be conditioned (Staats & Staats, 1958).

Dealing more directly with interpersonal attitudes, Lott and Lott and their associates demonstrated that real people can serve as conditioned stimuli as well as visually, or auditorily presented names. Lott & Lott (1960) reported an experiment that involved small groups of grammar school

children. Sociometric procedures were used to insure that the children brought together in those small groups were relatively neutral toward each other in terms of their interpersonal affect. Then, in the presence of the other members of his or her small group each child would play a game structured by the experimenter. The child's performance was then either rewarded or not rewarded. After the games were concluded, liking among members of the small groups was shown to be a function of the reward versus no reward manipulation. Children who had been rewarded in the presence of a group of other children liked the other children in their group more than they had previously, and significantly more so than those children who had not been rewarded.

Testing the applicability of learning theory one step further Lott, Aponte, Lott and McGinley (1969) had 32 first grade children perform a task twice, each time in the presence of a different adult. One adult rewarded each child immediately after his or her performance, while the other adult rewarded each child after a 10 second delay. The children subsequently identified the adult who had rewarded them immediately as more liked than the adult associated with the delay.

These and other findings encouraged the development of more sophisticated learning models of interpersonal attitudes. One such model is Byrne's Reinforcement Affect Model of Attraction (Byrne, 1971). Research reports by Byrne and his associates usually operationalize a reinforcing event as the

discovery of an attitude similarity between a subject and a real or experimentally implied, stranger. The reinforcing effects of attitude similarity was established by Golightly and Byrne (1964). They demonstrated on a simple discrimination task, that presenting attitude statements with which a subject agreed contingent upon correct response, and attitude statements with which a subject disagreed contingent upon incorrect responses yielded significantly improved discriminative responding.

Byrne sought to vary the strength or magnitude of the reinforcers he used in his experiments but found that varying the importance of the issue the attitude statement dealt with was ineffective. Instead, Byrne and Rhomey (1965) found that positive or negative evaluations of a personal attribute were three times more potent as reinforcers and punishers than statements revealing attitude similarity on impersonal topics. This discovery lead Byrne and his associates to reformulate the Law of Attraction. They suggested that attraction toward a person is a positive linear function of the proportion of weighted reinforcements received from that person. Although the model proposed by Byrne was elegant compared to other learning theory based models of interpersonal attitudes it only faintly reflected the intricacy of basic Learning Theory as formulated by Hull, Spence and Miller.

Probably the most sophisticated learning theory adaption of the attitude concept was proposed by Weiss (1968). Using an

approach labeled "extension of liberalized S-R theory," (Miller, 1959), Weiss and his associates have pursued the study of attitudes and other social psychological phenomena by systematically constructing analogies from social psychology to variables in Hullian S-R theory.

All of the researchers discussed above used evaluative rating scales as their standard tools for measuring attitudes. Conceptualizing attitudes as prepared evaluative or affective responses, however, suggested an alternative operationalization. Weiss realized that a straight forward measure of the readiness of an affectively meaningful response is simply its latency. By adopting such a measure of attitude strength Weiss moved the study of attitudes from an ordinal to an interval level of measurement which is closer to the original conceptualization of the term, attitude.

Weiss noted that the most common measures of response strength in learning experiments are speed and resistance to extinction for instrumental conditioning and speed and probability of responding for classical conditioning. Although Weiss was unable to find a suitable analogue for resistance to extinction in his persuasive communication paradigm, he found that relative frequency of agreement was an excellent analogue to probability of responding, and that speed of agreement was highly correlated with probability of agreement. Drawing analogies between attitudes and responses, and persuasive arguments and reinforcement, and using speed of agree-

ment as a dependent measure of attitude strength, Weiss and his associates were able to demonstrate a variety of relationships. For example, (1) the strength of an attitude is a function of the number of times the attitude is paired with a persuasive communication (Weiss, Chapula, Gorman, and Goodman, 1981). (2) Attitude strength is greater for attitudes paired with strong rather than weak persuasive arguments (Weiss, Rawson, & Pasamanick, 1963). (3) Attitude strength is a multiplicative function of argument strength and number of persuasion trials (Weiss, Chapula, Gorman, and Goodman, 1968).

All of these relationships were predicted on the basis of analogies drawn between social psychological variables and learning theory variables. Most importantly these studies demonstrate that the latency of an evaluative response is an indicator of the strength of the evaluation.

In short, an actor can divulge the strength of his attitude by the latency of his attitude relevant responses; the shorter the latency, the stronger the attitude and the longer the latency, the weaker the attitude.

Thus, the learning approach to the study of attitudes, including interpersonal attitudes, has historically emphasized the relevance of classical conditioning, and to a lesser degree the relevance of instrumental conditioning. Studies conducted within this tradition have typically employed independent variables such as number of conditioning trials, strength of conditioning stimuli, and delay of reinforcement.

Given the sensitivity of the naive psychologist to behavioral cues about an actor's attitudes, it seems possible, if not probable, that naive psychologists utilize these cues (frequency, latency) in making inferences about the strength of an attitude. The hypotheses to be tested in the initial phase of the experiment propose that upon observing an evaluative interpersonal exchange subjects will:

1. attribute attitudes corresponding to response direction;
2. attribute stronger attitudes with higher frequencies of similar evaluations;
3. attribute stronger attitudes to shorter latency responses;
4. attribute attitude strength as a multiplicative function of response frequency and latency;
5. be more confident of attributions made when the actors behavior violates expectancies in social desirability (negative interpersonal evaluation) than when it is high in social desirability (positive interpersonal evaluation).

These hypotheses assume that subjects will have some category based expectancies about what the average college student's behavior would be like in the situation described in the experiment. The behavior observed by the subjects will be compared to these expectancies during the process of attributing attitudes. These expectancies may vary quite widely among subjects and thus obscure the effect of the independent variable manipulations, especially very subtle manipulations. In a second experimental phase this source of error variance

is reduced because subjects are provided with an explicit, target based expectancy (developed in Phase 1) against which to judge the actor's attitude. Thus two additional experimental hypotheses relevant to Phase 2 are:

6. shorter than expected latencies will lead to attributions of stronger attitudes;
7. longer than expected latencies will lead to attributions of weaker attitudes.

METHOD

Phase 1

Subjects. Acting on the suspicion that females would be more sensitive to the interpersonal cues given by a female, 80 female subjects were recruited from undergraduate psychology courses at California State College, San Bernardino. One subject was run per experimental session. Ten subjects were randomly assigned to each of the eight treatment conditions.

Design. Phase 1 of the experiment has a 2 X 2 X 2 factorial design with two levels of direction of response (positive, negative), two levels of number of responses (two, five) and two levels of latency of responses (two seconds, four seconds).

Apparatus. A cassette model (LXI) tape recorder was used to present the prerecorded verbal material to the subject. Both the experimenter and subject wore a pair of headphones while the tape recorder was on. For the subject, the headphones reduced the possible influence of any external noise; for the experimenter, the use of headphones facilitated the correct operation of the procedure at critical points.

Procedure. Upon arriving at the experimental room, the subject was seated at a desk equipped with a set of head-

phones. The headphone cord was draped over a six foot high partition to the right of the desk. The partition obstructed the subjects' view of the sound reproducing equipment and the experimenter during delivery of the recorded stimuli. Once the subject was seated, an introductory statement was placed before her and she was invited to follow the statement as it was read to her by the experimenter.

The statement read:

Your participation in this inquiry will involve listening to a tape recording lasting about 2 minutes. After you are exposed to the taped material you will be asked several questions about the impressions you formed from the tape.

The segment of conversation contained on the tape was recorded at a campus computer dating service. The service, while it operated, was offered to students free in exchange for their cooperation in a research project. The students were informed that the research concerned interpersonal exchanges and the development of personal relationships.

The two people whose voices you will hear were unacquainted prior to the occurrence of the meeting at which the recording was made. They were furnished each other's names by the dating service only 5 minutes prior to their meeting. The only additional information they had about each other was that they had been selected by the computer for the meeting. Whether or not they would actually seek to date each other was, of course, left entirely up to them.

After the statement had been read and the subject indicated that she understood the nature of the stimulus to be presented to her, she was asked to put on the headphones.

The experimenter then took his position behind the partition. A recording, one of 8 variations of the following dialogue, was then played to the subject.

Introductory	Bob:	Hi, you must be Karen.
statements:	Karen:	Yes, I am. You must be Bob.
	Bob:	Yes, well its nice to meet you. Is this your first computer date?
	Karen:	Yes, is this your first one, too?
Trial #1:	Bob:	Yes, and I'm a little nervous about what your first impression is; give me a hint, do you like my smile?
	Karen:	Yes, I do. It's ok./ Not particularly but it's ok.
Trial #2:	Bob:	Oh! Well, do you like my eyes?
	Karen:	Yes, I do. They're ok./ Not especially, they're ok.
Trial #3:	Bob:	How about my clothes, do you like the way I'm dressed?
	Karen:	Yes, you look alright./ Not particularly, you look alright.
Trial #4:	Bob:	Well, how about my hair; do you like my hair?
	Karen:	Yes, it looks alright./ Not especially; it looks alright.
Trial #5:	Bob:	Do you like my body?
	Karen:	Yes, I do. It's alright./ Not particularly; it's alright.

Closing Statement:

Bob: Well, I don't know if I feel any less nervous now that I've gotten a hint, but how about dinner tonight at the Castaways?

The presentation of the stimulus to the subject was interrupted as Bob finished asking Karen out for a date and before Karen had an opportunity to respond.

The items about which Bob questioned Karen were chosen by listing twenty-five items upon which a male might be complimented and submitting the entire list to a group of 20 undergraduate women. They were asked to rate as high, medium, or low, the reinforcement value of being complimented on each item. The 5 items judged as having the greatest potency as reinforcers were included in the dialogue.

The dialogue was actually recorded live twice; once with negative responses on all 5 trials, and once with positive responses on all 5 trials. These 2 original tapes were then duplicated, and the duplicates were edited and spliced so as to create 8 distinct tapes, representing the 8 cells of a basic 2 X 2 X 2 design. Four tapes had positive responses and 4 tapes had negative responses. Four tapes had 2 trials and 4 tapes had all 5 trials. Four tapes had 2 second pauses between Bob's questions and Karen's responses and 4 tapes had 4 second pauses between Bob's questions and Karen's responses.

After listening to the first recording, the subject was asked to fill out a questionnaire (Appendix A). The order

of the questionnaire items was counterbalanced across experimental subjects.

While the subject filled out the questionnaire at the end of phase 1 the experimenter either rewound the tape, in preparation for presenting the same recording again, or, moved the tape forward (the same distance as would have been necessary for a complete rewind) in preparation for presenting the same dialogue with the alternative response latency.

Once the questionnaire had been completed and collected, the experimenter indicated, "Now, I want you to listen to the tape again."

Phase 2

Phase 2 of the experiment has a $2 \times 2 \times 4$ factorial design with direction of response (positive, negative) number of responses (2, 5) and latency shift (short to short, short to long, long to long, long to short) as the independent variables. The subjects, apparatus, procedures and measures used during phase 2 were the same as those used in phase 1.

Design. Phase 2 of the experiment was specifically designed to provide the subject/observer with a standard for comparison, regarding the actor's response latency. That is, it was assumed that the response latency exhibited by the actor during the first exposure would establish an expectancy against which the latency displayed during the second exposure could be judged as long or short. During phase 2

the forty subjects who had originally heard short latency responses were randomly assigned to hear either the same short latency responses again or the long latency response version of the same dialogue. Likewise, the forty subjects who had originally heard long latency responses were randomly assigned to hear either the same long latency responses again or the short latency response version of the same dialogue.

Dependent measures

Each subject attributed attitudes to the actors on a 9-point likert scales which ranged from "extreme liking" through "neutral" to "extreme dislike". The other modifiers used were slight, moderate, and strong. The scales were scored such that a score of one equalled the most negative attitude attribution possible, 5 a neutral attribution, and 9 the most positive attitude attribution possible. Group comparisons were based on the mean attitude attributed to an actor by all the subjects exposed to a common condition.

Likewise each subject gave their subjective estimate of the probability that Karen would accept Bob's offer of a date. Estimates ranged from 0%, indicating absolute certainty that she would reject his offer, through 50%, indicating both outcomes were equally probable, to 100%, indicating absolute certainty that she would accept his offer. Comparisons among groups were based upon the mean probability of acceptance attributed to Karen. Finally, attri-

butional confidence was assessed on a 5-point scale ranging from no confidence to very strong confidence.

RESULTS AND DISCUSSION

Phase 1

As noted in the introduction, the specific focus of this experiment was the effect of varying the direction, frequency and latency of an actor's evaluative interpersonal responses on the attitudes attributed to that actor by outside observers. Thus, in this particular experiment the focus was on the attitudes attributed to Karen, the actor most directly expressing an attitude. The mean attitudes attributed to Karen in the various conditions are presented in Table 1. A factorial analysis of variance for those attitude attributions reveal only a significant effect for the direction of Karen's responses (see Table 2). The attitudes attributed were significantly more positive in the positive response condition than in the negative response condition. Neither the number of trials nor the latency of the responses accounted for a significant proportion of the total variance.

The mean probabilities of data acceptance, assigned to Karen in phase 1 are presented in Table 3. Again, an analysis of the variance for these attributed probabilities detected a significant effect only for the direction of response manipulation (see Table 4). As hypothesized positive responses lead to higher probabilities of data acceptance being

TABLE 1

Mean Attributions Regarding the Target Actor's
Attitude^a Toward the Object Actor in Phase 1

Trials	Direction			
	Positive		Negative	
	2-trials	5-trials	2-trials	5-trials
Latency				
short (2 sec)	4.2	4.8	3.8	4.0
long (4 sec)	4.6	4.7	4.0	3.8

^a Higher values mean greater liking

TABLE 2

Analysis of Variance Source Table for Attributions
 Regarding the Target Actor's Attitude
 Toward the Object Actor in Phase 1

Source	SS	df	MS	F	P
Direction (D)	9.112	1	9.112	6.634	.012*
Trials (T)	.612	1	.612	.446	.506
Latency (L)	.112	1	.112	.082	.776
D X T	.613	1	.613	.446	.506
D X L	.113	1	.113	.082	.775
T X L	1.013	1	1.013	.737	.393
D X T X L	.013	1	.013	.009	.924
Residual	98.90	72	1.374		
Total	110.49	79			

TABLE 3

Mean Probabilities of Data Acceptance Assigned
to the Attributional Target in Phase 1

Trials	Direction			
	Positive		Negative	
	2-trials	5-trials	2-trials	5-trials
Latency				
short (2 sec)	0.488	0.608	.365	.447
long (4 sec)	0.610	0.542	.447	.391

TABLE 4

Analysis of Variance Source Table for Attributions
 Regarding the Target Actor's Probability
 of Date Acceptance in Phase 1

Source	SS	df	MS	F	P
Direction (D)	4477.5	1	4477.5	9.297	.003*
Trials (T)	77.0	1	77.0	.166	.690
Latency (L)	84.7	1	84.7	.176	.676
D X T	8.3	1	8.3	.017	.896
D X L	10.9	1	10.9	.023	.881
T X L	1332.5	1	1332.5	2.767	.101
D X T X L	30.9	1	30.9	.064	.801
Residual	34675.9	72	481.6		

attributed to Karen. However, no other significant effects were detected.

The correlation between the attitudes attributed to Karen and the probabilities of date acceptance for phase 1 was highly significant ($r = 0.353$, $df = 78$, $p < .001$).

A t-test comparing the attributional confidence scores for subjects exposed to positive versus negative response tapes failed to detect any difference between the two conditions.

In summary, for phase 1, although the effect of direction predicted in hypothesis 1 was supported by the results; direction failed to interact in the predicted manner with the number of trials or the response latency. Thus, hypotheses 2, 3, and 4 were not supported. The results also failed to support hypothesis 5 concerning attributional confidence.

Phase 2

The data concerning attitudes attributed to Karen in phase 2 are summarized on Table 5. A source table for the corresponding $2 \times 2 \times 4$ factorial analysis of variance is presented in Table 6. The attitudes attributed to Karen after hearing a "replay" of the tape revealed significant main effects for direction of response and latency shift conditions. In addition, the interaction of trials and latency shift unexpectedly accounted for a significant amount of variance.

The effect of direction is again straight forward; the attitudes attributed to Karen were more positive when her

TABLE 5

Mean Attributions Regarding the Target Actor's
Attitude Toward the Object Actor in Phase 2

Trials	Direction			
	Positive		Negative	
	2-trials	5-trials	2-trials	5-trials
Latency Shift				
short-long	3.80	4.40	3.60	3.60
short-short	4.00	6.40	4.00	4.40
long-long	4.60	3.60	4.60	3.80
long-short	5.60	5.60	4.00	4.20

TABLE 6

Analysis of Variance Source Table for Attributions

Regarding the Target Actor's Attitude

Toward the Object Actor in Phase 2

Source	SS	df	MS	F	P
Direction (D)	8.45	1	8.45	6.50	.013*
Trials (T)	1.80	1	1.80	1.38	.244
Latency shift (L)	10.70	3	3.57	2.74	.050*
D X T	2.45	1	2.45	1.89	.175
D X L	5.05	3	1.68	1.30	.284
T X L	13.30	3	4.43	3.41	.023*
D X T X L	3.25	3	1.08	.83	.48
Residual	83.20	64	1.30		

responses were positive than when they were negative. The significant interaction of latency shift with trials suggests that the pattern of differences among the means of the latency shift conditions varies as a function of the 2 and 5 trials manipulation. Multiple comparisons among the four latency shift conditions at the level of 2 trials failed to detect any significant differences (see Table 7). However, at the 5-trials level, the short-then-long condition produced attributions of significantly less liking than the short-then-short condition. Also, relative to the long-then-long condition the long-then-short condition produced attributions of significantly more liking. These results are perfectly in line with the predictions made by the positive response conditions and opposite the predictions for the negative response conditions. Surprisingly, they are based on data that sum over the positive and negative response conditions.

The planned comparisons for phase 2 were those between corresponding expectancy fulfilling (short-then-short and long-then-long) and expectancy violating (short-then-long and long-then-short) latency shift conditions at each level of direction (see Figure 1). Hypothesis 6 was supported in the positive response condition. That is, shifting to a shorter response latency lead to attributions of greater liking than did not shifting latency ($t = 2.11$, $df = 18$, $p < .05$). Hypothesis 7 was marginally supported in the positive response condition; shifting to a longer response latency leading to attributions

TABLE 7

Multiple Comparisons Among Latency Shift Conditions
at the Two Levels of Trials Utilizing the
Least Significant Difference (LSD) Technique

2 Trials

latency shift	Short-long	Short-short	Long-short	Long-long
group means	3.70	4.00	4.50	4.60
LSD sub-groups*	<hr/>			

5 Trials

latency shift	long-long	Short-long	Long-short	Short-Short
group means	3.70	4.00	4.90	5.40
LSD sub-groups*	<hr/>		<hr/>	

* Groups sharing a common underline are not significantly
different at the $\alpha = .05$ level.

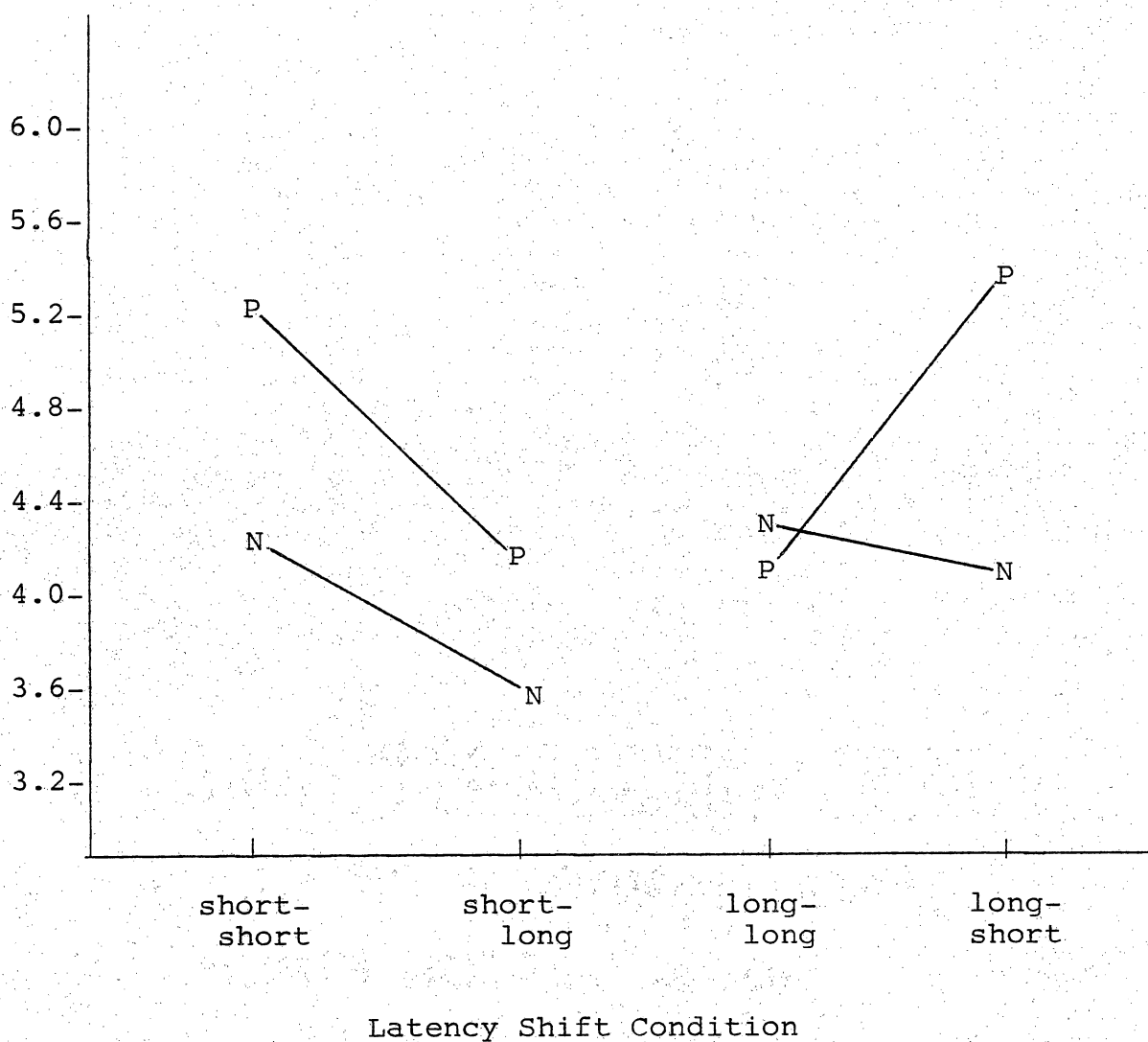


Figure 1. Attitudes attributed to target actor during Phase 2 shown as a function of Latency shift condition for both positive (P) and negative (N) response conditions.

of less liking than not shifting latency ($t = 2.03$, $df = 11.2$, $p = .068$). Neither hypothesis was supported in the negative response condition.

Given the significant interaction between trials and latency shift reported earlier, it seems advisable to inspect (post hoc) the relationships among the four positive latency shift conditions at the two levels of trials. These comparisons revealed that the relationship between the corresponding expectancy fulfilling and expectancy violating latency shift conditions were localized at the 5 trials level. Subjects receiving the short-then-long latency, compared to the subjects receiving the short-then-short latency, attributed to Karen less liking for Bob ($t = 4.26$, $df = 8$, $p = .003$). On the other hand, subjects receiving the long-then-short, compared to long-then-long, attribute, to Karen, more liking for Bob ($t = 2.36$, $df = 4$, $p = .06$). The differences at the 2 trials level were in the expected directions but not significant (see Figure 2).

Again the attitudes attributed to Karen and the probabilities of date acceptance attributed to Karen in phase 2 were significantly correlated ($r = 0.4978$, $p < .05$).

The significant effects detected in phase 2 clearly reflect the pattern of results expected in the positive response conditions. Among the negative response conditions nothing beyond chance variation was detected. One possible explanation for the pattern of results obtained is that the

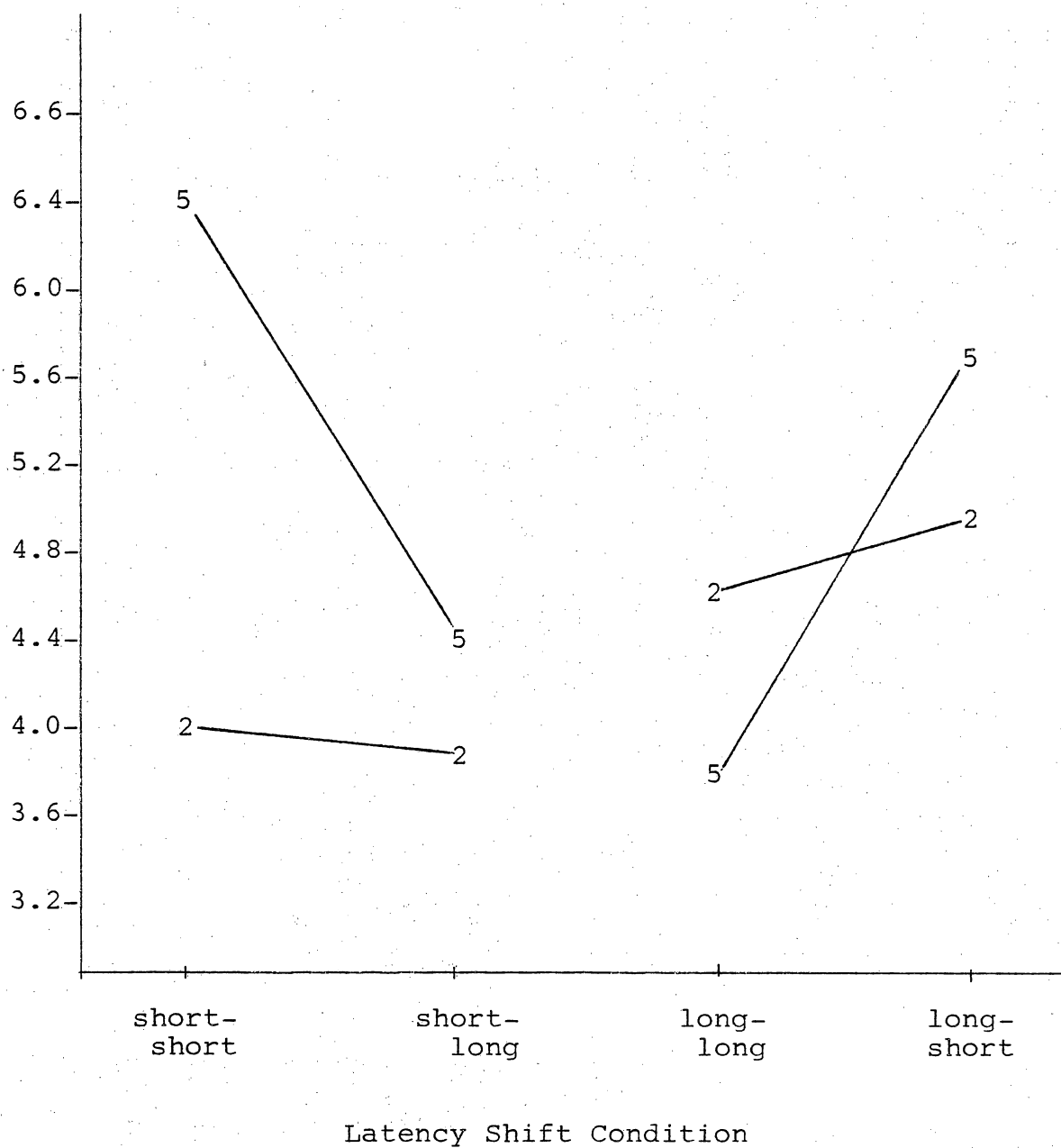


Figure 2. Attitudes attributed to target actor during Phase 2, in the positive response conditions, distinguishing the 2- and 5- trials conditions.

negative response manipulation was ambiguous. The taped stimuli used in the experiment were constructed with the intention of providing only a minimal positive or negative direction in Karen's responses. This weak direction manipulation could then be strengthened by a shortened latency, repeated presentation, or both. Apparently, while the, "Yes, it's ok." type of response effectively conveyed a positive evaluation, the, "Not particularly, it's alright." type of response conveyed an equivocal, rather than negative, evaluation. Strengthening such an equivocal response by shortening its latency or by repeated presentation probably yielded a response akin to a "definitive maybe."

The fact that the results in the positive two trials condition of phase 2 were in the predicted direction but not quite statistically significant, while the results in the positive five trials condition were more clearly significant, suggests that latency is indeed a subtle cue about an attitude's strength and may become salient only after repeated observations.

General Discussion

In the studies concerning the attribution of attitudes which were reviewed earlier choice, expectancy, direction, and strength of action were manipulated as independent variables. The attitudes attributed to the actors were found to be first and foremost a function of the direction of the actors' behavior. Essentially, the other variables served to modify

the impact of the direction variable. In the present study also, direction of behavior has a clear and reliable effect on the attribution of interpersonal attitudes, as well as on the assignment of probabilities for a specific attitude relevant behavior. Indeed, the effect of direction is so robust that it is clearly detected even when one of the two directional manipulations failed.

Although choice and the category based expectancies manipulated by Jones and his associates were not directly manipulated in the present study, expectancy probably did vary with direction. That is, in the situation described in the experiment, positive and complimentary social interactions were probably more expected than negative and non-complimentary interactions. His covariation of expectancy with direction was the foundation of hypothesis #5. Actions freely taken which violate social expectations lead to very correspondent inferences. As it turned out, the failure of the negative direction manipulation left this hypothesis untested.

Strength of action was manipulated by Jones and his associates as the proportion of statements favoring or opposing a position. Multistatement presentations that were 100% pro or con constituted the strong actions. Multistatement presentations that were 50% pro and 50% con constituted the weak actions. The contents of the weak pro and con presentations were nearly identical with the ordering of the statements being the principle distinction. In the weak pro presentation the salience of the pro statements was enhanced by

presenting them in the first and the last serial positions with the actor finally stating support for the pro position. In the weak con presentation the serial position effect favored the salience of the con statements and the presentation ended with an endorsement of the con position. Thus, the strength manipulation in the present study was similar to that utilized in the earlier studies only in that it involved multiple actions, though not proportion of positive or negative actions. The manipulation of latency as an operationalization of strength appears to be unique to the present study.

The results of phase 2 clearly indicate that in the positive response conditions observers are sensitive to response latencies and attribute attitude strength in the predicted manner. What is not entirely clear from the results is whether the observers' sensitivity to response latency is dependent upon a violation of expectancy (a shift in response latency) or simply upon repeated exposure to the stimulus material. Comparisons between shifting and nonshifting latency shift conditions that begin with the same latency but end with different latencies indicate that the change is important. However comparisons between latency shift conditions that end with the same latency, without regard to the initial latency, suggest that only the second latency is attended to by the observers. The fact that no latency effect was detected for phase 1, when there were no latency shifts, but

latency effects were detected in phase 2, tends to support the former interpretation rather than the latter. Still, the possibility exists that simple repeated exposures without the shifts in latency might have sensitized the observers to the latency of the actor response. In any case, the results do suggest that the naive psychologist has an intuitive grasp of the relationship between attitude strength and response latency. The fact that not one subject who had been exposed to a real shift in response latency mentioned the timing of behavior, when asked what they thought had been manipulated in the study, attested to the intuitive nature of the attribution process.

In this particular experiment the focus was on the attitudes attributed to Karen, an actor expressing an attitude. The focus of the paradigm however is the relationship between the attribution process and the empirically established laws of learning and behavior. Thus, an alternative focus for the experiment could have been the acquisition of an attitude by the actor, Bob, who was being reinforced or punished for interacting with Karen.

Data relevant to this alternative focus was collected. That is, observers were asked to attribute attitudes to Bob as well as to Karen. However, in order to justify a request from the subject/observer for a prediction of Karen's probable behavior it seemed advisable to have Bob ask Karen out. This request by Bob constituted a powerful behavioral clue con-

cerning his attitude toward Karen. As one would expect from the literature reviewed earlier, this clue was prepotent and probably overshadowed any of the more subtle effects of the direction, trials, and latency variables.

The conversation between Bob and Karen could have been scripted differently to avoid this problem. That is, the tape could have concluded before Bob asked Karen out. As it turned out the correlation between estimates of Karen's attitude and Karen's probability of date acceptance (behavior) though significant hardly accounted for a quarter of the variance among the behavioral predictions. Thus, the attitude attributions and behavioral predictions made by naive psychologists reflect the much bemoaned lack of correspondence between attitudes and behavior (Calder and Ross, 1973).

APPENDIX A

Sample Questionnaire

Please base your responses to the following items on your perceptions of the conversation between Bob and Karen. Take your time and consider all of the alternative responses for each item before you check the phrase which you feel is the most appropriate.

1. a. Bob's attitude toward Karen is one of:

☐ extreme dislike
☐ strong dislike
☐ moderate dislike
☐ slight dislike
☐ neutrality
☐ slight liking
☐ moderate liking
☐ strong liking
☐ extreme liking

- b. How much confidence do you have in the accuracy of this estimate?

☐ very strong confidence
☐ strong confidence
☐ moderate confidence
☐ slight confidence
☐ no confidence

2. a. Karen's attitude toward Bob is one of:

☐ extreme liking
☐ strong liking
☐ moderate liking
☐ slight liking
☐ neutrality
☐ slight dislike
☐ moderate dislike
☐ strong dislike
☐ extreme dislike

b. How much confidence do you have in the accuracy of this estimate?

- ☐ very strong confidence
- ☐ strong confidence
- ☐ moderate confidence
- ☐ slight confidence
- ☐ no confidence

3. Estimate the probability that Karen accepts Bob's offer of a date. Use any value from 0% (certain she declines) through 50% (as likely to decline as accept) to 100% (certain she accepts).

_____ %

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