Causal Attribution of Behavior and Achievement

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15.1 Causal Attribution: How Thinking About Causes Influences Behavior

Motivational psychologists are not alone in seeking to understand the reasons for people's behavior and the causes of action outcomes. We all do it; it is an everyday occurrence. We all want to understand what is going on around us. Accordingly, we do not simply observe or note the behavior of others but seek to understand what motivates them to act the way they do. In other words, we try to identify the reasons for their behavior. Insights into these reasons allow us to predict – and perhaps even influence – how they will behave in the future. We also strive to pinpoint the causes for action outcomes, because only a clear understanding of these causes allows us to reproduce desirable outcomes in the future and to prevent undesirable ones, e.g., by eradicating their causes. Knowledge about the causes of the behavior we observe in others lets us moreover judge said behavior as good or bad, moral or nefarious. The

following examples serve to illustrate when and why we analyze the reasons and causes for behavior and action outcomes and how the results of this analysis influence our subsequent behavior and the (moral) evaluation of behavior.

> **Example**
> A rather mediocre student unexpectedly gets one of the highest marks in a class test. The teacher might well find herself asking a number of questions: Did the student work particularly hard for the test? Was he lucky? Might he have cheated? Her behavior and evaluation of her student's behavior will differ depending on the cause she infers for the student's surprisingly good test score. She might praise him (if she thinks he has worked particularly hard) or treat him with suspicion (if she thinks he has cheated), etc. Let us assume – to give another example – that someone jostles us as we are getting on a bus. Is she trying to push in to get a good seat or did she trip? Here again, our response will depend on the cause we identify for her behavior. If we decide that the woman wants to push in, we will likely be annoyed and may be tempted to give her a piece of our mind. If, on the other hand, we decide that she stumbled, we will probably keep our thoughts to ourselves.

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As these two examples show, causal attributions influence how we judge behavior, which emotions we experience, and how we behave in a particular situation.

Apart from seeking to ascribe causality in an attempt to optimize our own behavior and to predict, (morally) judge, and potentially influence the behavior of others, we also seek to actively influence the causal attributions of others – because we are well aware that causal attributions do affect behavior. If we bump into someone as we are getting off the bus, for example, we might apologize, because we think an apology will prevent them from thinking we jostled them on purpose and considering our behavior mean and that this belief will in turn temper their response (Weiner, 1995).

People's explanations for outcomes and events – i.e., the causes they infer and the effects of these causal attributions on their subsequent behavior and experience – soon became the object of theoretical debate and empirical research (see Eimer, 1987, for a summary). There was a huge upsurge in research after Heider (1958), the acknowledged pioneer of the study of attribution processes, published some fundamental ideas on the phenomenon. The findings of some 50 years of continued research in this area (for on overview of research on attributional psychology that is relevant to motivational psychology see Graham & Taylor, 2016) have had substantial influence on diverse fields of psychological research (e.g., Alloy et al., 2006; Stiensmeier-Pelster & Schwinger, 2008; Tomlinson & Mayer, 2009). Kelley and Michela (1980) distinguish two research approaches within this extensive field of research:
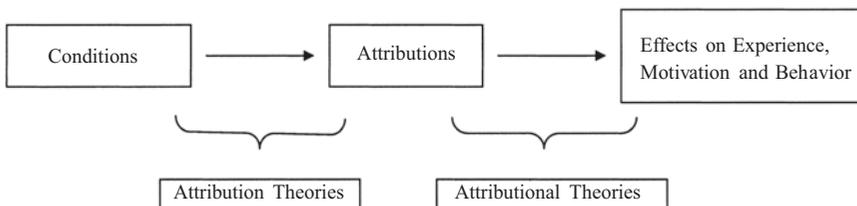
- Attribution theories
- Attributional theories (Fig. 15.1)

Attribution theories are particularly concerned with how causal attributions are reached and seek answers to the following questions:

- When do attributions occur?
- Do causal attributions necessarily involve the conscious, active analysis of the causal structure of events, or are they based on implicit assumptions about the causes of behavior and action outcomes?
- What kind of information is utilized in causal inferences?
- How is this information sought and how is it processed?
- What are the mechanisms and processes underlying our attributions of actions and outcomes to specific causes?

Attribution theories are discussed in the second part of this chapter, before we turn to attributional theories in the third part. Attributional theories are primarily concerned with the effects of causal attribution on people's subsequent behavior and experience. They play a major role in various subdomains of psychology and are, strictly speaking, what make causal attributions so interesting for the psychology of motivation. The question of how we arrive at causal attributions (attribution theories) is really more a matter for cognitive psychology (although motivational factors of course have some bearing on the attribution process and its outcomes). Nevertheless, because the causes to which outcomes and events are ascribed can have a decisive impact on subsequent motivation, we also cover the more cognitive aspects of causal attribution in this chapter.

One of the most prominent approaches to attribution theory is Weiner's attributional theory of motivation, emotion, and behavior (Weiner,

Fig. 15.1 Explanatory domain of attribution theories and attributional theories (Based on Kelley & Michela, 1980)

1985a; see also Weiner, 2006 or Weiner, 2012 for an up-to-date review of theoretical positions and empirical evidence). On the one hand, this theory addresses the processes and mechanisms that are involved in causal search and that terminate in a specific attribution. On the other hand, it provides a comprehensive description of the effects of causal attributions on subsequent behavior and experience. Weiner's ideas form the basis for numerous other attributional theories, such as the attributional theory of the development of depressive disorders (Abramson, Metalsky, & Alloy, 1989; Abramson, Seligman, & Teasdale, 1978; Stiensmeier-Pelster & Schürmann, 1991), the attributional theory of aggressive behavior (Graham, Hudley, & Williams, 1992; Rudolph, Roesch, Weiner, & Greitemeyer, 2004; Tscharaktschiew & Rodolph, 2015), and the (moral) evaluation of behavior and associated moral emotions (Rudolph & Tscharaktschiew, 2014).

Weiner's ideas have also been incorporated into a number of further theories without the authors always stating this fact explicitly. For example, attributions play a key role in recent theories of learning and achievement (Dweck, 1999; Stiensmeier-Pelster & Schwinger, 2008) and theories of task choice behavior (Dickhäuser & Stiensmeier-Pelster, 2000; Eccles & Wigfield, 1995). The attibution theory of Weiner has also formed the basis for explanations of health-related behavior (Schwarzer, 1994) and sports outcomes (Rethorst, 1994), for predictions of the sales achieved by financial service providers (Mai, 2004), and also for explanations of child abuse (Graham, Weiner, Cobb, & Henderson, 2001).

15.2   Weiner's Attributional Analysis of Motivation, Emotion, and Behavior

According to Weiner's model, action outcomes are first evaluated in terms of their valence, i.e., whether they are positive or negative (Fig. 15.2) (Weiner, 1985b). The result of this evaluation triggers outcome-dependent (and attribution-independent) emotions. A positive evaluation will give rise to general, nonspecific feelings of joy or happiness, whereas a negative evaluation will result in feelings such as sadness or frustration. Under certain conditions, besides evaluating the valence of an outcome, we may undertake causal search, i.e., try to identify the causes of an outcome. Weiner posits causal search to occur whenever an outcome:

- Occurs unexpectedly
- Is important
- Is evaluated negatively

Weiner holds that each of these three conditions is sufficient to initiate causal search. This assumption does not withstand careful theoretical or empirical testing, however, as we will
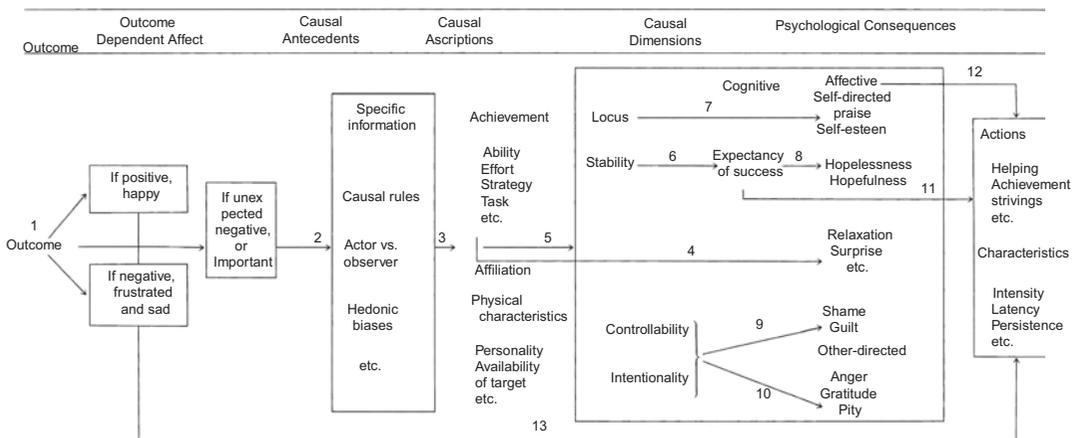

Fig. 15.2   Weiner's attributional approach to motivation and emotion (Based on Weiner, 1985b, p. 565)

show below. The search for causality culminates in a causal attribution. Which cause is inferred for a particular outcome depends on a number of causal antecedents. As will be discussed in more depth in Sect. 15.3, specific information about the action outcome in question may be evaluated to arrive at an appropriate causal attribution. Certain causal schemata may also be activated to this end. Hedonic biases, such as the desire to protect one's self-esteem ("I am responsible for successes, but have nothing to do with failures"), may also play a role, as may the perspective taken on the outcome (i.e., whether I was the actor or merely observed someone else's actions). We will consider these causal antecedents and the processes underlying causal attribution in more detail in Sect. 15.3.

15.2.1 Causal Factors

Attribution theory research has identified a number of causal factors (causal attributions) that are regularly cited to explain academic performance or success and failure in social interactions (i.e., affiliation-related contexts). The causal factors inferred for achievement-related outcomes include high or insufficient ability, high or insufficient effort, task difficulty, and luck. Causal factors that can explain success and failure in affiliation-related contexts include physical characteristics and certain personality features. As shown in the model, these causal factors are then rated along certain dimensions. The most important of the causal dimensions are listed in the following overview.

Causal Dimensions (Based on Weiner, 1992)
1. Locus
   The locus (person dependence, also termed internality) of a causal factor reflects whether it resides within the actor (internal) or in the environmental conditions or other people (external).
2. Stability

This dimension reflects stability over time, i.e., whether the causal factor remains stable or changes over time (variable).
3. Controllability
   This dimension covers the controllability and intentionality of causal factors:
   • Controllability indicates whether the causal factor was subject to the actor's control (controllable) or beyond it (uncontrollable).
   • Intentionality indicates whether the actor brought about the causal factor deliberately (intentionally) or accidentally. Note that a causal factor or a constellation of causal factors that was brought about deliberately (intentionality is present) is always controllable, whereas a controllable causal factor was not necessarily brought about deliberately.

Other authors have identified further causal dimensions. For instance, it may, under certain conditions, be important to evaluate causal factors on the globality dimension (e.g., Abramson et al., 1978, 1989): can causal factors be generalized across situational domains (global), or are their effects limited to a particular situation (specific)?

According to the distinction made by Kelley and Michela (1980), Weiner's approach is – up to this point – an attribution theory, concerning solely the process from the perception of an event to the identification of its causes. Weiner, however, goes on to describe the influence of causal attributions on behavior and experience, meaning that his approach is in fact an attributional theory.

15.2.2 Psychological Consequences of Causal Analysis

Causal attributions – and especially their characterization in terms of locus, stability, globality, controllability, and intentionality – have certain cognitive and affective implications (psychological consequences).

- The cognitive implications of causal attributions are expectancies of future success (or failure), which in turn elicit feelings of confidence (hope) or hopelessness.

Cognitive consequences of causal attributions. According to Weiner's model, the expectancy of future success or failure largely depends on the attributor's evaluation of the stability and globality dimensions of causality:

- If a student succeeds (fails) on a task and ascribes this outcome to a cause he perceives to be stable, he will continue to expect to succeed (fail) on that task in the future.
- Moreover, if he ascribes the outcome to a global cause, he will generalize these expectancies to other tasks as well; the more global the cause is perceived to be, the broader the generalization.
- If, on the other hand, the student ascribes his success (failure) to a cause he perceives to be unstable (variable), he will anticipate that future outcomes may differ (e.g., failure as opposed to success).

As discussed in greater depth below, however, the relationship between attributions and expectancies of future success is much more complex than assumed by Weiner. As we will show later in this chapter, it is not just a question of the stability and/or globality of the cause to which a success or failure is ascribed but of its impact on behavior over time. The stability of a cause and its effects on behavior are therefore two distinct phenomena.

Assuming the basic premise of attribution theory – as discussed in Sect. 15.3 – that the main function of causal attribution is the prediction and control of environmental conditions or others behavior, then ascriptions to unstable causes must be rather unsatisfactory for the attributor. Unstable causes do not permit reliable predictions of future events or, in consequence, control of the environment. However, this discrepancy is resolved in part by the fact that expectancies of success are also determined by the controllability of their cause. For example, a student who fails because he or she has put little effort into his or her work (unstable but controllable cause) can still make

reliable predictions about future outcomes. Specifically, he or she can expect failure on subsequent tasks if he or she does not put in the necessary effort and to succeed if he or she commits to working hard. However, the problem remains if an outcome is attributed to a cause that is both unstable and uncontrollable such as luck. Likewise, attributing failure to lack of ability (stable but uncontrollable cause) is at odds with the assumption that causal ascription serves to predict and to control outcomes. Although this kind of attribution allows us to predict future events (we will expect failure on subsequent tasks), it can scarcely be said to permit their control.

Affective consequences of causal attributions. Causal attributions and the properties ascribed to them not only influence our expectancies but also our feelings (affect). It is important here to distinguish between self-directed emotions and other-directed emotions, i.e., to specify the object of the affect (Meyer, Schützwohl, & Reisenzein, 1993). For instance, we can be proud of ourselves (the object is our self) or sympathize with others (the object is another person). The causal dimension of locus is associated with the occurrence of self-directed feelings, such as pride or self-respect (or self-esteem). These feelings arise when an outcome is attributed to internal causes, such as ability or effort. For example, we will be especially proud of a good performance if we ascribe it to our superior ability or effort but are unlikely to feel pride if we attribute our success to luck or the ease of the task. These attributions will not enhance our self-respect, either. By the same token, self-respect is unlikely to decrease if a failure is attributed to bad luck or other external causes. The controllability dimension is associated with both self-directed and other-directed feelings. These emotions frequently have a moral quality (e.g., guilt, anger, pity, gratitude; cf. Rudolph & Tscharaktschiew, 2014). Thus, they indicate if we attribute the causes for a certain behavior "as illness or sin" (Weiner, 2006) or perceive them as morally reprehensible. A failure attributed to causes that are both controllable and internal (e.g., lack of effort) is likely to lead to feelings of guilt, whereas a failure attributed to uncontrollable, internal causes (e.g., lack of ability) will result in feelings of shame.

Other-directed emotions that are determined by the controllability dimension include anger, gratefulness, and sympathy. For example, we may feel anger toward someone whose behavior has harmed us if we consider the causes for the harmful behavior to lie within that person's control.

Example

If I lend my car to an acquaintance and he damages it because he was talking on his mobile phone while maneuvering into a parking space (controllable cause), I will doubtlessly be much more annoyed than I would have been had the damage been caused in an accident he could not have averted (uncontrollable cause). We will be particularly angry if somebody causes us harm and if we assume that person to have acted deliberately, i.e., if we consider the reasons for their behavior to be intentional. By the same token, we may feel anger toward people experiencing failure or injury if we consider them to be personally responsible for that outcome (i.e., if we think the cause of their failure or injury was within their control). Teachers whose students perform badly tend to feel anger if they think those students did not work hard enough (controllable cause). If, on the other hand, they consider a student to lack the necessary ability to succeed (an uncontrollable cause for the student), they will more likely show a sympathetic response.

According to Weiner, we are generally more likely to feel sympathy for someone if we see that they are in need of help and, at the same time, assume that they are not responsible for their situation but that its causes were beyond their control. Likewise, we feel gratitude when we have received help and assume the helper to have acted selflessly (controllable cause for the helper). We are less likely to be grateful if we suspect the helper was simply complying with social norms or was forced to help.

One feeling that is dependent on the causal factor itself, and that is assumed to be independent of that factor's evaluation on the causal dimensions discussed, is surprise. Weiner assumes surprise to occur whenever an outcome is attributed to chance or luck. This assumption does not withstand careful theoretical (see Meyer, 1988, for a summary) and empirical analysis (Stiensmeier-Pelster, Reisenzein, & Martini, 1995), however. Rather than being the affective result of luck attributions, surprise in fact seems to trigger causal search (we will return to this point later).

Weiner postulates the cognitive and affective consequences of causal inferences to determine our subsequent behavior. His model is not limited to a specific context, e.g., achievement behavior, but seeks to explain behavior in all kinds of domains. Weiner himself applied the model to both achievement-related (see Weiner, 2006) and interpersonal behavior (e.g., assistance or aggression; see Rudolph et al., 2004). Other authors have used it to explain the emergence of certain types of depressive disorders (e.g., Abramson et al., 1989) or applied it to health-related behavior (see above). In all cases, the focus has been on three aspects of behavior:

- Intensity (e.g., how much effort people make, the lengths to which they go)
- Latency (the speed with which action is undertaken)
- Persistence (how long people will keep pursuing a goal, how quickly they give up when difficulties occur)

Looking at Weiner's approach against the background of expectancy-value theories of motivation, it is clear that Weiner's model is no replacement for theories of this kind. In fact, where the proximal determinants of behavior are concerned, Weiner's approach constitutes a typical expectancy-value theory. Specifically, behavior is determined by the expectancy of success (expectancy component), on the one hand, and by affect (incentive component), on the other. In accordance with Atkinson's (1957) risk-taking model, Weiner's approach suggests that people only engage in achievement-related activities if the expectancy of success is sufficient, and if they

have previously experienced pride in success, meaning that they can now anticipate renewed feelings of pride. In contrast to the risk-taking model, however, Weiner assumes previously experienced affect to influence behavior because they anticipated the renewed feeling of these affect. This notion can also be found in recent theories of motivation (cf. Wigfield, Tonks, & Klauda, 2016).

- Thus, Weiner's approach explains the conditions for expectancies of success and the experience of pride. Moreover, his model is not limited to achievement behavior but considers all forms of behavior to be determined by expectancy and value components. For example, the provision of assistance depends on the assumption that our assistance will be effective (expectancy) and a feeling of pity (value). Aggression – to give a further example – depends on the experience of anger (value) and the assumption that our aggression will have positive consequences (expectancy).

Following this overview of when and how causal inferences are made, and how they influence our subsequent behavior and experience, the next section addresses the questions of why, when, under what conditions, and how causal attributions are made – in other words, we now turn to attribution theories.

15.3   Attribution Theories

15.3.1 Basic Assumptions

Following the perspective of Fritz Heider (1958), the fundamental idea of attribution theories has traditionally been that "the man or woman on the street" – i.e., everyone of us – is an intuitive scientist, formulating theories to explain, understand, predict, and influence their own behavior and experience and that of others. More recently several authors have instead chosen the interpretation by Bernhard Weiner (2006) according to which our behavior tends to be reminiscent of a judge who declares the causes of behavior moral or immoral. Regardless of whether we understand

ourselves as scientists or judges, our explanations are *implicit theories* and thus differ from scientific theories which are generally explicit. They guide our actions, i.e., we behave in accordance with our theories. Some authors even see the ability to formulate accurate theories about our behavior and experience, and that of our fellow humans, as a type of intelligence. For example, Gardner (1983) postulates the existence of intra- and interpersonal intelligence.

> **Definition**
> Intrapersonal intelligence is defined as the ability to faithfully perceive and explain our own behavior and experience, such that we are able to accurately predict and influence it. Interpersonal intelligence, on the other hand, is defined as the ability to perceive, explain, predict, and influence the behavior and experience of others.

Other authors speak of emotional intelligence, with the main characteristics of high emotional intelligence being consistent with those of intra- and interpersonal intelligence (Goleman, 1994; Mayer & Salovey, 1993).

- Our motivation to identify the causes for events and to accurately describe these causes derives from our fundamental need for control and predictability. Apart from wanting to know what is going on around us, we seek to influence and control behavior and events (Heider, 1958).

These ideas, originally posited by Heider, were taken up again and established as the fundamental principle of attribution theory in the 1970s. For example, Kelley (1971, p. 22) pointed out that the causal attribution process is not an end in itself. Rather, we engage in causal attribution with the aim of managing ourselves and our environment more effectively.

To this end, we need to be able to predict events and outcomes. However, we can only make accurate predictions if we understand the causal structure underlying an event. A comprehensive analysis of the situation or event and realistic attri-

butions are two further preconditions. In other words, it is assumed that individuals always strive to behave in a rational manner. The ability to predict events and thus render them controllable also has a value for survival. It enhances the individual's adaption to the environment, thus making it highly functional. "Attributional search as other explanatory behaviors ... have been accounted for with two different principles: functionalism ... and mastery. ... That is, one might explore to promote adaption and survival (functionalism) or to better understand oneself and the environment (mastery)" (Weiner, 1985b, p. 81).

This fundamental postulate has been subject to some criticism. For example, Kuhl (1983) doubts that causal search can be elevated to a general principle of motivation, arguing that people often do not spare a thought for the causes of action outcomes. If they do think about these causes, moreover, this is often an end in itself, which occurs very much as a matter of interest, without the actor drawing any direct consequences for action control. If, for example, someone ruminating on the possible reasons for a failure does so as an end in itself, an attribution of failure to insufficient effort will not necessarily motivate that person to try to solve the problem. Furthermore, Kuhl assumes that causal search can, under certain conditions, be a symptom of a highly dysfunctional state orientation (Chap. 12): "Examples of state-oriented activities may be ... examining the causes for not having reached a goal" (Kuhl, 1981, p. 159).

Kuhl bases this assumption on findings presented by Diener and Dweck (1978), who, in their studies, distinguished helpless from mastery-oriented children. These two groups differed in their level of performance, with helpless children performing at much lower levels than mastery-oriented children. Furthermore, the groups differed in terms of the causes to which success and failure were attributed and – of particular significance in the present context – in the extent to which they reflected on the causes of their success or failure. The authors interpreted these findings as indicating that helpless children – in contrast to mastery-oriented children – "waste" too much thought on causes, which is why their performance outcomes are poor. The

mastery-oriented children, on the other hand, performed well because they were less concerned with the causes of success and failure. Relative to the helpless children, they evidently considered these attributions to be largely irrelevant.

> Attributions may be considered irrelevant to the mastery-oriented child on this task, because the remedy would be the same regardless of the cause of failure (Diener & Dweck, 1978, p. 460).

Kuhl cites the findings of Diener and Dweck in support of his argument that reflecting on the causes of success and failure has negative implications for the effectiveness of behavior and is therefore dysfunctional. We will come back to the functionality or dysfunctionality of causal search and reflecting on the causes of success and failure in the following section (see the excursus on criticisms of the basic assumptions of attribution theory).

15.3.2 Causal Search: Triggering Conditions, Duration, and Intensity

It is safe to say that we are not engaged in a round-the-clock search for the causes of events or the reasons for behavior. In fact, we make no attempt to establish the origins of most of the things going on around us. This does not imply that we have no idea of their causes, however. Our ideas may be right or wrong, but they guide our behavior, even if we are not always consciously aware of them.

Example

If, while waiting at a red traffic light at a busy junction, I notice that the cars approaching from the left and right are stopping, I do not start wondering why this is the case. Rather, based on my previous experience, I implicitly assume – without a second thought – that they are stopping because their lights have just turned red. I further assume that I can safely cross the junction as soon as my lights turn green, because the traffic lights sequence is such that the lights in the other cars' direction remain red for the duration of the green phase in my direction.

As this example illustrates, we have stable beliefs about the reasons why most of the things taking place around us happen. In the words of Kelley and Michela (1980), we have a set of beliefs, schemata, or hypotheses on how certain effects are related to certain causes. On this basis, we formulate (implicit) expectations of how the world works (cf. Meyer, 1988; Stiensmeier-Pelster et al., 1995). Provided that our experiences correspond with our beliefs, schemata, and expectations, there is no reason to specify the causes of perceived events (in fact, we may not even be consciously aware of events that are congruent with our expectations).

Although attribution theories are based on the fundamental assumption that we seek to identify the causes of events in order to gain a better understanding of the environment and of ourselves, which in turn enables us to exert control over events, there was little research initially into the question of when, how often, and how long we engage in causal attributions. Likewise, there was a dearth of research on the standards of accuracy accepted – i.e., how thoroughly we seek to determine causes – and whether there are individual differences in this respect.

According to Weiner's comprehensive attributional analysis of motivation, emotion, and behavior (see earlier discussion), we seek to establish the causes of any event that is unexpected, negative, or important. Weiner's writings suggest that each of these three conditions is sufficient to initiate causal search. This assumption does not withstand careful scientific analysis, however, as illustrated by the simple example on the next page.

15.3.2.1   The Stage Model of Attributional Activity

Other questions that remain unanswered by Weiner's attributional analysis of motivation, emotion, and behavior are how long the search for causality lasts and what degree of accuracy is accepted. Drawing on the work of Meyer (1988; Meyer & Niepel, 1994), Stiensmeier-Pelster et al. (1995) developed an "expectancy-disconfirmation model" of attributional search, which Stiensmeier-Pelster (2004) recently extended into a stage model of attributional activity (Fig. 15.3). This model seeks to explain when causal search is initiated, how long it lasts, and how intense it is; i.e., its aspired degree of accuracy.

Excursus

Criticisms of the Basic Assumptions of Attribution Theory: How Functional Is Causal Attribution?

The theoretical reflections above and the empirical findings of Stiensmeier-Pelster et al. (1995) are congruent with the basic assumptions of attribution theory that the search for causality is functional, thus contributing to a better understanding of and adaption to the environment and finally to survival. But what about Kuhl's contention (Sect. 15.1) that causal search is dysfunctional? The results of several studies addressing individual differences in the duration and intensity of attributional activity seem to substantiate Kuhl's criticisms. As mentioned above, Diener and Dweck (1978) conclude that helpless and mastery-oriented children do not differ in the type of attributions they make but rather in the intensity of their attributional activity. Likewise, Kuhl concludes that action and state-oriented individuals differ in the extent of their attributional activity rather than in the type of attributions made. Many findings would seem to indicate that causal attribution is a dysfunctional activity. When the differences found are considered more carefully, however, this apparently plausible assumption collapses.

For all three samples cited above, qualitative differences can be found alongside the quantitative ones. For example, in the study by Diener and Dweck, the helpless children also differed from the mastery-oriented children in terms of the kind of attributions they made:

mastery-oriented children preferred effort attributions, whereas helpless children tended to ascribe their failures to a lack of ability. Moreover, the quantitative differences observed by Diener and Dweck apply only to lack of ability as the ascribed cause for failure. In other words, there is no general effect in the sense that helpless children think longer and/or more intensively about the causes of any given success or failure than do mastery-oriented children. The only difference is in the frequency of their thinking about lack of effort as the cause for failure. Moreover, we cannot rule out the possibility that the quantitative differences observed do not in fact reflect differences in the extent of causal search. It may be the case that the groups do not differ in the duration and intensity of the causal search but in the extent to which they ruminate on a cause once they have identified it.

Let us not forget that the helpless and mastery-oriented children in the study by Diener and Dweck also differed in the causes they inferred for their failure. Mastery-oriented children tended to attribute failure to a lack of effort; helpless children were more likely to ascribe it to a lack of ability. It seems reasonable to assume that mastery-oriented children get back to work and redouble their efforts to succeed as soon as they have identified the cause of their failure ("I didn't try hard enough"). It is clear from the attribution what kind of approach is required ("Try harder!"). The helpless children may have completed the causal search just as quickly, but because their causal inference ("I'm no good at this kind of task") does not point to a specific course of action, they might find it harder to return to their work. Indeed, there would be little point in doing so, because someone with no aptitude for the task has few prospects of success anyway. These children thus remain caught up in self-doubts ("I'm no good"), begin to ruminate or to search for meta-attributions ("Why am I no good?"), and try to specify the cause of their failure more closely ("Is it a general lack of ability or do I lack specific skills?"). Thus, whereas the "lack of effort" attribution has direct implications for behavior, behavioral implications can only be derived from the "lack of ability" attribution by specifying its causes more closely. Only then can people decide to address the cause identified in a renewed attempt to achieve their goal, or to abandon the original goal in favor of new ones, because the cause is deemed unchangeable.

Example
A student has received E grades on all previous mathematics tests. Given the stability of his performance over the years, he has come to the firm conclusion that mathematics is simply not his thing. Now his school-leaving exams are coming up. Based on his belief that he is no good at mathematics, he expects to get another E grade. And that is precisely what happens. Will this student try to identify the causes for his poor performance? Most unlikely. The E grade is just what he expected; his causal beliefs are not called into question in any way. According to Weiner's model, however, the student should seek causes for his poor performance, because although the grade was expected, the event was indisputably negative (E grade) and certainly important (school-leaving exam).

The first question to arise is whether an individual is sufficiently motivated to analyze the causes of an event. Like traditional expectancy-value theories of motivation, the stage model of attributional activity assumes causal search to be motivated by a specific emotion, namely, surprise. As posited by Meyer (1988) and many other authors (e.g., Charlesworth, 1969; Izard,

1977; Ortony, Clore, & Collins, 1988; Scherer, 1984), surprise is assumed to occur when an expected event does not occur or when the event occurring is unexpected or contrary to expectations (for details, see Stiensmeier-Pelster et al., 1995). It prepares and motivates the individual to engage in epistemic activities (a careful analysis of the situation) as described by Berlyne (1965), of which attributions can be regarded as a specific type (Pyszcynsik & Greenberg, 1987; Weiner, 1985b). Surprise is assumed to prepare the individual to engage in spontaneous epis-

temic activities (especially causal analysis) by interrupting all ongoing processes (at least briefly) and refocusing the individual's attention on the unexpected event (as demonstrated by Meyer, Niepel, Rudolph, & Schützwohl, 1991) and, at the same time, to motivate the individual to instigate epistemic activities (especially causal analysis). Accordingly, as shown in Fig. 15.3, causal search is only initiated when an event occurs unexpectedly, i.e., when the answer to the question of whether the event was expected is "No." If the answer is "Yes," people continue to
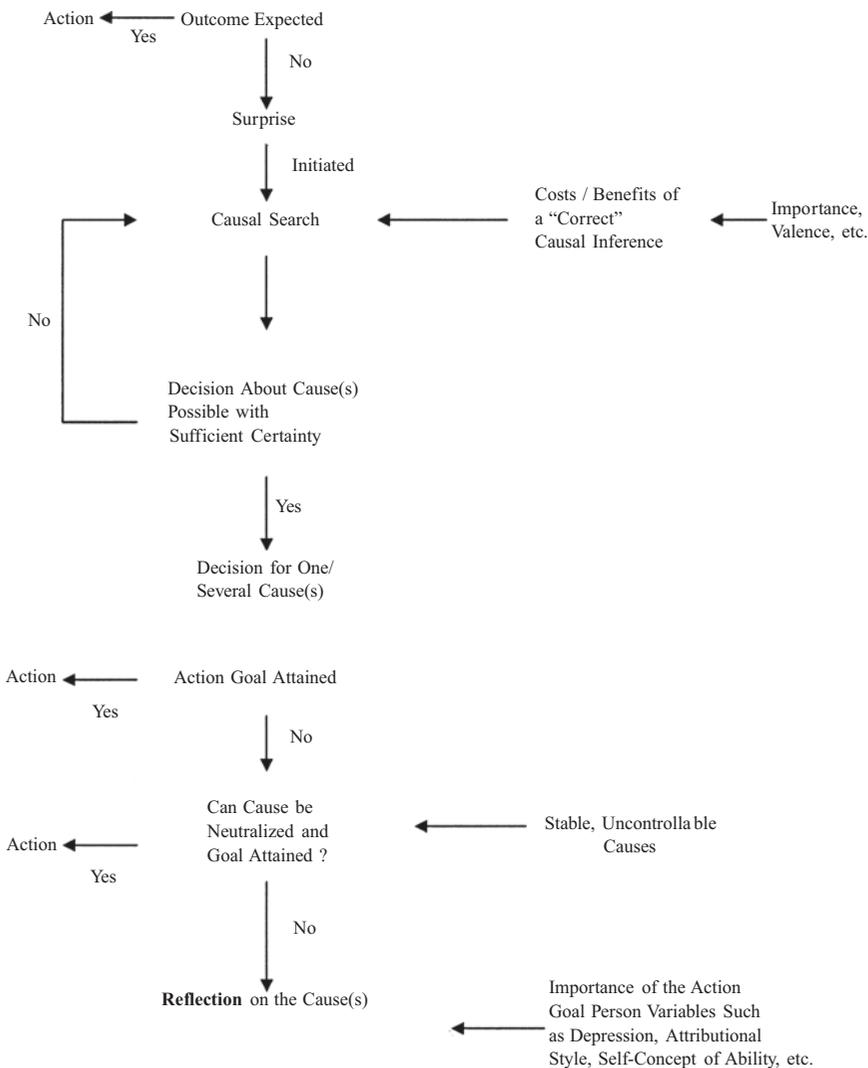

Fig. 15.3 Stages of attributional activity and their conditions (Based on Stiensmeier-Pelster, 2004)

pursue their ongoing activities without thinking about their causes.

Duration of causal search. Surprise is not the only determinant of causal search, although it is sufficient and necessary to initiate the process and sufficient to generate a corresponding action tendency or desire (epistemic curiosity; see Berlyne, 1960). Other factors also play a role. These factors have less to do with the question of whether causal search is initiated (as stated above, the decisive point here is whether or not events are expected) than with its duration, intensity, and accuracy. The intensity and duration of causal search, in particular, are assumed to depend on the perceived costs and benefits of the process. According to the stage model of attributional activity, the greater the benefits of a correct causal inference relative to the costs of causal search, the more intense and thorough the search for causes will be (Fig. 15.3). The benefits of a correct causal inference are thought to increase with the importance of the event and the magnitude of its consequences. The valence of the event is also relevant here: the benefits of a correct causal inference can be assumed to be greater after failure than after success. It is only if we are aware of the causes of failure that we can take steps to avoid making the same mistakes again in the future. Thus, the stage model incorporates Weiner's notion that importance and valence are key determinants of causal search.

The cost of causal search depends on a number of factors, e.g., the effort or exertion it will entail (e.g., to access the necessary information) and the resources the individual can dedicate to it (e.g., time).

Stiensmeier-Pelster et al. (1995, Study 5) examined the influence of the unexpectedness, valence, and importance of an event on causal search. In this study, students were asked to state how long they had needed to determine the causes of a certain event and how intensive the causal search had been. In all cases, the event in question involved a surprising (unexpected) or unsurprising (expected) success or failure on a test that was either highly important or unimportant to them. Table 15.1 reports the findings

Table 15.1 Mean duration and intensity ratings of the search for the causes of success and failure by degree of surprise and importance of event

	Surprising/ unexpected		Not surprising/ expected	
	Un-important	Important	Un-important	Important
Success	3.8	3.4	2.5	2.1
Failure	3.3	4.6	1.7	3.2

High scores indicate long and intensive causal search. Scores range from 1 to 5

of this study. As the data show, the length and intensity of causal search hinges primarily on whether the result was surprising (unexpected) or expected (unsurprising). In the case of failure, moreover, the importance of the test affects the length and intensity of causal search. Stupnisky, Stewart, Daniels, and Perry (2011) presented similar findings: Unexpected and negative events lead to the most intensive causal searches. Unexpected failure in important situations stimulates particularly long and intensive searches for causality.

Evidently, the fact of an event being unexpected or contrary to expectations suffices to initiate causal search, and the length and duration of causal search is most pronounced when an unexpected event is negative and important. It is in these cases that the benefits of identifying the causes for failure are greatest.

Accordingly, the stage model of attributional activity proposed by Stiensmeier-Pelster (Fig. 15.3) postulates further stages in the attributional process once the cause of an event or an outcome has been determined. The first question to be addressed is whether the action resulted in the attainment of the aspired goal. If so, the attributional process can be terminated, because the actor is evidently able to pursue his or her actions further. If, however, the goal was not attained, the question arises of whether the cause for that failure can be obviated in the future. If the cause can be neutralized by means of corrective behavior (e.g., increased effort, a new strategy, etc.), the goal-oriented activities can be pursued further, and the attributional process can be terminated. If this is not the case – for instance, whenever a

Table 15.2 Causal rumination by degree of surprise, valence, and importance of event

	Degree of surprise		Valence		Importance	
	Contrary to expectations	Expected	Success	Failure	Unimportant	Important
Causal rumination	3.1	3.3	2.8	3.6	2.8	3.7

High scores indicate long and intensive causal rumination. Scores range from 1 to 5

cause is perceived to be stable and uncontrollable – the attributor will continue to reflect on the causes identified. This reflection is further assumed to depend not only on the valence of the outcome (more pronounced after failure than after success; see above) and the type of cause (more pronounced after stable and uncontrollable outcomes than after variable, controllable ones) but also on the importance of the goal (more pronounced after important events than after unimportant ones).

Causal rumination is also a question of personality, however (Fig. 15.3). Depressive, helpless, and state-oriented individuals and people with low self-concepts of ability seem to put more thought into the reasons for their failures than do nondepressive and mastery- and action-oriented individuals and people with high self-concepts of ability – presumably because the former tend to ascribe failures to stable and uncontrollable causes, whereas the latter are more likely to infer variable and controllable causes for failure.

15.3.2.2 Empirical Support for the Stage Model

Aspects of Stiensmeier-Pelster's (2004) model have been tested in several empirical studies. The first aim of these studies was to show the different conditions underlying the processes of causal search, on the one hand, and causal rumination, on the other. Second, the studies sought to demonstrate that the person variables mentioned above (depression, state orientation, etc.) do not influence causal search but only causal rumination.

Influence of unexpectedness, valence, and importance of an action outcome on causal rumination. In one study, students were asked to rate the duration and intensity of causal search, as well as the duration and intensity of rumination on the causes identified. The successes or failures in question were specified to be either important or unimportant and to be either expected or contrary to expectations. Only main effects for three manipulated variables were found (Table 15.2). As Table 15.2 shows, the duration and intensity of causal rumination hinges solely on the valence and the importance of the event and not on its surprise value. In line with the theoretical assumptions of the stage model outlined above, people are likely to invest more time and effort in reflecting on the causes already identified if an outcome or event is negative or particularly important.

Influence of unexpectedness and depression on causal search and rumination on the causes of failure. Stiensmeier-Pelster (2004) conducted two studies to investigate the effects of unexpectedness of failure and respondent depression on causal search and causal rumination. The procedure used in these experiments was that of a typical helplessness experiment. In the first phase of the experiment, labeled the "training phase," respondents were administered performance-related tasks, subsequent to which they were given negative feedback. They were then invited to participate in another experiment, the "test phase," which took place in a different university building and was administered by another experimenter. The respondents were again administered performance-related tasks, though of an entirely different kind than those implemented in the first experiment. Immediately after receiving the first set of negative feedback in the training phase, respondents were asked how much thought they had put into the reasons for their failure. These responses served as an indicator for the intensity of causal search. The same question was posed while respondents were working on the new tasks in the second phase of the experiment. Their responses at this point were taken as an indicator

Table 15.3 Correlations of depression and unexpectedness with causal search and causal rumination

		t1	t2
		Causal	Causal
		Search	Rumination
Depression	Study 1 ($N = 35$)	0.22	0.47**
	Study 2 ($N = 30$)	0.30	0.55**
Unexpectedness	Study 1 ($N = 35$)	0.29*	0.13
	Study 2 ($N = 30$)	0.38*	0.09

*$p < 0.05$; **$p < 0.01$

Fig. 15.4 Level of attributional activity during the training and test phases as a function of success or failure and attributional style
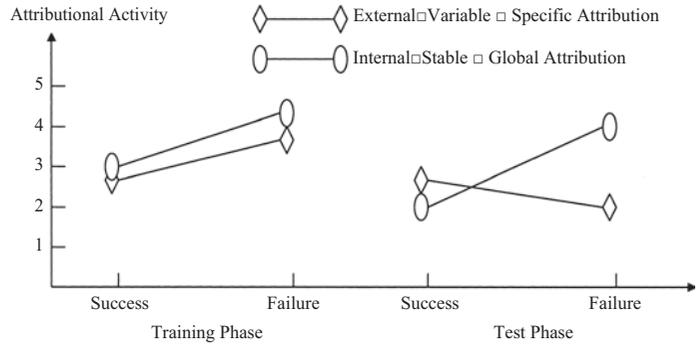
for causal rumination. The Beck Depression Inventory (BDI; Beck, 1967) had been administered prior to the experiment to obtain depression scores. The discrepancy between the expectancy of success (expected number of correct answers) and the number of tasks participants were told they had solved correctly served as an indicator for unexpectedness. As shown in Table 15.3, the depression score was significantly correlated with the intensity of causal rumination in both parts of the study, but not with the intensity of causal search. Conversely, unexpectedness was significantly correlated with the intensity of causal search in both parts of the study, but not with the intensity of causal rumination.

Influence of attributions of success and failure on causal search and rumination on the causes of success and failure. In an experiment using a procedure similar to that of the study described above, Stiensmeier-Pelster (2004) investigated the intensity of causal search and causal rumination as a function of the valence of the event (success vs. failure) and the causes to which success or failure are attributed. In this experiment, the properties of the attribution were assessed after

feedback (of either success or failure) using a procedure analogous to the "Attributional Style Questionnaire" (ASQ; Peterson et al., 1982; Poppe, Stiensmeier-Pelster, & Pelster, 2005). Specifically, respondents were first asked to identify the main cause for their performance and then to rate this cause with respect to its locus (internality), stability, and globality. Based on these ratings, the sample was split into two groups: "internal-stable-global attribution" and "external-unstable-specific attribution." Figure 15.4 presents the findings of this experiment. As the data show, there is little difference in the intensity of causal search, as measured immediately after feedback, as a function of the valence of the outcome (success vs. failure) or the properties of the attribution. In contrast, the intensity of causal rumination, as measured in the test phase, proved to depend on the valence of the outcome and the properties of the attribution. Respondents who were given failure feedback and who attributed this failure to internal-stable-global factors put much more thought into the causes of this outcome than did respondents in the other three groups. A comparison of the intensity of attributional

activity immediately after feedback and in the second phase of the experiment shows a decrease from the training phase to the test phase for respondents who succeeded on the tasks, as well as for those who failed, and who attributed that failure to external-variable-specific causes. For those who attributed failure to internal-stable-global causes, however, only a very slight decrease in the intensity of attributional activity was identified. These findings are in line with the predictions of the stage model of attributional activity, which states that attributional activity is terminated when a cause is identified, except if failure is attributed to stable and uncontrollable causes, such as lack of ability (an internal-stable cause).

Incidentally, the stage model of attributional activity presented here is congruent with certain assumptions of the theory of action control proposed by Kuhl (cf. Kuhl & Kazén, 2003). In this model, Kuhl distinguishes two basic modes of action control, which he calls action and state orientation (Chap. 12). Action orientation is present when attention is divided more or less equally between the following four domains:

1. The desired goal state
2. The current state
3. The discrepancy between the goal state and the actual state,
4. Potential actions in one's repertoire to overcome this discrepancy

Causal search is part of the analysis of the current state. It can also help to describe the discrepancy between the current and the goal state and is certainly important when it comes to exploring potential options for action. Especially if the pursuit of a certain goal has resulted in failure in the past, a thorough analysis of the causes for this failure is vital. Only then will it be possible to identify an appropriate new course of action. If, on the other hand, the cause of the failure has already been established, any further causal rumination will no longer be action oriented. Rather, analysis of the actual state will be an end in itself – potential options for action will no longer be subject to feasibility testing, neither will the appropriateness of aspired goal states be evaluated. Attention will be focused entirely on the analysis of the current state; i.e., a failure-centered state orientation will ensue. The following example illustrates this kind of situation. A respondent experiences failure in an experiment and then participates in another experiment that has nothing in common with the first. If, while working on the second experiment, thoughts keep returning to the causes for his or her failure in the first experiment, although there is no way of going back to these tasks, his or her thinking about the causes of failure represents a state orientation. If, on the other hand, the first experiment continued after the failure feedback, and the respondent expected to be administered more of the same kind of tasks, thinking about the causes of failure (i.e., causal search) would represent an action orientation.

Summary

The conclusions to be drawn from these theoretical reflections and empirical studies on causal search and causal rumination are as follows. If we wish to explain when attributional activity is instigated, its duration and intensity, and the motives underlying it, it makes sense to distinguish between different stages of the attributional process. Moreover, the attributional activity that can be observed at different stages of the process may have different functions. Unquestionably, causal search serves the function of rendering the world we live in controllable and predictable. Thus, like other epistemic activities, it is initiated whenever something happens that is unexpected or contrary to our expectations, whenever our (causal) knowledge fails to provide an accurate prediction of the course of events. It is only once the causes for the unexpected outcome are identified that we are again in a position to make accurate predictions and exercise control. Causal rumination, by contrast, does not serve the primary goal of providing us with a better understanding of the environment. This goal is realized as soon as a causal inference is made. Causal rumination may help us identify new action alternatives or abandon old goals and formulate new ones. We may, however, find it very difficult to accept that we are unable to exert control in

certain situations (e.g., after attributions to stable and uncontrollable causes). In these cases, our thoughts may end up "going round in circles," revolving around the causes of certain outcomes. This kind of state is certainly dysfunctional, as it does not lead to a better understanding of the world or help us to identify productive new courses of action. In other words, it ties up attention that could be put to better use elsewhere for effective action.

15.3.3 Processes of Causal Attribution: Normative Models

Aside from the questions of when and why causal attributions are made, the main concern of attribution theories is to explain precisely how "the man or woman on the street" determines the reasons for an action or the causes of an action outcome. Whereas our focus thus far has been on the extent to which data is collected to arrive at a causal inference, we now turn to questions concerning the type of information gathered, how the information available is weighted, etc. In other words, we now consider the process of information processing that underlies causal attribution.

In this context Heider's (1958) book, *The Psychology of Interpersonal Relations*, stimulated a great deal of research in various ways. Attribution theory research was subsequently guided by models of information use and information processing. Aside from Heider's fundamental ideas, these included correspondent inference theory (Jones & Davis, 1965), Kelley's (1967) covariation model of causal analysis, and his model of causal schemata (Kelley, 1972).

These models, which have inspired a wealth of research, specify three facets of the attribution process:

1. The aspects of information utilized
2. The causal categories available for selection
3. The rules for drawing inferences from the information

The models are highly rationalistic. They are based on the laws of logic and, as research soon showed, are commonsensical (provided that respondents are not too young). Essentially, they are normative theories describing how attributions ought to be made. The models prescribe the approach to be taken by individuals seeking to arrive at "optimal" or "rational" causal inferences and stipulate how they should decide for or against a cause. In other words, they define standards for causal attribution.

These normative theories can be contrasted with a more descriptive approach to attribution research, which investigates how people actually go about making causal attributions. The latter approach involves describing and explaining the actual process of causal ascription and deciding whether or not the attributions made are correct. Descriptive attribution theory research has addressed numerous phenomena that explain why, in certain cases, an individual's causal attributions deviate from those made from an outsider's point of view or those that would have been made had a normative model been applied. These phenomena include differences in the attributions of actors and observers and apparently self-enhancing attributions. As discussed above, moreover, people do not necessarily look for the most fitting cause but often – having weighed up the costs and benefits – terminate the attribution process as soon as they have found a causal attribution they personally consider satisfactory.

15.3.3.1 Heider's "Naive" Analysis of Action

Heider (1958) based his approach on Lewin's general behavioral equation, which states that behavior (B) is a function of personal (P) and environmental (E) forces: $B = f(P, E)$. Heider further subdivided each of these forces – to use his own terminology, the "effective personal force" and the "effective environmental force" – into two components. The effective personal force is composed of "trying" (which might also be called motivation) and "ability" (Heider frequently uses the more generic term "power"). Trying, in turn, is made up of two components,

which are related in a multiplicative way: what people want to do (intention) and how intensively they seek to achieve it (exertion).

- Hence, trying is the product of intention and exertion; neither is sufficient on its own. Intention requires a minimum of exertion, and exertion requires an intention if any action is to materialize. Trying (intention times exertion) is a variable component of personal force, and ability is a fixed component of personal force.

On the environmental side, there is one (fixed) primary dimension: the difficulty to be overcome in order to reach a certain goal. Chance, in the sense of good or bad luck, may have favorable or unfavorable effects from time to time on the efforts to cope with this difficulty. Thus, Heider had already identified the main causal factors cited to explain achievement-related behavior. Later elaborations by Weiner and colleagues (Weiner, 1974) did not really add any significant new insights in terms of identifying causal factors relevant to the achievement context. These authors can, however, take the credit for classifying the factors identified by Heider in terms of their locus and stability. Only then was it possible to make accurate predictions of the expectancy and self-directed affect variables, both of which are influential in the context of achievement-related behavior.

- An important aspect of Heider's model is that a personal component and an environmental component, namely, ability and difficulty, enter into a subtractive relationship, resulting in "can." "Can" is thus a function of ability minus difficulty.

Heider posits that data on all of these variables can be utilized in the analysis of action. Some of these information variables are linked to form superordinate concepts. The product of intention and exertion gives the concept of "trying" (motivation); the difference between ability and difficulty gives the concept of "can." Finally, the unspecified relationship between "trying" and "can" results in the action and its outcome. Heider's model of action analysis is shown diagrammatically in Fig. 15.5. The top row presents information about the components of personal and environmental forces, the middle row the concepts derived from them, and the bottom row the resultant action and its outcome.

The purpose of action analysis. What purpose does the analysis of action serve; which causal criteria are to be distinguished and selected? The question at issue here is whether a behavioral explanation at "first" or "second" glance is appropriate, i.e., whether an action or its outcome is more a result of personal force or environmental force or – to use Heider's distinction – whether there was personal causality (i.e., something was brought about intentionally) or impersonal
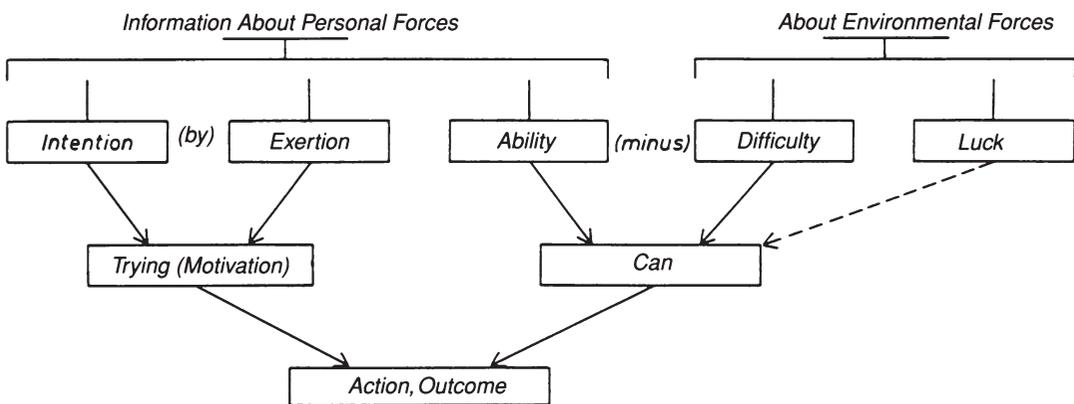
Fig. 15.5 Configuration of Heider's action analysis: from information about components of personal and environmental forces (top row) via the concepts derived from them (middle row) to the resulting action and its outcome

causality. The answer to this seemingly simple alternative is relevant to any observer interested in rendering future events foreseeable and thus controllable. If the observer concludes that the events observed are because of the personal causality of the actor, i.e., to motives and dispositions (implying the stability of causes), then he or she can predict that the actor will behave in a similar manner in many similar situations in the future. Thus, localizing the cause within the person represents a greater information gain for the observer than does inferring causality to reside in the particular situation – i.e., impersonal causality. In the first case, the observer can predict future behavior over a whole class of situations; in the second, only in a very specific situation. Therefore, if we have reason to believe that we are justified in attributing (stable) dispositions – especially (stable) motives – to others, then we have made their future behavior more predictable.

Our efforts to render future behavior more predictable might prompt us to favor localizations of causes within personal causality. Instead of the very rational analysis of causes described by Heider, our attributions might then entail a motive-related bias. For example, we may ascribe too much meaning to indications of personal causality and neglect indications of impersonal causality (i.e., that the cause resides in the specific situation). Drawing on the stage model of attributional activity described in Sect. 15.3.2, it seems plausible to assume that people feel attributions with few benefits (e.g., localizations of causes within specific circumstances) to be unsatisfactory and therefore continue the causal analysis, whereas they terminate the analysis as soon as indications of personal causality are found (see also Sect. 15.3.4 on descriptive attribution research).

Attribution of actions to personal causality. What are the rules that permit us to infer personal or impersonal causality from the data available about the individual components of Heider's action model? Heider provided only a few vague and general responses to this question – mostly in the form of examples. The models proposed by Jones and Davis (1965) and Kelley (1967) were intended to fill this gap and to present a formalized system of rules.

The first crucial issue in attributing personal causality to an action is whether the actor can be ascribed an intention. Three points are to be considered here:

- Is the actor merely a marginal entity in a more comprehensive event?
- Is the action or its outcome merely an unintended side effect or an intermediate phase of a more global intention?
- Is the intention indeed to be carried out?

It is at this point that information about exertion and ability comes into the picture. An intention can only be inferred via the concept of trying if exertion can be observed. If it is not yet clear what should be done to implement an intention, then it is not regarded as an intention in the sense of a necessary condition for personal causality. Information about the ratio of ability to difficulty is also of major concern, i.e., whether the actor presumes himself or herself to have the necessary ability to accomplish the goal.

Heider emphasized the importance of the observed equifinality of an individual's action for inferring intentions that reflect personal motive dispositions. Such motive-indicative equifinality exists when an individual chooses different action paths in different situational conditions, each leading to the same goal. This approach to inferring intentions and motives was expanded and formalized by Jones and Davis (1965) with their model of correspondent inferences (see the following page).

The inclusion of the environmental factor "difficulty" in the analysis of action presented in Fig. 15.5 risks limiting the analysis to achievement-related behavior. Heider by no means restricted himself to this class of phenomena, however. For example, the attractiveness of a certain object can also represent an environmental force. The extensive quote from Heider's analysis of the "attribution of desire and pleasure" that follows is offered here in support of this point. At the same time, it gives an impression of Heider's way of analyzing phenomena and explicates another approach – the individual differences approach – that can be

used to differentiate between personal and impersonal causality.

To quote from Heider (1958):

> "We shall start with the data pattern fundamental in the determination of attribution, namely: that the condition will be held responsible for an effect which is present when the effect is present and which is absent when the effect is absent.
>
> Now let us see how this principle operates in the case of the attribution of enjoyment to the object. If I always experience enjoyment when I interact with an object, and something other than enjoyment when the object is removed (longing, annoyance, or a more neutral reaction, for instance), then I will consider the object the cause of the enjoyment. The effect, enjoyment, is seen to vary in a highly coordinated way with the presence and absence of the object.
>
> Now let us see how the principle operates in the attribution of enjoyment to the person. If I sometimes enjoy the object and sometimes do not, then the effect varies, not with the object, but with something within me. I may or may not be able to define that something, but I know that the effect has to do with some fluctuating personal state. It may be my mood, my state of hunger, etc., which, though temporary in character, are often detectable as the conditions highly related to the effect. Notice that in this type of attribution, a temporary state and therefore a more or less nondispositional property of the person is singled out as the source of the pleasure.
>
> When enjoyment is attributed to a dispositional property of the person, additional data pertaining to the reactions of other people are necessary. Concretely, if I observe that not all people enjoy the object, then I may attribute the effect to individual differences. That is to say, the effect, enjoyment in this case, depends upon who the person is. With o, enjoyment is present; with q, it is absent. We sometimes, then, speak about differences in taste. The important point is that the presence and absence of the enjoyment is not correlated with the presence and absence of the object but rather with the presence and absence of different people. Therefore, o is felt to enjoy x and q to be dissatisfied with x because of the kind of person each is" (Heider, 1958, pp. 152–153).

- Interindividual behavioral consistency is thus a crucial key to the localization of cause. Its presence indicates that it is a particular object – an impersonal causality – that has prompted the behavior.

Kelley (1967) picked up on this criterion and formalized it as a critical dimension ("consensus") of his covariation model in which causes are localized on the side of the person or the environment. Kelley's model and the model by Jones and Davis represent a kind of "division of labor" inasmuch as they focus on opposing aspects of causal localization – Jones and Davis on behavioral explanations "at first glance" (the person) and Kelley on behavioral explanations "at second glance" (the situation).

Another difference is also worthy of note. Jones and Davis deal exclusively with attribution of motivation – in other words, not with the causes of action outcomes but with the reasons for which an action is undertaken. Besides enduring dispositions (which, like motives, represent "personal causes" in the sense of individual differences), these reasons include transitory intentions. Kelley, on the other hand, was less concerned with the actor's reasons (intentions) than with the causal basis for judgment, events, or action outcomes. He was particularly concerned with assigning relative weights to enduring characteristics of the person or the concrete situation (as well as to transitory situational circumstances). But Kelley's model also includes attribution of motivation, namely, in those situations where the "cause" of an action is attributed to an actor's enduring disposition. The two models are presented in more detail below.

15.3.3.2 Jones' and Davis' Model of Correspondent Inferences

In their paper "From Acts to Dispositions," Jones and Davis (1965) delineated a model articulating how people infer the intentions, motives, and attitudes of others from their actions. Inference of this kind represents the greatest information gain for an observer seeking to predict someone's future activities. Insights into people's intentions are also at the core of explanations and evaluations of past actions, such as those undertaken by parliamentary fact-finding committees or juries in criminal trials. The apportioning of responsibility and punishment hinges on the extent to which the author of the action outcome under investigation can be attributed intent. As a rule, those who judge such actions do not observe

Fig. 15.6 Common and noncommon effects of two action alternatives, X and Y
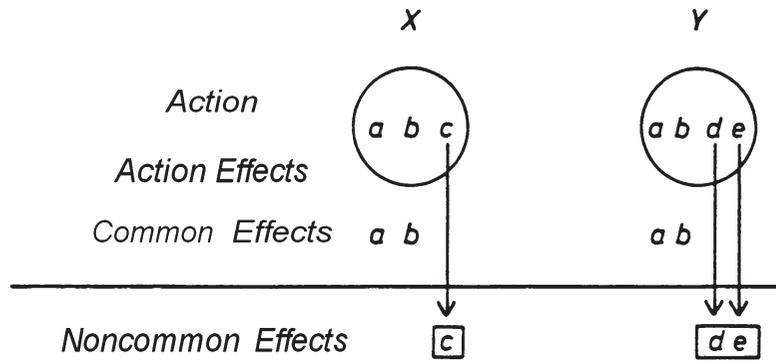
them directly but instead rely on reports about the actions or even just their outcomes.

We thus start from the facts – an action or at least its outcome. Three steps are required to draw retrospective inferences about dispositions; these steps may, but need not, lead to an attribution of intention.

First step in the attribution of intention. This first step consists in confirming two prerequisites without which the actor cannot have acted with intent. First, he or she must have had prior knowledge about the outcome of the action. Second, he or she must have the ability to bring about the result. If the first condition is not fulfilled, the unforeseen event could not have been intended. If the second condition is not fulfilled, any attribution of this outcome to the actor is doubtful. Looking at Fig. 15.6, what is being confirmed are the two arrows leading from "trying" and from "can" to "action, outcome."

Second step in the attribution of intention. Once we are certain or can assume that these two prerequisites are met, the second step is to determine which consequences – or effects – of the action outcome might have motivated the actor to bring about this particular outcome. To avoid total reliance on speculation, it may be useful to bear in mind that every action initially involved a choice among various alternatives, at the very least the choice of action or not acting. The assumed effects of such alternatives can then be listed. Those effects that are common to all action alternatives cannot have influenced the actor's choice. Only the "noncommon effects" of the chosen action alternatives can have played an influential role.

The smaller the number of noncommon effects of the chosen action alternative – in the best case, there will just be one – the less equivocal the inference about the relevant intention will be. Figure 15.6 illustrates this step for two actions – X and Y – with three and four effects, respectively, where two are common effects. If X is chosen, there is only one noncommon effect, c. It must have been this effect that prompted the choice of X over Y. If, on the other hand, Y is chosen, there are two noncommon effects, d and e, and it remains unclear which of the two was decisive.

Even if we identify a single noncommon effect for the chosen action, however, we cannot presume with certainty that the intention is the manifestation of a personal disposition. It could be an effect favored by all or most individuals in a particular reference group. In this case, the action is motivated by the generally desirable incentive value of its goal object. The action arises more from the peculiarity of the goal object and less from the person's disposition.

For example, we might meet two individuals at an exhibition of modern art: one an art historian, the other a task inspector. Without hesitation, we would attribute the art historian's presence to a typical, "category-based" interest in art or to the exhibit's unique appeal. Our deductions in the case of the task inspector would be less trivial. Because an interest in art is not typical of this profession, this individual must be personally disposed to appreciate modern art.

• In general, actions corresponding to the presumed role repertoire of the actor's group

provide no useful information for inferences about dispositions. We do not know whether, along with the role requirement, there was also a relevant individual disposition that precipitated the action. Conversely, knowing that somebody acted contrarily to the situationally appropriate role of his or her social group is very informative for drawing inferences about a disposition.

An example would be two politicians at an election meeting, one who advocates a position favored by those present, the other advocating an unpopular position. Because politicians need voter approval if they are to be elected, we can be more confident that the second politician seriously intends what he says.

Third step in the attribution of intention. The third and final step involves appraisal of the action outcome's general desirability for the group to which the actor belongs. Of course, such "category-based" inferences from typical members of a reference group to the individuality of the actor are fraught with uncertainty. Jones and McGillis (1976) attempted to specify the third step by splitting desirability into two determinants:

1. What is generally considered desirable by a particular culture
2. What is known about what the actor in question considers desirable

Furthermore, both types of desirability are weighted in terms of their chances of implementation. Thus, in the sense of expectancy-value theories, desirability is conceptualized as "expected valence."

With these three steps, it is possible to determine the inferred correspondence between the action observed and the underlying intention as an expression of a personal disposition.

- The smaller the number of noncommon effects of the chosen action alternative, and the lower the presumed desirability (or expected valence) of the noncommon action effects, the closer the correspondence will be.

Table 15.4 Correspondence of the inference from an action to the underlying intention (and personality disposition) by the number of noncommon effects of the chosen action alternative and the assumed desirability (or expected valence) of these effects

		Desirability of the noncommon effects (or expected valence)	
		High	Low
Number of noncommon effects	High	Trivial ambiguity	Interesting ambiguity
	Low	Trivial clarity	High correspondence

Based on Jones and Davis (1965), p. 229

The cross-classification in Table 15.4 shows the four possible combinations of high and low levels of the two determinants of inferences. Only one combination results in high correspondence, providing some assurance that inferences made about the actor's intentions and relevant personal dispositions are valid. This is the only case in which the theory of correspondent inferences leads to a clear information gain.

The question of how individuals attribute actions to intentions, motives, and attitudes remains a topic attracting intense debate and empirical research (e.g., Malle, 1999, 2004; Reeder, 2009). This research keeps the original theoretical propositions of Jones and Davis in focus, specifies them, and in part elaborates them. Malle (1999, 2004), for instance, proposes that observers assess and weigh five criteria when they make attributions about intentionality: (1) Did the actor aim for a particular outcome? (2) Did the actor believe that a specific action would bring about a particular outcome? (3) Was the action planned? (4) Did the actor have the capacity to execute the action? And (5) did the actor believe that his or her own actions could bring about the outcome? In this set of considerations, criteria 2 and 4 converge with the two criteria Jones and David propose to compose step 1 in attributions of intentionality, whereas criterion 1 is consistent with Jones and Davis's step 3 about assessing the desirability of the action outcome. What Malle adds is the planning of the action in criterion 3 and the assessment of the actor's self-efficacy beliefs in criterion 5.

15.3.3.3 Kelley's Covariation Model

This model takes its name from the notion that an effect covaries with its cause. The effect is present when the cause is present and absent when the cause is absent.

In his influential 1967 paper, Kelley outlined the differences between his model and that proposed by Jones and Davis. Whereas Jones and Davis wish to determine what inferences can be drawn on the person side, specifically about personal dispositions, Kelley examines the available information to see whether the causes of an action or its outcome can be localized in the environment or whether it is necessary to see the person as the source of causation – perhaps even the exclusive source. In contrast to Jones and Davis, the information assessed in Kelley's model does not relate to a single person's single action but to several actions carried out by the same person and other persons over time, as well as to actions geared at different goal objects under a variety of circumstances. Because the information material is extended over four dimensions (persons, points in time, goal objects, and circumstances), Kelley can make extensive use of what he calls the "covariation principle," which holds "that the condition will be responsible for an effect which is present when the effect is present and which is absent when the effect is absent" (Heider, 1958, p. 152).

Study

Attribution of Attitudes

Jones, Worchel, Goethals, and Grumet (1971) presented their respondents with an essay arguing for or against the use of marijuana. They were asked to assess how deep-seated the author's attitudes were. Two further pieces of information were given, relating to the two determinants of the model:

- The number of uncommon effects was varied by telling participants that the writer had produced the essay voluntarily or under pressure (in the latter case, there were a number of reasons for writing the essay, some related to the issue itself and some that induced the individual to succumb to the pressure).
- The degree of desirability was manipulated by providing additional information about the author's attitudes toward leading his or her own life, being the master of his or her own fate, etc.

If the author strongly subscribes to these kinds of attitudes, he is also likely to be in favor of the free use of marijuana. The results were in line with the correspondence model. If the author had freely chosen to write the essay and had taken a position that deviated from the expected desirability – in other words, if the number of uncommon effects and their desirability was rather low – he was seen as having a more pronounced attitude.

Hamilton (1980) called attention to another difference between the two models. He sees Kelley's model, which varies persons, entities, and points in time systematically, as a typical scientific analysis, and the model by Jones and Davis, which focuses on just one person and asks whether that person might have acted differently, as a decidedly juridical approach. In other words, we might see Kelley's "intuitive scientist" as a counterpart to Jones' and Davis' "intuitive attorney."

In Kelley's covariation analysis, the cause of a given action (dependent variable) is deduced from the covariation pattern of four criterion dimensions (independent variables; see the following overview).

Criterion Dimensions of Kelley's Covariation Analysis

1. Distinctiveness of entities
   Is the action also triggered by other entities? By entities, Kelley means goal objects or other persons toward whom the action is directed.
2. Consensus between different persons
   Do other persons act in the same manner?
3. Consistency across time
   Does the person always act in this manner?
4. Consistency across modalities
   Does the same action occur when the entity is embedded in other circumstances?

In all cases of high distinctiveness, an individual will respond to the entity in a highly specific manner. If there is a high level of consensus, the individual's reaction to an entity will be similar to that of most other people. If consistency across time is high, the person will react in the same manner whenever that entity is encountered. If there is consistency across modalities, they will act in that manner under varied circumstances.

Example

If someone who particularly enjoyed a certain movie recommends that I go and see it, I must decide whether this recommendation is based on the entity (quality of the movie) or attributable to the person (as one who is easily pleased). If I know that this individual reacts very specifically to different movies (distinctiveness), that he has gone to see the movie several times (consistency across time), that he has seen an adaptation for television by the same director (consistency across modalities), and that his judgment is consistent with that of others who have seen the movie (consensus), then I am willing to attribute his recommendation to the entity (i.e., the movie must be worth seeing). If, on the other hand, someone indiscriminately recommends all movies, some of

which I like and some of which I do not, and if other people have a different opinion, then I will attribute the recommendations to the peculiarities of the person (e.g., their personal taste).

Kelley likened the procedure resulting in such inferences to a simple and incomplete analysis of the variance of data that can evidently be carried out by anyone. He portrays the potential pattern of covariations (Kelley, 1967) using a variance-analytical cube with three major criterion dimensions: entities, time, and persons (Fig. 15.7). The shaded areas of the left-hand cube (Fig. 15.7a) represent the case in which I attribute the first person's movie recommendation (in the example above) to the entity (E_1) and not to the person (P_1); the shaded areas of the right-hand cube (Fig. 15.7b) represent the case in which I attribute the second person's (P_2) recommendation to that person rather than the entity. (Here, there is inconsistent behavior at one point in time, T_2.)

Kelley continues this analogy to the analysis of variance up to the F-ratio. The distinctiveness variable is the ratio's numerator, representing the between-conditions factor (entities). The denominator – an expression of "error variance" within conditions (entities) – comprises consistency and consensus as indicators of individual stability and interindividual replicability of actions. The lower the consistency and consensus (i.e., the higher their variability), the greater will be the denominator, the "error term," and the greater must be the distinctiveness value in the numerator to still localize the cause of the relevant effect within environmental events.

Kelley's conceptual framework is thus focused on possible explanations of behavior "at second glance." If an individual's behavior shows high distinctiveness across entities, and at the same time demonstrates high consensus with other individuals and high consistency over time, we can say that this person has a high "state of information regarding the world" (1967, p. 198). Of course, this would also mean that we could hardly ascribe individual dispositions and motives to that person. Table 15.5 shows the various patterns
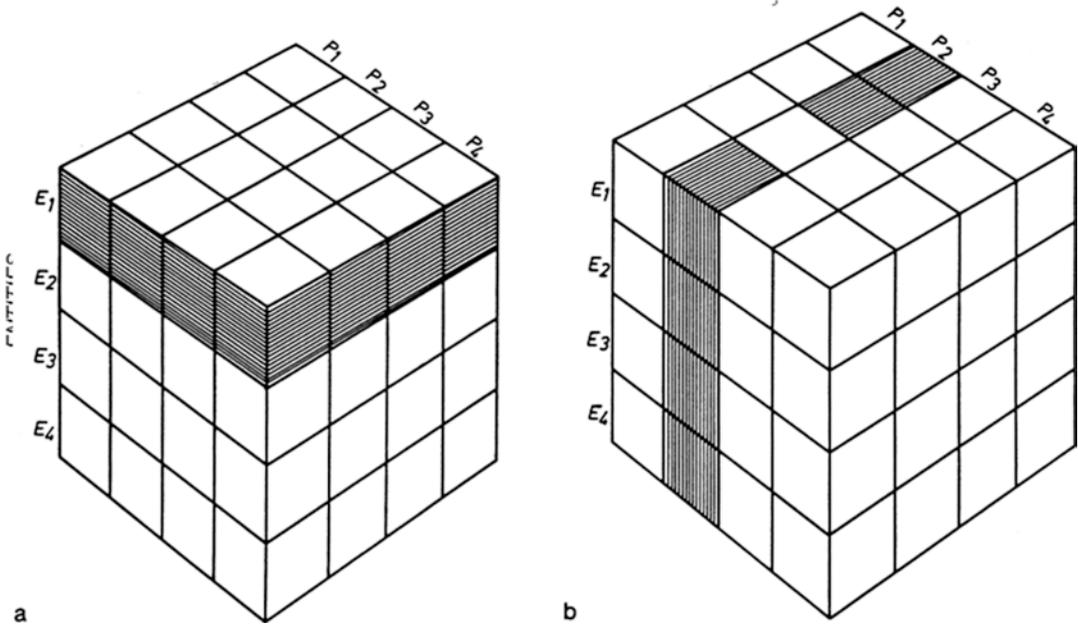
Fig. 15.7 Variance-analytical cubes representing information about the covariation of actions across the three dimensions of "entities," "time," and "persons." (**a**) Shows a data pattern indicating attribution of a person's (e.g., P_1) action to the entity E_1; (**b**) shows a data pattern indicating attribution of the action to the person P_2 (Based on Kelley, 1973, pp. 110, 111)

Table 15.5 Information about actions that, according to Kelley's covariation model, lead to the action's cause being localized in the entity, the circumstances, or the person

Localization of the cause in	Information about distinctiveness (across entities)	Consensus (across persons)	Consistency (across time)
Entity	High	High	High
Circumstance	High	Low	Low
Person	Low	Low	High

of information about actions, which, according to Kelley, lead to causes being localized in the entity, the circumstances, or the person.

It is worth noting that Kelley does not just split the causal weight between person and environment. On the side of Heider's environmental force, he distinguishes between the entity itself and the circumstances surrounding it. Whereas an entity is a constant environmental factor, circumstances can vary. For example, if someone who likes a few special movies (high distinctiveness) that others tend to dislike (low consensus), but occasionally cannot stand one of these otherwise favored movies (low consistency), we would tend to suspect that this reaction, which deviates from that person's typical behavior, was brought on by the circumstances.

Empirical support for the covariation model. Kelley's covariation principles assume information processing to be purely logical and statistical. There is no need for psychological contemplation; a simple computer program would suffice. One might well question whether attributors really proceed in such a logical and statistical manner in their localization of causes when presented with an action episode along with covariation information about its consensus, distinctiveness, and consistency. McArthur (1972, 1976) investigated this question empirically. In the first of her studies, McArthur (1972) presented her respondents with an episodic statement such as the following: "George translated the sentence incorrectly." In addition, supplementary information was provided on each of the

three criterion dimensions (high or low levels of each were induced, giving a total of eight different combinations or patterns of information).

- Consensus: "Almost everyone (hardly anyone) translates the sentence incorrectly."
- Distinctiveness: "George translates hardly any other (almost every) sentence incorrectly."
- Consistency: "In the past George has almost always (almost never) translated the sentence incorrectly."

Based on this information, respondents had to decide whether it was something about the person, the entity, or the specific circumstance – or a combination of these – that had caused the action outcome (or instigated the reaction in the case of actions, feelings, and opinions).

Interestingly, the results show that the cause was most frequently attributed to the person. The same held for a control group given the statements without the supplementary information. As will be discussed in more depth below, this preference for an explanation "at first glance" typically applies to observations made from the perspective of the observer, as described by Jones and Nisbett (1971). Not infrequently, participants invoked a combination of causes, almost always "person and entity," i.e., an explanation of behavior "at third glance." Because the experiment was limited to attributions of others' behavior, the findings cannot be generalized to self-observations.

A glance at the findings presented in Table 15.6 shows that causal attribution is far more influenced by consistency information (20% of the explained variance) than it is by distinctiveness (10%) or consensus information (3%). The weak influence of consensus information has been confirmed in other studies on the attribution of others' behavior (McArthur, 1976; Orvis, Cunningham, & Kelley, 1975). In a series of studies on self-attribution, moreover, Nisbett, Borgida, Crandall, and Reed (1976) found consensus information to have no effect. Consequently, Ruble and Feldman (1976) demonstrated that the effects of consensus information are subject to a position effect. When consensus information was provided at the end of the experimental procedure rather than at the beginning (as was the case in the other studies mentioned), it was almost as effective as consistency and distinctiveness information (recency effect). Its salience can also be enhanced by mentioning the representativeness of the reference group in question (Wells & Harvey, 1977).

Thus, previous studies (e.g., Hansen & Stonner, 1978) show that, as predicted by the covariation model, consensus information may be used to attribute the behavior of others if it is salient and seems representative. Consensus information is remarkably neglected in self-attributions, however. This finding touches again on the discrepancy in observational perspectives discussed by Jones and Nisbett (1971).

- What is more important in the present context is the impact of the total pattern of information on causal attribution from the observational perspective. Empirical evidence confirms the covariation model, i.e., the relationships portrayed in Table 15.5. Person attribution occurs most frequently in the case of low distinctiveness, low consensus, and high consistency. Distinctiveness information is most decisive here (22% of the total variance; see Table 15.6), followed by consistency information (16%). Entity attribution is most frequent in conjunction with high distinctiveness, high consensus, and high consistency. Attribution to circumstances is most frequent if distinctiveness is high and consistency low; consensus plays no role here.

Table 15.6 Percentage (rounded) of the total variance in casual attributions to persons, entities, and circumstances accounted for by the three criterion dimensions of distinctiveness, consensus, and consistency

Criterion dimension	Causal attribution				
	Entity	Circumstance	Person	Person and entity	Overall
Distinctiveness	12	8	22	0	10
Consensus	5	0	6	1	3
Consistency	6	41	16	16	20

Based on McArthur (1972), p. 182

Försterling's elaboration of the model. Since it was first proposed several decades ago, Kelley's covariation model (Kelley, 1967, 1973) has been the subject of much theoretical analysis and empirical testing, leading to numerous elaborations and specifications of the model (e.g., Cheng & Novick, 1990a, b; Försterling, 1989; Pruitt & Insko, 1980; for a summary, see Försterling, 2001). The major point of all these elaborations is that Kelley's model – if it is to be regarded as a "naive analysis of variance" – does not include all of the information necessary for an analysis of variance to be performed. Essentially, it permits only an analysis of the main effects:

- Are, for example, stable-person dispositions responsible or not?
- Are stable characteristics of the entity responsible or not?
- Are the specific circumstances prevailing at the time of the event responsible or not?

The analysis of interactions is not possible, however. For example, it would not be possible to determine whether an effect was caused by a combination of certain person factors, on the one hand, and specific properties of the entity, on the other (see an in-depth discussion of this dilemma and of possible solutions in Novick & Cheng, 2004).

Försterling (1989) therefore expanded on Kelley's original idea of regarding the attribution process as a "naive analysis of variance" to propose a full-blown ANOVA model (from Analysis of Variance in statistics; see the study on the next page). This model views the possible causes (person, entity, and circumstance) as independent variables and the observable effects as dependent variables. In its simplest form, this gives a two (persons)×two (entities)×two (circumstances) experimental design, i.e., two people act with respect to two entities at two points in time. An example would be two students sitting for an exam in two different subjects at two points in time. The dependent variable (the observable effects) would be the students' performance on the two exams at both points in time.

Study

Experimental Testing of the ANOVA Model

Försterling (1989) tested his ANOVA model in a study in which students were instructed to imagine they were on a strange planet and did not know how things were causally related. They were asked to imagine they were, for the first time, observing two people playing two different video games on two different days. The students were then informed about both players' performance (success or failure) on both games on both days. To this end, all of the information specified in the ANOVA model was provided in table form. The respondents were instructed to analyze the data carefully and then to gauge the importance of certain causes named by the experimenter (the main effects: person, entity, time; the two-way interactions of person and entity, person and time, and entity and time; and the three-way interaction of person, entity, and time) in explaining the pattern of results presented. The findings of this study were entirely consistent with the predictions of the ANOVA model. If the data were indicative of a main effect, this effect was, for the most part, correctly identified as being particularly important. Likewise, when the data pointed to an interaction effect, this effect was identified correctly. Thus, the attributions made by individuals provided with a full set of covariation information are remarkably consistent with the ANOVA model.

We would not be far off the mark in spontaneously comparing the task administered to Försterling's participants to a brainteaser. Whether his experiment has ecological validity is an entirely different question. Is it really conceivable that the much cited "man or woman on the street" takes such a logical and statistical approach to establishing the reasons for his or her behavior or that of

others or to determining the causes for the events observed or experienced in everyday life? This would seem unlikely for various reasons:

- The available information is often incomplete.
- We do not tend to observe different people doing different things at different points in time.

Although it may theoretically be possible to procure the necessary information, we are unlikely – unless our interest is professional – to do so, because it would incur a great deal of time and effort. Moreover, if we did go to the trouble of making the necessary inquiries, we would likely be considered highly inquisitive, which is not a socially desirable characteristic.

Unless the anticipated costs of obtaining the necessary information are in reasonable proportion to the expected benefits of making an accurate causal inference, we will be content to make attributions – that may then be less accurate – without access to the full set of covariation information (see Sect. 15.3.2 on the stage model of attributional activity). This is probably the more functional choice, however. What would be the point of a meticulous causal analysis that takes so long that, by the time it has been completed, the window of opportunity for appropriate action has closed?

Summary
Kelley's covariation model and its various elaborations are normative models describing how people are expected to go about causal search, and the attributions they are expected to make, when certain consensus, distinctiveness, and consistency information is available and the aim is to draw a logical, stringent conclusion. However, it tells us nothing about how the search for causality actually proceeds, or about the attributions actually made, in everyday life. The findings of McArthur and Försterling provide no new insights here. They merely confirm that people are able to make causal attributions that correspond with Kelley's model, i.e., that they are intellectually capable of evaluating the available

covariation information and of using it to determine the causes of outcomes and events.

In everyday situations, however, we cannot consult a table (cf. Försterling, 1989) that contains all the necessary covariation information and thus permits unambiguous attributions. Neither do we find ourselves on a strange planet, knowing nothing about the living conditions there; rather, we perceive any available covariation information against the background of years of experience. As a rule, we first have to procure this information and to invest a certain amount of time and effort in doing so. Moreover, because attributions in everyday life tend to have personal implications (at least for the way we act), the attribution process may be influenced by certain motivational biases. As mentioned above, people may be less interested in a rational explanation of causes than in one that is satisfying to them personally.

Despite these criticisms, Kelley's covariation model has the indisputable advantage of describing a method that can be adopted when we wish to make rational and accurate causal inferences. It has important implications for therapeutic applications, pointing to strategies that might be fruitfully applied in cognitive behavioral therapy with depressive patients or helpless students, for example (Sect. 15.4.2).

15.3.3.4   Configuration Concepts: Kelley's Causal Schemata
The covariation analysis of causes for action discussed above presupposes various data inputs. In many everyday situations, these data are not available, or we do not have the time to gather and analyze them (see above). If the information available is incomplete, the attributor can apply specific configuration concepts concerning the coaction of various causes, the "causal schemata" proposed by Kelley (1971, 1972, 1973). For example, if someone has solved a problem that we know was very difficult, we assume their success was from high ability. In other words, the successful action outcome has an inhibitory cause, high task difficulty, and a facilitative cause, high ability. Facilitative and inhibitory causes need not be split among the person and the

Fig. 15.8 Causal schemata for (**a**) "multiple necessary causes" and (**b**) "multiple sufficient causes" of an effect (*E*) where two causes (*A*, *B*) play a role (Based on Kelley, 1972, pp. 2, 6)
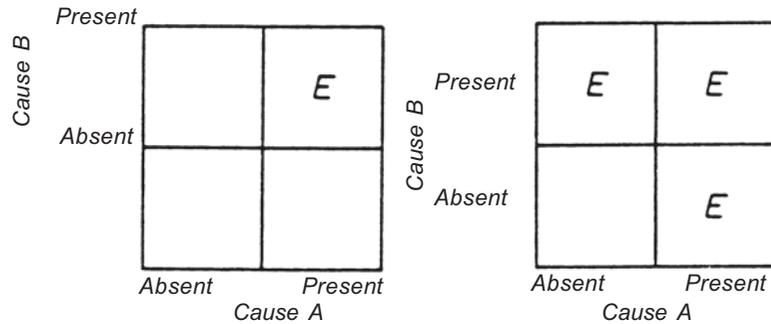
environment, as in this example; they may both be localized within the person or within the environment.

Aside from distinguishing between facilitative vs. inhibitory and internal vs. external causes, Kelley (1972) introduced two configuration concepts reflecting possible links between causes that can serve to bring about an effect:

- Causal schema of "multiple necessary causes"
- All facilitative causes must be present at the same time if the effect is to occur. Figure 15.8a, b illustrates this causal schema for two causes, A and B. Effect (E) occurs only in the presence of both A and B (Fig. 15.8a). If this causal schema is salient, we can immediately infer the presence of A and B once the effect has occurred, without having to identify the two causes separately.
- Causal schema of "multiple sufficient causes"
- In this case, only one facilitative cause is required to bring about the effect (Fig. 15.8b), but here, there is no basis for inferring which of the possible facilitative causes is present.

Which causal schema should be invoked when? Attributors evidently develop certain experienced-based rules here. Rare and unusual events (or particularly significant ones; Cunningham & Kelley, 1975) are likely to be attributed to multiple necessary causes. Several causes must coincide and be multiplicatively intertwined for events of this kind to occur. An example would be success on a very difficult task or failure on a very easy one. Two facilitative internal causes, high ability and high effort, must

have been simultaneously present in the first but not in the second case. More common effects, such as success on an easy task or failure on a difficult one, suggest a causal schema of multiple sufficient causes. To succeed on a simple task, just one of the two facilitative causes, either ability or effort, will suffice; to fail on a difficult task, the absence of just one of the two facilitative causes is sufficient to prevent us from overcoming the inhibitory cause (high task difficulty).

Discounting principle. How, though, do we determine which of two facilitative causes was present in the case of multiple sufficient causes? Further information about the occurrence of the effect in question does not help us to answer this question, because one or the other facilitative cause may have been present at every recurrence of the effect (e.g., success on an easy task). According to Kelley (1972, 1973), whenever unidirectional causes are indivisible, the attributor will invoke a discounting principle, whereby "the role of a given cause in producing a given effect is discounted if other plausible causes are also present" (1972, p. 113). (This principle is also consistent with the logic of the variance-analytical model.) We are dealing here with the same phenomenon that Jones and Davis (1965), in their model of correspondent inferences, identified as a determinant for attributing an action to an underlying disposition: the number of uncommon effects. The presence of more than one uncommon effect for a chosen action alternative also confronts the attributor with the indivisibility of multiple sufficient causes. It remains uncertain which of the dispositions associated with the various uncommon effects actually instigated the action. A direct

correspondence between action and disposition cannot be established.

The greater the number of sufficient causes (or effects), the stronger the discounting of individual causes among several plausible ones (or of an individual uncommon effect among several plausible ones) will be. The only thing that might clarify the situation is a differentiation of the causal schema for the effect in question by multiple observations of covariations among entities, circumstances, times, and persons, i.e., the ongoing formation and testing of psychological hypotheses. Furthermore, it would be interesting to find out which of two possible facilitative causes is more strongly discounted by the attributor, if one of them pertains to the person and the other to the environment. This would show whether attributors tend to use explanations "at first or second glance." Discounting the environmental cause would indicate a preference for explanations "at first glance," the approach typically taken by external observers, as described by Jones and Nisbett (1971; cf. also Jones, 1976). Ross (1977) calls this bias the fundamental attribution error. Heider (1958, p. 54) had already called attention to it in stating that "behavior engulfs the field."

Augmentation principle. Causal inferences may also involve the complement of the discounting principle, namely, the augmentation principle (Kelley, 1971).

• The augmentation principle holds that a facilitative cause gains salience whenever it is confronted by an inhibitory cause, e.g., difficulties, risks, and the need to make sacrifices in the run up to the action goal.

There is an exact analogy to the Jones and Davis model of correspondent inferences here as well, namely, the determinant of desirability. The less socially desirable a pursued goal appears to be (e.g., because it contravenes prescribed roles), the more the relevant internal causes will be augmented and the behavior ascribed to a personal disposition rather than to the demand characteristics of the situation.

Experimental demonstrations of causal schemata are usually hypothetical in nature; i.e., they are based on prepared statements from which participants have to select a single cause. Experimental procedures of this kind have justifiably been criticized for their unrealistic presentation of prearranged information and their semantic triviality (Fiedler, 1982; and a critique by Shaklee, 1983). Major (1980) gave respondents access to an array of information material before asking them to make an attribution decision for a behavioral event described. Her respondents made only limited use of this information. They much preferred consistency information over distinctiveness and consensus information. Attributions were only moderately consistent with Kelley's covariation model.

Causal schema for graduated effects. Kelley (1973) went on to analyze further causal schemata. The schemata for necessary and sufficient causes are merely two special cases of a more global schema that is not based solely on the presence or absence of a cause. This schema for graduated (additive or multiplicative) effects has more in common with everyday thinking, because it takes differences in the strength of individual causes into account. Causal schemata of graduated effects are often decisive in achievement behavior, where the effects are success and failure. The graduation of these effects depends on the level of task difficulty. The success effect grows with increasing difficulty level (Fig. 15.9: *S*, *SS*, *SSS*); the failure effect diminishes with decreasing difficulty level (*F*, *FF*, *FFF*). Facilitative causes for success effects are ability and effort, which can be mutually compensating. This also means that both causes are necessary for most effect levels, i.e., neither can be totally absent. Task difficulty, in contrast, is an inhibiting factor for success effects. To this extent, the graded effects of success and failure correspond to the risk-taking model, i.e., the proportionate relationship between difficulty and success incentive and the inversely proportionate relationship between difficulty and failure incentive.

The matrix in Fig. 15.9 represents a compensatory causal scheme for seven graded effects (*FFF*,
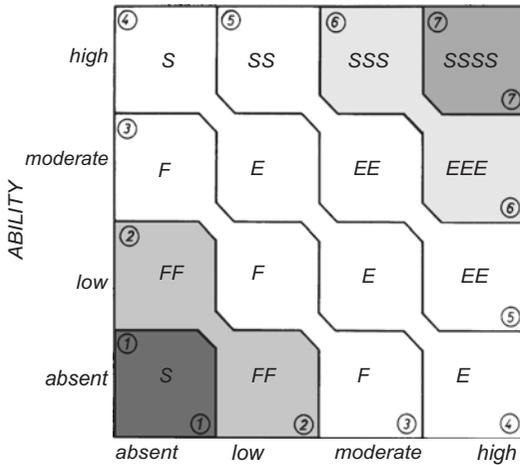
Fig. 15.9 Causal schema for graded effects of achievement behavior and compensatory causes, i.e., for success at increasing levels of difficulty (*S*, *SS*, etc.) and for failure at decreasing levels of difficulty (*F*, *FF*, etc.), with four distinct levels of two additive, mutually compensating, causal factors: ability and effort

FF, *F*, *S*, *SS*, *SSS*, *SSSS*) corresponding to seven levels of difficulty, where – at most difficulty levels – neither of the two facilitative causes (ability and effort) is sufficient, but both are required to bring about success (the exception being difficulty level 4). The intensity of each cause has four levels and is additively (not multiplicatively) linked to that of the other cause. At the level of intermediate difficulty, level 4, there are two combinations where the two causes are linked by a scheme of multiple sufficient causes (the cells in the top left and bottom right corners in Fig. 15.9). Here, one cause is absent, while the other is maximally evident. By contrast, success at very high levels of difficulty (levels 6 and 7) and failure at very low levels of difficulty (levels 1 and 2) constitute unusual effects (shaded fields). In both cases, the scheme of necessary causes is particularly pronounced.

Ambiguity arises when the strength of neither causal factor is known. This invites attribution biases (thereby constituting individual differences in motivation, as we will see later). This ambiguity applies to success at various levels of

difficulty (levels 4–6). For example, individuals can attribute their success at difficulty level 6 (SSS) either to high ability and moderate effort or to moderate ability and high effort. The analog holds for failure at various levels of difficulty (levels 2 and 3). A failure at difficulty level 2 (FF) can either be ascribed to low ability and lack of effort or to lack of ability and low effort.

The matrix in Fig. 15.9 can explicate three different schemata of the superordinate causal scheme of graduated effects:

1. Comparison of results at various levels of difficulty (rows or columns) reveals covariation between the intensity of one cause and the strength of the effect, while the other cause remains constant. This can be described as simple covariation (between a single cause and its effect) and holds when a cause (such as ability) remains constant and an improved outcome can only be achieved through increased effort.

2. If clearly unequal effects are compared – i.e., those at least two difficulty levels apart – then both causes can covary with increasing intensity of effect (along the diagonals from lower left to upper right), with both causes contributing proportionately to the increased effect. This can be described as a scheme of combined covariation (with the effect). This combined covariation, like its simple counterpart, serves as a basis for predicting effects when the strength of both causes is known.

3. If, on the other hand, a given effect is to be explained (the diagonals from the top left to the bottom right in Fig. 15.9), then the strength of the two causes is inversely proportionate. This represents a compensatory causal scheme (between two facilitative causes). In the case of effort compensation, given differences in ability are offset by a corresponding increase in the effort to attain a particular effect. In the case of ability compensation, given differences in effort are offset by corresponding differences in ability.

15.3.4 Processes of Causal Attribution: Descriptive Perspectives

15.3.4.1 Motivational Bias

The findings presented thus far give the impression that causal attribution is a logical and rational affair. The fictitious scenarios commonly presented to participants in experimental settings doubtlessly contribute to this impression. When it comes to establishing the reasons for our own behavior, however, the causes determined affect us personally. For instance, if something touches on our self-esteem, self-serving interests may distort the logical and rational use of information.

• Motivational biases in attribution have frequently been investigated and ascertained. Such biases are particularly noticeable after success and failure. They are also apparent in the perspective discrepancy between self-assessment and assessment by others, as well as in the use of consensus information. They are reflected in enduring work habits and in "learned helplessness." They influence feelings of responsibility and culpability.

The first finding often cited in support of the argument that attributions of one's own behavior or self-generated outcomes are subject to a self-serving bias is that people tend to take credit for their successes but to attribute failures to external causes (e.g., Luginbuhl, Crowe, & Kahan, 1975; Poppe et al., 2005; Stiensmeier-Pelster, Kammer, & Adolphs, 1988).

In a study by Poppe et al. (2005), respondents of different ages and occupational backgrounds were asked how they would attribute success and failure in various real-life situations. The respondents then rated these causes in terms of their locus, stability, and globality. The results are presented in Table 15.7. A tendency toward self-serving attributions emerged for all three attribution dimensions. Specifically, successes are more likely than failures to be attributed to internal, stable, and global causes.

Table 15.7 Means and standard deviations (in brackets) of locus, stability, and globality ratings by positive and negative situations

Attribution dimension	Positive situations	Negative situations
Internality	76.1 (11.0)	65.7 (11.0)
Stability	75.1 (10.7)	61.6 (12.5)
Globality	80.6 (13.5)	59.6 (15.3)

High scores indicate strong endorsement of attribution to internal, stable, or global causes. Scores range from 16 to 112 (Based on Poppe et al., 2005)

Miller and Ross (1975) cast doubt on the interpretation that this asymmetry in attributions after success and failure derives from self-enhancing or self-protecting tendencies and proposed three reasons for a rational, nonmotivational bias in information processing:

1. People intend and expect their endeavors to produce success and not failure; accordingly, they are more likely to take responsibility for expected than for unexpected outcomes.
2. People perceive stronger covariation between their efforts and increasing successes than under conditions of repeated failure.
3. People have an erroneous conception that there is a tighter contingency between their effort and success than between their effort and failure.

Experimental testing has focused on the validity of the first two explanations (differences in expectations or in invested effort). Results show that these explanations are unable to invalidate a motivational basis for the asymmetry of self-serving attributions (cf. overview by Bradley, 1978). The first of these studies was reported by Miller (1976) himself. His respondents were asked to complete what was purported to be a test of social competence. Before scoring the test and informing participants of their success or failure, Miller told one half of the sample either that it was an extremely valid test, which tapped various desirable traits, or that it was a new test that had not yet been validated. This post hoc induction of

a difference in the self-relevance of success and failure excluded the possibility of systematic differences between the experimental groups in terms of both expectations and effort (and thus their covariation with the later results). Miller found that success was attributed more to internal factors and failure more to external ones. This asymmetry was more pronounced when the test results had high self-relevance than when they had low self-relevance.

The analysis by Stevens and Jones (1976) was even more stringent. Working on the basis of Kelley's (1967) purely rational covariation model, they provided respondents with covariation information on all three dimensions. In contrast to McArthur's (1972) study, participants were not asked to interpret the behavior of others based on scenarios presented in a questionnaire, but they themselves – successfully or unsuccessfully – carried out tasks containing distinctiveness, consistency, and consensus information (each at two levels, high vs. low). Findings showed consistent deviation from a purely rational interpretation of the information as posited in Kelley's covariation model. Successful participants were more likely than unsuccessful participants to attribute their outcomes to internal sources (ability and effort) and less likely to attribute them to external sources (luck). The more often participants experienced failure when most others were successful, the more pronounced their self-serving attribution biases were. The results for a data pattern indicative of high consistency, low distinctiveness, and low consensus deviated most blatantly from the assumptions of Kelley's model. This pattern ought to be the most compelling case for a person attribution (Table 15.5). In fact, it was here that ability attribution reached its lowest point and luck attribution its highest.

- Rational information processing, as posited in Kelley's covariation model, takes place only when causes are attributed to others' behavior. In the case of self-attribution, processing seems to be biased by self-serving tendencies – especially in the case of experiences that threaten to impair self-esteem.

15.3.4.2 Self-esteem and Attribution

Self-esteem is often assumed to have strong motivational effects on self-attribution. It therefore seems worth examining the extent to which individual differences in self-esteem or self-concept of ability contribute to the asymmetrical pattern of attribution observed after success and failure. This question has been the subject of several studies.

Taken together, the findings of these investigations show that the self-concept of ability has a marked impact on the attribution of success and failure.

Study

Attributional Differences as a Function of the Self-Concept of Ability

In a study by Stiensmeier-Pelster (described in Chap. 6 of Stiensmeier-Pelster, 1988), fifth through seventh graders were asked to state how strongly they would attribute personal successes ("You did very well on a test") and failures ("You got a bad grade on a test") at school to their own (high or low) ability, their own (high or low) effort, task ease or difficulty, or chance (good or bad luck). Findings showed that the lower their self-concept of ability, the less students attributed success to their own (high) ability, and the more they ascribed it to task ease or good luck (Table 15.8).

The reverse held after failure: the lower the students' self-concept of ability, the more likely they were to attribute failure to their (lack of) ability, and the less likely they were to ascribe it to bad luck.

Table 15.8 Correlations between level of self-concept of ability and attribution of success/failure to ability, effort, task difficulty, and luck

Attribution dimension	Self-concept of ability	
	Success	Failure
Ability	0.72**	−0.64**
Effort	−0.19	−0.04
Task difficulty	−0.40**	0.08
Luck	−0.34*	0.25*

*$p < 0.05$; **$p < 0.001$

Findings comparable to those of Stiensmeier-Pelster (1988) have been reported by Marsh, Cairns, Relich, Barnes, and Debus (1984); Schwarzer and Jerusalem (1982), Stiensmeier-Pelster, Schürmann, Eckert, and Pelster (1994), and Stroebe, Eagly, and Stroebe (1977). Thus, empirical research indicates that individuals with a low self-concept of ability tend to attribute failure to a personal lack of ability. By contrast, individuals with a high self-concept of ability tend to ascribe failure to external factors, such as bad luck.

These findings are very difficult to reconcile with the notion of a self-serving bias in information processing that serves to protect self-esteem. If this kind of bias were in operation, individuals with a low self-concept of ability would also tend to attribute success to high ability and failure to bad luck. This is demonstrably not the case, however.

Consistency theory approaches. One approach that seems compatible with the hypothesis of a motivational bias in information processing can, however, be derived from consistency theory (Festinger, 1957; Heider, 1958). The "self-consistency approach" (Jones, 1973) works on the assumption that people endeavor to develop and maintain a consistent image of themselves. Accordingly, they do not necessarily strive to obtain the most complete, accurate, and realistic information about the potential causes for their successes and failures. In fact, they tend to prefer information that leads to attributions consistent with their own self-concept of ability and to ignore information that would suggest attributions inconsistent with that self-concept.

If someone considers himself or herself very able, it will be consistent with their self-concept of ability to attribute success to high ability and failure to external causes such as task difficulty or bad luck. If, on the other hand, someone considers himself or herself less able, it will be consistent with their low self-concept of ability to attribute success to external causes, such as luck or the ease of the task, and failure to a lack of ability.

The attributional differences observed between people with high vs. low self-concepts of ability are not necessarily the result of such efforts to achieve consistency, however. These findings can also be explained in purely rational terms, by reference to the covariation model (Kelley, 1967, 1973) described in detail above. Kelley's model predicts that outcomes will be attributed to person factors such as lack of ability when success or failure varies across persons (you succeed/fail where others do not) but remains constant across entities (you succeed/fail on other tasks as well) and time and/or circumstances (you have succeeded/failed in the past as well). Conversely, the model predicts attributions to situational factors (e.g., luck or situational circumstances) when success or failure is constant across persons (everyone else succeeds/fails as well) and entities (you succeed/fail on other tasks as well) but varies across time (in the past or in other circumstances, your outcome would have been different). The attributional differences observed as a function of the self-concept of ability can thus be explained in the following terms:

- In most of the studies described above, respondents were expected to explain action outcomes on the basis of very vague or nonexistent consensus, distinctiveness, and consistency information. When covariation information is lacking, people are assumed to fall back on their own experience and to infer the missing information by comparing the action outcome in question with earlier outcomes. Because individuals with high and low self-concepts of ability are likely to have different bodies of experience, the covariation information they infer will differ, thus explaining the attributional differences observed.

Table 15.9 presents the covariation information that might be inferred in the case of failure by individuals with high vs. low self-concepts of ability. Considering what goes to make a high or low self-concept of ability, the pattern of information presented seems entirely plausible. People with low self-concepts of ability typically believe that they are not much good at many things and therefore consider themselves less able than many other people. If they are not provided with any (objective) external covariation information

Table 15.9 Consensus, distinctiveness, and consistency information inferred by individuals with high vs. low self-concepts of ability on the basis of previous experience in the case of failure

	Self-concept of ability	
	High	Low
Consensus	High[a]	Low
Distinctiveness	High	Low
Consistency	Low	High
Cause identified	Circumstances/ entity	Lack of ability

[a]For example, a person with a high self-concept of ability will perceive the level of consensus to be high (see text)

(e.g., by others) in the case of failure, but have to derive it all from their own experience, they are likely to assume that many other people succeeded and that they were among the few who failed (low consensus). Furthermore, they will see the failure as one in a long line of supposed or real (prior) failures on other tasks (low distinctiveness) as well as on similar tasks (high consistency). Based on this pattern of information, which has been inferred from prior experience, the failure is attributed to a "lack of ability."

Individuals with a high self-concept of ability, by contrast, believe that they are good at many different task domains, in fact often better than many other people. In case of failure, it will therefore be plausible for them to assume that most others failed as well (especially as others seem less able); in other words, they will perceive a high level of consensus. Furthermore, they will see the failure in contrast to earlier experiences with similar or different tasks, which will invoke a perception of high distinctiveness and low consistency. For people with a high self-concept of ability, the pattern of covariation information inferred on the basis on prior experience makes an attribution of failure to a lack of ability unlikely. It is much more plausible that the outcome will be attributed to the circumstances or the entity (i.e., the type of task).

- From this perspective, attributional differences between people with high versus low self-concepts of ability are to be expected only when the covariation information inherent in the sit-

uation or provided by another instance is very vague or nonexistent, meaning that attributors have to rely on their prior experience. The more (objective and credible) covariation information people are given, the fewer attributional differences should be observed as a function of self-concept of ability. In the best case scenario, when the attributor has access to a full set of consensus, distinctiveness, and consistency information, such differences should no longer be apparent.

15.3.4.3 Perspective Discrepancy Between Actor and Observer

Causal attributions have been shown to differ depending on whether they are made from the perspective of the actor or that of the observer. Whereas actors tend to attribute their behavior and its outcomes to situation factors, i.e., to external-variable causes, observers are more likely to attribute (others') behavior to characteristics of the actor, i.e., to internal-stable causes (Jones & Nisbett, 1971). If the actor's preference for situational factors were seen as self-serving, the discrepancy between the actor and observer perspectives (Jones & Nisbett, 1971; Watson, 1982) could be explained in terms of a motivational bias in information processing. However, this explanation is not compatible with the fact that the actor generally has more information to explain his or her behavior and its outcomes than an observer. In this case, the perspective discrepancy is evidently not the result of motivationally determined attribution biases, but of attributional differences deriving from different informational input.

There seem to be two main reasons why behavior is more likely to be attributed to situation factors by the actors themselves and to person factors by observers:

- Differences in the focus of attention
- Differences in the amount of context information

The actor's attention is focused on aspects of the situation; that of the observer is on the actor. Furthermore, the actor has far more information than the observer about the current situation (dis-

tinctiveness): its precedents and background (consistency).

The effects of this perspective discrepancy on attribution can be neatly illustrated by the example of attributional differences in the classroom on the following page.

It is worth noting that teachers who apply individual frames of reference (Chap. 6) are much more likely to infer variable causes for student performance than those who apply social frames of reference. Teachers who use an individual frame of reference evaluate student performance in terms of whether it represents an improvement or a deterioration relative to previous outcomes. A social frame of reference, by contrast, implies a focus on how well students perform relative to their classmates. Teachers who apply individual frames of reference take a keen interest in individual students' development; they are highly sensitive to information signaling that a student's performance has improved or declined. Because this kind of approach focuses these teachers' attention on consistency information, they are more likely to attribute learning outcomes to variable factors (for a summary, see Rheinberg, 1980, 2001).

Example
Teachers tend to ascribe student learning outcomes to stable student characteristics, such as high vs. low student ability. Students, on the other hand, tend to attribute their performance to internal-variable causes (lack of effort, lack of interest) or external-variable causes (luck). Bearing in mind that the teacher has comprehensive access to consensus information (he knows how all students performed) but has only a limited amount of consistency and distinctiveness information (as a rule, his knowledge of their previous outcomes and their outcomes in other subjects is insufficient), it seems quite plausible for him to attribute learning outcomes to student characteristics. This attribution is also rational within

the framework of the covariation principle (the teacher attributes the effect to the cause that is present when the effect is present and absent when the effect is absent). The student, by contrast, has superior access to distinctiveness information (the grades she obtained in other subjects) and consistency information (her previous grades). She does not, however, have immediate access to consensus information, but would first have to ask the other students how well they did. Given that her performance may differ over time, it seems quite plausible for her to attribute her outcomes to variable causes.

A reconceptualization of the conditions for perspective discrepancy. Monson and Snyder (1977) critically examined the findings on perspective discrepancy and established that all experimental situations in which evidence for perspective discrepancy had been found had in fact fostered its induction. The actors had not themselves brought the situations about, neither did they have the power to shape them; hence, they logically felt subjected to situational influences. Under conditions such as these, it makes perfect sense to give greater weight to situational than to person factors. Because actors are aware of the situational, experiential, and historical context of their current situation, they should be able to make more appropriate attributions than external observers, whether to situational or to person factors. Monson and Snyder postulate as follows:

> Actors should make more situational attributions than should observers about behavioral acts that are under situational control; by contrast, actors' perceptions of behavior that are under dispositional control ought to be more dispositional than the perceptions of observers. (Monson & Snyder, 1977, p. 96)

Actors will likely be more prone than observers to attribute to situational factors if the actor's behavior is:

(a) Elicited by an experimental manipulation
(b) Performed in a situational context not chosen or controllable by the actor
(c) Performed in the presence of facilitative situational cues provided by those aspects of the experimental manipulation designed to elicit the behavior
(d) Dissimilar to previously manifested behaviors because the actor has no prior exposure to the experimental situation
(e) Inconsistent with previous self-attributions because the actor has had no prior experience with the particular experimental situation
(f) Not part of an extended causal chain (Monson & Snyder, 1977, p. 101)

However, the actor's self-attributions will be more strongly person centered than those of an external observer when experimentally induced or naturally occurring situations permit the following behavior:

(a) Dispositional
(b) Performed in situations chosen and/or controllable by the actor
(c) Performed in the presence of neutral or inhibitory situational factors
(d) Similar to previously manifested behaviors
(e) Consistent with prior attributions
(f) Part of a causal chain with prior dispositional causes (Monson & Snyder, 1977, pp. 101–102)

• Monson's and Snyder's reconceptualization of the conditions for perspective discrepancy does not contradict the explanations of Jones and Nisbett (1971) but rather specifies when person factors come to dominate over situational factors in self-attribution. Because of the greater amount of information available to them, actors are generally better able to make appropriate attributions. Observers are always prone to the fundamental attribution error (Ross, 1977) and tend to overestimate person factors.

All conditions of perspective discrepancy analyzed thus far are rooted in information processing and not in motivational circumstances. Therefore, it is only an apparent contradiction that the actor makes fewer attribution errors than the observer in terms of the perspective discrepancy but displays more bias than the observer in attributing self-relevant actions and their outcomes.

When the two phenomena are considered together, Monson's and Snyder's reconceptualization of perspective discrepancy shows self-serving attribution asymmetry in a new light. The latter phenomenon generally arises in highly controlled experimental situations that expose the actor to a preponderance of situational factors. Thus, the informational input itself favors attribution of unsuccessful outcomes and actions that threaten to impair self-esteem to external causes. Thus, it seems quite reasonable that the self-serving bias of attribution asymmetry should be more pronounced for failure than for success, as reported by Stevens and Jones (1976).

15.3.4.4 Attributional Style as a Stable Personality Trait

Causal attributions not only are a function of situational conditions but also depend on personality traits. Several researchers showed that some people prefer specific patterns or styles of causal attribution for success and failure irrespective of situational conditions. For example, Abramson et al. (1978) postulate a depressive attributional style that is part of a depressive cognitive pattern (Alloy et al., 2006). Dodge (1993) proposes that aggressive children who tend to prematurely attribute hostile intentions to others follow a "hostile bias" in their causal attributions. In the next section, we will discuss the influence of such attributional styles on people's experiences and behavior in greater depth.

Summary
As a rule, the causal attributions made in everyday life do not comply with the normative models presented in Sect. 15.3.3. There can be many reasons for this: incomplete information, the desire to protect one's self-esteem, the desire to experience oneself as consistent and the environment as stable, and also biographically based propensities to attribute one's own or others' behavior prema-

turely to certain causes. Other possibilities are that there is no time for a careful analysis of the causes of an event or that there are no clear benefits of an exhaustive causal analysis. Overall, people seem to be less interested in strictly realistic causal attributions than they are in attributions that facilitate their future actions or promote their well-being.

15.4 Attributional Theories

Attributional theories are concerned with the effects that causal attributions have on people's subsequent behavior and experience (Sect. 15.2). In fact, these are the questions that make the psychology of causal attribution so interesting for motivational psychologists. Moreover, attributional approaches allow more accurate predictions to be made of two key variables in the psychology of motivation: expectancy and value. In this context, it is less the causal factor itself that guides behavior than the properties (attribution dimensions) ascribed to it – its locus, stability, globality, and controllability or intentionality (Weiner, 2006). The first two of these dimensions were identified by Heider (1958) who, apart from distinguishing internal personal forces from external environmental forces, emphasized the dimension of stability vs. variability. On the person side, ability is stable and motivation (effort) is variable. On the environment side, task difficulty is stable and luck is variable. Weiner combined the dimensions of locus and stability in a four-field schema of causation (Table 15.10). Other authors have since proposed further attribution dimensions. Rosenbaum (1972) utilized the first of Heider's two motivational components, intention and exertion, arguing that causes can also be distinguished in terms of their inten-

Table 15.10 Classification scheme for the perceived causes of success and failure

Stability	Locus	
	Internal	External
Stable	Ability	Task difficulty
Variable	Effort	Luck

Based on Weiner et al. (1971), p. 2

Table 15.11 Classification of internal causes by the dimensions of stability and controllability

Stability	Controllability	
	Controllable	Not controllable
Stable	Work habits (diligence, laziness)	Ability
Variable	Effort (momentary)	Psychophysical state (mood, fatigue)

Weiner (1979), "steerability," Rheinberg (1975), "intentionality," Rosenbaum (1972)

tionality. Ability is not intentional, but effort is. Likewise, work habits (stable diligence or stable laziness) are intentional, but the psychophysical state (mood, illness, fatigue) is not (Table 15.11).

"Intentionality" is perhaps not a very fitting label for this distinction, however (quite apart from the fact that "intentionality" describes the reasons for behavior rather than the causes of an event). Attributing failure to a lack of effort does not mean that the failure was intentional in the sense of purposeful or desired. An intention determines what, if anything, is to be done. It is a precondition for, but not a direct cause of, an action outcome. It therefore makes more sense to label this dimension "controllability" (Rheinberg, 1975; Weiner, 1979).

We feel responsible for causes we have the power to control. Therefore, empirical studies often operationalize controllability in terms of responsibility (for a summary, see Weiner, 1992, 1994). Although a clear theoretical distinction can be drawn between controllability and intentionality, there seem to be strong intercorrelations between the two attribution dimensions (Anderson, 1983).

Abramson et al. (1978) proposed that a further (fourth) dimension – global vs. specific – be considered to account for the generalization of expectancies to other task and/or activity domains that is observed after repeated experiences of failure (see below).

When considering the effects of attributions on behavior in terms of their dimensional ratings, i.e., the properties they are ascribed, the objective properties of the cause – or the properties it is ascribed from an external perspective – are irrelevant.

All that matters are the properties ascribed by the attributor himself or herself. The objective causes and the causes ascribed from the external perspective may deviate considerably from the subjective causes. For example, attributional research considers ability to be an internal, stable, and uncontrollable factor (Weiner, 1985a, 1986). Yet Dweck (1986, 1999) showed that people differ in the extent to which they see intelligence and ability as stable and uncontrollable or as changeable (i.e., unstable and controllable) and that this judgment influences their motivation and learning behavior. Likewise, aggression research has shown that aggressive children differ from their less aggressive peers in the extent to which they evaluate the harmful behavior of others as having been caused intentionally (Dodge, 1993; Dodge, Coie, & Lynam, 2006). Aggressive children exhibit a "hostile bias," i.e., they tend to assume that others have hostile intentions and to see harmful behavior as intentional. Finally, research has shown that, as children grow older, parents become more likely to attribute any deviant behavior to causes that are subject to the children's own control (Dix, Ruble, & Zambarano, 1989; for a summary, see Stiensmeier-Pelster, 1995).

• Like causal attribution, which often is a subjective rather than a rational process, the evaluation of causal properties tends to be subjective rather than objective.

In the following, we discuss how attributions influence subsequent behavior and experience. Rather than seeking to provide an exhaustive

overview, we focus on three major fields of application that remain the subject of intensive conceptual theorizing and empirical testing:

1. The influence of attributions on expectancy
2. The influence of attributions on the emergence of hopelessness and depression
3. The influence of attributions on the emergence of anger and aggression

Based on the examples of these three fields of application, we will discuss the major theoretical contributions of research into how causal attributions affect behavior and experience. Attributional research has revealed a wealth of further details and stimulated studies in many fields of psychological application (see above). Readers interested in the details of these investigations are referred to the comprehensive reviews by Försterling (2001), Weiner (2006), or Graham and Taylor (2016).

15.4.1 Attribution and Changes in Expectancy

Weiner (1985a) formulated an "expectancy principle" to describe the relationship between attribution and expectancies of success. The principle holds that changes in expectancy are influenced by the perceived stability of causes of previously achieved outcomes.

> Changes in expectancy of success following an outcome are influenced by the perceived stability of the cause of the event (Weiner, 1985a, p. 559)

Study

Relationship Between Expectancy of Success and Attribution

In several trials, Meyer (1973) induced either consecutive successes or consecutive failures. After every progress report, he asked participants to rate the extent to which the outcome had been caused by ability and task difficulty (Weiner's stable causal factors). Meyer then assigned the participants to two groups based on these attributions: one group of

participants who tended not to attribute failures to ability and task difficulty and one group who were much more likely to do so. As shown in Fig. 15.10, the findings are fully congruent with Weiner's expectancy principle. The participants who tended to attribute failure to the stable factors of task difficulty and ability reduced their expectancies of success with every failure, whereas the other participants barely modified their expectancies of success at all.
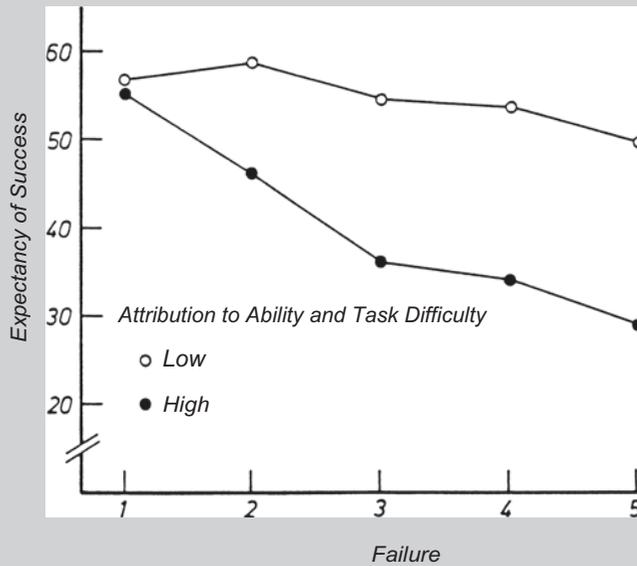
Fig. 15.10 Change in the mean expectancy of success within a succession of failures in groups with low vs. high attribution of failure to ability and task difficulty (Based on Meyer, 1973, p. 105)

Numerous studies have provided experimental evidence for the assumption that stability attributions influence changes in expectancy of success. Meyer (1973) was the first to study this relationship empirically (see study).

The relationship between attribution and changes in expectancy is more complex than either Meyer (1973) or Weiner (1985a) assumed, however. Two strands of argument seem particularly significant here. First, not only can outcome attributions determine expectancies of future success, but expectancies of success can also influence the attribution of future outcomes. The more an outcome deviates from the original expectation, the less likely it is to be attributed to stable factors. This assumption is derived solely from the basic premise of attribution theories, which holds that people strive to predict and influence the things happening around them, an endeavor that can only succeed if they can assume the world around them to show a certain degree of stability. Thus, it is imperative that we do not revise our view of things every time something happens that is contrary to our expectations. If I consider myself to be good at a certain kind of task, then I will tend to approach it with high expectancies of success. Failure on my first attempt at that task is hardly likely to prompt me to revise my self-concept of ability (and to attribute my failure to lack of ability). As discussed in depth in Sect. 15.3.4, I am much more likely to attribute my failure to bad luck, a lack of effort, or another variable factor. As mentioned above, an attribution of this kind would also be in line with Kelley's covariation principle. My positive concept of my ability is based on the notion that I succeed more often than others (low consensus) and at many different times (high consistency). If I now experience failure, neither consensus nor consistency takes on an entirely new aspect. Rather, failure is, at first, simply an exception to the rule. In terms of Kelley's model, there is low consistency, suggesting that the outcome might best be attributed to an unstable factor. It is only if failures begin to occur more regularly that there is a change in the covariation information and, along with it, the attribution.

Data in support of these ideas were recently presented by Dickhäuser and Galfe (2004). The authors instructed students to imagine that their score on a test had been as expected, unexpectedly good, or unexpectedly bad. The students were then asked to state whether they would tend to compare this result with worse, equally good/poor, or better results that they had achieved in the past or in other subjects. It emerged that students were more likely to compare unexpectedly poor results with better results achieved in the past or in other subjects and unexpectedly good results with worse results achieved in the past or in other subjects than they were when their results were as expected.

- Thus, to draw on Kelley's covariation model, results that are contrary to our expectations are associated with the perception of high distinctiveness and low consistency, suggesting that the outcome can best be attributed to situational factors (variable causes). By contrast, results that are in line with our expectations are associated with the perception of low distinctiveness and high consistency, indicating that they are attributable to stable causes.

The second assumption worth querying is whether it is really the stability of a cause that determines changes in expectancies, as Weiner and colleagues posited, or perhaps its implications for behavior. A distinction must be drawn between the stability of a cause and the stability of its behavioral implications. Imagine the following situation that was used in an empirical study (see details below), for example. You are trying in vain to open a file that has been saved on a floppy disk. Let us assume that you attribute this failure to the disk being faulty. Is this a stable cause? Undoubtedly. Will it have long-term implications for your behavior? Certainly not – you will not bother trying to save a file on that same disk in the future. Causes only have behavioral implications from the actor's perspective when they involve stable properties of the actor himself or herself or stable properties of the entity and it is not possible to change the entity (in this case, the floppy disk).

Table 15.12 Perceived stability and controllability of the causal factors "faulty floppy disk" and "lack of knowledge" and resulting expectancies of success

	Faulty floppy disk	Lack of knowledge	p
Stable	3.11	1.77	<0.001
Controllable	2.71	4.23	<0.001
Expectancy of success	3.61	2.69	<0.001

High scores indicate strong endorsement of stability or controllability and high expectancy of success. Scores range from 1 to 5 (From Dickhäuser & Stiensmeier-Pelster, 2002)

Empirical findings on the stability of causal factors and their behavioral implications. The ideas outlined above have been empirically tested by Dickhäuser and Stiensmeier-Pelster (2002, Study 2). Students were asked to imagine both of the following situations: "Imagine you are having difficulty opening a file you have saved on a floppy disk. You know the reason for this a fault with the disk (situation 1) or a lack of knowledge on your part" (situation 2). The students were then asked to rate the stability and controllability of the cause and to state their expectancies of future success on opening files from floppy disks. Table 15.12 presents the findings of this study. As the data show, the "faulty floppy disk" causal factor is rated as much more stable and less controllable than the "lack of knowledge" causal factor. Yet, at the same time, the expectancy of future success on opening files from floppy disks is much higher for the "faulty floppy disk" causal factor than for the "lack of knowledge" causal factor. Perceived stability (and perceived controllability) evidently does not determine the expectancy of success in this particular case, because the "faulty floppy disk" causal factor has no long-term implications for behavior.

Another interesting finding to emerge from Stiensmeier-Pelster and colleagues' studies on the stability of causal factors and their implications for behavior was that men were more likely than women to attribute failure on computer-related activities to stable and uncontrollable causes – but, at the same time, they reported higher expectancies of success. When the causes

identified were evaluated in terms of their long-term implications for behavior, it emerged that the causes nominated by men had less impact on behavior than those nominated by women, which goes to explain the men's higher expectancies of success (cf. Dickhäuser & Stiensmeier-Pelster, 2002, Studies 1 and 2).

15.4.2 Attributional Analysis of Hopelessness and Depression

In his original formulation of the theory of learned helplessness, Seligman (1975) posited that people who are consistently confronted with the experience of failure will develop an expectancy of not being able to achieve success in the future either (generalization of expectancies over time) and that this expectancy will also spread to tasks that have little to do with those that originally resulted in failure (generalization over entities/tasks). Although this hypothesis was confirmed in isolated studies (e.g., Hiroto & Seligman, 1975), doubt was soon cast on the assumption of such extensive generalization (cf. Kuhl, 1981). Instead, researchers working with the theory of learned helplessness drew on Weiner's approach to explain the conditions under which expectancies are or are not generalized. In his studies, Weiner had soon shown that expectancies only generalize over time when an outcome is attributed to a stable causal factor. Drawing on Weiner's theoretical considerations and empirical findings, Abramson et al. (1978) reformulated the theory of learned helplessness from the perspective of attribution theory (see also Abramson et al., 1989; Meyer, 2000; Poppe et al., 2005; Stiensmeier-Pelster, 1988), taking both globality and stability of causal factors into account. They posited that the more stable the cause(s) of failure are judged to be, the more likely it is that the expectancies (of uncontrollability) generated by consistent failure will be generalized over time. Likewise, the more global the cause(s) are judged to be, the more likely it is that the expectancies will be generalized to different tasks.

According to Abramson et al. (1978), (1989), however, causal attributions are not classified solely in terms of their stability and globality but also in terms of their locus or internality. An internal attribution of repeated failures would imply that the attributor is the only person incapable of controlling the outcome and this would lead to personal helplessness. Attributions of successive failures to an external cause, on the other hand, reflect a belief that few others would be able to control the outcome either, resulting in universal helplessness. Personal helplessness, but not universal helplessness, is assumed to be associated with impairment of self-esteem. This assumption corresponds to Weiner's suggestion that the locus ascribed to a cause governs self-directed affect, including self-esteem. However, empirical findings do not substantiate Weiner's theory-based assumption that locus determines feelings of self-esteem.

- Based on their empirical findings, Abramson et al. (1989) later concluded that successive failures or other negative life events lead to impairment of self-esteem only when the cause is judged to be internal, stable, and global (e.g., lack of general ability).

15.4.2.1 Attribution Dimensions Relevant to the Concept of Learned Helplessness

Abramson et al. (1978) assume orthogonality of the attribution dimensions of locus (internality), stability, and globality. However, many studies have only been able to substantiate this assumption for the relationship of locus to stability and globality, respectively, but not for that of stability to globality. Rather, almost all investigators who have asked respondents to identify the causes for fictitious or real experiences and then to rate these causes with respect to their locus, stability, and globality have found that stability ratings correlated closely with globality ratings (for a summary, see Poppe et al., 2005; Stiensmeier-Pelster et al., 1994).

Table 15.13 presents a prototypical pattern of findings. The data stem from a study by Stiensmeier-Pelster et al. (1994), in which children and adolescents were asked to identify the main cause for the outcomes of various positive

Table 15.13 Mean correlations among locus, stability, and globality ratings

	Locus	Stability	Globality
Locus		0.12	0.15
Stability	0.25		0.68
Globality	0.28	0.66	

Correlations for positive situations are presented above the diagonal; correlations for negative situations, below the diagonal. ($N = 854$ students in grades 4–8) (Based on Stiensmeier-Pelster et al., 1994)

and negative situations. Using seven-point scales, they then rated this cause in terms of its locus, stability, and globality. As Table 15.13 shows, correlations between locus ratings, on the one hand, and stability and globality ratings, on the other, were weak for both positive and negative outcomes. The relations between stability and globality ratings, by contrast, were very close for both positive and negative situations.

Because stability and globality ratings have repeatedly emerged to be so closely related, the two dimensions are no longer considered separately in research on the power of the attribution theory model of learned helplessness to explain hopelessness depression. Instead, a generality dimension has been postulated to comprise the two aspects of stability and globality. The perceived generality – it is now assumed – determines the extent to which expectancies are generalized across time as well as across task domains or situations. Impaired self-esteem is assumed to result from failures or from negative events whose causes are judged to be both internal and general.

Looking at the attribution dimensions relevant to the theory of learned helplessness against the background of Weiner's approach, the controllability dimension is conspicuous by its absence. This may be because the theory of learned helplessness originally addressed only the consequences of uncontrollable events, making it pointless to contemplate the controllability of an action outcome or its causes. Had attribution issues not been neglected in the early stages of helplessness research, however, it would have been clear that an attribution process culminating in the action outcome being attributed to an

uncontrollable cause is the prerequisite for the perception of uncontrollability.

A look at the empirical research on learned helplessness shows that respondents are generally confronted with uncontrollable negative events and that the uncontrollability of these events is merely assumed by the experimenter. Whether or not the respondents actually perceive these events as uncontrollable is rarely tested. Given the established finding that most respondents (provided they are not suffering from depression) perceive objectively uncontrollable events as controllable under certain conditions (Alloy & Abramson, 1979), this oversight is all the more surprising.

The empirical neglect of the controllability of causes is regrettable in another respect as well. More recent models developed to explain helplessness depression in the tradition of helplessness research no longer see depression as being triggered by uncontrollable events on the situation side; it suffices for a negative event (that may be personally relevant) to occur. Whether the cause of this negative event is perceived to be controllable or uncontrollable is immaterial. At the same time, guilt feelings are an important symptom of depressive disorders.

- From the perspective of attribution theory, guilt feelings arise when negative events are attributed to causes that are within the attributor's control. For example, people sometimes experience deep feelings of guilt when a relative dies after a long illness, and they feel that they failed to provide the necessary support because they had other priorities.

15.4.2.2 The Attribution Theory Model of Depression

Figure 15.11 summarizes the attribution theory model of depression, which was developed in the tradition of the theory of learned helplessness. First, the model distinguishes between depression with and without impaired self-esteem. Depression without impaired self-esteem is determined by hopelessness. Unlike Weiner, who conceives of hopelessness as affect, this model sees hopelessness as an expectancy. Strictly
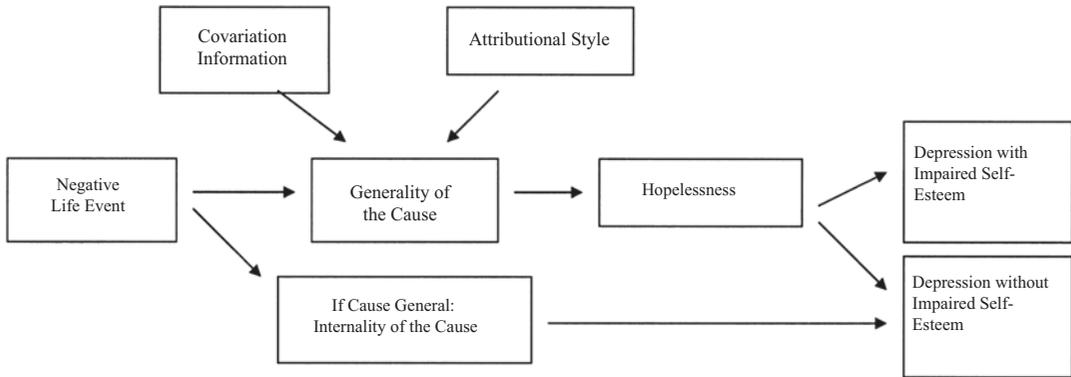
Fig. 15.11 Basic principles of the theory of hopelessness (Based on Abramson et al., 1989)

speaking, the expectancy of hopelessness comprises two expectancies:

1. The expectancy that more negative than positive events will occur, i.e., that aversive events are very probable and desired events rather improbable
2. The expectancy that no response in one's repertoire will change the likelihood of these outcomes

In fact, it is a question of a prototypical expectancy of uncontrollability. An expectancy of hopelessness emerges when a (personally significant) negative life event occurs and is attributed – in the spirit of Weiner – to a stable and global (here: general) cause. Depression associated with impaired self-esteem occurs when the cause of a negative event is additionally located within the attributor's own person (i.e., an internal attribution).

The model also specifies the antecedent conditions of such attributions. On the one hand, they require what is known as a depressive attributional style. People are assumed to have enduring preferences with regard to the causes they infer for positive and negative events. Depressive individuals are assumed to attribute negative events primarily to internal-stable-global causes, and positive events primarily to external-unstable-specific causes, though only the former preference is significant in the present context. Nondepressive individuals are assumed

to favor the opposite pattern of attribution (i.e., external-unstable-specific attributions for negative events and internal-stable-global attributions for positive events). Beyond attributional style, the covariation information specified by Kelley (consensus, distinctiveness, and consistency) is also assumed to influence concrete attributions of negative events. In line with the theoretical considerations of various authors (e.g., Jackson & Larrance, 1979; Van Overwalle & Heylighen, 1995), it is assumed that the three attribution dimensions of locus (internality), stability, and globality can be derived directly from the covariation information on consensus, consistency, and distinctiveness of a cause (Kelley, 1967, 1973).

Example
- Low consensus (e.g., "everyone but me succeeds on a certain task") is assumed to prompt internal attributions (e.g., lack of ability) while high consensus (e.g., "it's not just me who fails on the task, everyone else does as well") to prompt external attributions (e.g., task difficulty).
- High consistency (e.g., "I'm not just failing on this task at the moment, I have often failed on it in the past as well") is assumed to lead to stable attributions (e.g., lack of ability) while low consistency (e.g., "I'm failing at the moment, but in the past I have often succeeded on

this task") to variable attributions (e.g., lack of effort).

- Low distinctiveness (e.g., "it is not just this task that I fail on, but most other tasks as well") is assumed to generate global attributions (e.g., lack of general ability) while high distinctiveness (e.g., "I fail only on this specific task") to generate specific attributions (e.g., lack of mathematical ability).

It would be interesting to know how the effect of covariation information relates to attributional style or how these two determinants might interact. For example, does the attributional style only take effect when the covariation information for a given situation is ambiguous, or does it also prevail when the covariation information is unequivocal?

Unfortunately, there have been very few empirical investigations of these questions to date (for a summary, see Poppe, 2002). It would also be interesting to examine whether a depressive attributional style might affect the perception of covariation information. According to the stage model of attributional activity (Sect. 15.3.2), one of the factors determining the intensity of causal search is the degree of accuracy accepted when identifying a cause. Do I identify the cause (e.g., I lack ability) as soon as I have gathered a few vague clues as to its nature, or do I seek to "get to the bottom of things" and decide on a cause only when I have collected a number of valid indications?

Working on the assumption (by all means a plausible one) that our attributional style reflects the concept we have of our abilities, would it not be plausible to accept a causal attribution on the basis of just a few tenuous clues if that attribution is in agreement with our self-concept? In this case, causal search will always be terminated as soon as we come across clues pointing to a cause that is congruent with our self-concept. Let us assume that covariation information is not as coherent in real life as it is in the respective experiments but that it may be contradictory. If, for example, a student fails a test along with three other students, and only one student passes, it would be plausible to attribute the first student's outcome to an external factor (e.g., task difficulty). To do so, however, the student would require full access to the relevant consensus information. Let us assume that this information is not readily available, but first has to be obtained by the student. He or she asks a classmate, who happens to be the only one who passed the test, how he or she did. If our student tends to attribute failure to internal causes, because he or she considers himself or herself less able, this information matches his or her attributional style and, given that it confirms the image he or she has of himself or herself, he or she will probably not bother asking the others how they did, but assume that his or her failure can be attributed to a lack of ability.

As this thought experiment shows, we are unlikely to fully analyze the myriad of covariation information available in everyday life but tend to terminate the analysis as soon as we have come up with a subjectively plausible attribution – in all probability, one that conforms with our own attributional style rather than one that contradicts it (in which case, we would probably continue the analysis).

Empirical findings on attributional style and depression. The attribution theory model of depression outlined above has been the subject of numerous empirical studies, most of which have focused on the impact of attributional style on depression. Attributional style is generally assessed by means of questionnaire measures. The "Attributional Style Questionnaire" (ASQ; Peterson et al., 1982; Poppe et al., 2005) is frequently used in studies with adults. Respondents are presented with equal numbers of successful (positive) and nonsuccessful (negative) situations from performance-related and interpersonal domains. They are then asked to identify the main cause for each event and to rate this cause along the dimensions of locus (internality), stability, and globality.

Numerous cross-sectional studies have established that clinically depressed adults are more likely than nondepressed adults to attribute failure to internal, stable, and global causes (e.g., Eaves & Rush, 1984; Raps, Peterson, Reinhard,

Abramson, & Seligman, 1982; Stiensmeier-Pelster et al., 1988). Moreover, the failure attribution style typical of depressed adults has also been observed in samples of subclinically depressed adults (e.g., Försterling, Bühner, & Gall, 1998; Seligman , Abramson, Semmel, & von Baeyer, 1979).

Apart from these cross-sectional studies, a limited number of longitudinal studies have investigated the relationship between the failure attribution style typical of depressed adults and the onset of symptoms of depression and sought evidence of causality (for a summary, see Barnett & Gotlib, 1988; Coyne & Gotlib, 1983 for a particularly critical approach; Housten, 1995; Kammer & Stiensmeier-Pelster, 1987; Metalsky, Halberstadt, & Abramson, 1987; Metalsky, Joiner, Hardin, & Abramson, 1993; Peterson & Seligman, 1984; Stiensmeier-Pelster, 1989). For example, Metalsky et al. (1987) found that the students in their study who tended to attribute failure to general (i.e., stable-global) causes reported depressive mood directly after receiving a poor grade (stress) and again 2 days later. Those who tended to attribute failure to variable-specific causes also reported depressive mood directly after receiving a bad grade but had recovered completely within 2 days.

- Thus, a tendency to attribute failure to general causes does not determine the onset of depressive mood but its chronicity. This is precisely what would be expected on the basis of Weiner's attributional analysis – the properties of stability and globality do not determine whether failure triggers negative expectancies (and the associated acute depressive mood), but the extent to which these expectancies remain valid over time or are generalized to other tasks (and thus trigger chronic depressive mood). Strictly speaking, this study shows that a depressive attributional style is not a factor that affects the genesis of depression, but one that determines its chronicity and that may impede recovery.

Empirical research has shown that attributions influence the onset of depressive mood in inter-

personal as well as performance-related situations. Stiensmeier-Pelster (1989, Study 1) found that the more students who experienced a negative Christmas vacation tended to attribute failures to general causes, the more pronounced the increase in their level of depressive mood.

Recent research also addressed at which age children develop a stable attributional style. In addition, researchers investigated whether and at which age attributional styles moderate the influence of life events on the emergence of depression. Cole et al. (2008), for instance, studied the development of attributional styles and their influence on the genesis of depressive disorders in children and adolescents between 7 and 14 years of age (second to ninth grade). They found that attributional styles change with age. Younger children do not seem to exhibit a consistent attributional style across time and situations, whereas older children and adolescents appear to use a consistent attributional style. Moreover, as children age, the stability dimensions (of causal factors) seem to become more important. Moreover, negative life events affected the development of depression in younger children irrespective of their attributional style, whereas among adolescents (eighth and ninth graders in this study) the impact of negative life events on of depression was moderated by attributional style.

Therapeutic applications. Methods of therapy have also been developed on the basis of the attributional analysis of depressive disorders presented by Abramson and colleagues. All of these efforts were based on the notion that depressive individuals distort reality in a typical manner. Specifically, it was assumed that their causal attributions are not in line with Kelley's covariation model, but that they favor internal, stable, and global causes for failure, irrespective of the situational conditions. Accordingly, teaching depressive individuals to make attributions that conform to the covariation model would seem to be a promising therapeutic intervention. In this framework, patients are first asked to describe in detail a specific experience of failure and then to look for covariation information that contradicts their attributional style, e.g., to make themselves

aware of who else failed on the task, of how often they had succeeded on the same task in the past, and of the similar tasks they had already mastered successfully. Such perceptions of high consensus, high distinctiveness, and low consistency in turn point to an external, specific, and variable attribution (for a summary, see Stiensmeier-Pelster & Grüner, 2005).Changing a negative attribution style can also positively affect learning behavior and performance. If students, for example, struggle with a task and explain their difficulties with internal-stable-uncontrollable causes (e.g., "I am stupid."), they will probably stop trying. If they are instructed to attribute their difficulties to internal-variable-controllable causes, however, they are more likely to give it another try. This increases their chances of being successful in the end. In the past attribution trainings have been shown to yield positive results. Unfortunately, practitioners have not yet started to use them on a regular basis (for an overview, see Chodkiewicz & Boyle, 2014). Moreover, available training options require further optimization. When the purely cognitive procedure was, for example, combined with operant methods – i.e., when new skills were taught and acquired (see the example) – there were marked improvements in the programs' outcomes.

Example

A student who does badly in mathematics attributes his failure to internal, stable, and global causes. In consequence, he will expect to keep getting bad grades, see no reason to make an effort, and may even develop other depressive symptoms (e.g., impaired self-esteem). If it is possible to change that student's failure attributions for the better by means of attribution training, such that he now attributes failure to external, variable, and specific causes, he will respond to the next bad grade by remaining confident of future success and being prepared to keep on trying. If, however, we have not backed up the attribution training program by improving his mathematics skills (e.g., by providing coaching), he will continue to get bad grades, and it will only be a matter of time until he reverts to his old attributional style. We can only genuinely help the student by enhancing his ability as well as modifying his attributional style.

15.4.3 Attributional Analysis of Aggressive Behavior

Aggressive behavior may be either instrumental and proactive (aggression serving the pursuit of goals; e.g., one student hits another to exert power) or reactive and emotional (aggression in response to negative emotional arousal, especially anger or rage, cf. Berkowitz, 1993) in nature. Attributional considerations are relevant in the context of reactive, emotional aggression. One approach that has proved very successful in explaining the emergence of this form of aggression over the past 15 years holds that aggression results from deficits in social information processing (for a summary, see Dodge et al., 2006). Specifically, reactive-aggressive children and adolescents are assumed to differ from their non-aggressive peers in the way they interpret conflict situations.

- Aggressive children are thought to exhibit what is known as a "hostile bias" (see above), i.e., to assume people who cause them harm to have done so on purpose or to see the harmful behavior of others as controllable.

Based on the theoretical ideas and empirical findings of Dodge's research team, and drawing on Weiner's attributional analysis of motivation, emotion, and behavior, Graham and her colleagues (Graham et al., 1992; Graham, Taylor, & Hudley, 2015; Graham, Weiner, & Benesh-Weiner, 1995) presented an attributional theory of reactive-aggressive behavior, almost 20 years ago which has generated much research and drawn

attention to possible points of intervention (for a summary, see Rudolph et al., 2004; Weiner, 2006).

In principle, like Weiner's model, the theory assumes that a person's behavior and experience in social interactions are conditional on the causes to which the situation's emergence is ascribed, that this causal attribution elicits a certain emotion, and that this emotion in turn motivates a certain behavior. Where reactive-aggressive behavior is concerned, the cause inferred for behavior is less relevant than its perceived controllability and intentionality. What really matters is whether the causes of the damage are perceived as being subject to the actor's control (controllability) and whether the harmful behavior or its consequences were intended by the actor (intentionality).

In fact, in the case of reactive-aggressive behavior, it is assumed that the more strongly people who have been harmed believe that the harmful behavior was subject to the actor's control or even intentional, the more anger they will feel toward the actor. The more anger they feel, the more likely they will be to respond with reactive-aggressive behavior. This assumption has been supported by numerous empirical studies and is now widely accepted (for a summary, see Brees, Mackey, & Martinko, 2013).

These hypotheses have been confirmed in several empirical studies (for a summary, see Rudolph et al., 2004). For example, Stiensmeier-Pelster and Gerlach (1997) showed that the anger felt by both aggressive and nonaggressive adolescents toward a peer who had caused them harm, as well as their desire for retribution (i.e., their tendency to engage in reactive-aggressive behavior), increased as a function of their belief that the peer was responsible for the (harmful) behavior. Whether or not the adolescent who inflicted the harm was considered aggressive was immaterial. Congruent with the attributional theory of aggressive behavior, the authors were also able to show that attribution determines anger and that anger in turn determines the tendency to show an aggressive response. Betancourt and Blair (1992) reported comparable findings from a study with college students. Furthermore, these authors were able to show that anger alone, i.e., anger without the antecedent attribution, does not explain differences in the level of aggression.

The study by Stiensmeier-Pelster and Gerlach (1997) yielded two further important findings:

1. In line with the assumptions of Dodge and Coie (1987), aggressive adolescents were shown to demonstrate a "hostile bias," ascribing far more responsibility than their nonaggressive peers to the person who caused the damage.
2. The person who caused the damage was ascribed less responsibility if he or she produced an excuse for the harm caused than if he or she kept quiet.

The excuse consisted in the actor (a) describing the sequence of events and citing an uncontrollable cause for the damage and (b) stating that he or she was sorry for the harm caused. When actors provided an excuse for their behavior, not only were they ascribed less responsibility, but the attributors also felt less anger and were less likely to respond with reactive-aggressive behavior.

The following study by Graham et al. (1995) also examined the role of excuse giving.

Study

Relationships   Between   Attribution, Emotion, and Behavior

Graham et al. (1995) investigated the extent to which children and adolescents have grasped the relationship between attribution (of controllability and responsibility), emotion (anger), and behavior (reactive aggression) and their appreciation of the effects of excuse giving (citing an uncontrollable cause) on this attribution-emotion-behavior sequence. Awareness of these relationships is an indicator for social competence or, to use Gardner's terminology, interindividual intelligence. Results show that primary school children are largely unaware of these relationships and that awareness increases with age in nonaggressive children but not in aggressive children. Hence, aggressive adolescents are less aware of these relationships than are nonaggressive adolescents. Given their

insufficient knowledge of the relationship between attribution, emotion, and behavior and the impact of excuse giving on the attribution-emotion-behavior sequence, aggressive children are less likely than nonagressive children to give excuses for any harm they cause. Consequently, it is often assumed (precisely because they do not give excuses) that these children could have controlled the cause of their harmful behavior. As a result, people show more anger toward them, and they are more likely to become victims of reactive aggression (cf. Graham et al., 1995).

Approaches to prevent aggressive behavior. Graham and colleagues did not stop at investigating the determinants of reactive-aggressive behavior; they went on to derive strategies of conflict prevention from their findings. The core idea of the intervention is to make children and adolescents more aware of how attributions influence emotion and behavior and to enable them to influence the attributions of others by making effective excuses and apologies, thereby reducing the occurrence of anger and, consequently, aggressive behavior (Graham et al., 2015). These interventions do not necessarily have to be directed solely at those who inflict harm on others but can also apply to those at the receiving end. It may be possible to overcome the well-documented "hostile bias" in aggressive children and adolescents by making them aware of the implications of this attribution tendency and encouraging them to apply a kind of "stop mechanism" ("Stop! Think carefully before you assign hostile intent to others") whenever they notice that they are making a hostile attribution.

Stiensmeier-Pelster and Assimi (2002) used the attributional analysis of aggressive behavior to explain gender differences in levels of aggressive behavior. In their study, students were first asked to describe a situation they had recently experienced in which somebody had caused them harm. They were then asked about certain attributions they had made in that situation (controllability/intentionality), the emotions they had

experienced (anger, annoyance), and the behavior they had displayed (direct physical aggression, direct verbal aggression, indirect aggression). In line with the literature (Björkqvist & Niemalä, 1992), it emerged that girls generally responded less aggressively than boys (congruent with the findings of previous studies by Björkqvist, Lagerspetz, and Kaukiainen (1992), the gender difference in direct aggression was particularly apparent). Furthermore, findings showed that both boys' and girls' aggression levels were explained by the attribution-emotion-behavior sequence postulated in the attributional theory of aggressive behavior.

• Hence, the mechanisms that produce reactive-aggressive behavior are the same in both boys and girls.

These results also correspond with the findings of Graham et al. (1992) and Stiensmeier-Pelster and Gerlach (1997). Both research groups found that the mechanisms leading to reactive aggression in habitually aggressive and in nonaggressive children and adolescents do not differ. Thus, there is reason to believe that the gender differences observed in aggression levels can be traced back to attributional or emotional differences.

Summary

Attributions influence behavior in a multitude of ways. For example, the expectancy of success is dependent not only on whether one's previous efforts resulted in success or failure but primarily on the causes to which that success or failure was attributed. Self-directed emotions are also dependent on attributions. We are not proud when we succeed, for example, but when we succeed and the causes for that success reside within ourselves. Likewise, interpersonal feelings are dependent on attributions. If somebody causes me harm, I am most likely to feel anger or rage if I assume he or she to have acted with intent or believe that he or she could have controlled the cause of his or her behavior. Finally, depressive responses to negative life events are particularly likely if those events are attributed to internal, stable, and global causes.

Review Questions

1. *What is the difference between attribution theories and attributional theories?*

   Attribution theories are concerned with how causal attributions are reached, whereas attributional theories deal with the effects of these attributions on people's subsequent behavior and experience.

2. *According to Weiner's attributional theory, when is a search for the causes of an action outcome initiated? Has there been any criticism of this assumption?*

   Weiner's model assumes that we seek to establish the causes of any event that is unexpected, negative, or important. Weiner's writings suggest that each of these three conditions is sufficient to initiate causal search. This assumption does not withstand careful analysis, however, as shown by the example of a student who always gets an E grade in mathematics tests. If this student obtains another E grade in his or her school-leaving mathematics exam, the outcome is indisputably important and negative, but it is expected and, as such, highly unlikely to elicit causal search.

3. *Which antecedent conditions can influence causal attributions?*

   Causal attributions can be influenced by antecedent conditions such as:
   - Specific information about the action outcome
   - Causal schemata
   - Hedonic bias
   - The perspective taken on the outcome (actor vs. observer perspective)

4. *Which causal factors are usually cited to explain academic performance?*

   The causal factors inferred for achievement-related outcomes include:
   - High or insufficient ability
   - High or insufficient effort
   - Task difficulty
   - Luck

5. *Which questions cannot be answered by Weiner's attributional analysis of motivation, emotion, and behavior?*

   Weiner's attributional analysis is unable to answer the questions of how long and intensive the search for causality will be and of the degree of accuracy accepted in the causal analysis.

6. *Which general equation did Heider use as the basis for his "naive" analysis of action, and how did he elaborate on this equation in the analysis?*

   Heider based his approach on Lewin's general behavioral equation, which states that behavior is a function of personal and environmental forces. He subdivides the personal force into "trying" (variable) and "ability" (fixed), where trying is the product of intention and exertion. On the environmental side, Heider posits one fixed primary dimension – difficulty – which, from time to time, may be influenced by chance (good or bad luck, variable). The difference between ability and difficulty gives the concept of "can."

7. *According to Jones and Davis, which steps may lead to an attribution of intention?*

   Jones' and Davis' model of correspondent inferences identifies three steps that may lead to an attribution of intention:
   - Confirming two prerequisites: the actor must have had prior knowledge about the outcome of the action, and the actor must have the ability to bring about the result.
   - Determining which consequences – or effects – of the action outcome might

(continued)

have motivated the actor to bring about this particular outcome.

- Estimating the action outcome's general desirability for the group to which the actor belongs.

8. *According to Kelley's covariation model, which are the four criterion or information dimensions used to infer the cause of a given action?*

Kelley's four criterion dimensions are:
- Distinctiveness of entities
- Consensus (agreement between different people)
- Consistency of behavior across time
- Consistency across different modalities

9. *What is the precondition for motivational bias in attribution, and when is it particularly apparent?*

Motivational bias can occur when an attribution touches on self-esteem in which case self-serving interests may distort the logical and rational use of information. It is particularly apparent after success and failure, with success being ascribed to person factors, and failure to external causes.

10. *What reasons do Miller and Ross (1975) propose for a rational, nonmotivational bias in information processing in self-attributions? Have their assumptions been confirmed in empirical studies?*

Miller and Ross gave three reasons for rational information processing in self-attributions:
- People expect their endeavors to produce success rather than failure; accordingly, they are more likely to take responsibility for expected than for unexpected outcomes.
- People perceive stronger covariation between their efforts and increasing

successes than under conditions of repeated failure.
- People have an erroneous conception that there is a tighter contingency between their effort and success than between their effort and failure. However, studies have shown that these reasons cannot fully invalidate a motivational basis for the asymmetry of self-serving attributions.

11. *How do differences in the self-concept of ability influence the attribution of failure? Are these findings compatible with the hypothesis of a motivational bias in information processing in the attributional process?*

The findings of attribution research indicate that individuals with a low self-concept of ability tend to attribute failure to a personal lack of ability. By contrast, individuals with a high self-concept of ability tend to ascribe failure to external factors, such as bad luck. These findings are difficult to reconcile with the notion of a self-serving bias in information processing that serves to protect self-esteem. If this kind of bias were in operation, individuals with a low self-concept of ability would also tend to attribute success to high ability and failure to bad luck. This is demonstrably not the case, however.

12. *What is the perspective discrepancy and what are the reasons for it?*

The perspective discrepancy describes the observation that actors tend to attribute their actions to situation factors, whereas observers attribute those same actions to person factors. There seem to be two main reasons for this phenomenon:
- Differences in the focus of attention and differences in the amount of context information. The actor's attention

is focused on aspects of the situation; the observer's attention is on the actor.

- Furthermore, the actor has far more information than the observer about the current situation: its precedents and background.

13. *Which motivational variable is influenced by the attribution dimension of generality?* Which dimensions were collapsed to form the generality dimension in research on the explanatory power of the attribution theory model of learned helplessness?

    The perceived generality of a causal factor determines the extent to which expectancies are generalized across time as well as across task domains or situations. Because stability and globality ratings have repeatedly been found to be very closely related, these two dimensions were collapsed to form the generality dimension.

14. *What can be said about the attributional behavior of depressive individuals?*

    Depressive individuals seem to distort reality in a typical manner. Their causal attributions do not seem to be in line with Kelley's covariation model; rather they

seem to favor internal, stable, and global causes for failure, regardless of the situational conditions.

15. *What mistake do reactive-aggressive people seem to make on a regular basis?*

    Reactive-aggressive people often exhibit a "hostile bias," meaning that they tend to assume the people who cause them harm to have done so with intent and are more likely to assume that the harmful behavior was controllable.

16. *What role do excuses play in reactive-aggressive behavior?*

    People who give excuses for any harm they cause are ascribed less responsibility for the outcome and are thus less likely to be exposed to aggressive behavior. Aggressive children seem to be less likely to give excuses for any harm they cause. Consequently, people often assume that they could have controlled the cause of their harmful behavior. As a result, people show more anger toward them, and they are more likely to become victims of reactive aggression. Excuses and apologies thus serve to stop a conflict from escalating.

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