ATTRIBUTION THEORY AND RESEARCH

♦333

Harold H. Kelley and John L. Michela[1]

Department of Psychology, University of California,
Los Angeles, California 90024

CONTENTS

457

The last decade has seen a great deal of research on the perception of causation and the consequences of such perception. Conducted primarily within social psychology, the focus has been the perceived causes of other persons' behavior. A parallel analysis has been made of the perceived causes of one's own behavior, and the liveliest recent topic has concerned differences between other-perception and self-perception. The study of perceived causation is identified by the term "attribution theory," attribution referring to the perception or inference of cause. As we will see, there is not one but many attribution "theories" and the term refers to several different kinds of problem. The common ideas are that people interpret behavior in terms of its causes and that these interpretations play an important role in determining reactions to the behavior.

The broad outline of the field can be illustrated by an experiment by Thibaut & Riecken (1955). In their procedure, a subject interacted with two other persons, one of higher status than the subject (older, at a more advanced educational level) and the other of lower status. As the situation unfolded, it became necessary for the subject to try to induce the other two to help him, and eventually each of them complied with his request. The subject was then asked why each one had complied. Was it for an "internal" reason, because he wanted to, or for an "external" reason, because of the pressure the subject put on him? The results were that the high status person's compliance was more often thought to occur for the internal reason, and the low status person's compliance for the external reason. Furthermore, the subject's evaluation of the high status person increased more, from before to after the compliance, than did his evaluation of the low status person.

This study illustrates both antecedents and consequences of attributions for behavior. On the *antecedents* side, certain information about behavior

and the circumstances of its occurrence are used by the subject to infer its cause. The researchers assumed that the subject makes a distinction between internal and external causes. In this they adopted ideas from Heider (1944) and Michotte (1963). They further assumed that the subject decides between an internal and external cause for the other's compliance on the basis of the other's perceived power. If the other person is high in power (in this situation, high in status), the cause for the compliance will be seen to be "inside" the person, but if the other person is low in power, it will be seen as located "outside" the person. The researchers' reasoning here is that the subject assumes that if a vulnerable person (in this case, low status) is exposed to an external force, his behavior consistent with the force cannot be attributed to internal factors.

On the *consequences* side, Thibaut & Riecken dealt with one particular reaction to the compliant behavior, namely, the subject's evaluations of the two persons. They contend that in attributing the compliance to internal causes, the subject credits the person with positive attitudes and traits. Attributing these qualities to a person has the consequence that the subject tends to like that person.

In Thibaut & Riecken's work, we see the essential elements of attribution research. The investigator has a conception of the alternative explanations the naive subject may entertain for a given kind of event. The investigator also has an hypothesis about the antecedents of causal attribution, i.e. about the factors that lead the subject to attribute a particular event to one cause rather than another. Finally, the investigator has an hypothesis about the consequences of the subject's making a particular attribution. Thus, the general model of the attribution field is the one shown in Figure 1.
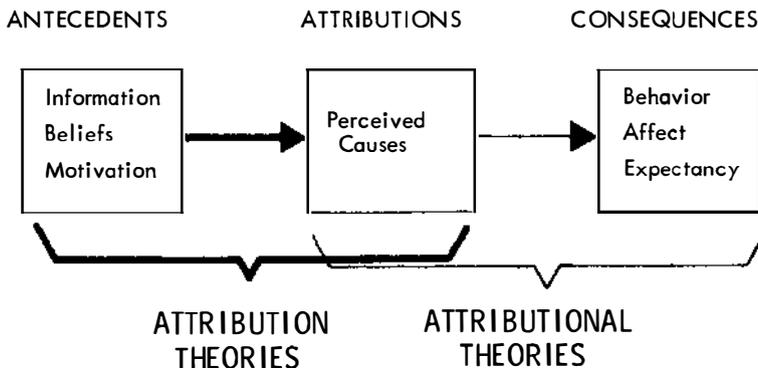

Figure 1 General model of the attribution field.

Within this broad field, those investigators interested in cognitive processes have focused primarily on the antecedents-attributions link and those interested in the dynamics of behavior, on the attributions-consequences link. Thus, it is possible to draw a rough distinction between what might be called "attribution" and "attributional" research. The first involves systematic assessment or manipulation of antecedents. There is no interest in consequences beyond the attributions themselves, and they are generally measured directly by verbal report. "Attributional" research concerns the consequences of attributions. It entails assessment or manipulation of perceived causes and measurement of their effects on behavior, feelings, and expectancies. There are attributional theories of such diverse things as achievement motivation, romantic love, and aggression. What these two types of research have in common is an interest in the causal explanations given for events by ordinary people. In both cases, causal attributions are assumed to play a central role in human behavior. They constitute the person's understanding of the causal structure of the world and, therefore, are important determinants of his interaction with that world.

This field did not emerge with the invention of a new research paradigm or the formulation of a new theory. Rather, it grew out of the convergence of diverse lines of work and a growing awareness of their common core problems. The variety of these lines may be suggested by reference to Heider's seminal writings on naive psychology (1958), Jones's research on person perception (Jones et al 1961) and self-presentation (Jones & Wortman 1973), Rotter's research on locus of control (Rotter 1966), Schachter's (1964) theory of emotion, and Bem's (1967) work on self-perception. The common themes in this diversity were identified in theoretical papers by Jones & Davis (1965) and Kelley (1967) and these signaled the great burst of activity that was to follow.

For detailed summaries of the ensuing progress, the reader is referred to Jones et al (1972) and a pair of volumes edited by Harvey et al (1976, 1978). The present review can only highlight the extensive literature. A computer-assisted search yielded over 900 relevant references for the 10-year period. Among these we have given priority to more recent papers and reviews in order to facilitate the interested reader's entry into the relevant literature.

ANTECEDENTS OF ATTRIBUTIONS

The three classes of antecedent are illustrated by Jones & Davis's (1965) theory of correspondent inference, which concerns a naive perceiver's explanation for a target person's action. Limiting themselves to the case in which the action is known to be intentional, Jones and Davis proposed this hypothesis: the fewer distinctive reasons an actor has for an action and the

less these reasons are widely shared in the culture, the more informative is that action about the identifying dispositions of the actor. This statement incorporates two of the main classes of antecedent. First, the attribution is affected by *information,* in this case, about the consequences of the action as these are compared with the consequences of other actions the actor might have taken. His intention is inferred according to the principle of noncommon effects: the intention governing the action is indicated by those of its consequences not common to the alternative actions, and the fewer such noncommon effects, the less ambiguous is the intention. Second, the attribution is affected by the perceiver's *beliefs,* in this case, about what other actors would do in the same situation (social desirability). If few persons would have acted as the actor did, his intention is revealing of his personal needs or attitudes. The third class of antecedent, having to do with *motivation,* is introduced by Jones & Davis's auxilliary hypothesis of hedonic relevance. If the action affects the perceiver's welfare, there is greater likelihood a disposition will be inferred from it. This occurs because the impact on the perceiver's welfare becomes a focal effect to which the other effects are assimilated, and thereby the number of unrelated (noncommon) effects is reduced. Thus, the perceiver's motivation, elicited by the action's consequences for him, is thought to affect the processing of information about the action.

The three classes of antecedent illustrated by Jones and Davis's analysis recur through the theoretical and empirical work on attributions. We now consider them in order.

Information

Each of the following topics describes how information affects attributions. The various conceptions differ in what they specify to be relevant information, the types of resulting attributions, and the nature of the process linking information to attribution. The reader will recognize some of what follows as part of common knowledge. The various attributions are frequently in our thought and conversations and we are even aware of some of the inferential rules involved in the process. The merits of systematic work in an area that encompasses common knowledge are well illustrated by attribution research. The components of that knowledge are identified, its total structure is delineated, and its limitations and errors are determined.

NONCOMMON EFFECTS   As described above, Jones & Davis (1965) postulated that information about the consequences of alternative actions is used to infer the intention behind a particular act. Empirical support has been provided for the proposed information processing rule, the principle

of noncommon effects: the intention underlying a voluntary act is most clearly evident when it has a *small* number of effects that are *unique* to it (i.e. noncommon). Newtson (1974) studied the *number* aspect of the principle and found that fewer noncommon effects resulted in more confident and more extreme inferences about the actor. The *uniqueness* aspect of the hypothesis was studied by Ajzen & Holmes (1976). They found that attribution of a behavior to one of its effects was a linear function of uniqueness, being greatest when the effect was unique and decreasing as it was common to one, two, or three alternative acts.

COVARIATION: THE ANOVA MODEL   Kelley (1967) suggested that "The effect is attributed to that condition which is present when the effect is present and which is absent when the effect is absent" (p. 194). More generally, the effect is attributed to the factor with which it covaries. One question raised about this principle concerns the accuracy with which covariation between events is perceived. The evidence is mixed. In many studies, covariation has been perceived with fair accuracy [see section below on consistency and distinctiveness which relates to the judgmental analog of biserial correlation; see also Beach & Scopp (1966) and Erlick & Mills (1967), who provide judgmental data relating to product-moment correlation]. Furthermore, in a number of attribution studies, covariations in the experimental stimuli have apparently been detected inasmuch as the resulting attributions were appropriately modified (e.g. Valins 1966, Cunningham 1976, Shultz & Mendelson 1975). However, as we will see in the section on beliefs, the perception of covariation can be greatly affected by subjects' preconceptions about cause-effect relations, even being rendered wholly erroneous. These errors undoubtedly contribute to the persistence of false causal beliefs. The upshot of the accuracy issue is that the covariation principle should be qualified as applying to *perceived* covariation.

The covariation principle specifies an information processing rule but is open ended with respect to the types of causes and effects involved. Kelley (1967) suggested that for many problems in social psychology, the relevant causal factors are persons (P), stimuli (S), times (T), and modalities of interaction with stimuli (M). The analysis can be summarized in part by an ANOVA cube defined by the three dimensions P, S, and T. The attribution of a given P's response to a certain S on a particular occasion (T) depends on the perception of the degree of its *consensus* with other Ps' responses to S, its *consistency* with this P's response to S at other Ts, and its *distinctiveness* from P's response to other Ss.

The ANOVA model's principal implications are that certain patterns of information lead to certain attributions. To test these, McArthur (1972) provided subjects with summaries of the distributions of effects relevant to

a focal effect and obtained explanations for all eight possible patterns of high versus low consensus, consistency, and distinctiveness. The results were largely consistent with the ANOVA model. The high, high, high (HHH) pattern (which indicates that most others respond as the person does and his response to the stimulus is consistent and distinctive from his responses to other stimuli) was attributed to the stimulus, the LHL pattern (few others do what the person does consistently and indiscriminately) was attributed to the person, and the LLH pattern (the person responds as few others do and as he rarely does to this and similar stimuli) was attributed to the circumstances. McArthur's main results have been replicated by others using her method (D. N. Ruble & Feldman 1976, Zuckerman 1978), and Frieze & Weiner (1971) provide confirming results for the consistency and consensus variables in the interpretation of success and failure.

Kelley's model implies that the nature of the effect has no bearing on its attribution, this depending only on the distribution of the focal and related effects. Zuckerman (1978) provides data suggesting otherwise, that the variables in the ANOVA model have less clear impact on the attribution of voluntary actions than of nonvoluntary behavior. A more serious challenge to the model is raised by Stevens & Jones (1976) concerning its applicability to attributions for such ego-related effects as one's own success and failure. They find marked deviations from the model which they interpret as indicating ego-defensive biases. However, the experiment differs in several significant respects from those mentioned above and unfortunately provides no data from uninvolved observers to indicate which deviations were not ego-based, so its interpretation is not entirely clear.

Consensus information One issue that has developed around consensus information concerns its importance relative to other information. In her paradigm, McArthur (1972) found that consensus had less effect than did consistency and distinctiveness. D. N. Ruble & Feldman (1976) and Zuckerman (1978) showed that in part this lesser impact was due to order of presentation. Yet in both studies consensus was the only information affected by order. There remains the possibility that the three kinds of information are treated differently.

Nisbett & Borgida (1975) reported evidence for their view that consensus has *no* effect on attribution. Subjects read scenarios of an experiment in which one of the participants is heard over an intercom to have a seizure and to be choking, and the other participants face the problem of whether to go to his help. Some readers of this scenario (consensus group) were given the results of the study (that most of the participants helped only after considerable delay or never) and other readers (control) were not. All readers were then asked to explain the behavior of one participant who

never helped. Was it due to his personality or the situation? Because control subjects assumed that most people would have helped, the expected effect of the consensus information was to generate a more situational explanation for failure to help. The results did not support this expectation: the consensus information had no effect on attribution. Wells & Harvey (1977) have recently shown that any conclusion from this study must be qualified. They modified the earlier procedure by adding (*a*) stronger variations in consensus information and (*b*) information stressing the random selection and resulting representativeness of the participants in the experiment. The results showed clearly that when perceivers were informed that the consensus is based on a representative sample, the more an actor's behavior conformed with the consensus the more it was attributed to the situation. Wells & Harvey believe that unless assured of the randomness of the sampling procedures, sample results that depart from subjects' expectations are ascribed to the sample itself, i.e. to the fact that it is biased through unusual recruiting or self-selection. Thus, the attribution derived from consensus information may be determined by the attributions made for that information itself.

Related is evidence that when the consensus clashes with one's own reaction, the latter takes precedence. N. S. Feldman et al (1976) found, consistent with ANOVA reasoning, that observers attributed an actor's consensual choice to the chosen object but a nonconsensual choice to the actor. However, this effect was virtually eliminated when the observers could see the alternative objects and make their own judgments. Hansen & Donoghue's (1977) studies make the same point and suggest further that the reduced impact of an "official" consensus reflects the tendency to assume, despite the consensus information, that others will act as oneself has acted. That this assumption is frequently and falsely made is demonstrated by L. Ross et al's (1977) research on the "false consensus effect." They found, for example, that students who support Women's Liberation estimate that 57% of students in general share their views whereas students not supporting the movement estimate that 67% share *their* views. This effect occurs for a wide variety of choices and self reports, though not for all. Ross et al (1977) also provide confirming evidence for Heider's (1958) suggestion that a consequence of the tendency to assume that others generally share our reactions is a tendency to attribute differing views to the personal characteristics of their holders. They found that a respondent who expressed a particular preference or attitude, whatever it was, characterized in more dispositional terms a person expressing the opposite view than a person expressing the same one.

These studies show that own reaction takes precedence over externally provided consensus information and, indeed, forms a basis for beliefs about

the consensus. However, the parameters of both consensus information (e.g. its numerosity, perceived representativeness, and concreteness) and one's own direct experience are subject to large variations, and until such parameters have been investigated over their full ranges, caution must be exercised in generalizing about the relative impact of the two kinds of information.

Consistency and distinctiveness information The ANOVA model suggests consistency and distinctiveness as important parameters of individual experience. The basic point is that a person trusts his reactions to a stimulus (i.e. attributes them to objective properties of the stimulus) when they are consistent (over time and modality) and distinctive from those to other stimuli. A number of self-perception studies show this effect. Gerard (1963) and Misra (1973) found that consistency in one's experience promoted independence from social comparison information. In the same vein, Harvey & Kelley (1974) showed how temporal patterns in the consistency of one's judgments permit oneself, independently of social information, to assess own competence at a task.

A parallel line of research on other-perception deals with the consistency in the behavior or manifestations, on successive occasions, of a person or thing. Several studies (Irwin & Smith 1956, Schwartz & Smith 1976) show that the naive subject uses consistency and distinctiveness information rather like a statistician would. In making comparative judgments between two sets of observations (e.g. which of two persons has the higher ability), as the mean difference increases and the within-set variance decreases, the number of observations required to make a judgment decreases and the confidence after a limited number of observations increases.

A person is known by the behavior he displays consistently. An experiment by Himmelfarb (1972) makes the important point that consistency in other persons' characterizations of an actor carries more weight if they are based on observations in dissimilar rather than similar situations. The other side of the coin is that a person's inconsistent behavior is attributed not to him but to circumstances. This is shown for the performance of horses in simulated races (Karaz & Perlman 1975), task performance of persons (Frieze & Weiner 1971), and social behavior of persons (Hayden & Mischel 1976).

The preceding generalizations must be qualified as to their realm of applicability. In some cases, attributions are probably based not on typical behavior but on the more extreme, as in judging athletic ability or dishonesty (Reeder & Brewer 1979).

SIMILARITY AND CONTIGUITY Here we encounter other information processing rules which, like the covariation rule, are applicable in principle

to almost any kind of cause and effect. By the rule of *similarity,* properties of the cause are assumed to be similar to properties of the observed effect (Shultz & Ravinsky 1977), so the latter can be used to infer the former. This rule may account for the popularity of conspiracy theories of the Kennedy assassination—such a major effect as assassination seems to require a greater cause than one man acting alone (see McCauley & Jacques 1979). According to the *spatial contiguity* principle, there should be some point of contact between an effect and its cause. This principle appears in Michotte's (1963) studies of the perception of causality, where phenomena called "launching" and "entraining" involved the appearance that one object caused another to move by colliding with it (the first object then either coming to a stop or maintaining contact with the second one). *Temporal contiguity,* implicit in the covariation principle, specifies that the events to be distinguished as cause and effect occur at essentially the same point in time. Ambiguities between causes and effects are resolved by the rule of *temporal precedence* in which cause is assumed to precede effect. A powerful perceptual cue, also part of Michotte's demonstrations, is precedence with a short delay between the first and second event. Studies of children's use of temporal contiguity information (Siegler & Liebert 1974, Shultz & Ravinsky 1977) show greater imputation of causality to an event when the preceding event appears closer in time to the subsequent effect. In an ingenious procedure, Killeen (1978) showed that pigeons can learn to distinguish between events they control and those externally controlled. However, they made many false self-attributions when the externally caused event followed closely their own action.

SALIENCE   The notion here is that an effect is attributed to the cause that is most salient in the perceptual field at the time the effect is observed. This principle has been applied to the question of whether an actor's behavior will be attributed to him or to the situation in which it occurs. The salient cause has been varied in several ways. Taylor & Fiske (1975) controlled seating arrangement so that observers of a two-person discussion differed in which actor they viewed frontally. The frontally viewed actor was seen as playing a more determining role in the discussion than the actor viewed from behind. In McArthur & Post (1977, Studies 1 and 2), one of two interacting persons was made more salient by being in motion or more brightly illuminated. Observers attributed that person's behavior more to disposition than the other person's behavior. The same investigators varied, for example, whether or not the actor was the only male in a female group, and predicted that the behavior of the "solo" would be attributed more to disposition. However, situational attributions were found to be greater for the solo person than for the other group members. McArthur & Post found

other similar inconsistencies, as between greater dispositional attributions for an actor wearing a boldly patterned shirt but greater situational causality for one whose "solo" status derived from her wearing a shirt of a different color from those of the other group members. Moreover, solo studies by Taylor and her colleagues have yielded results seemingly contradictory with those of McArthur & Post. For example, Taylor et al (1978) found that the fewer the persons of a given sex in a group, the more prominent (in assertiveness, strength of impression made) they were judged to be. To some degree these contradictions may reflect the fact that different measures are being used, McArthur and her colleagues assessing person-situation attributions and Taylor et al assessing degree of causal role in the interaction. McArthur and Post's results suggest that the inconsistencies within their series of studies may be due to whether the uniqueness of the actor is absolute (e.g. the eye-catching striped shirt) or relative (e.g. the shirt different from those of the other persons). The former produces dispositional attributions and the latter, calling attention to the social context, produces situational attributions. More work will be necessary to replace these post hoc explanations with reliable predictions about salience effects.

Some interpretations of saliance effects have assumed that they are mediated by superior memory for the salient cause. The principle suggested here is that an effect is attributed to the first cause that comes to mind when the attribution question is raised, or at least the first one that provides a "sufficient" explanation.

PRIMACY   The general notion here is that a person scans and interprets a sequence of information until he attains an attribution from it and then disregards later information or assimilates it to his earlier impression. Several lines of work point to the relatively greater influence of information acquired early in a sequence. One indication is the perseveration of belief in the false information given in studies employing deception, despite later provision of true information during debriefing (L. Ross et al 1975). The main results about temporal order come from studies of judgments of the ability of a person whose performance varies over time. Jones et al (1968) compared ascending and descending orders of performance and obtained a primacy effect: higher ability was attributed when correct answers were given by the person mainly during the first 15 of 30 problems rather than during the second 15 problems. Among the possible explanations discussed by Jones & Goethals (1972) is a process of assimilation of later trials to earlier ones, through cognitive distortion of the later trials to make them seem more similar to the earlier ones. Consistent with this view, graphical presentations of the entire pattern of another person's performance eliminated the primacy effect and even produced a recency effect in attribution

of intelligence (R. S. Feldman & Allen 1975). Presumably subjects could not distort or ignore the graphical information about later performance because it was received simultaneously with early performance information.

COMMENTS   It seems likely that the link between information and attribution involves a variety of processes. At one extreme are those of logical analysis (e.g. of noncommon effects and covariation). These entail the use of a broad set of information and selection among a sizable set of causal explanations. At the other extreme (e.g. salience and primacy effects) are those processes that are more selective in their operation, relying heavily on the earliest or most salient information and settling for the first adequate explanation consistent with it. This range of variation includes time-consuming reasoning processes in contrast to the more immediate perception of cause (as in Michotte 1963). These processes probably differ in the conditions of their operation, the former being more appropriate, and indeed only feasible for problems of substantial significance and permitting some deliberation. However, any such generalization must be qualified in the light of the causal beliefs the attributor brings to most problems and his varying motives relating to achieving accurate understanding versus other ends. These constitute our next topics.

Beliefs

The attributor approaches most attributional problems with beliefs about the causes and effects involved. Given a certain effect, there are *suppositions* about its causes; given a certain cause, there are *expectations* about its effects. As a consequence, explanations can often be given for events without analyzing information in the more complex ways illustrated in the preceding section. If the processing of current information does occur, it rarely proceeds without some influence from preexisting suppositions and expectations.

SUPPOSITIONS ABOUT SUCCESS AND FAILURE   Among the many studies of causal suppositions, those concerning the causes of success and failure are undoubtedly the most frequent. We found 12 studies pertaining to the success/failure of a person not known to the attributor or of people in general. Nine of these show that relative to failure, success is attributed more to the person, i.e. to ability, effort, "something about the person," stable traits, etc (Cooper & Lowe 1977, Study 1; Etaugh & Brown 1975; Fontaine 1975, Study 1; Frieze & Weiner 1971, Studies 1 and 2; Hendrick & Giesen 1975; Karaz & Perlman 1975; Mann & Taylor 1974; Weiner & Kukla 1970, Study 6). Two of the other studies yield equivocal results (Feather & Simon 1975, Severance & Gasstrom 1977) and only one, dealing

with extreme financial success or failure, yields results counter to the general trend (Younger et al 1977). In addition, three of Triandis's (1972) samples overwhelmingly favored internal explanations for success. Thus, with few exceptions, the success of unspecified or unknown persons is supposed to be due to factors within the person. We highlight this fact in the belief that it should give pause to investigators who uncritically accept similar interpretations made for one's own success as evidence of self-enhancement motivation (see later discussion of motivation).

EXPECTATIONS ABOUT ACTORS   Expectations about the effects associated with an actor (likelihood of success, probable attitude or behavior) reflect beliefs about past consistency. Therefore, by the reasoning of the ANOVA model, behavior consistent with what is expected should be attributed to a stable property of the actor, and behavior that departs from what is expected, to a temporary causal factor (circumstances or states). This was Deaux's (1976) reasoning in her predictions about attributions for male and female success and failure. The confirming evidence that she reviewed indicates that for a wide range of tasks, the success of men and the failure of women, both being more expected, tend to be attributed to ability. In contrast, the failure of men and the success of women, being less expected, tend to be attributed to effort or luck. These trends appear both in attributions for own performance and for that of others. In a recent summary of the literature on unexpected performance outcomes, Zuckerman (1979) also found a preponderance of evidence consistent with the principle: Unexpected task outcomes are attributed less to ability and more to luck. Regan et al (1974) and Bell et al (1976, Study 1) showed similar effects of attitude-based expectancies. The good behavior of a liked person and the bad of a disliked one are attributed to personal factors whereas inconsistent behavior is attributed to situational factors.

EXPECTATIONS ABOUT BEHAVIOR IN SITUATIONS   These are base-rate expectations about the likelihood of the occurrence of a particular behavior in a particular situation. These expectations constitute assumptions about consensus. Therefore, logically we would expect behavior consistent with the expectations to be attributed to situational constraints, the external stimulus, etc, and behavior that departs from what is expected, to something about the person (either stable or unstable).

There is much evidence consistent with this idea. Lay et al (1973) present extensive evidence that low base-rate responses on a personality inventory evoke more inference of a personal trait than do high base-rate responses. Ajzen (1971) and Trope (1974) studied expectancies associated with particular situations. Situational requirements were varied by the relative attrac-

tiveness of alternative behaviors (Ajzen) and by degree of choice (Trope). In both studies, behavior out of keeping with the situation was found to provide a greater increase in perceived likelihood of the actor's holding a behavior-correspondent attitude than did situation-appropriate behavior.

DISCOUNTING AND AUGMENTATION   The notion above, that situation-indicated behavior tends to be attributed to the situation and contraindicated behavior to the person, can be separated into two mutually exclusive parts. Both the indicated and the contraindicated behavior may be separately compared with the same behavior in a setting free of situational demands. The Discounting Principle (Kelley 1972a) predicts that there will be less attribution of a behavior-correspondent disposition to the actor when his behavior is that expected in the situation than when the same behavior occurs without constraint. The expected behavior is discounted as an indication of disposition because it may plausibly have been caused by situational pressures. The Augmentation Principle (Kelley, 1972a) states that there will be more attribution of a behavior-correspondent disposition for the contraindicated behavior than for similar unconstrained behavior. Occurring in the face of situational demands, the contraindicated behavior is taken as revealing a stronger correspondent disposition than does similar behavior that occurs without constraints.

Kelley (1972a) summarized the early evidence bearing on these principles and they have been documented in many subsequent studies. Some of the experiments are ambiguous as to whether they support one or both principles, but Himmelfarb & Anderson (1975) provide clear evidence for both in a single study. There seems little doubt that the attributions made for compliant versus noncompliant behavior often involve both discounting and augmentation effects. Himmelfarb and Anderson also found a "foot dragging" effect such as had earlier been obtained by Jones et al (1971). Even though an actor complies with situational pressure, if the compliance is rather slight or perfunctory, it is taken as evidence of disposition to act in the opposite manner.

INSUFFICIENT DISCOUNTING   On the basis of his and his associates' work on the attribution of attitudes, Jones (1979) calls attention to an apparent failure of discounting. The general format of Jones's studies involves a manipulation of expectancies about both the person and the situation. In the crucial condition, an actor wrote an essay endorsing a point of view (e.g. regarding legalization of marijuana) that, on the basis of knowledge about his characteristics or attitudes, was not expected of him. However, this was done on instruction from a powerful authority, so the actor had little choice. Under these conditions, we might expect the essay to be

discounted and to have no effect on the inferred attitudes. This does not occur; the essay significantly influences the attitudes attributed to its author. Thus, there is a failure *fully* to discount the unexpected essay even though the external pressure would seem to provide a sufficient explanation for it. This result is taken as evidence of what Heider (1958) referred to in writing that "behavior engulfs the field" and of what L. Ross (1977) has recently termed the "fundamental attribution error"—the overestimation of the importance of the dispositional causes of behavior.

Jones (1979) reviews various studies designed to identify the correct theoretical interpretation of insufficient discounting. He concludes that various "artifactual" explanations have been ruled out and proposes that an "anchor-adjustment heuristic" is at work. The attributor's initial hypothesis, that behavior corresponds to attitude, serves as the anchor for a process in which adjustments are made to take account of other explanations for the behavior. As in other instances of sequential information processing, the adjustments made are insufficient.

We do not find Jones's arguments to be fully convincing and doubt that they will be the last word on this intriguing problem. There remains some ambiguity as to whether the compliance is not seen as excessive in degree or quality. As Reeder & Brewer (1979) note, attempts to avoid this problem (M. L. Snyder & Jones 1974) run afoul of the "false consensus" effect (L. Ross et al 1977) in which another person's different behavior in a given situation is seen as less expected than one's own and more indicative of his personal characteristics. The research departs from the bulk of attribution work in its attention to *accuracy* of judgments. Unfortunately, there seem to be no immediate prospects that accuracy criteria will be developed for the research paradigm employed here.

CAUSAL SCHEMATA   A systematic approach to the description of causal suppositions and expectations is afforded by the notion of causal schemata. A causal schema is a description of the common person's conception of how two or more causes combine to produce a certain effect. For example, he may believe that either cause A or cause B suffices to produce a given effect (schema for multiple sufficient causes, MSC) or that both A and B are necessary (schema for multiple necessary causes, MNC). These and other possible schemata and their respective implications are presented by Kelley (1972b). He proposed as a goal for research on causal beliefs the identification of the kinds of schema that are brought to play for various classes of causes and effects. Along this line, Cunningham & Kelley (1975) and Kun & Weiner (1973) show that effects of moderate magnitude are interpreted in terms of the MSC schema, but effects of extreme magnitude, in terms of the MNC schema. For example, success on easy tasks and failure on difficult

ones can be explained in terms of either ability or effort, but success on difficult tasks and failure on easy ones require invoking both factors. Langer's (1975) interesting work raises the possibility that the wrong schema may be invoked for a given setting. In research replete with helpful hints for the gambling industry, she shows that by providing cues associated with skill tasks, a chance situation can be made to appear responsive to skillful control.

In an excellent new approach to causal schemata, Reeder & Brewer (1979) similarly argue that different schemata are brought into play by different types of dispositions. Their analysis takes account of recently discovered asymmetries in discounting that result from subjects' suppositions that certain dispositionally noncorrespondent behaviors are more readily feigned than others (Reeder et al 1977). Thus, subjects believe that intelligent or extroverted people are more able to fake having the opposite dispositions than dull or introverted people are able to fake their opposites.

EFFECTS OF BELIEFS ON INFORMATION PROCESSING   Causal beliefs not only affect the attributions made for events (as in the preceding sections) but also affect the intake and use of causally relevant information. As we have seen, research on consensus information shows that its impact is weakened when it conflicts with the attributor's expectations about behavior in the focal situation. Causal suppositions have been shown to influence the perception of covariation and its use. Following the influential work of Chapman & Chapman (1969) on "illusory correlation," Golding & Rorer (1972) and others have shown that suppositions about the causes of specific behaviors lead observers to see nonexistent covariation in data and to overlook true covariation. Ajzen (1977, Study 1) found that use of covariation in prediction depends on its fit with prior causal beliefs. Along a different line, Zadny & Gerard (1974) showed that the understanding of an actor's intention strongly affects memory for what he is observed to do.

The interplay between prior beliefs and new information obviously involves sequential processes in which the prior structures both affect the information and are affected by it. Greatly needed are theoretical ideas about these processes. Bayes' theorem provides one such model, and it has been put to fruitful use in attribution research (e.g. Ajzen 1971, Trope 1974). It is useful in suggesting the measurement in common terms of the old and the new factors, but seems unnecessarily constraining in its requirement that expectations be measured in terms of perceived probabilities. Perhaps the future will see the development of models of sequential information processing more appropriate to attribution problems. Jones & McGillis (1976) provide a first step in this direction.

COMMENTS Attributions are affected by beliefs in several ways. At a simple level, an observed effect is directly explained on the basis of existing suppositions about the causes for various effects. In other cases, the effect is explained indirectly by comparing it with expected effects. At a complex level, the magnitude or likelihood of a particular plausible cause for the effect is inferred according to the person's assumptions about how two or more causes combine to produce effects (causal schemata). Throughout the research on beliefs, there is the unanswered question of when the new observation or series of observations will modify the preexisting beliefs rather than simply be interpreted in light of them.

Motivation

A person's interests become relevant to and entangled with the attribution process in a number of ways. They determine when he will become motivated to make attributions at all and, if so motivated, whether he seeks causal understanding in an open-ended way or is preoccupied with a particular causal question. They also determine when he will prefer to arrive at certain explanations rather than others. Because self-esteem, social standing, sense of competence, etc are affected by the attributions one makes, concerns about these matters may render the search for explanation less than completely objective. As Jones & Thibaut (1958) suggested in their early discussion of "inferential sets," these variations in motivation affect in complex ways both the inferential process and its products. Some research documenting these effects is now summarized.

MOTIVATION TO MAKE ATTRIBUTIONS One of the conditions that may instigate the attribution process is dependence of the perceiver on another person. In the study by Berscheid et al (1976), each subject was made dependent on another (opposite sex) person by assigning that person to be the subject's date for a future social outing. The subject then observed a videotaped group discussion in which the future date was one of the participants. The results showed that the future date was attended to more than the nondate, and more details were remembered about the date. Furthermore, in analyses which supported the Jones & Davis (1965) hypothesis on "hedonic relevance," subjects were found to make more extreme and confident trait inferences about the future date than about the other persons. Thus it appears that subjects were motivated by their greater dependence on the date to do more attributional work (information search and trait inference) with respect to that person. Kassin & Hochreich (1977) studied the effect of importance of accuracy in attribution. They presented subjects with brief stories about events and measured attributions to the person,

stimulus, situation, or combination of these factors. The experimental group, which was told that their responses would indicate their "social intelligence," made more attributions to the combination category than did the control group. These results may suggest that when accuracy is important, the attributor produces more complex explanations.

MOTIVATION FOR SELF-ENHANCEMENT AND SELF-PROTECTION
A person's positive behavior, including his success, has potential for enhancement of self-esteem if he is causally responsible for it. Thus, motivation for self-enhancement should result in self-attribution of positive behavior. Similarly, since negative behavior may have negative implications for self-regard unless causal responsibility is attributed externally, such attributions should result from motivation for self-protection. Reviews by D. T. Miller & Ross (1975) and Zuckerman (1979) of the research on attributions for success and failure show that, consistent with these assumptions, attributions for success are usually relatively internal and attributions for failure are usually relatively external. Do these findings necessarily demonstrate *motivated* biases in attribution? Several lines of analysis suggest not. For example, studies of "suppositions about success and failure" (see earlier section) show a strong tendency for the successes of other persons not known to the attributor to be attributed to internal factors. Thus, there exists a general belief that success is internally caused, and this belief alone may explain internal attributions for one's own success. As another example, the inference of effort as an internal cause for success (but not failure) is facilitated by the fact that co-occurrence of high effort and success implies effort as the cause, but co-occurrence of high effort and failure implies that some other cause than effort must be sought (Deaux 1976). These and similar nonmotivational explanations were considered by D. T. Miller & Ross (1975). They concluded at that time that motivated effects had not yet been demonstrated. Since then, D. T. Miller (1976) and Sicoly & Ross (1977) are among those who have presented work that makes a fairly strong case for motivational effects.

D. T. Miller's (1976) study addressed the problem in earlier research that the success-failure variable confounds motivational concerns with prior beliefs. As an independent manipulation of motivation, the task was described in ways to create high or low importance for good performance. Also, this information and the report of success or failure were given after the task was completed in order to avoid differences in information processing during task performance. Among Miller's results, which supported the influence of motives, were greater attributions to ability made by successful subjects in the high versus low importance condition. In the Sicoly & Ross

(1977) study, each subject made attributions for her performance on a task and then judged the accuracy of attributions ostensibly made by an observer. In one condition, the subject succeeded on the task and then learned that the observer had attributed *more* responsibility to her than she had originally attributed to herself. In this condition, the observer's attributions were rated as more accurate than when the observer attributed *less* responsibility to her. This is interpreted as showing the subject's desire to feel responsible for her success—an interest that continues to operate even after her own attribution work has concluded. Other recent studies bearing on motivation and attribution have used an actor-observer paradigm to demonstrate ego-motivated biases, so these are considered in a later section. It is more difficult to think of nonmotivational interpretations of the more recent studies than of the earlier ones, so some progress is being made in showing that under laboratory conditions, ego-serving biases can be detected.

MOTIVATION FOR POSITIVE PRESENTATION OF THE SELF TO OTHERS   Attributions are an important part of what people communicate about themselves and their activities. These communicated attributions may be influenced by the actor's motivation to present himself in a favorable manner. The conditions under which such motivation affects communicated attributions have not been systematically described, but two contexts have been discussed. Attributions for negative events in heterosexual relationships were determined by Orvis et al (1976). The contrasting causal explanations given by enactors of negative behaviors and their injured partners suggested that communicated attributions serve the couple's mutual interests in maintaining the relationship, as by offering justifications for behaviors and reinstating behavioral expectations. The sociological theory of "accounts" by Scott & Lyman (1968) emphasizes that an account for untoward behavior is a requirement of social relationships in general.

Self-presentational concerns have also been analyzed in the context of attribution experiments themselves. When reporting their attributions, subjects may be motivated to give explanations that make the most positive self-presentation to the experimenter. The usual pattern of internal attributions for success and external attributions for failure could be attenuated or reversed by such a motive, either to imply the attributor's modesty (Feather & Simon 1971) or to avoid embarrassing invalidation of causal explanations in case outcomes should change in the future or if other persons' attributions are to be compared with those of the subject (Bradley 1978). Studies obtaining external attributions for success and internal for failure (e.g. L. Ross et al 1974) have been interpreted in this manner (Bradley 1978, Zuckerman 1979) as also have findings from Wortman et al

(1973). However, interpretations of these studies, as revealing self-presenta-
tion motives, have thus far been post hoc. The interpretational ambiguity
is compounded by the fact that self-presentation occurs in many forms and
might, therefore, lead to attributions of success either to external factors (to
appear modest) or internal ones (to appear competent).

MOTIVATION FOR BELIEF IN EFFECTIVE CONTROL   Since attribu-
tions to controllable factors imply that the person can satisfy his goals
through his own effort, such attributions should be beneficial in promoting
expectations that the goals will be reached. Thus, it has been observed that
a bias toward attributions to controllable factors might yield an adaptive
advantage by maintaining strivings toward goals (Kelley 1972a). Most of
the research relevant to this topic has been concerned with persons' at-
tempts to maintain expectancy that *negative* events will *not* happen to *them*.
For example, the "just world hypothesis," as described in the review by
Lerner & Miller (1978), is based on a need to believe that the world in
general is orderly and that one's own strivings will not be blocked by chance
interferences from the physical and social environment. Research on this
hypothesis demonstrates that people derogate others who are victims of
negative events. This derogation presumably follows from attribution to the
victim for the negative event, thereby maintaining belief in an orderly and
noninterfering world.

    Another line of research involves the direct assessment of attributions for
negative events. The severity of harm to the victim should heighten attribu-
tions of responsibility to the victim, if severity activates the motive to believe
in effective control (Wortman 1976). Some studies support this relationship
of severity and attribution (e.g. Walster 1966) but others give minimal or
no support (Shaver 1970, Arkkelin et al 1979). Furthermore, this relation-
ship could be explained in nonmotivational terms by the fact that severe
events are less expected and may require for their occurrence a greater
causal role by the victim or perpetrator (Brewer 1977, Younger et al 1978).

COMMENTS   The limited research to date suggests how the attribution
process and its products are affected by variations in motives. A great deal
of the interest in the field has revolved around how certain results should
be interpreted, whether as evidence of "rational" information processes or
as biases introduced by ego-serving motives. Hopefully, future research will
focus on the problem implicit in this duality, that is, how does the individual
reconcile his wishes with reality? These come into conflict in his interaction
with both his physical world (when the pursuit of self-enhancement risks
forming a maladaptively inaccurate view of his own causal properties) and

his social world (when the maintenance of social acceptance through self-justification and excuse risks acquiring a reputation as unreliable and deceitful). The question of wish versus reality is central to the attribution field. Its study will require assessing the long-term consequences for the individual of bias versus accuracy in his attributions.

Actors' versus Observers' Attributions

In the comparison between actors' and observers' attributions, all the types of antecedent come under scrutiny as possible differentiating factors, and questions are raised about the interplay among information, beliefs, and motives. Jones & Nisbett (1972) stated their influential hypothesis as follows: "there is a pervasive tendency for actors to attribute their actions to situational requirements, whereas observers tend to attribute the same actions to stable personal dispositions" (p. 80). Doubts have been expressed that actors see themselves as much *controlled* by the environment as this language implies, and, in subsequent statements of the hypothesis (Nisbett et al 1973, Jones 1976), the notion of "situational requirements" has been replaced by the idea that own behavior is seen as *responsive to* situational cues. The dispositional category has remained loosely specified, encompassing ability, traits, and attitudes. Given the various interpretations possible for the situation-disposition distinction, it is not surprising that many dependent variables and forms of measurement have been used. This unfortunately adds to the difficulty of summarizing the existing research inasmuch as problems of operationalization become entangled with problems of conceptualization.

Jones & Nisbett identified two major categories of factors as likely to contribute to actor-observer differences: (*a*) cognitive factors, including informational, perceptual, and processing differences; and (*b*) motivational factors, including differences in concerns about self-evaluation and self-presentation.

COGNITIVE FACTORS   The observer may know nothing more about the actor than his behavior in a particular situation or in a limited range of situations, whereas the actor knows of his behavior in many situations and is aware of its cross-situational variability. Thus, the observer may assume more consistency of behavior and infer dispositional causality. Several studies verify that actors perceive more cross-situational variability in their behavior and observers make more trait ascriptions (Lay et al 1974, Lenauer et al 1976, Nisbett et al 1973). These studies also suggest the existence of a gradient of dispositional attribution as an inverse function of the total amount of information known about other persons. For example, signifi-

cantly more traits were ascribed to a relatively unknown celebrity than to a friend, and lower trait ascription was significantly correlated with longer acquaintance with a friend (Nisbett et al 1973, Study 3).

The visual perspectives of actor and observer ordinarily differ in that the actor attends to his task while the observer attends to the actor's behavior on the task. Storms (1973) found that when the actor was shown a videotape replay of his own behavior in a discussion, the actor's attributions became less situational, and when observers were shown a replay of the discussion made from the actor's perspective, their attributions became more situational. These results are somewhat consistent with those found by Taylor & Fiske (1975) through manipulations of the visual perspectives of observers only. Observers' attributions have also been made more situational through instructions to empathize with the actor (Regan & Totten 1975, Gould & Sigall 1977). Research that manipulates the perspective of actors, done in the context of Objective Self-awareness Theory (Arkin & Duval 1975), has found decreases in situational attributions of an actor induced to focus greater attention on self. Despite the apparent success of these latter methods in shifting the perspectives of actors and observers, the mechanisms underlying the findings have not been well documented.

MOTIVATIONAL FACTORS   Another possible source of difference between actors and observers is their different interests in how a given event is explained, in particular, the actor's concern to receive credit for the good consequences of his actions and to avoid blame for their bad consequences. If motivated in this egocentric way, actors' attributions for positive behaviors might be more internal than observers' attributions, contrary to the Jones & Nisbett (1972) hypothesis. This possibility has been investigated using reports for imagined or past successes and failures. Consistent with the egocentric hypothesis, Taylor & Koivumaki (1976, Study 1) found more dispositional attributions for own positive behavior and more situational attributions for own negative behavior. However, this result was not subsequently replicated (Taylor & Koivumaki 1976, Study 2), and two other studies found that own outcomes (compared to others' outcomes) were attributed more to situational factors regardless of whether the outcome was success or failure (T. L. Ruble 1973, Ender & Bohart 1974). Studies of attributions for performance on certain experimental tasks also fail to support the egocentric motivation hypothesis (A. G. Miller 1975, Stephan 1975). However, the interaction between valence of outcomes and actor-observer role required by the egocentric motivation hypothesis has been found in studies using competitive experimental games. For example, in M. L. Snyder et al (1976) the winner's outcomes were attributed more to

external factors (luck) by the loser than winner. In a theoretical paper on attributional egotism, M. L. Snyder et al (1978) make the important point that competition provides a good testing ground for the hypothesis because of the high degree of ego-involvement.

Self-presentational and control motives have also been investigated in the actor-observer paradigm. Much of the work on self-presentation centrally involves the actor-observer scenario, because the actor's concern over disagreement with the observer is hypothesized to arouse self-presentational motives (Bradley 1978). D. T. Miller et al (1978) investigated the effect of observers' anticipation of later competition with an actor, and they found that observers given such anticipation made more dispositional attributions about the actor. They interpreted this finding to follow from control motivation, i.e. motivation to understand and predict the future behavior of the actor. However, possibly contradictory results were reported by Wolfson & Salancik (1977).

DIFFERENCES IN ACCURACY? The preponderance of studies confirms Jones & Nisbett's (1972) hypothesis: actors tend to make more situational attributions and observers, more dispositional ones. Questions remain as to the precise conditions under which results concordant with or opposite to the hypothesis will be obtained. Is it possible that these tendencies relate to differences between actors and observers in the accuracy of their attributions? Monson & Snyder (1977) argued just this, that actors have more and better information and therefore tend to make more accurate attributions. This view is reconciled with the evidence supporting the Jones & Nisbett hypothesis by assuming that the research has been conducted largely in settings in which situational forces are truly dominant in the determination of behavior. Under other conditions, when dispositional factors are truly more important, the greater accuracy of the actors would lead them to make more dispositional attributions. Unfortunately, Monson & Snyder neither provided direct evidence for their hypothesis nor applied their analysis systematically to existing data. Of course, since the entire enterprise of psychology is directed toward specification of the true causes of behavior, and since these causes and their relative magnitudes are not yet known, it may be impossible to design a study to test unequivocally the accuracy of attribution. Nonetheless, Monson and Snyder have raised an important question. Attempts to answer it may, with more carefully controlled studies, lead to more detailed understanding of the mechanisms underlying actor-observer differences and of the attribution process as it occurs for each. As Jones & Nisbett mention, these differences have great practical importance in human affairs. They even bear on the development of psychological

theory and method, because psychologists, in their scientific roles, are largely observers of the phenomena they analyze. This may be especially true of the laboratory environment, which the investigator has designed and can therefore never experience as actor.

CONSEQUENCES OF ATTRIBUTIONS

We now review some of the research showing the consequences that follow from a person's explaining an event in one way or another. As an intervening cognitive factor, attribution cannot be manipulated directly, so research on consequences always involves variation in the antecedents of attributions. Because the presumed mediating attribution usually goes unmeasured, there is often ambiguity as to the exact attribution involved or even whether attribution is the mediator at all. Moreover, failures of these studies are ambiguous to interpret in relation to the causal links shown in Figure 1. The antecedent-attribution link, the attribution-consequence link, or both may underlie failure to obtain the expected consequences.

We organize this section according to the principal distinctions that researchers have made among attributions. For each distinction, we summarize the major consequences that have been revealed by research. As Figure 1 suggests, these consequences include behaviors, affect, and other cognitions such as expectancies about future events.

Person versus Environment

Whether an action is attributed to the actor or to some aspect of the environment affects such things as liking for the actor, trust in him, and his persuasiveness. Kelley (1972a) and more recently Regan (1978) summarize some of the research that shows that a person's helpful act that can be ascribed to him is responded to more warmly than the similar act that is attributable to external pressure. On the other hand, the externally justified action that harms or frustrates a person is better tolerated and less reciprocated than a similar action attributed to the actor. Strickland et al (1976) show an interesting effect of a supervisor's maintaining surveillance over a worker. A worker so monitored is trusted less than one who produces similar output without monitoring. Presumably the former worker's production is attributed to the external pressure and, following the discounting rule, his work motivation is less clear. Strickland et al also show that when the supervisor has a heavy schedule, he subsequently monitors the previously monitored (and now less trusted) worker more than the previously unmonitored one.

In their analysis of communicator credibility, Eagly et al (1978) assumed that a member of the audience wonders whether to attribute a persuasive message to the communicator's personal characteristics, to his situation (e.g. role), or to the "external reality purportedly described in the message" (p. 425). These correspond, respectively, to person, situation, and stimulus attributions. The first two describe different sources of communicator bias, one relating to his distorted view of reality and the other to his willingness, in certain situations, to convey an inaccurate version of his (possibly accurate) views. Eagly et al show that both kinds of bias are taken into account by an audience. When a speaker's message is inconsistent with that expected from either source of bias, it produces more opinion change among listeners. In his analysis of social influence, Goethals (1976) also highlights perceived biases. He offers the interesting suggestion that another person's opinion supportive of our own will boost our confidence most if, by virtue of his dissimilarities, we believe he does not share our own biases but affords a different perspective on the problem. Goethals provides evidence that this "triangulation effect" occurs when the other person has different values, judgmental styles, or information.

In the same way that consistency and distinctiveness of one's own judgments provide a basis for confidence in their veridicality, the apparent consistency and distinctiveness of another person's judgments afford confidence that he has a creditable view of the world (Kelley 1967, pp. 201–2). A similar view has been expressed by Moscovici & Faucheux (1972), who describe consistency as one aspect of the behavior style by which minorities can exert influence with groups. Nemeth et al (1974) provided evidence for this view, finding that a consistent (though wrong) minority swayed the majority more than an inconsistent minority.

Robertson & Rossiter (1974) studied age trends in children's awareness of the persuasive intent and biases of TV commercials. Understanding the persuader's situation, that he is motivated to induce people to buy things, was shown to accompany an awareness of a discrepancy between the message and the advertised product. Perception of persuasive intent was found for half of the first graders, 90% of the third graders, and virtually all of the fifth graders. Do first graders, half of whom show vulnerability to commercials, deserve protection? This question has been raised at recent hearings of the Federal Trade Commission, and Robertson & Rossiter's findings are among those cited.

Whether a persuasive message is to be attributed to the speaker's beliefs or to his situation is a question that some attribution theorists assume a person asks about the messages he *himself* delivers. This, in essence, is the interpretation that Bem's (1972) self-perception theory makes of experi-

ments in which subjects are induced by varying degrees of external incentive or pressure to make counterattitudinal communications. The less the external justification for the message, the more the subject infers that it must reflect his own attitudes.

Intrinsic versus Extrinsic Motivation

Some activities reflect intrinsic motivation, being done for the inherent satisfaction they yield; others reflect extrinsic motivation, being done for the external goals to which they lead. Attributional research on intrinsic-extrinsic causality identifies the consequences of shifting an actor's perception of his own motivation from the first to the second by attaching a reward to an initially attractive activity. In the oft-cited study by Lepper et al (1973), nursery school children who had earlier shown an interest in drawing with multicolored felt-tip pens were later induced to play with them in order to receive "Good Player" awards. During a subsequent free-play period, as compared with a no-award control group, these children were observed to spend less time drawing with the pens. A third group which received the reward as a surprise after performing the activity, showed no similar decline in subsequent free-play drawing. Apparently the intrinsic interest in the activity had been undermined by the anticipated award; play had been turned into work. The attribution interpretation of this effect assumes that a causal discounting occurs. The child anticipating reward implicitly says, "If I do it to obtain the reward, I must not find the drawing very interesting."

Research on this phenomenon is summarized by M. Ross (1976), Condry (1977), and Lepper & Greene (1978). In general, interest in an activity is reduced by its performance in anticipation of positive incentives or under other conditions (surveillance, time deadline) that give it the appearance of a task. These procedures have also been shown to reduce the quality of performance of the activity. M. Ross (1976) discusses several alternative interpretations that have been offered for these effects and finds the evidence consistent with the attribution interpretation. One problem with the latter was that initial studies of age differences in attribution reasoning indicated that the preschool subjects employed in some of the research might not be capable of using the discounting principle. However, Karniol & Ross (1976) found that with careful instructions, enough preschoolers could use the discounting principle to make plausible the self-attribution interpretation of the extrinsic reward effects found with that age group.

Various Causes for Arousal

There have been many attributional studies in which arousal was the focal effect. Arousal has many meanings in this research, but the most common

referent is the symptoms associated with the flow of adrenaline: palpita-tions, accelerated breathing, flushes, and tremor. The studies show the consequences of arousal being attributed to one or another cause. The diverse consequences under investigation revolve around emotional experi-ences and evaluative reactions. This line of research derives from Schach-ter's (1964) theory of emotion which, when cast in attributional terms, states that the emotion a person will experience upon his arousal depends upon the explanation he has for it. The research exclusively concerns self-perception, i.e. the attributions made for one's own arousal. With few exceptions, the research employs experimental control of perceived arousal and its perceived causes. The work can be summarized according to the three research paradigms that have been used, each paradigm being charac-terized by its key experimental condition.

HIDDEN CAUSE   Schachter & Singer (1962) created arousal by injecting their subjects with epinephrine. In their key condition, the fact that the injection was the cause of their aroused state was concealed from the subjects and they were left to attribute the arousal to the situational context accompanying its occurrence. This context included instigations to either anger or euphoria. In line with Schachter's theory, the subjects' emotional behavior and reports were consistent with the causal properties of the two different contexts. In control conditions, in which the subjects either were not given the injections or were informed that the injection was responsible for their arousal, the context had little effect.

This result, that arousal by an unperceived cause can affect emotional behavior through its attribution to some other cause, is well supported in research on aggression. Rule & Nesdale (1976) summarize the relevant evidence. The general paradigm is one in which the subject is badly treated by another person and also has heightened arousal from an extraneous source (physical exercise, aversive noise, high temperature, erotic stimuli). Under these conditions, the provoked subjects are more aggressive (in shocks delivered, verbal hostility) than similarly provoked subjects lacking the extra arousal. However, the extra arousal does not have this effect when the subjects are led to attribute it to its true source. Research by Zillmann and his colleagues is notable for its use of natural variations in the perceived causal linkage between the extraneous cause and the arousal. This avoids some of the problems and alternative explanations raised by procedures that require deceiving the subjects and/or giving them direct suggestions about the linkage. Zillmann et al (1974) followed a sequence in which subjects were provoked by a confederate, engaged in strenuous (arousing) physical exercise, and then, immediately or after a brief delay, were able to retaliate against the provocateur. The retaliation after the brief delay was greater

than that immediately, presumably because even though the delay permitted the arousal to decrease somewhat, it sharply reduced its attribution to the exercise. This presumption received direct support in the study by Cantor et al (1975) showing the effects of general arousal on affective responses to erotica. If the misattribution of arousal from extraneous sources may heighten sexual arousal, it may also encourage romantic love. This type of theory of romantic love has been proposed by Berscheid & Walster (1974), who identify some of the possible extraneous "facilitators of passion." Dutton & Aron (1974) provide evidence suggesting that a male's extraneously produced anxiety at the time he meets a female may increase his attraction to her.

FALSE CAUSE   In the preceding paradigm, the misattributed arousal (due to the hidden cause) either gives rise to an emotional experience according to salient causal cues or intensifies an emotion generated by some other cause (e.g. a provocation). The present paradigm has the purpose of inducing the attribution of arousal to a false cause so that the emotional reaction to the true cause will be reduced. The key treatment in the paradigm involves exposing subjects to a placebic factor which is falsely described as causing the arousal symptoms that the subject is experiencing for some other reason. In the first study of this sort, Nisbett & Schachter (1966) gave subjects a series of electric shocks of increasing intensity and obtained reports of when the shock became too painful to tolerate. All subjects were given a placebo pill which was described in the key experimental condition as causing arousal symptoms corresponding to those produced by shock. Control subjects were told that the pill produces certain irrelevant symptoms (itching, headaches), thus encouraging them to attend to and think about their bodily states in the same way that the experimental subjects did. The hypothesis was that the experimental subjects would attribute their arousal to the pill, would then change their assessment of the shocks and/or their own sensitivity to shock, and would then show higher thresholds for the shocks. The results were partly consistent with these expectations: subjects with low initial fear of shocks showed an increase in their tolerance levels. Similar reduction in emotion has been produced by other studies using this procedure (e.g. Ross et al 1969), but its attribution interpretation has been questioned (cf Calvert-Boyanowsky & Leventhal 1975). One issue centers around the information provided the control group which, when disconfirmed by the arousal experience, may leave the subject confused and more aroused than otherwise. Zillmann (1978) provides a useful review of the interpretive problems in this research.

FALSE FEEDBACK   This paradigm entails providing the subject with false feedback about his state of arousal. The level of feedback is differen-

tially associated with various external factors in a manner that suggests to the subject that they are effective or ineffective as causes of his emotional reaction.

Selective arousal   Here the focal stimulus is selectively associated with high arousal in order to induce an increase in the subject's reaction to it. This is illustrated by Valins's (1966) famous procedure in which the subject heard a quickening of the sound of what was alleged to be his own heartbeat when the photos of certain nude women were shown. For the photos of other women, no such acceleration was heard. The result was that the subject found the former photos more attractive. Presumably, the covariation between heart rate acceleration and a photo encouraged the subject to attribute the one to the other. This result is well replicated (Liebhart 1979). Selective feedback of accelerated heart rate affects reactions to a variety of stimuli. Apparently the meaning of the selective response is provided by the entire set of stimuli because the attractiveness increases for the focal stimuli in positive sets but decreases for those in negative sets (e.g. car accident scenes). In Valins's (1966) and later work selective heart rate *decrease* yields little effect. Liebhart (1976) offers and documents an ingenious explanation: people have less definite suppositions about the causes of deceleration than about the causes of acceleration. The process involved in the "Valins" effect is probably more complex than suggested above. Results from Barefoot & Straub (1971) and Misovich & Charis (1974) suggest that the subject finds puzzling his selective reaction to the stimuli and closely scans the photos for an explanation.

One wonders what has been happening meantime to the subject's actual heartbeat. The results on this question (see Liebhart 1979 for summary) indicate that although the false feedback may affect the actual heart rate, it does so in different ways in different studies and there is little evidence that it determines the shifts in evaluative reactions.

Selective quiescence   Here the focal stimulus is selectively associated with quiescence. The subject finds that he is *not* aroused by some previously evocative stimulus. The purpose is to reduce the affective reaction to that stimulus, the procedure being an attributional analog to the method of systematic desensitization used to eliminate phobias. The original study was conducted by Valins & Ray (1967) with subjects afraid of snakes. Each subject viewed a series of slides, some picturing snakes and others, accompanied by electric shocks, displaying the word "shock." In the key experimental condition, heart rate was heard to increase for shock but to stay at base level for snakes. As compared with control subjects, the experimental subjects were more willing to approach actual snakes in a post-treatment test. This result has not been replicated with any consistency, but several

studies (Conger et al 1976, Borkovec & Glasgow 1973) involving improvements upon the original procedure leave little doubt that the selective feedback can increase approach to the feared object in the manner envisioned by Valins & Ray. However, in view of the limited magnitude of the effect (e.g. relative to the effects of pretreatment test exposures) and the restricted conditions of its occurrence (e.g. not with high fear subjects), it does not presently afford a basis for clinical applications.

Overall, the research on attribution of arousal indicates that people can and do respond to their bodily states and provide explanations for them. Many of the experiments tend to "coerce" the subjects into this cognitive activity so there remain many unanswered questions about its occurrence under naturalistic conditions. The evidence also suggests that within some uncertain limits people can be misled in these matters, both as to the degree of arousal and its causes. This fact may ultimately have practical usefulness. The research on arousal provides a useful site for studying the processes involved in emotional behavior as well as the processes of search and causal interpretation that are set in motion by unexpected experiences. The latter are well illustrated by Liebhart's (1979) excellent review of the false feedback literature from the perspective of a model encompassing information search, attribution, and attribution-mediated responses.

Skill versus Chance

The effect of attributions upon achievement strivings was first investigated in relation to a distinction between the perceived causes of skill and chance. Phares (1957) found that when subjects were told that their success on a judgment task was due to skill, expectancy of future success was higher than when success was due to chance. On the other hand, failure due to chance rather than skill yielded higher expectancy of future success. These effects were interpreted as reflecting the fact that skill is internal to the person and chance is external. Noting that these two causes also vary in their perceived stability over time, Weiner et al (1972) proposed a two-dimensional classification scheme, with causes being cross-classified in terms of *stability* (stable-unstable) and *locus* (internal-external). In this scheme, ability (skill) is internal and stable while luck (chance) is external and unstable. The remaining causes in the 2 X 2 classification are effort, internal and unstable, and task difficulty, external and stable.

STABLE-UNSTABLE   Weiner (1979) holds that the expectancy shifts found to be a consequence of skill-chance manipulations are determined by the stability of the perceived cause rather than its internal or external locus. In support of this, Weiner et al (1976) found that expectancies for continuing success on a block design task were higher among subjects making

attributions to stable causal factors rather than to unstable ones, but were not affected by locus of causality. Stability also has effects upon behavior and affect. Resistance to extinction, following intermittent versus continuous reinforcement, has been explained as being a consequence of stability of attribution (Weiner 1979). In a correlational study (Arkin & Maruyama 1979), the effective consequence of anxiety over school performance was found to be significantly reduced when stable attributions were made by students who were satisfied with their performance in a course.

INTERNAL-EXTERNAL (LOCUS)   Most work on the affective consequences of attributions has involved the internal-external dimension, which parallels the general person-environment distinction. Weiner et al (1972) predicted that internal attributions, relative to external, heighten affective reactions such as pride for success and shame for failure. Support for this prediction comes from studies in which subjects rate their affect following performance on a task (e.g. Riemer 1975). Later research by Weiner et al (1978), using a simulation procedure in which affects were rated for imagined outcomes, suggests that some affects are discriminably linked to specific attributions while others are linked only to outcomes, e.g. people feel pleased after success, regardless of the cause.

Both stability and locus were hypothesized by Carroll (1978) to be important in parole boards' decisions to grant parole to prisoners. He proposed that parole would be a consequence of attributing a crime to unstable factors, thereby rendering future crime less likely, and to external factors, rendering the criminal less deserving of punishment. His results revealed that stability of attribution and, especially, expectancy for future crime were among the significant predictors of decision to parole. Internality was not a significant predictor, but there are several possible explanations for this. Stability and locus also have been shown to have relevance for individuals' responses to their loneliness. In their survey data, Peplau et al (1980) found that students who attributed loneliness to social ability rather than to effort more often reported feeling apathetic, depressed, and hopeless. Reports of striving for social contact, e.g. by going to a party, were significantly greater given unstable causes.

GLOBALITY   In their reformulated model of learned helplessness, Abramson et al (1978) proposed that causal attributions mediate the effect of perceived noncontingency (between behavior and reinforcement) upon symptoms of helplessness. As in the work cited above, an internal attribution was hypothesized to lead to depressed affect and lowered self-esteem while attribution to a stable cause would lead to reduced expectancy for future reinforcement. A third dimension of *globality* was identified to dis-

tinguish causal factors that apply generally across situations from those specific to certain situations. Attributions of helpless and depressed persons were characterized as internal, stable, and global. Wortman & Dintzer (1978) have criticized the Abramson et al model on several points, including the question of causal direction, i.e. whether attributions cause depression or whether depression produces attributions of internality, stability, and globality.

Intentional-Unintentional

When a person's actions are seen as intentional, they are evaluated quite differently than otherwise. Work based on Heider's (1958) levels of responsibility for actions has shown that a person is more praised for positive outcomes when these are produced intentionally rather than unintentionally, and negative outcomes elicit more blame when produced intentionally (e.g. Shaw & Sulzer 1964). Later research by Weiner & Peter (1973) encompassed both moral and achievement evaluations. Subjects were told a brief story about a person who, with or without the intention to do so, brought about a positive or negative outcome. When the story involved a moral action (helping a lost child), evaluation of the person was greatly affected by intent and little affected by outcome. When the person's achievement was concerned (solving a puzzle), evaluation was substantially affected by both intent and outcome. This and other research emphasizes that quality of achievement affects evaluation independently of intent.

The attribution of intent for a person's aggressive act toward the self produces greater retaliation. Conditions in Dyck & Rule's (1978) experiments varied whether an instigating attack was uncommonly severe, had foreseeable effects, and was plausibly justified. Dyck & Rule found greatest retaliation when intentional causality was implied by the unusual severity or foreseeability and when justification was lacking. Measures of attribution of intent and ratings of justification supported the attributional mediation of retaliatory behavior. The perception of aggression has also been studied as a consequence of attribution of intent. Tedeschi et al (1974) claim that behavior comes to be labeled as aggressive partially on the basis of intentionality and that this labeling of behavior in turn has consequences such as rendering acceptable acts of retaliation.

Ickes & Kidd (1976) proposed an attributional analysis of helping behavior. They hypothesized that more help is given to persons whose need is attributed to unintentional factors rather than intentional ones. This is supported by Piliavin et al (1969), who found that more frequent help was given a person whose need was caused by physical handicap (unintentional) rather than drunkenness (intentional). A further hypothesis concerned self-attributions by the potential donor of help: *less* helping was predicted when

own capacity to help was attributed to effort (intentional) rather than ability (unintentional). Ickes & Kidd argued that if a person acquires the resources to help through effort, he may attach greater value to the resources and be less inclined to donate them. Ickes & Kidd summarize the support their own research provides for their two hypotheses. Unfortunately, some of the manipulations in the relevant studies confound intentional-unintentional with internal-external, so the theoretical interpretations are not clear.

Comments

Attributional research shows that attributions affect our feelings about past events and our expectations about future ones, our attitudes toward other persons and our reactions to their behavior, and our conceptions of ourselves and our efforts to improve our fortunes. Some years ago, Bem (1972) noted that the theories about the links between attributions and consequent responses are not very sophisticated. They consist largely of statements that if the person makes a certain attribution, "it is not unreasonable to expect" that he will then think, act, or feel in certain ways. In our view, this comment is still apropos to the attributional "theories." We sense that important theoretical development is possible here. The interested reader is referred to Bem (1972, pp. 45–57) and Liebhart (1979, pp. 30–32).

ISSUES AND IMPLICATIONS

Our general analysis (Figure 1) and review of consequences (above) has assumed that attributions mediate behavior, affect, etc. This assumption has not gone unchallenged (see, for example, discussions in Bem 1972, Zillmann 1978, Nisbett & Wilson 1977, and Langer 1978). It is variously argued that attributional research has not documented the presumed mediation and, indeed, has sometimes yielded evidence inconsistent with the assumption; and that much behavior occurs without the thought implied by attribution models. The latter issue raises the important question of when the attribution process is set in motion and, incidentally, the difficult matter of the various forms the process takes, whether simple or complex, conscious or nonconscious, automatic or deliberate. The former issue, the lack of evidence for the mediating role of attributions, points to the need for improved research paradigms. Exemplars, in which mediation is demonstrated as convincingly as it ever is, are provided by Batson's (1975) use of correlational analysis to show that manipulated variables had their effect on decisions largely by way of their effect on attributions, Zillmann and his colleagues' (Cantor et al 1975) use of an independent assessment of explanations for arousal to identify the optimal time for inducing experimental

misattributions, and Rest's (1976, Study 2) use of cross-lagged correlation to show that changes in attributions are related to subsequent, but not to prior, changes in response rate.

Most procedures for documenting the mediating role of attributions assume that they can be measured by self-report. This might seem to be questioned by Nisbett & Wilson's (1977) argument that people's reports on the processes mediating the effects of a stimulus on a response are based not on any true introspection but on a priori theories about cause and effect. Whatever its pros and cons (cf Smith & Miller 1978), this argument is not relevant to the documentation of mediators. It is not necessary that subjects be able to report on the process as the investigator conceives of it (e.g. as in Figure 1). They need only be able to provide indicators of certain contents of that process (i.e. the attributions), which the investigator can then show, by experimental and/or correlational analysis, to play the postulated mediating role in the process.

The study of mediating attributions by self-report is limited by the quality of our methods for eliciting and analyzing these reports. Numerous questions have been raised about the *fixed alternative* scales that have been used for this purpose. Attempts to supplant them with *open-ended* measures have encountered problems of semantics (L. Ross 1977) and marginal intercoder reliability (Elig & Frieze 1979, Orvis et al 1976). These measurement problems derive in part from overly simplistic theoretical distinctions and these in turn stem from inadequate study of the causal distinctions made by ordinary people. Some progress has been made on both fronts. Improved theoretical distinctions are illustrated by Weiner et al's (1972) separation of the stable-unstable and internal-external dimensions inherent in the earlier skill-chance distinction, and Kruglanski's (1975) proposal that an endogenous-exogenous distinction (perhaps better termed intrinsic-extrinsic) replace some of the earlier uses of the internal-external distinction. Perhaps the central irony of attribution research is that while its central concepts concern the causal distinctions made by common people, these have been little investigated. The few examples include an analysis of explanations given for success and failure (Elig & Frieze 1979) and of explanations for negative interpersonal events (Orvis et al 1976, Passer et al 1978). These studies show that explanation occurs at various degrees of temporal remoteness from the focal effect. As suggested by the Brickman et al (1975) study of perceived causal chains, our simple questions of internality-externality probably become increasingly ambiguous to the attributor as he traces the causality farther into the past.

Attribution in its Natural Context

If attribution theory requires, by its very nature, a detailed analysis of the common person's causal categories, it also requires understanding of the

natural context in which the process occurs. The most important features of this context undoubtedly are its ongoingness and continuity. Attributions occur as components of a continuing interaction between actor and environment. In this interaction, their consequences at any given time partially determine their antecedents at a later time. Thus, although convenient for organizing this review, Figure 1 is highly inadequate as a model for the study of attributions. Its linear antecedent-attribution-consequence structure must be replaced by representations of circular causal processes. A simple example is provided by the response to attributional uncertainty. As Nisbett & Valins (1972) have proposed, new information may not change a person's attribution (e.g. about his own fear of snakes) but merely lead him to question it. He will then act so as to gain further information (e.g. he may touch the snake to test his feelings). The new information may reconfirm the original attribution or result in some modification of it. The central point is that properties of the attribution itself elicit behavior that shapes its subsequent informational antecedents. Kelley & Thibaut (1969) propose terms for describing the properties of attributions that determine subsequent information seeking and susceptibility to influence.

In some cases, the consequences of an attribution are such as to strengthen it. This is illustrated in self-perception by Storms & McCaul's (1976) work on exacerbation cycles. They propose a sequence in which (*a*) undesirable behavior (e.g. sleeplessness, stuttering) is attributed to negative properties of the self (e.g. inadequacies, lack of control), and these attributions (*b*) produce a set of consequences (expectancy of stressful events, anxiety, covert verbalizations) that (*c*) exacerbate the undesirable behaviors. As a result, the behavior becomes more extreme and, because of its extremity, (*d*) becomes even more strongly attributed to the self. This analysis has provided the basis for reattribution procedures which intervene to prevent the initial self-attribution and replace it with an external one.

The self-confirming cycle also occurs in the perception of other persons, as when the attribution-generated behavior of a perceiver is such as to elicit confirming reactions from the stimulus person. This is illustrated by M. Snyder et al (1977). Men, interacting (by an intercom system) with women whom they believed to be physically attractive or unattractive, elicited differential behavior from the two kinds of women. Not all steps in the cycle are documented, but it is shown that the man who thought the telephonic partner to be beautiful expected her to be more sociable, poised, and socially adept; was himself more sociable, bold, and attractive (as judged by independent raters); and elicited behavior from the woman consistent with his expectations (again, as judged by independent raters). Similar evidence of self-confirming cycles has been found for expectations of hostile behavior. M. Snyder & Swann (1978) were able to demonstrate that person A's

expectations of hostility from B elicit the expected behavior from B and, if B is encouraged to attribute that behavior to self, the hostility carries over into B's subsequent interaction with an innocent C.

To the degree that people learn about the direct and indirect consequences of their own and others' attributions, they can attempt to manage them. Jones & Wortman (1973) analyze ingratiation (the strategic attempt to make oneself attractive to others) in terms of manipulating other persons' causal attributions for one's behavior. Several recent studies deal with the interesting phenomenon of controlling the attributions we ourselves make for our behavior. Covington & Omelich (1979) suggest that students sometimes exert little effort in order to avoid the implication, if they fail, that they have little ability. Frankel & Snyder (1978) provide evidence that such lack of trying follows ego-threatening failure, but occurs for moderately difficult problems and not for highly difficult ones. This seeming paradox is consistent with attribution reasoning: the difficult task will provide a nonthreatening explanation for poor performance so one runs no risk in doing one's best on it. Jones & Berglas (1978) propose a related hypothesis about the management of self-attribution through "self-handicapping." If a person is unsure of the basis of past success and worried about whether it can be repeated, the deliberate introduction of a performance-interfering cause (alcohol, lack of sleep, underpreparation) during further endeavors makes it possible to excuse failure but take credit for success. Thus, the self-handicapper arranges causal conditions so that attributionally he cannot lose. Support for this hypothesis is provided in an experiment (Berglas & Jones 1978) which showed that noncontingent success induced male subjects to choose a performance-interfering drug.

Applications

We have already alluded to some of the implications of attribution theory for practical problems, e.g. communicator creditibility in advertising and treatment of phobias through reattribution. We list here a few of the many other areas for which implications have been drawn. A more detailed review of applications will appear in Frieze et al (1980). (a) *Education.* Weiner (1979) summarized some of the attribution thinking relevant for education. One interest here has been to improve students' persistence and self-esteem after failure through encouraging its attribution to lack of effort (Andrews & Debus 1978, Dweck 1975). Other problems relate to the attributional antecedents (Cooper & Baron 1977) and consequences (Rice 1975) of teachers' use of praise and criticism. (b) *Sports Psychology.* The principal concern has been perceived responsibility for winning and losing and its effects on players' self-evaluations and group motivation. One question concerns attributions made for oneself versus for the team. Success usually evokes high

ability and effort evaluations for both, whereas failure reduces these for the team but not for the self. Example studies are Bird & Brame (1978), Iso-Ahola (1977), and Roberts (1978). (c) *Clinical and Counseling Psychology.* Both problems and intervention procedures have been discussed from an attributional perspective. Rizley (1978) studied two attributional explanations for depression and concluded that the evidence partially supports the view that depressed persons overestimate their responsibility for negative events. Drawing on attribution assumptions, Koeske & Koeske (1975) proposed (and provide some evidence for) the hypothesis that adolescent deviance under conditions of high perceived adult power promotes a sense of identity and of internal locus of control. This may provide a partial understanding of the motivation underlying deviant behavior. Whalen & Henker (1976) discussed the attributional implications of using drugs to improve the behavior of hyperactive children. They noted that although this promotes an external (i.e. organic) attribution for the problem which the child and parents find comfortable, it interferes with the acceptance of treatment programs that rely on teaching self-control strategies. Counseling procedures have been discussed from an attribution perspective (Strong 1970) as have crisis intervention techniques (Skilbeck 1974). (d) *Interpersonal Relations.* Harvey et al (1978) investigated the attributions made in conflict and separation. Kelley (1979) identified attribution to stable dispositions as a central process in his model of the personal relationship. (e) *Environmental Psychology.* Worchel & Teddlie (1976) identified attributions among the antecedents of experienced crowding. Their experimental evidence is consistent with the idea that people feel crowded when they become aroused by others' violations of their personal space *and* attribute their arousal to this cause. Rodin (1976) dealt with the attributional consequences of crowding, showing that high-density living conditions may result in generalized expectations that one has little control over one's environment and interactions. Schulz & Hanusa (1978) summarized programs in which aged people were encouraged to assume some degree of control over their social and physical environments. They suggested that these programs have long-term beneficial effects only if the people are able to make internal, stable, and global attributions for improved outcomes. (f) *Research Methodology.* Farr (1977) provided a critique of the common research procedure in which respondents give what they see to be the causes for such positive and negative events as satisfaction-dissatisfaction or health-illness. He argued that the results should not be taken at face value because they reflect an attribution artifact, that good outcomes are attributed to the self and bad ones to the environment. Staw (1975) offered a different attributional critique of self-report data, noting that opinions about such things as cohesiveness, communication, and motivation may

constitute attributional inferences from organizational performance, rather than reports of the actual determinants of such performance. Experimental evidence was presented to support this view.

SUMMARY

Ten years of research on causal attribution have answered many questions and raised many others. We now know something of the types of process by which information affects perceptions and inferences of causality. However, we do not yet have clear ideas about the interconnections among the different processes, and we have virtually no knowledge of the conditions governing their usage and natural occurrence. We are now aware of some of the errors produced in attribution processes by the attributor's a priori beliefs and motives. However, a model of the interplay among information, beliefs, and motivation is not yet in sight. We now know that the attributions an actor and observer make for the former's behavior are often different. While this and similar comparisons have enabled meaningful questions to be answered without confronting the problem of accuracy, there now appear to be both practical and theoretical reasons for doing so. It seems to us that judgments about accuracy are being made implicitly and that their unstated premises require examination. We now know many of the consequences of attributions, most importantly those having to do with our feelings, self-evaluations, and social behavior. However, difficult questions about the long-term consequences of various causal views and the possible threats to viability posed by errors of attribution have yet to be addressed.

The present reviewers may be too close to the field to be objective in our evaluations and predictions. In most respects, we feel, the problems of the field are those of psychology in general, reflecting too few researchers spread too thinly over too many problems. Each question has received far less attention, in terms of number of paradigms and replications, than its definitive and undoubtedly complex answer requires. Conceptually, on both the attribution and attributional sides of Figure 1, the theories are piecemeal and greatly in need of synthesis. Here again the problems are those of psychology in general, which lacks conceptual frameworks for meshing cognitive, motivational, and behavioral factors.

What is the future of this field? As their implications are seen, attributional ideas are spreading to other domains of behavioral science and coming under study there. Among the workers at the core of the field, basic questions are being raised (about attention, memory, introspection, thought, and behavior) that draw research efforts off into various areas of general psychology. Does this mean that in another decade the study of attributional phenomena will have become diffused through psychology and

the field will no longer be identifiable as a separate area? We think not. By reason of the inherent importance of its special content and of the set of practical problems with which it is associated, we predict that the attribution field will maintain its present standing, one coordinate with attitudes, small groups, etc as a distinctive area of social psychology. We look forward to reading someone else's review in 1990.

Literature Cited

Abramson, L. Y., Seligman, M. E. P., Teasdale, J. D. 1978. Learned helplessness in humans: Critique and reformulation. *J. Abnorm. Psychol.* 87:49–74

Ajzen, I. 1971. Attribution of dispositions to an actor: Effects of perceived decision freedom and behavioral utilities. *J. Pers. Soc. Psychol.* 18:144–56

Ajzen, I. 1977. Intuitive theories of events and the effects of base-rate information on prediction. *J. Pers. Soc. Psychol.* 35:303–14

Ajzen, I., Holmes, W. H. 1976. Uniqueness of effects in causal attribution. *J. Pers.* 44:98–108

Andrews, G. R., Debus, R. L. 1978. Persistence and causal perception of failure: Modifying cognitive attributions. *J. Educ. Psychol.* 70:154–66

Arkkelin, D., Oakley, T., Mynatt, C. 1979. Effects of controllable versus uncontrollable factors on responsibility attributions: A single-subject approach. *J. Pers. Soc. Psychol.* 37:110–15

Arkin, R. M., Duval, S. 1975. Focus of attention and causal attributions of actors and observers. *J. Exp. Soc. Psychol.* 11:427–38

Arkin, R. M., Maruyama, G. M. 1979. Attribution, affect, and college exam performance. *J. Educ. Psychol.* 71:85–93

Barefoot, J. C., Straub, R. B. 1971. Opportunity for information search and the effect of false heart-rate feedback. *J. Pers. Soc. Psychol.* 17:154–57

Batson, C. D. 1975. Attribution as a mediator of bias in helping. *J. Pers. Soc. Psychol.* 32:455–66

Beach, L. R., Scopp, T. S. 1966. Inferences about correlations. *Psychonom. Sci.* 6:253–54

Bell, L. G., Wicklund, R. A., Manko, G., Larkin, C. 1976. When unexpected behavior is attributed to the environment. *J. Res. Pers.* 10:316–27

Bem, D. J. 1967. Self-perception: An alternative interpretation of cognitive dissonance phenomena. *Psychol. Rev.* 74:183–200

Bem, D. J. 1972. Self-perception theory. *Adv. Exp. Soc. Psychol.* 6:1–62

Berglas, S., Jones, E. E. 1978. Drug choice as a self-handicapping strategy in response to noncontingent success. *J. Pers. Soc. Psychol.* 36:405–17

Berscheid, E., Graziano, W., Monson, T., Dermer, M. 1976. Outcome dependency: Attention, attribution, and attraction. *J. Pers. Soc. Psychol.* 34:978–89

Berscheid, E., Walster, E. 1974. A little bit about love. In *Foundations of Interpersonal Attraction*, ed. T. L. Huston, pp. 355–81. New York: Academic. 422 pp.

Bird, A. M., Brame, J. M. 1978. Self versus team attributions: A test of the "I'm OK, but the team's so-so" phenomenon. *Res. Q.* 49:260–68

Borkovec, T. D., Glasgow, R. E. 1973. Boundary conditions of false heart-rate feedback effects on avoidance behavior: A resolution of discrepant results. *Behav. Res. Ther.* 11:171–77

Bradley, G. W. 1978. Self-serving biases in the attribution process: A reexamination of the fact or fiction question. *J. Pers. Soc. Psychol.* 36:56–71

Brewer, M. B. 1977. An information-processing approach to attribution of responsibility. *J. Exp. Soc. Psychol.* 13:58–69

Brickman, P., Ryan, K., Wortman, C. B. 1975. Causal chains: Attribution of responsibility as a function of immediate and prior causes. *J. Pers. Soc. Psycol.* 32:1060–67

Calvert-Boyanowsky, J., Leventhal, H. 1975. The role of information in attenuating behavioral responses to stress: A reinterpretation of the misattribution phenomenon. *J. Pers. Soc. Psychol.* 32:214–21

Cantor, J. R., Zillmann, D., Bryant, J. 1975. Enhancement of experienced sexual arousal in response to erotic stimuli through misattribution of unrelated residual excitation. *J. Pers. Soc. Psychol.* 32:69–75

Carroll, J. S. 1978. Causal attributions in ex-

pert parole decisions. *J. Pers. Soc. Psychol.* 36:1501–11

Chapman, L. J., Chapman, J. P. 1969. Illusory correlation as an obstacle to the use of valid psychodiagnostic signs. *J. Abnorm. Psychol.* 74:271–80

Condry, J. 1977. Enemies of exploration: Self-initiated versus other-initiated learning. *J. Pers. Soc. Psychol.* 35:459–77

Conger, J. C., Conger, A. J., Brehm, S. S. 1976. Fear level as a moderator of false feedback effects in snake phobics. *J. Consult. Clin. Psychol.* 44:135–41

Cooper, H. M., Baron, R. M. 1977. Academic expectations and attributed responsibility as predictors of professional teachers' reinforcement behavior. *J. Educ. Psychol.* 69:409–18

Cooper, H. M., Lowe, C. A. 1977. Task information and attributions for academic performance by professional teachers and roleplayers. *J. Pers.* 45:469–83

Covington, M. V., Omelich, C. L. 1979. Effort: The double-edged sword in school achievement. *J. Educ Psychol.* 71:169–82

Cunningham, J. D. 1976. Boys meet girls: Patterns of interaction and attribution in heterosexual attraction. *J. Pers. Soc. Psychol.* 34:334–43

Cunningham, J. D., Kelley, H. H. 1975. Causal attributions for interpersonal events of varying magnitude. *J. Pers.* 43:74–93

Deaux, K. 1976. Sex: A perspective on the attribution process. See Harvey et al 1976, pp. 335–52

Dutton, D. G., Aron, A. P. 1974. Some evidence for heightened sexual attraction under conditions of high anxiety. *J. Pers. Soc. Psychol.* 30:510–17

Dweck, C. S. 1975. The role of expectations and attributions in the alleviation of learned helplessness. *J. Pers. Soc. Psychol.* 31:674–85

Dyck, R. J., Rule, B. G. 1978. Effect on retaliation of causal attribution concerning attack. *J. Pers. Soc. Psychol.* 36:521–29

Eagly, A. H., Wood, W., Chaiken, S. 1978. Causal inferences about communicators and their effect on opinion change. *J. Pers. Soc. Psychol.* 36:424–35

Elig, T. W., Frieze, I. H. 1979. Measuring causal attributions for success and failure. *J. Pers. Soc. Psychol.* 37:621–34

Ender, P. B., Bohart, A. C. 1974. Attributions of success and failure. *Psychol. Rep.* 35:275–78

Erlick, D. E., Mills, R. G. 1967. Perceptual quantification of conditional dependency. *J. Exp. Psychol.* 73:9–14

Etaugh, C., Brown, B. 1975. Perceiving the causes of success and failure of male and female performers. *Dev. Psychol.* 11:103

Farr, R. M. 1977. Heider, Harré, and Herzlich on health and illness: Some observations on the structure of "représentations collectives." *Eur. J. Soc. Psychol.* 7:491–504

Feather, N. T., Simon, J. G. 1971. Attribution of responsibility and valence of outcome in relation to initial confidence and success and failure of self and other. *J. Pers. Soc. Psychol.* 18:173–88

Feather, N. T., Simon, J. G. 1975. Reactions to male and female success and failure in sex-linked occupations: Impressions of personality, causal attributions, and perceived likelihood of different consequences. *J. Pers. Soc. Psychol.* 31:20–31

Feldman, N. S., Higgins, E. T., Karlovac, M., Ruble, D. N. 1976. Use of consensus information in causal attributions as a function of temporal presentation and availability of direct information. *J. Pers. Soc. Psychol.* 34:694–98

Feldman, R. S., Allen, V. L. 1975. Attribution of ability: An unexpected recency effect. *Psychol. Rep.* 36:59–66

Fontaine, G. 1975. Causal attribution in simulated versus real situations: When are people logical, when are they not? *J. Pers. Soc. Psychol.* 32:1021–29

Frankel, A., Snyder, M. L. 1978. Poor performance following unsolvable problems: Learned helplessness or egotism? *J. Pers. Soc. Psychol.* 36:1415–23

Frieze, I. H., Bar-Tal, D., Carroll, J. S., eds. 1980. *New Approaches to Social Problems: Applications of Attribution Theory.* San Francisco: Jossey-Bass. In press

Frieze, I. H., Weiner, B. 1971. Cue utilization and attributional judgments for success and failure. *J. Pers.* 39:591–605

Gerard, H. B. 1963. Emotional uncertainty and social comparison. *J. Abnorm. Soc. Psychol.* 66:568–73

Goethals, G. R. 1976. An attributional analysis of some social influence phenomena. See Harvey et al 1976, pp. 291–310

Golding, S. L., Rorer, L. G. 1972. Illusory correlation and subjective judgment. *J. Abnorm. Psychol.* 80:249–60

Gould, R., Sigall, H. 1977. The effects of empathy and outcome on attribution: An examination of the divergent-perspectives hypothesis. *J. Exp. Soc. Psychol.* 13:480–91

Hansen, R. D., Donoghue, J. M. 1977. Power of consensus: Information derived from one's own and others' behavior. *J. Pers. Soc. Psychol.* 35:294–302

Harvey, J. H., Ickes, W. J., Kidd, R. F., eds. 1976. *New Directions in Attribution Research,* Vol. 1. Hillsdale, NJ: Erlbaum. 467 pp.

Harvey, J. H., Ickes, W. J., Kidd, R. F., eds. 1978. *New Directions in Attribution Research,* Vol. 2. Hillsdale, NJ: Erlbaum. 401 pp.

Harvey, J. H., Kelley, H. H. 1974. Sense of own judgmental competence as a function of temporal pattern of stability-instability in judgment. *J. Pers. Soc. Psychol.* 29:526–38

Harvey, J. H., Wells, G. L., Alvarez, M. D. 1978. Attribution in the context of close relationships. See Harvey et al 1978, pp. 235–60

Hayden, T., Mischel, W. 1976. Maintaining trait consistency in the resolution of behavioral inconsistency: The wolf in sheep's clothing. *J. Pers.* 44:109–32

Hendrick, C., Giesen, M. 1975. Effects of task success or failure on causal attributions and person perception. *Mem. Cognit.* 3:363–69

Heider, F. 1944. Social perception and phenomenal causality. *Psychol. Rev.* 51:358–74

Heider, F. 1958. *The Psychology of Interpersonal Relations.* New York: Wiley. 332 pp.

Himmelfarb, S. 1972. Integration and attribution theories in personality impression formation. *J. Pers. Soc. Psychol.* 23:309–13

Himmelfarb, S., Anderson, N. H. 1975. Integration-theory applied to opinion attribution. *J. Pers. Soc. Psychol.* 31:1064–71

Ickes, W. J., Kidd, R. F. 1976. An attributional analysis of helping behavior. See Harvey et al 1976, pp. 311–34

Irwin, F. W., Smith, W. A. S. 1956. Further tests of theories of decision in an "expanded judgment" situation. *J. Exp. Psychol.* 52:345–48

Iso-Ahola, S. 1977. Effects of team outcome on childrens' self-perception: Little League Baseball. *Scand. J. Psychol.* 18:38–42

Jones, E. E. 1976. How do people perceive the causes of behavior? *Am. Sci.* 64:300–5

Jones, E. E. 1979. The rocky road from acts to dispositions. *Am. Psychol.* 34:107–17

Jones, E. E., Berglas, S. 1978. Control of attributions about the self through self-handicapping strategies: The appeal of alcohol and the role of underachievement. *Pers. Soc. Psychol. Bull.* 4:200–6

Jones, E. E., Davis, K. E. 1965. From acts to dispositions: The attribution process in person perception. *Adv. Exp. Soc. Psychol.* 2:219–66

Jones, E. E., Davis, K. E., Gergen, K. J. 1961. Role playing variations and their informational value for person perception. *J. Abnorm. Soc. Psychol.* 63:302–10

Jones, E. E., Goethals, G. R. 1972. Order effects in impression formation: Attribution context and the nature of the entity. See Jones et al 1972, pp. 27–46

Jones, E. E., Kanouse, D. E., Kelley, H. H., Nisbett, R. E., Valins, S., Weiner, B., eds. 1972. *Attribution: Perceiving the Causes of Behavior.* Morristown, NJ: Gen. Learn. Press. 186 pp.

Jones, E. E., McGillis, D. 1976. Correspondent inferences and the attribution cube: A comparative reappraisal. See Harvey et al 1976, pp. 389–420

Jones, E. E., Nisbett, R. E. 1972. The actor and the observer: Divergent perceptions of the causes of behavior. See Jones et al 1972, pp. 79–94

Jones, E. E., Rock, L., Shaver, K. G., Goethals, G. R., Ward, L. M. 1968. Pattern of performance and ability attribution: An unexpected primacy effect. *J. Pers. Soc. Psychol.* 10:317–40

Jones, E. E., Thibaut, J. W. 1958. Interaction goals as bases of inference in interpersonal perception. In *Person Perception and Interpersonal Behavior,* ed. R. Tagiuri, L. Petrullo, pp. 151–78. Stanford: Stanford Univ. Press. 390 pp.

Jones, E. E., Worchel, S., Goethals, G. R., Grumet, J. F. 1971. Prior expectancy and behavioral extremity as determinants of attitude attribution. *J. Exp. Soc. Psychol.* 7:59–80

Jones, E. E., Wortman, C. 1973. *Ingratiation: An Attributional Approach.* Morristown, NJ: Gen. Learn. Press. 55 pp.

Karaz, V., Perlman, D. 1975. Attribution at the wire: Consistency and outcome finish strong. *J. Exp. Soc. Psychol.* 11:470–77

Karniol, R., Ross, M. 1976. The development of causal attributions in social perception. *J. Pers. Soc. Psychol.* 34:455–64

Kassin, S. M., Hochreich, D. J. 1977. Instructional set: A neglected variable in attribution research. *J. Pers. Soc. Psychol.* 3:620–23

Kelley, H. H. 1967. Attribution theory in social psychology. *Nebr. Symp. Motiv.* 15:192–238

Kelley, H. H. 1972a. Attribution in social interaction. See Jones et al 1972, pp. 1–26

Kelley, H. H. 1972b. Causal schemata and

the attribution process. See Jones et al 1972, pp. 151–74

Kelley, H. H. 1979. *Personal Relationships: Their Structures and Processes.* Hillsdale, NJ: Erlbaum. 183 pp.

Kelley, H. H., Thibaut, J. W. 1969. Group problem solving. In *The Handbook of Social Psychology,* ed. G. Lindzey, E. Aronson, 4:1–101. Reading, Mass: Addison-Wesley. 694 pp.

Killeen, P. R. 1978. Superstition: A matter of bias, not detectability. *Science* 199: 88–90

Koeske, G. F., Koeske, R. K. 1975. Deviance and a generalized disposition toward internality: An attributional approach. *J. Pers.* 43:634–46

Kruglanski, A. W. 1975. The endogenous-exogenous partition in attribution theory. *Psychol. Rev.* 82:387–406

Kun, A., Weiner, B. 1973. Necessary versus sufficient causal schemata for success and failure. *J. Res. Pers.* 7:197–207

Langer, E. J. 1975. The illusion of control. *J. Pers. Soc. Psychol.* 32:311–28

Langer, E. J. 1978. Rethinking the role of thought in social interaction. See Harvey et al 1978, pp. 35–58

Lay, C. H., Burron, B. F., Jackson, D. N. 1973. Base rates and information value in impression formation. *J. Pers. Soc. Psychol.* 28:390–95

Lay, C. H., Ziegler, M., Hershfield, L., Miller, D. T. 1974. The perception of situational consistency in behavior: Assessing the actor-observer bias. *Can. J. Behav. Sci.* 6:376–84

Lenauer, M., Sameth, L., Shaver, P. 1976. Looking back at oneself in time: Another approach to the actor-observer phenomenon. *Percept. Mot. Skills* 43: 1283–87

Lepper, M. R., Greene, D., eds. 1978. *The Hidden Costs of Reward: New Perspectives on the Psychology of Motivation.* Hillsdale, NJ: Erlbaum. 265 pp.

Lepper, M. R., Greene, D., Nisbett, R. E. 1973. Undermining childrens' intrinsic interest with extrinsic reward: A test of the overjustification hypothesis. *J. Pers. Soc. Psychol.* 28:129–37

Lerner, M. J., Miller, D. T. 1978. Just world research and the attribution process: Looking back and ahead. *Psychol. Bull.* 85:1030–51

Liebhart, E. H. 1976. On attributing fictitious cardiac responses. *Percept. Mot. Skills* 43:202

Liebhart, E. H. 1979. Information search and attribution: Cognitive processes mediating the effect of false autonomic feedback. *Eur. J. Soc. Psychol.* 9:19–37

Mann, J. F., Taylor, D. M. 1974. Attribution of causality: Role of ethnicity and social class. *J. Soc. Psychol.* 94:3–13

McArthur, L. Z. 1972. The how and what of why: Some determinants and consequences of causal attributions. *J. Pers. Soc. Psychol.* 22:171–93

McArthur, L. Z., Post, D. L. 1977. Figural emphasis and person perception. *J. Exp. Soc. Psychol.* 13:520–35

McCauley, C., Jacques, S. 1979. The popularity of conspiracy theories of presidential assassination: A Bayesian analysis. *J. Pers. Soc. Psychol.* 37:637–44

Michotte, A. 1963. *The Perception of Causality.* New York: Basic Books. 424 pp.

Miller, A. G. 1975. Actor and observer perceptions of the learning of a task. *J. Exp. Soc. Psychol.* 11:95–111

Miller, D. T. 1976. Ego-involvement and attributions for success and failure. *J. Pers. Soc. Psychol.* 34:901–6

Miller, D. T., Norman, S. A., Wright, E. 1978. Distortion in person perception as a consequence of need for effective control. *J. Pers. Soc. Psychol.* 36:593–607

Miller, D. T., Ross, M. 1975. Self-serving biases in the attribution of causality: Fact or fiction? *Psychol. Bull.* 82: 213–25

Misovich, S., Charis, P. C. 1974. Information need, affect, and cognition of autonomic activity. *J. Exp. Soc. Psychol.* 10:274–83

Misra, S. 1973. Instability in self-evaluation, conformity, and affiliation. *J. Pers.* 41:361–75

Monson, T. C., Snyder, M. 1977. Actors, observers, and the attribution process. *J. Exp. Soc. Psychol.* 13:89–111

Moscovici, S., Faucheux, C. 1972. Social influence, conformity bias, and the study of active minorities. *Adv. Exp. Soc. Psychol.* 6:149–202

Nemeth, C., Swedlund, M., Kanki, B. 1974. Patterning of a minority's responses and their influence on the majority. *Eur. J. Soc. Psychol.* 4:53–64

Newtson, D. 1974. Dispositional inference from effects of actions: Effects chosen and effects foregone. *J. Exp. Soc. Psychol.* 10:489–96

Nisbett, R. E., Borgida, E. 1975. Attribution and the psychology of prediction. *J. Pers. Soc. Psychol.* 32:932–43

Nisbett, R. E., Caputo, C., Legant, P., Maracek, J. 1973. Behavior as seen by the actor and as seen by the observer. *J. Pers. Soc. Psychol.* 27:154–64

Nisbett, R. E., Schachter, S. 1966. Cognitive manipulation of pain. *J. Exp. Soc. Psychol.* 2:227–36

Nisbett, R. E., Valins, S. 1972. Perceiving the causes of one's own behavior. See Jones et al 1972, pp. 63–78

Nisbett, R. E., Wilson, T. D. 1977. Telling more than we can know: Verbal reports on mental processes. *Psychol. Rev.* 84:231–59

Orvis, B. R., Kelley, H. H., Butler, D. 1976. Attributional conflict in young couples. See Harvey et al 1976, pp. 353–86

Passer, M. W., Kelley, H. H., Michela, J. L. 1978. Multidimensional scaling of the causes for negative interpersonal behavior. *J. Pers. Soc. Psychol.* 36:951–62

Peplau, L. A., Russell, D., Heim, M. 1980. An attributional analysis of loneliness. See Frieze et al 1980, in press

Phares, E. J. 1957. Expectancy changes in skill and chance situations. *J. Abnorm. Soc. Psychol.* 54:339–42

Piliavin, I. M., Rodin, J., Piliavin, J. A. 1969. Good Samaritanism: An underground phenomenon? *J. Pers. Soc. Psychol.* 13:289–99

Reeder, G. D., Brewer, M. B. 1979. A schematic model of dispositional attribution in interpersonal perception. *Psychol. Rev.* 86:61–79

Reeder, G. D., Messick, D. M., Van Avermaet, E. 1977. Dimensional asymmetry in attributional inference. *J. Exp. Soc. Psychol.* 13:46–57

Regan, D. T. 1978. Attributional aspects of interpersonal attraction. See Harvey et al 1978, pp. 207–33

Regan, D. T., Straus, E., Fazio, R. 1974. Liking and the attribution process. *J. Exp. Soc. Psychol.* 10:385–97

Regan, D. T., Totten, J. 1975. Empathy and attribution: Turning observers into actors. *J. Pers. Soc. Psychol.* 32:850–56

Rest, S. 1976. Schedules of reinforcement: An attributional analysis. See Harvey et al 1976, pp. 97–120

Rice, W. K. 1975. Effects of discipline techniques on children's personality-trait inferences. *J. Educ. Psychol.* 67:570–75

Riemer, B. S. 1975. Influence of causal beliefs on affect and expectancy. *J. Pers. Soc. Psychol.* 31:1163–67

Rizley, R. 1978. Depression and distortion in attribution of causality. *J. Abnorm. Psychol.* 87:32–48

Roberts, G. C. 1978. Children's assignment of responsibility for winning and losing. In *Psychological Perspectives in Youth Sports*, ed. F. L. Smoll, R. E. Smith, pp. 145–71. Washington: Hemisphere. 287 pp.

Robertson, T. S., Rossiter, J. R. 1974. Children and commercial persuasion: An at-tribution theory analysis. *J. Consum. Res.* 1:13–20

Rodin, J. 1976. Density, perceived choice, and response to controllable and uncontrollable outcomes. *J. Exp. Soc. Psychol.* 12:564–78

Ross, L. 1977. The intuitive psychologist and his shortcomings: Distortions in the attribution process. *Adv. Exp. Soc. Psychol.* 10:174–220

Ross, L., Bierbrauer, G., Polly, S. 1974. Attribution of educational outcomes by professional and nonprofessional instructors. *J. Pers. Soc. Psychol.* 29:609–18

Ross, L., Greene, D., House, P. 1977. The false consensus effect: An egocentric bias in social perception. *J. Exp. Soc. Psychol.* 13:279–301

Ross, L., Lepper, M. R., Hubbard, M. 1975. Perseverance in self perception and social perception: Biased attributional processes in the debriefing paradigm. *J. Pers. Soc. Psychol.* 32:880–92

Ross, L., Rodin, J., Zimbardo, P. G. 1969. Toward an attribution therapy: The reduction of fear through induced cognitive emotional misattribution. *J. Pers. Soc. Psychol.* 12:279–88

Ross, M. 1976. The self-perception of intrinsic motivation. See Harvey et al 1976, pp. 121–41

Rotter, J. B. 1966. Generalized expectancies for internal versus external control of reinforcement. *Psychol. Monogr.* 80(1):1–28

Ruble, D. N., Feldman, N. S. 1976. Order of consensus, distinctiveness, and consistency information and causal attributions. *J. Pers. Soc. Psychol.* 34:930–37

Ruble, T. L. 1973. Effects of actor and observer roles on attributions of causality in situations of success and failure. *J. Soc. Psychol.* 90:41–44

Rule, B. G., Nesdale, A. R. 1976. Emotional arousal and aggressive behavior. *Psychol. Bull.* 83:851–63

Schachter, S. 1964. The interaction of cognitive and physiological determinants of emotional state. *Adv. Exp. Soc. Psychol.* 1:49–80

Schachter, S., Singer, J. E. 1962. Cognitive, social and physiological determinants of emotional state. *Psychol. Rev.* 69:379–99

Schulz, R., Hanusa, B. H. 1978. Long-term effects of control and predictability-enhancing interventions: Findings and ethical issues. *J. Pers. Soc. Psychol.* 36:1194–1201

Schwartz, J. M., Smith, W. P. 1976. Social comparison and the inference of an abil-

ity difference. *J. Pers. Soc. Psychol.* 34:1268–75

Scott, M. B., Lyman, S. M. 1968. Accounts. *Am. Sociol. Rev.* 33:46–62

Severance, L. J., Gasstrom, L. L. 1977. Effects of the label "mentally retarded" on causal explanations for success and failure outcomes. *Am. J. Ment. Defic.* 81:547–55

Shaver, K. G. 1970. Defensive attribution: Effects of severity and relevance on the responsibility assigned to an accident. *J. Pers. Soc. Psychol.* 14:101–13

Shaw, M. E., Sulzer, J. L. 1964. An empirical test of Heider's levels in attribution of responsibility. *J. Abnorm. Soc. Psychol.* 69:39–46

Shultz, T. R., Mendelson, R. 1975. The use of covariation as a principle of causal analysis. *Child Dev.* 46:394–99

Shultz, T. R., Ravinsky, F. B. 1977. Similarity as a principle of causal inference. *Child Dev.* 48:1552–58

Sicoly, F., Ross, M. 1977. Facilitation of ego-biased attributions by means of self-serving observer feedback. *J. Pers. Soc. Psychol.* 35:734–41

Siegler, R. S., Liebert, R. M. 1974. Effects of contiguity, regularity, and age on children's causal inferences. *Dev. Psychol.* 10:574–79

Skilbeck, W. M. 1974. Attributional change and crisis intervention. *Psychother. Theory Res. Pract.* 11:371–75

Smith, E. R., Miller, F. D. 1978. Limits on perception of cognitive processes: A reply to Nisbett and Wilson. *Psychol. Rev.* 85:355–62

Snyder, M., Swann, W. B. 1978. Behavioral confirmation in social interaction: From social perception to social reality. *J. Exp. Soc. Psychol.* 14:148–62

Snyder, M., Tanke, E. D., Berscheid, E. 1977. Social perception and interpersonal behavior: On the self-fulfilling nature of social stereotypes. *J. Pers. Soc. Psychol.* 35:656–66

Snyder, M. L., Jones, E. E. 1974. Attitude attribution when behavior is constrained. *J. Exp. Soc. Psychol.* 10:585–600

Snyder, M. L., Stephan, W. G., Rosenfield, D. 1976. Egotism and attribution. *J. Pers. Soc. Psychol.* 33:435–41

Snyder, M. L., Stephan, W. G., Rosenfield, D. 1978. Attributional egotism. See Harvey et al 1978, pp. 91–117

Staw, B. M. 1975. Attribution of the causes of performance: A general alternative interpretation of cross-sectional research on organizations. *Organ. Behav. Hum. Perform.* 13:414–32

Stephan, W. G. 1975. Actor versus observer: Attributions to behavior with positive or negative outcomes and empathy for the other role. *J. Exp. Soc. Psychol.* 11:205–14

Stevens, L., Jones, E. E. 1976. Defensive attribution and the Kelley cube. *J. Pers. Soc. Psychol.* 34:809–20

Storms, M. D. 1973. Videotape and the attribution process: Reversing actors' and observers' points of view. *J. Pers. Soc. Psychol.* 27:165–75

Storms, M. D., McCaul, K. D. 1976. Attribution processes and emotional exacerbation of dysfunctional behavior. See Harvey et al 1976, pp. 143–64

Strickland, L. H., Barefoot, J. C., Hockenstein, P. 1976. *Rep. Res. Soc. Psychol.* 7:51–57

Strong, S. R. 1970. Causal attribution in counseling and psychotherapy. *J. Couns. Psychol.* 17:388–99

Taylor, S. E., Fiske, S. T. 1975. Point of view and perceptions of causality. *J. Pers. Soc. Psychol.* 32:439–45

Taylor, S. E., Fiske, S. T., Etcoff, N. L., Ruderman, A. J. 1978. Categorical and contextual bases of person memory and stereotyping. *J. Pers. Soc. Psychol.* 36:778–93

Taylor, S. E., Koivumaki, J. H. 1976. The perception of self and others: Acquaintanceship, affect and actor-observer differences. *J. Pers. Soc. Psychol.* 33:403–8

Tedeschi, J. T., Smith, R. B., Brown, R. C. 1974. Reinterpretation of research on aggression. *Psychol. Bull.* 81:540–62

Thibaut, J. W., Riecken, H. W. 1955. Some determinants and consequences of the perception of social causality. *J. Pers.* 24:113–33

Triandis, H. C. 1972. *The Analysis of Subjective Culture.* New York: Wiley-Interscience. 383 pp.

Trope, Y. 1974. Inferential processes in the forced compliance situation: A Bayesian analysis. *J. Exp. Soc. Psychol.* 10:1–16

Valins, S. 1966. Cognitive effects of false heart-rate feedback. *J. Pers. Soc. Psychol.* 4:400–8

Valins, S., Ray, A. A. 1967. Effects of cognitive desensitization on avoidance behavior. *J. Pers. Soc. Psychol.* 7:345–50

Walster, E. 1966. Assignment of responsibility for an accident. *J. Pers. Soc. Psychol.* 3:73–79

Weiner, B. 1979. A theory of motivation for some classroom experiences. *J. Educ. Psychol.* 71:3–25

Weiner, B., Frieze, I., Kukla, A., Reed, L., Rest, S., Rosenbaum, R. M. 1972. Perceiving the causes of success and failure. See Jones et al 1972, pp. 95–120

Weiner, B., Kukla, A. 1970. An attributional analysis of achievement motivation. *J. Pers. Soc. Psychol.* 15:1–20

Weiner, B., Nierenberg, R., Goldstein, M. 1976. Social learning (locus of control) versus attributional (causal stability) interpretations of expectancy of success. *J. Pers.* 44:52–68

Weiner, B., Peter, N. 1973. A cognitive-developmental analysis of achievement and moral judgments. *Dev. Psychol.* 9:290–309

Weiner, B., Russell, D., Lerman, D. 1978. Affective consequences of causal ascriptions. See Harvey et al 1978, pp. 59–90

Wells, G. L., Harvey, J. H. 1977. Do people use consensus information in making causal attributions? *J. Pers. Soc. Psychol.* 35:279–93

Whalen, C. K., Henker, B. 1976. Psychostimulants and children: A review and analysis. *Psychol. Bull.* 83:1113–30

Wolfson, M. R., Salancik, G. R. 1977. Observer orientation and actor-observer differences in attributions for failure. *J. Exp. Soc. Psychol.* 13:441–51

Worchel, S., Teddlie, C. 1976. The experience of crowding: A two-factor theory. *J. Pers. Soc. Psychol.* 34:30–40

Wortman, C. B. 1976. Causal attributions and personal control. See Harvey et al 1976, pp. 23–52

Wortman, C. B., Costanzo, P. R., Witt, T. R. 1973. Effect of anticipated performance

on the attributions of causality to self and others. *J. Pers. Soc. Psychol.* 27:372–81

Wortman, C. B., Dintzer, L. 1978. Is an attributional analysis of the learned helplessness phenomenon viable?: A critique of the Abramson-Seligman-Teasdale reformulation. *J. Abnorm. Psychol.* 87:75–90

Younger, J. C., Arrowood, A. J., Hemsley, G. 1977. "And the lucky shall inherit the earth": Perceiving the causes of financial success and failure. *Eur. J. Soc. Psychol.* 7:509–19

Younger, J. C., Earn, B. M., Arrowood, A. J. 1978. Happy accidents: Defensive attribution or rational calculus? *Pers. Soc. Psychol. Bull.* 4:52–55

Zadny, J., Gerard, H. B. 1974. Attributed intentions and informational selectivity. *J. Exp. Soc. Psychol.* 10:34–52

Zillmann, D. 1978. Attribution and misattribution of excitatory reactions. See Harvey et al 1978, pp. 335–68

Zillmann, D., Johnson, R. C., Day, K. D. 1974. Attribution of apparent arousal and proficiency of recovery from sympathetic activation affecting excitation transfer to aggressive behavior. *J. Exp. Soc. Psychol.* 10:503–15

Zuckerman, M. 1978. Actions and occurrences in Kelley's cube. *J. Pers. Soc. Psychol.* 36:647–56

Zuckerman, M. 1979. Attribution of success and failure revisited, or: The motivational bias is alive and well in attribution theory. *J. Pers.* 47:245–87