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## Stereotype Confirmation and Disconfirmation

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**S**tereotypes are the knowledge, beliefs, and expectations we hold about human groups (e.g., Hamilton & Sherman, 1994; Hamilton & Trolie, 1986). As matters of great practical and theoretical interest, over the past 35 years there has been a tremendous amount of research examining the processes by which stereotypes influence social cognition and behavior. Much of this research has focused on the manner in which evidence consistent or inconsistent with stereotypic beliefs is perceived, judged, and remembered, and whether and how stereotypes may (or may not) change in response to this information. Our purpose in this chapter is to summarize this research and relate it to classic conceptions in cognitive consistency theories, particularly cognitive dissonance theory. We focus specifically on research that has compared the processing of stereotype-confirming and -disconfirming information. Due to space constraints, it is impossible to provide an exhaustive account of the relevant research. Instead, we focus on important examples to illustrate broader points.

To anticipate what follows, this literature has produced overwhelming evidence that stereotypes are self-perpetuating via a variety of cognitive

and behavioral processes that function to reinforce existing beliefs (Hamilton & Sherman, 1994; Hamilton, Sherman, & Ruvolo, 1990). These outcomes certainly reflect the sorts of findings associated with the cognitive consistency tradition. Inconsistencies between cognitions (existing stereotypes and disconfirming individuating information) are resolved via cognitive and behavioral processes that assimilate the individuating information to the stereotype. Yet the goals and motives invoked to account for these effects have been quite different than those proposed by classic consistency theories (e.g., cognitive dissonance theory, balance theory). Specifically, the goal most frequently ascribed to perceivers is defense of the stereotype and not consistency per se; that is, though upholding the stereotype results in cognitive consistency, the desire for consistency is not responsible for the assimilation processes. Rather, because stereotypes serve a variety of useful functions, people are thought to be reluctant to relinquish them. Among other functions, they provide a means to disambiguate complex social stimuli, predict others' behavior, and direct our own behavior in a cognitively efficient fashion (for a review, see Hamilton & Sherman, 1994). They also offer ego protection and enhancement (e.g., Fein & Spencer, 1997; Tajfel & Turner, 1986) and system justification (e.g., Jost, Banaji, & Nosek, 2004), and can be a source of social identity (e.g., Pickett, Bonner, & Coleman, 2002).

Stereotype confirmation processes also may occur in the absence of any motivation beyond a desire to perceive the world accurately. In these cases, the stereotype simply functions as a mental framework or schema for comprehension that influences what kinds of information are perceived as useful, how we interpret that information, how we mentally represent and remember that information, and so forth, in ways that perpetuate the stereotype (e.g., Hamilton & Sherman, 1994; Lippmann, 1922). Of course, the different goals and motives that produce stereotype confirmation are not mutually exclusive, and are likely to operate in parallel on many occasions. Given the omnipresence of consistency theories across areas of social psychology, it is somewhat surprising that stereotype confirmation has rarely (if ever) been explicitly framed in those terms. Theoretically, it is not difficult to adapt the stereotype defense argument to the broader framework of dissonance theory. According to dissonance theory, one important means of resolving conflict between incompatible cognitions is by altering the cognition that is least resistant to change (Festinger, 1957; Harmon-Jones & Harmon-Jones, 2007). Certainly, one factor that determines which of two conflicting cognitions is more resistant to change is the functional value (and corresponding positive evaluation) associated with that cognition. From this viewpoint, one important reason why counter stereotypic information is assimilated to the stereotype (and not vice versa) is because the stereotype is more resistant to change due to its established functional value. Nevertheless, whether through the prism of defense motivation or otherwise, there have been few attempts to test directly the extent to which motivations for cognitive consistency are responsible for stereotype confirmation.

Framing stereotype confirmation processes in terms of dissonance theory offers more than an idle mental exercise for stereotype researchers. First, it may help to provide an overarching framework for integrating conflicting findings on stereotype confirmation. Though the majority of research indicates that disconfirming information is assimilated to the stereotype, there is now substantial evidence that, under some circumstances and in some ways, people are quite responsive to stereotype-disconfirming information (as described below). To be sure, the usefulness of stereotypes for interpreting the environment and preparing behavior must be tied to the accuracy of those stereotypes; therefore, people ought to be responsive to evidence that challenges that accuracy. From the common view that people seek to defend their stereotypes via confirmation processes, such findings are problematic. But from the broader perspective of consistency theories, these seemingly contradictory results may be reconciled. Assimilation of and responsiveness to stereotype-disconfirming information both serve to reduce the discrepancy between existing knowledge and novel information, promoting cognitive consistency. Thus, it would seem that achieving consistency is an overarching metamotive, and that the manner in which consistency is pursued depends on context- and person-specific motives. Two important goals, then, are to specify the processes through which assimilation of and responsiveness to disconfirmation are achieved, and to identify the moderators that influence the direction of discrepancy reduction.

Second, the dissonance framework offers a wealth of conceptual tools that may help to explain the prevalence of stereotype confirmation and offer possible tools to shift inconsistency resolution in the direction of stereotype disconfirmation. For example, if dissonance-related arousal contributes to stereotype confirmation, then misattribution of that arousal may permit greater levels of disconfirmation. As another example, if conflict arising from disconfirming information produces ego threat, then it may be possible to encourage disconfirmation via self-affirmation exercises. Though there are data consistent with each of these proposals (e.g., Fein & Spencer, 1997; Mendes, Blascovich, Hunter, Lickel, & Jost, 2007), a specific role for dissonance reduction motives has not been suggested or tested. Direct examination of the role of dissonance may uncover novel and potent means to encourage stereotype change.

At the same time, the stereotype literature may inform research on cognitive dissonance in useful ways. Research on stereotype confirmation has been particularly effective at identifying the specific cognitive processes that promote confirmation or disconfirmation. Application of these process models may help to clarify further the mechanisms underlying dissonance reduction processes. Relatedly, a number of important moderators of stereotype confirmation described in this chapter having to do with cognitive processing, mental representations, and processing motives may be profitably applied to deepen our understanding of cognitive dissonance.

## OVERVIEW

Our overview of stereotype confirmation and disconfirmation is organized according to classic information-processing stage models. Thus, we advance through a sequence of information seeking, attention, encoding, mental representation, memory, individual judgment, and, finally, group judgments (stereotype change) in describing stereotype confirmation (and disconfirmation). Of course, this is not meant to suggest that these processes necessarily (or even typically) proceed in a sequential (vs. parallel or iterative) fashion; it is simply a convenient organizational structure.

As we progress through these topics, we describe three important types of moderators that influence the nature and direction of discrepancy reduction where relevant: motivational moderators, cognitive process moderators, and cognitive representation moderators. *Motivational moderators* are affectively charged motives and goals that encourage people to respond to stereotype-relevant scenarios in a particular way. For example, people may be motivated to defend stereotypes because they reinforce the superiority of ingroups over outgroups. One important source of this motivation is prejudice—people's attitudes toward groups and their members. Whereas stereotypes reflect people's knowledge and beliefs, prejudice reflects the positive or negative feelings associated with social groups. As illustrated below, these feelings influence the extent of stereotype confirmation and disconfirmation. *Cognitive process moderators* are factors that directly influence the extent and nature of ongoing information processing. Though these moderators may impinge upon ongoing motives and direct processing in a particular direction, they are not inherently motivational. For example, the effects of cognitive load on stereotyping have been widely studied. Finally, *cognitive representation moderators* refer to individual variability in held stereotypes and differences in the nature of targets of stereotyping. For example, people differ in the strength with which they associate groups and stereotypic attributes.

## INFORMATION SEEKING AND SELECTIVE EXPOSURE

A number of studies have shown that stereotypes bias the kinds of information people seek in a manner that reinforces their expectancies (Johnston, 1996; Johnston, Hewstone, Pendry, & Frankish, 1994; Johnston & Macrae, 1994; Snyder, Campbell, & Preston, 1982; Trope & Thompson, 1997; Wyer, 2004). These studies show that, when given the choice to learn about group members who confirm versus disconfirm a stereotype, people prefer to learn about confirmers or to ask questions of group members that are likely to produce confirmation. However, this effect is moderated by a number of important motivational variables. For example, the bias is reduced if participants are encouraged to be accurate (Johnston, 1996), if they are sensitized to impression management concerns (Snyder et al., 1982), if they expect

future interactions with a group member (Johnston et al., 1994), or if they are told that they will have to justify negative impressions to a subsequent audience (Johnston, 1996). Furthermore, a bias toward disconfirmation has been observed among individuals with low levels of prejudice (Wyer, 2004). Thus, when properly motivated, people exhibit either a balanced information-seeking strategy or even a bias toward disconfirmation. Each of these motivational variables may be viewed as encouraging accurate (and, therefore, balanced) processing, and a greater willingness to risk exposure to cognitive inconsistency (e.g., Johnston, 1996; Neuberg & Fiske, 1987; Sherman, Stroessner, Conrey, & Azam, 2005; Tetlock & Kim, 1987). In the absence of such motives, the tendency is to avoid cognitive conflict by seeking confirming information (see Table 19.1).

### PROCESSING FLUENCY AND AFFECTIVE RESPONSES

In contrast to studies on information seeking, the vast majority of research on stereotype confirmation–disconfirmation has employed procedures in which stereotype-congruent and -incongruent information is presented to participants who are asked to process the information with some particular goal in mind. Thus, these paradigms seek to understand people's reactions to stereotype-relevant information when they are exposed to it without choice. One of the most basic questions surrounds the affective experiences produced by confirmation and disconfirmation. In general, disruptions in processing fluency (e.g., as induced by expectancy violation) produce negative affect (Reber, Schwarz, & Winkielman, 2004). Beyond general negative affect, exposure to individuals behaving in counterstereotypic ways or interacting with individuals who violate (vs. confirm) stereotypes has been shown to produce psychological (e.g., Förster, Higgins, & Strack, 2000; Förster, Higgins, & Werth, 2004) and physiological responses (e.g., Mendes et al., 2007) indicative of threat. Such negative arousal suggests an important link between stereotype disconfirmation and the experience of cognitive dissonance, and offers one possible explanation as to why people seek either to avoid cognitive inconsistency or restore consistency (in whichever direction) when it is threatened by counterstereotypic information.

### ATTENTION

The initial sensation of processing fluency or dysfluency (and the negative affect that accompanies it) is an important determinant of subsequent processing. Whereas the subjective experience of fluency signals that expectancies and other knowledge structures are adequately explaining ongoing events, dysfluency alerts us to the possibility that current knowledge may be inadequate (e.g., Johnston & Hawley, 1994). As such, exposure to expectancy-

**TABLE 19.1. Stereotype Confirmation versus Disconfirmation Outcomes of Cognitive Processes as a Function of Motivational, Cognitive Process, and Mental Representation Moderators**

		Type of moderator					
		Motivational		Cognitive process	Mental representation		
Type of process	General outcome	Accuracy: incremental theory; absence of power; outcome dependency; accountability	Defense: entity theory; prejudice; power	Cognitive load/ disrupted processing/ heuristic processing	Expectancy strength: stereotypic associations; target type (individual vs. group)	Stimulus ambiguity	Target typicality
Information seeking	Confirmation	Less confirmation					
Attention	Varies	More disconfirmation	More confirmation	Magnifies directional bias	More confirmation with no cognitive load; more disconfirmation with cognitive load		
Categorization	Confirmation		More confirmation			More confirmation	More confirmation
Conceptual Encoding	Confirmation	Less confirmation	More confirmation	Magnifies directional bias	More confirmation	More confirmation	More confirmation
Perceptual Encoding	Disconfirmation			Magnifies directional bias			
Attributions	Confirmation	Disconfirmation or no bias	More confirmation		More confirmation		
Linguistic	Confirmation						

(continued)

TABLE 19.1. (continued)

Type of process	General outcome	Type of moderator					
		Motivational		Cognitive process	Mental representation		
		Accuracy: incremental theory; absence of power; outcome dependency; accountability	Defense: entity theory; prejudice; power	Cognitive load/ disrupted processing/ heuristic processing	Expectancy strength: stereotypic associations; target type (individual vs. group)	Stimulus ambiguity	Target typicality
Mental representation	Confirmation						
Memory: recall	Disconfirmation			Less disconfirmation	More disconfirmation	Less disconfirmation	
Memory: recognition accuracy	Disconfirmation	More disconfirmation	Confirmation	More disconfirmation	More disconfirmation	Less disconfirmation	
Retrieval biases	Confirmation			More confirmation			
Source memory	Disconfirmation			More disconfirmation			
Judgment	Confirmation	Less confirmation or no bias	More confirmation	More confirmation	More confirmation	More confirmation	
Stereotype change (absence of disconfirmation)	Confirmation	More disconfirmation	Less disconfirmation	More disconfirmation	Less disconfirmation for strong expectancies; more disconfirmation for group-level information		More disconfirmation

Note. The outcome of a given process may be independent of target impressions and judgments. For example, although attention may be directed toward disconfirming information, this does not result in stereotype disconfirmation as assessed by trait judgments.

disconfirming information may be expected to provoke greater attention than exposure to confirming information. Indeed, there is now considerable support for this prediction in research on expectancies that are not related to stereotypes (e.g., Roese & Sherman, 2007). Yet in the domain of stereotypes, the story is much less clear, with some studies demonstrating attentional biases favoring confirming information, others demonstrating disconfirming biases, and still others showing no particular bias. Contributing to the complication is that it can be difficult to interpret the meaning of attention. In some cases, people may preclude challenges to existing stereotypes by avoiding stereotype-disconfirming information and shifting attention to confirming information. In other cases, people may attend very carefully to stereotype-disconfirming information but with the goal of explaining it away in order to diminish its impact (e.g., Sherman et al., 2005). Attention is being focused in opposite directions in the two cases, but for the same purpose—to resolve potential cognitive conflict in favor of the existing stereotype. Thus, the meaning of attentional bias must be inferred from other aspects of the data and other features of the participants and context.

One measure of attention that has been used in this research is recognition memory accuracy. Because it controls for response biases (which measures of free recall fail to do), accurate recognition is a clear indicator of the extent to which information has been effectively encoded into memory. Though Woll and Graesser (1982; see also Macrae, Schloersheidt, Bodenhausen, & Milne, 2002) demonstrated superior recognition for stereotype-incongruent rather than -congruent stimuli, numerous other studies have shown no such differences (e.g., Sherman & Frost, 2000; Sherman, Lee, Bessenoff, & Frost, 1998b; Sherman, Stroessner, Lofitus, & DeGuzman, 1997; Stangor, 1988). Moreover, using the dot-probe task, a more direct measure of attention, Sherman, Conroy, and Groom (2004, see also Eberhardt, Goff, Purdie, & Davies, 2004) found that greater attention was devoted to stereotype-confirming than to -disconfirming information.

### Attention and Stereotype Confirmation

Though the results described earlier do not provide a clear answer to the question of attentional bias, a number of important moderators have been shown to shift attention toward confirming or disconfirming information. On the confirmation side of things, those with stronger stereotypes (i.e., stronger implicit associations between a social group and its stereotype) attended more carefully to confirming than to disconfirming information on a dot-probe task (Allen, Sherman, Conroy, & Stroessner, 2009; Donders, Correll, & Wittenbrink, 2008).

A number of motivation-relevant variables also encourage attentional confirmation. First, people placed in a position of power demonstrate an attentional bias toward stereotype-congruent information, as measured by the time spent responding to different pieces of information, presumably

because the powerful have diminished concern to perceive others accurately (Goodwin, Gubin, Fiske, & Yzerbyt, 2000). Other motivational influences on attentional confirmation would seem to have more to do with stereotype defense. People with an *entity theory* of the malleability of human character demonstrated attentional biases favoring stereotype-confirming information on measures of recognition memory (Plaks, Stroessner, Dweck, & Sherman, 2001). A measure of attention during a dichotic listening task demonstrated that this bias became increasingly strong as disconfirming information accumulated (Experiment 4). Because entity theorists seek and value stable, trait-like impressions of others, they favor information that enhances the perceived stability of behavior (e.g., stereotype-congruent information) and may be threatened by information that challenges perceived stability (e.g., stereotype-incongruent information).

On the face of it, prejudice seems to influence attention in just the opposite way. Specifically, higher levels of prejudice (negative attitudes toward a group) were shown to be associated with increased attention toward disconfirming and away from confirming information in a dot-probe task (Sherman et al., 2005). However, in this case, other data make clear that the purpose of the attention was to explain away the disconfirming behaviors. Specifically, higher levels of prejudice were associated with making dispositional attributions for confirming behavior and situational attributions (an attention-demanding process) for disconfirming information, in order to explain it away. An additional important finding was that, when placed under a cognitive load, the attentional bias associated with prejudice was eliminated. Thus, when prejudiced participants were unable to devote the resources necessary to explain away disconfirming information, they stopped attending to it. Further confirming this interpretation are results showing that those with both a high level of prejudice and a prevention focus (which is associated with a motivation to avoid goal conflict) are especially likely to attend to stereotype-incongruent versus -congruent information (Förster et al., 2000). This effect is enhanced when participants expect to meet the target, creating a situation of high social relevance (Förster et al., 2004), and is mediated by feelings of agitation aroused by exposure to the information. Altogether, it is clear that attention may reflect defensive motivations to understand and/or explain away disconfirming information.

### Attention and Stereotype Disconfirmation

Important moderating variables also have been associated with a stereotype-disconfirming pattern of attention. People motivated by accuracy because they are outcome-dependent with a target or low in power attend more carefully to disconfirming information, as measured by reading times (Dépret & Fiske, 1999; Erber & Fiske, 1984; Neuberg & Fiske, 1987; Rusccher & Fiske, 1990). In contrast to those with an *entity theory*, participants with an *incremental theory* of the malleability of human character demonstrated attentional

biases favoring stereotype-disconfirming information (Plaks et al., 2001). Because incremental theorists seek to explain behavior in terms of situational rather than stable, internal variables, they favor information that enhances the perceived malleability of behavior (e.g., stereotype-incongruent information) and may be threatened by information that challenges perceived malleability (e.g., stereotype-congruent information).

Another variable that has received considerable interest in terms of attentional disconfirmation is cognitive load. Experiments using both recognition memory (e.g., Sherman & Frost, 2000; Sherman, Lee, et al., 1998) and dot-probe tasks (e.g., Sherman et al., 2004; Sherman, Lee, et al., 1998) have shown that attention shifts away from stereotype-confirming and toward stereotype-disconfirming information when processing capacity is depleted. Initially, these results were quite surprising. Prior to these studies, cognitive load had been considered a variable that would shift attention and processing, in general, toward stereotype confirmation. Because stereotype-inconsistent information is difficult to process, a common expectation was that perceivers would be reluctant to attend to it when capacity is low, preferring instead to attend to easily understood stereotype-consistent information. This prediction stemmed from the *cognitive miser* view that social perceivers generally expend as little cognitive effort as necessary. This prediction also derived from the view that perceivers seek to defend their stereotypes from disconfirming information, and that if people lack the cognitive resources to explain it away, they simply ignore such information (for reviews, see Sherman, 2001; Sherman, Lee, et al., 1998; Sherman, Macrae, & Bodenhausen, 2000).

In contrast to this prediction, Sherman's encoding flexibility model (EFM; Sherman, 2001; Sherman & Frost, 2000; Sherman, Lee, et al., 1998; Sherman et al., 2004) argues that when motivated by accuracy, people perceive stereotype-incongruent information as particularly valuable, because it provides novel information that is not already offered by existing stereotypes. Given the relatively greater informational "value" of disconfirming versus confirming information, the EFM predicts that when capacity is depleted, attention shifts away from stereotype-consistent and toward -inconsistent information, a prediction that has found a good deal of support (e.g., Allen et al., 2009; Sherman & Frost, 2000; Sherman, Lee, et al., 1998; Sherman et al., 2004).

### Cognitive Load Enhances Attentional Biases

Key to this prediction is the assumption that the standard instructions to form an impression of the target provoke a motivation to perceive the target accurately. Given such a motive, the central idea of the EFM is that when resources are depleted, effective pursuit of accuracy requires a more efficient distribution of processing resources, resulting in an attention shift toward disconfirming information. Of course, people do not always have the motive

to perceive others accurately. In those cases, cognitive load would not necessarily be expected to shift attention toward stereotype-inconsistent information. For example, as described earlier, higher levels of prejudice are associated with increasing attention toward disconfirming information for the purpose of discounting it. However, when placed under a cognitive load, this relationship no longer holds. When deprived of the resources to discount disconfirming information successfully, those with higher levels of prejudice lose the impetus to attend carefully to it (Sherman et al., 2005).

Cognitive load has analogous effects on those motivated by entity and incremental theories of human behavior. Under conditions of full capacity, entity theorists show an attentional bias toward confirming information, whereas incremental theorists show an attentional bias toward disconfirming information. These tendencies were magnified when participants were cognitively depleted (Plaks et al., 2001). These studies demonstrate that stereotypes are efficient processing tools that may be applied to differing degrees, depending on the availability of attentional resources for the task at hand. When cognitive load interferes with goal pursuit, stereotypes may be recruited to facilitate achieving the motive.

In some cases, however, cognitive load may alter the nature of perceivers' ongoing processing goals and, therefore, the direction of their attentional bias. For example, stronger stereotypic associations predicted increasing attentional confirmation under conditions of full capacity but increasing attentional disconfirmation when capacity was depleted (Allen et al., 2009). Why might this be? Those with strong stereotypic associations do not necessarily possess any particular animus toward the target of their stereotypes. Indeed, there often appears to be little to no correlation between stereotyping and prejudice (Amodio & Devine, 2006; Park & Judd, 2005; Sherman et al., 2005). As such, association strength should not be expected to be indicative of a motive to maintain the stereotype. Thus, the results of Allen et al. (2009) seem to suggest that the imposition of a cognitive load acted as an impetus among those with strong stereotypes to use those stereotypes to maximize the identification of and attention to disconfirming information for the purpose of accurately perceiving the target. Perhaps the baseline effect of strong stereotypes is to filter information in a manner that confirms the stereotype. After all, for those with stronger stereotypes, confirming information will be particularly fluent and disconfirming information will be particularly dysfluent. However, when capacity is depleted, an accuracy goal (e.g., as implemented via an impression formation instruction) demands that the stereotype be used to shift attention in the opposite direction to ensure capture of expectancy violations.

### Summary of Attention Data

Perceivers' intentions can be difficult to judge from attention data. Greater attention to consistent (vs. inconsistent) information may reflect efforts to

avoid information that threatens existing beliefs. At the same time, greater attention to inconsistent information may reflect attempts to explain away or minimize the impact of that information. In either case, the result is maintenance of the existing stereotype. There are a number of important moderators of the likelihood of confirmation versus disconfirmation (see Table 19.1). To the extent that perceivers are motivated to defend their stereotypes (e.g., if they are prejudiced, have entity theories, enjoy power) or have strong expectancies, confirmation is more likely. In contrast, to the extent that perceivers are motivated to perceive people accurately (e.g., if they are low in prejudice, have incremental theories, lack power, are outcome-dependent), disconfirmation is more likely. These tendencies are magnified by the presence of a cognitive load, which can also reverse the effects of expectancy strength. In terms of dissonance theory, these moderators may be conceived as shifting the perceived favorability, value, and functionality of stereotypes versus stereotype-disconfirming information in a manner that biases inconsistency resolution in favor of one or the other type of knowledge/information. However, no clear empirical research directly examines the role of dissonance-related motives in these effects.

## ENCODING

Encoding involves the transformation, as well as the transfer, of information into memory. Many specific processes constitute and contribute to encoding, a number of which are highly relevant to the processing of stereotype-relevant information. In this section, we cover a number of these, including categorization, perceptual encoding, conceptual encoding (including inference and interpretation), linguistic encoding, and attribution.

### Categorization

Target stereotypicality affects the likelihood that the stereotype-relevant category will be made accessible to perceivers (for a review, see Rothbart & John, 1985). For example, Locke, Macrae, and Eaton (2005) demonstrated that racial categories are more likely to become accessible from observing typical—rather than atypical-looking category members. Similarly, Hugenberg and Bodenhausen (2004) showed that angry, racially ambiguous faces were more likely to be categorized as Black, whereas ambiguous happy faces were more likely to be categorized as White. The extent of this effect was positively correlated with implicit prejudice, implicating defense motivation as a contributor to the effect. Stroessner, Haines, Sherman, and Kantrowitz (2010) showed that both stereotype-consistent and -inconsistent scenes activated relevant categories. It is unsurprising that stereotypic behavior would increase category accessibility but somewhat unexpected that counterstereotypic behavior would do the same. Stroessner et al. argued that because dis-

confirming information provokes attention and scrutiny, the category that is the source of the stereotypic expectancy becomes more salient as perceivers attempt to come to terms with its violation. In this way, disconfirming information provokes the salience of inconsistent thoughts and, presumably, efforts to resolve them.

### Perceptual versus Conceptual Encoding

Whereas *perceptual encoding* refers to extraction of the physical details and contextual specifics of incoming information, *conceptual encoding* refers to extraction of the abstract gist meaning of the information (Richardson-Klavehn & Bjork, 1988; Roediger, 1990; Sherman, Lee, et al., 1998). The EFM (e.g., Sherman, 2001; Sherman, Lee, et al., 1998) proposes that because it fits with prior expectancies and is easily understood, stereotype-confirming information enjoys an advantage in conceptual encoding; that is, perceivers are better able to extract the gist meaning of confirming than of disconfirming information. Moreover, because it confirms what is already known, there is no need to encode the specific details of stereotype-consistent information; extracting the gist meaning and matching it to the stereotype is sufficient (see also Johnston & Hawley, 1994; von Hippel, Jonides, Hilton, & Narayan, 1993). In contrast, because disconfirming information is particularly difficult to comprehend, attention (as already described) and perceptual encoding are directed toward stereotype-inconsistent information to help ensure that even if its abstract meaning cannot be extracted, at least it will remain available for later inspection, consolidation, and potential use (more on this below). These effects are all expected to be stronger when processing resources are depleted and the difference in comprehension of confirming and disconfirming information is most acute. It is particularly under these circumstances that attention and perceptual encoding will be aimed at disconfirming information to aid its encoding (given the goal of forming an accurate target impression). Sherman, Lee, et al. (1998) demonstrated superior perceptual encoding of disconfirming over confirming information using a perceptual priming task. Using a graphemic cued recognition task, Sherman et al. (2004) showed that this perceptual encoding advantage was especially strong when participants encoded the information under a cognitive load.

### Conceptual Encoding and Construal

The conceptual encoding advantage enjoyed by confirming over disconfirming information is reflected in a variety of different processes. First, people are better able to detect stereotype-congruent than -incongruent information in the environment. For example, people are better able to identify weapons following presentation of a Black face than a White face (e.g., Correll, Park, Judd, & Wittenbrink, 2002; Eberhardt et al., 2004; Payne, 2001). This effect is positively related to the accessibility of the stereotype (Correll et al., 2007)

and the extent to which people believe the stereotype is evidenced by the culture, demonstrating that representational factors moderate this effect. It also is magnified when people are required to respond quickly, are cognitively depleted, or are made anxious by a public context (for reviews, see Payne, 2008; Sherman, Klauer, & Allen, 2010). These latter effects all indicate that the conceptual encoding advantage for stereotype-confirming information is greater when processing capacity is low.

People also construe stereotype-confirming and -disconfirming information differently. For example, people more readily perceive anger in Black than in White faces, and the extent of this effect is correlated with implicit prejudice (Hugenberg & Bodenhausen, 2003). Similarly, people are more likely to draw confirming than disconfirming inferences from the same behavior (Dunning & Sherman, 1997), a bias that is magnified when the behavior in question is ambiguous (e.g., Darley & Gross, 1983; Duncan, 1976; Kunda & Sherman-Williams, 1993; Sagar & Schofield, 1980). Moreover, such effects occur spontaneously and without intent. Sherman, Lee, et al. (1998) showed that stereotypic traits are more likely to be primed by confirming behaviors than are counterstereotypic traits to be primed by disconfirming behaviors. In this case, consistent with the EFM (Sherman, Lee, et al., 1998), the effect was observed only under high cognitive load conditions. Related effects show that perceivers are more likely to draw spontaneous trait inferences from stereotype-consistent than from stereotype-inconsistent behaviors (e.g., Wigboldus, Dijksterhuis, & van Knippenberg, 2003), and that this effect is magnified by cognitive load (Wigboldus, Sherman, Franzese, & van Knippenberg, 2004). Finally, perceivers differentiate between high- and low-credibility sources only when they provide stereotype-disconfirming information (Macrae, Shepherd, & Milne, 1992). When confirming information is provided, the credibility of the source does not affect its impact. Thus, people set a more restrictive acceptance threshold for disconfirming information.

Even when results appear to suggest a bias toward disconfirmation, assimilation to stereotypes may be driving the effects. Biernat and her colleagues (e.g., Biernat & Manis, 1994; Biernat, Manis, & Nelson, 1991) have shown that people use different standards of comparison when judging the behaviors of different groups of people. For example, when using a subjective response scale (e.g., Likert ratings), an article about bass fishing written by a woman may be perceived to be of higher quality than when that same article was written by a man. This is because the behavior is being compared to stereotypes of female fishing knowledge in the first case and male fishing knowledge in the second. In comparison to stereotypes of women's fishing knowledge, a moderately well-written article can appear to be very good. In contrast, the same article does not seem so well-written when compared to the stereotype of men's fishing knowledge. Yet if the quality of the article is measured by an objective scale with clear, externally anchored units of measurement (e.g., How much money would you pay for this article?), people



prefer the article written by the male, demonstrating stereotype confirmation. In most studies of stereotyping, subjective Likert-type scales are used and, as such, apparent stereotype-disconfirmation may be based on the use of shifting standards of judgment (more on this below).

### Attributions

Another important encoding process that is biased toward stereotype confirmation is the manner in which people ascribe causal attributions for confirming and disconfirming behavior. A number of studies have found that people are more likely to make stable, external attributions for stereotypic behavior and unstable, external attributions for counterstereotypic behavior, thereby explaining it away (e.g., Bodenhausen & Wyer, 1985; Jackson, Sullivan, & Hodge, 1993; Macrae & Shepherd, 1989). This maintains future expectations of stereotypic behavior. Perceivers also attribute the cause of stereotypic behaviors to the stereotyped group but make situational attributions for counterstereotypic behaviors (Sanbonmatsu, Akimoto, & Gibson, 1994).

Such attributional behavior is more prevalent when the impression target is an individual versus a group. Because people expect more coherence within an individual than within a group, disconfirming behaviors performed by individuals demand explanation to a greater degree (Susskind, Mauer, Thakkar, Hamilton, & Sherman, 1999). Thus, target type is an important representational moderator of this effect. Prejudice is another critical moderator (Sherman et al., 2005; Wyer, 2004). Specifically, as alluded to previously, whereas high-prejudice individuals showed this attributional bias, low-prejudice participants show either no bias or a bias toward stereotype disconfirmation (i.e., they make internal attributions for disconfirming behaviors and external attributions for confirming behaviors). It seems that high and low prejudice are associated with motivations to maintain or disrupt stereotypes, respectively. Like low-prejudice individuals, those motivated by accuracy via outcome dependency or absence of power have shown a pattern of stereotype-disconfirming attributions (Eber & Fiske, 1984; Neuberg, 1989; Neuberg & Fiske, 1987; Pendry & Macrae, 1996; Ruscher & Fiske, 1990).

### Language

The language used to describe stereotype-confirming and -disconfirming behavior also differs, promoting interpersonal stereotype maintenance. The linguistic expectancy bias (Maass, Salvi, Arcuri, & Semin, 1989) demonstrates that whereas more abstract language is used to describe positive ingroup (e.g., Lucy is helpful) and negative outgroup (e.g., Marvin is mean) behaviors, more concrete language is used to describe negative ingroup (e.g., Lucy hit him) and positive outgroup (e.g., Marvin held the door open) behaviors. Subsequent research has shown that this linguistic bias reflects the effects

of expectancy confirmation and violation rather than a motive for ingroup favoritism (Hamilton, Gibbons, Stroessner, & Sherman, 1992; Maass, Milesi, Zabbini, & Stahlberg, 1995). Like the attributional bias described earlier, one important consequence of this linguistic bias is that it promotes stereotypic behaviors as being more stable across time and context than counterstereotypic behaviors. Indeed, when behaviors are described to people in a linguistically biased fashion, they conclude that stereotypic behaviors are caused by internal, dispositional factors, whereas counterstereotypic behaviors are caused by external, situational factors (Wigboldus, Semin, & Spears, 2000).

### Summary of Encoding

For the most part, encoding is biased toward stereotype confirmation (see Table 19.1). Because it is novel and difficult to understand, perceptual encoding favors disconfirmation, particularly when processing capacity is low. However, this reflects primarily the difficulty with which disconfirming information is conceptually encoded. Information that fits existing expectancies is simply easier to understand, particularly when comprehension processes are challenged by depleted resources. Beyond the basic ability to extract meaning from confirming and disconfirming information, there are also important differences in the kinds of meanings that people extract. People are better able to detect stimuli that are consistent with the stereotype of a primed social category. The prime appears to lower the threshold for accurately perceiving stereotypic objects. Information also is construed, explained, and linguistically described in ways that are biased toward stereotype maintenance. In general, moderators that inhibit or demotivate accurate perception enhance these confirmation biases, such as expectancy strength, stimulus ambiguity, cognitive load, prejudice, and power. In terms of dissonance theory, each of these confirmation biases contributes to the likelihood that inconsistent thoughts will be resolved in favor of prior beliefs. Indeed, such encoding biases function as early and efficient means with which to reduce the development of cognitive incompatibilities before they can be significantly established. However, once again, there is no direct evidence bearing on the potential role of dissonance processes in these effects.

### MENTAL REPRESENTATION

Once stereotype-relevant information has been encoded, it is represented in memory. These mental representations may then be constructed, reconstructed, accessed, modified, and used for different purposes (Smith, 1998). Different representations vary not only in their content but also in degree of specificity with which the information in that content is organized. Thus, stereotypes about two groups may differ in the particular traits that are considered typical of each group. However, they might also differ in the extent

to which knowledge about the groups is represented as a stable summary based on previous experiences (*abstraction-based* representation) or as a temporary collection of individual experiences with particular group members (*episodic* or *exemplar-based* representation). Understanding if and when stereotype-relevant information is represented as abstraction-based or episodic knowledge is important because different kinds of representations influence subsequent stereotyping in different ways (for summaries, see Hamilton & Sherman, 1994; Sherman, 1996, 2001). For our purposes in this chapter, the most important differences have to do with the stability versus malleability of stereotypic knowledge. Whereas abstraction-based knowledge is relatively stable across time and context, and changes slowly, episodic knowledge is more malleable and may change rapidly as novel episodes are encoded. As such, if there are differences in the extent to which stereotype-confirming and -disconfirming information is represented in abstract versus episodic form, then this would significantly impact the likelihood that stereotypes would be maintained or modified in the face of stereotype-relevant behavior.

In fact, a number of researchers have argued that the essential purpose of episodic memory is to record the details of unexpected events for later inspection and comparison, and to place boundaries on the scope of generalizations (Klein, Cosmides, Tooby, & Chance, 2002; McClelland, McNaughton, & O'Reilly, 1995; Nofsosky, Palmeri, & McKinley, 1994; Schank, 1982; Sherry & Schacter, 1987). In contrast, retaining the specific details of expected information is not such a pressing matter. In this case, the basic gist may simply be extracted and stored as semantic memory. This suggests that whereas stereotype-confirming behavior is represented abstractly, disconfirming behavior is stored as specific episodes. Much of the research already described is consistent with this perspective. As described earlier, trait implications are extracted more readily from stereotype-congruent than -incongruent behavior (Sherman, Lee, et al., 1998; Wigboldus, Dijksterhuis, & van Knippenberg, 2003; Wigboldus et al., 2004), perceivers are more likely to make internal, trait-based attributions for congruent than incongruent behavior (e.g., Bodenhausen & Wyer, 1985; Jackson et al., 1993; Macrae & Shepherd, 1989), and abstract traits are more likely to be used to describe congruent than incongruent behavior (Hamilton et al., 1992; Maass et al., 1995). All of these encoding processes contribute to stereotype-confirming behavior being stored in abstract form, independent of specific contextual details. At the same time, people are more likely to encode the perceptual and contextual features of incongruent than of congruent behavior (Forster et al., 2004; Sherman, Lee, et al., 1998; Sherman et al., 2004), which contributes to the retention of specific stereotype-disconfirming episodes that are available for subsequent use. From a dissonance reduction perspective, these representational differences minimize conflict among potentially inconsistent cognitions by promoting the perceived stability and breadth of confirming behaviors, and encouraging the perception of disconfirming behaviors as isolated and unique instances.

In a study that directly examined these representational differences in a minimal group paradigm, participants exposed to information about ingroup and outgroup members extracted abstract trait knowledge from the positive ingroup and negative outgroup behaviors but failed to do the same for the negative ingroup and positive outgroup behaviors. As such, judgments about expectancy-congruent attributes (positive ingroup, negative outgroup) were based on stored abstractions, whereas judgments about expectancy-incongruent attributes (negative ingroup, positive outgroup) were based on the retrieval of specific trait-relevant episodes (Sherman, Klein, Lasky, & Wyer, 1998; see also Sherman, 1996).

## MEMORY

### Recall versus Recognition

Of course, the manner in which information is encoded and subsequently represented in memory affects people's ability to remember it. Because it draws attention and more extensive attributional processing, stereotype-disconfirming information tends to be recalled better than confirming information (Hamilton & Sherman, 1994; Stangor & McMillan, 1992). In general, variables that diminish the perceived extent of disconfirmation or diminish efforts to reconcile disconfirming information with the stereotype reduce this recall advantage. For example, because people expect less coherence among a group than within an individual, inconsistent behaviors describing individual targets are processed more thoroughly than they are for group targets, and also are better recalled (Stangor & McMillan, 1992; Susskind et al., 1999). In a similar manner, when participants are given less time to encode the information, the recall advantage of incongruent information is reduced, presumably because there is less time for the explanatory processes that help to make that information memorable. Finally, there is a considerable body of research showing that cognitive load eliminates or reverses the recall advantage for disconfirming information. This result appears to be due not to the superior encoding of confirming information under cognitive load but rather to the diminished ability to encode all information under such circumstances, combined with various retrieval processes that favor recall of confirming information. For example, the recall of congruent information benefits from the use of stereotypes as retrieval cues, stereotype-driven search strategies, and response biases that lower the criteria for reporting stereotypic information (Dodson, Darragh, & Williams, 2008; Marsh, Cook, & Hicks, 2006; for reviews, see Sherman & Frost, 2000; Stangor & McMillan, 1992). However, as described earlier, people attend relatively more carefully to incongruent versus congruent information when under cognitive load and show superior memory for that information when memory is measured with recognition accuracy, a measure that controls for the retrieval advantages for stereotypic information.

## Source Memory

One particularly important aspect of memory is source memory. To fully benefit from episodic memory, perceivers must not only remember accurately that a specific event occurred but also to accurately attribute it to its proper source (e.g., Johnson, Hashtroudi, & Lindsay, 1993). Was the source of a news story the *New York Times* or the *World Weekly News*? Was the source research idea mine or was it my graduate student's? Was it John or Juan who threw the first punch in the bar brawl? In this last case, stereotypes about the aggressiveness of Hispanic men may influence the likelihood that people attribute the first punch to Juan rather than John. Such context-specific details are precisely the sorts of features that are associated with effortful encoding and episodic but not abstract knowledge. When information is represented in abstract form, it is stripped of perceptual and contextual detail, inhibiting accurate memory. In contrast, episodic memories retain the sorts of details that permit accurate memory. As such, we would expect to see greater source memory for stereotype-disconfirming than for stereotype-confirming information, and there is considerable evidence to that effect. For example, Slusher and Anderson (1987) reported that people found it difficult to distinguish between stereotypic pairs of occupations and traits that had actually been presented and pairs that had only been imagined. This effect is greater for stereotypic than for counterstereotypic information and increases with a delay between learning and testing, because episodic memory fades (Kleider, Goldinger, & Knuycky, 2008).

Even if perceivers accurately remember that a stereotypic event occurred, they may be unable to attribute that event to its appropriate source. Instead, these events are often falsely attributed to a target or source associated with the stereotyped group (Banaji & Greenwald, 1995; Bayen, Nakamura, Dupuis, & Yang, 2000; Dodson et al., 2008; Macrae et al., 2002; Marsh et al., 2006; Mather, Johnson, & De Leonardis, 1999; Payne, Jacoby, & Lambert, 2004; Sherman & Bessenoff, 1999; Sherman, Groom, Ehrenberg, & Klauer, 2003; Spaniol & Bayen, 2002). This stereotypic source-monitoring bias is more likely to occur when perceivers have poor memory for the items themselves (Spaniol & Bayen, 2002), have limited cognitive capacity when memory judgments are collected (Macrae et al., 2002; Sherman & Bessenoff, 1999; Sherman et al., 2003), when there is a delay between learning and test (Banaji & Greenwald, 1995; Kleider et al., 2008), when participants are older or have emotional self-focus (Mather et al., 1999), when the information to be remembered is imagined rather than read or directly observed (Kleider et al., 2008), and when people are in a positive mood (Park & Banaji, 2000). In short, factors associated with impaired memory and enhanced reliance on judgment heuristics increase stereotypic biases in source attributions. It would seem that people rely on stereotypic biases in source attributions. It they are unable to recollect the source.

At least three specific processes contribute to these effects. First, people

are less willing or able consciously to recollect the true source of stereotypic than counterstereotypic events, leaving them vulnerable to misattribution (e.g., Dodson et al., 2008; Sherman et al., 2003). Second, stereotypic information induces a stronger implicit sense of familiarity than does counterstereotypic information, increasing the likelihood that stereotypic items will be misattributed to a stereotype-relevant source (e.g., Hense, Penner, & Nelson, 1995; Payne et al., 2004; Sherman et al., 2003). Finally, in the absence of the ability to remember source information accurately, people sometimes demonstrate a bias to respond in the affirmative to stereotypic but not counterstereotypic items of information because they fit with what had been expected (Bayen et al., 2000; Mather et al., 1999; Spaniol & Bayen, 2002). In summary, though memory accuracy for stereotype-confirming information is poor, a variety of memory biases result in stereotype confirmation.

## Summary of Memory

Considerable research demonstrates that stereotype-inconsistent information is remembered more accurately than is stereotype-consistent information (see Table 19.1). Nevertheless, exposure to congruent and incongruent information is likely to result in stereotype confirmation. In part, this is because the attentional and encoding processes that make incongruent information memorable also reduce the impact of that information on existing stereotypes. Ironically, the unexpected information that is adjusted to reduce conflict between inconsistent cognitions is subsequently more memorable. Confirmation also results from the fact that when people are unable to remember events, they use stereotypes to guide memory and to infer what must have happened. Finally, confirmation arises, in part, because judgments about group stereotypes are typically based on stored abstractions and not on the retrieval of particular behaviors (e.g., Sherman, 1996).

## JUDGMENT

There is an overabundance of research on the effects of stereotypes on judgments of individual group members. The material covered here focuses, specifically, on judgments of stereotype-relevant attributes following the presentation of stereotype-confirming and stereotype-disconfirming information about a target person. All of the encoding processes described earlier directly impact these judgments. Conceptual encoding, construal, attributions, and linguistic processes would seem to bias judgments in a stereotype-confirming manner. The encoding of the perceptual details should not be expected to be related to the kinds of conceptual judgments studied in this research (e.g., Roediger, 1990). Likewise, attention is not a good predictor of judgments because attention to disconfirming information may reflect attempts to explain it away (e.g., Sherman et al., 2005). In summary, there is

good reason to expect that judgments should be more consistent with confirming than with disconfirming behavior (see Table 19.1).

One of the first studies to demonstrate this effect showed that people overestimate the frequency with which members of different occupational groups are paired with stereotypic rather than counterstereotypic traits. This effect is known as an *expectancy-biased illusory correlation* (Hamilton & Rose, 1980; Sanbonmatsu et al., 1994). Bodenhausen and Wyer (1985) showed that crimes that are stereotypic for ethnic groups are perceived as more likely to recur and are punished more harshly than crimes that are counterstereotypic for ethnic groups.

There are many moderators of these kinds of effects. First, in terms of representational moderators, judgments are more stereotypic to the extent that the target information is ambiguous (e.g., Krueger & Rothbart, 1988; Kunda & Sherman-Williams, 1993); the stereotypic expectancy is strong (Krueger & Rothbart, 1988), vivid (Beckett & Park, 1995), and valid (Nelson, Acker, & Manis, 1996); and there is a relatively high proportion of confirming versus disconfirming information (Fiske, Neuberg, Beattie, & Milberg, 1987). Reduced processing capacity also increases judgment stereotypicality, whether due to diminished time for encoding (e.g., Pratto & Bargh, 1991), cognitive load at encoding (Gilbert & Hixon, 1991; Macrae, Hewstone, & Griffiths, 1993), task complexity (Bodenhausen & Lichtenstein, 1987), arousal due to exercise (Kim & Baron, 1988), distraction due to anxiety (Baron, Imnan, Kao, & Logan, 1992), or daily circadian dips in energy (Bodenhausen, 1990). People in happy or angry moods also make more stereotypic judgments (e.g., Bless, Schwarz, & Wieland, 1996; Bodenhausen, Kramer, & Süsler, 1994; Bodenhausen, Sheppard, & Kramer, 1994). Thus, just as stereotypic encoding biases are enhanced by reduced capacity and factors that promote heuristic processing, so too are the judgments that follow the presentation of stereotype-relevant information (for a review, see Bodenhausen, Macrae, & Sherman, 1999).

In contrast, people who are motivated to be accurate by outcome dependency (Bodenhausen, Kramer, et al., 1994; Neuberg & Fiske, 1987; Pendry & Macrae, 1994), accountability (Kruglanski & Freund, 1983; Nelson et al., 1996), or low levels of prejudice (e.g., Sherman et al., 2005) tend to make less stereotypic judgments, as do participants in a sad mood (Bless et al., 1996; Bodenhausen, Sheppard, et al., 1994), who are motivated to process carefully.

Ironically, some of the first studies to examine judgment stereotypicality concluded that the impact of stereotypes is eliminated if there is any stereotype-disconfirming information at all (e.g., Locksley, Borgida, Brekke, & Hepburn, 1980; Locksley, Hepburn, & Ortiz, 1982). Subsequent research argued that Locksley et al. had used particularly nondiagnostic gender stereotypes combined with highly diagnostic disconfirming behaviors, and that when the diagnosticity of the category and disconfirming information were more comparable, stereotyping was observed (e.g., Beckett & Park, 1995;

Krueger & Rothbart, 1988; Kunda & Sherman-Williams, 1993). Moreover, Biernat's research on shifting standards (described earlier) showed that the same behaviors could be perceived as more extreme when they were counterstereotypic than when they were stereotypic. This could result in identical judgments of stereotypic and counterstereotypic targets or even judgments that appear to give more weight to counterstereotypic information, even though, in all cases, group stereotypes are driving the interpretations of the behaviors and the subsequent judgments (e.g., Biernat & Manis, 1994).

The extent of judgment stereotypicality appears to be critically related to the manner in which the target information is encoded (e.g., Kunda & Sherman-Williams, 1993), and stereotyping effects may be eliminated if the stereotype is provided only after initial encoding (e.g., Bodenhausen, 1988). Still, there is a great need in this literature to separate the extent to which stereotyping is increased due to greater reliance on stereotypes as direct judgment sources, greater reliance on stereotype-confirming and reduced reliance on stereotype-disconfirming information, or greater reliance on biased interpretations of individuating information. Likewise, when stereotyping is diminished, is it due to decreased reliance on the stereotype as a judgment source, decreased reliance on confirming and increased reliance on disconfirming information, or decreased reliance on biased interpretations? Process dissociation approaches (Payne, 2001; Sherman et al., 2008) offer one means to separate some of these possibilities, but more options and more research are clearly needed.

Research that directly examines the role of dissonance reduction motives also would be welcome. In essence, the judgment effects described in this section represent the outcomes of inconsistency resolution processes that result in maintenance of the existing stereotype. However, there is little research on the role of dissonance-related motives in producing these effects.

### STEREOTYPE CHANGE

In this final section, we describe the impact of stereotype-confirming and stereotype-disconfirming information on group stereotypes. One of the most influential early theories, deemed the *contact hypothesis*, suggested that contact with counterstereotypic individuals would inevitably produce stereotype change (Allport, 1954). Unfortunately, this optimistic view was quickly dispelled. Though intergroup contact (or exposure) clearly reduces negative attitudes (i.e., prejudice), stereotypes may be stubbornly resistant to change (Pettigrew & Tropp, 2006). The essential problem is that even if counterstereotypic behavior is recognized as such, people often do not generalize the behavior of individuals to the whole group. Instead, disconfirmers may be isolated from the broader category and placed into narrow subcategories known as *subtypes* (for a review, see Richards & Hewstone, 2001). The result is that the disconfirming information is not considered relevant to the

broader group, and the stereotype is maintained. Though this process may reflect a desire to defend the stereotype from disconfirmation (e.g., Moreno & Bodenhausen, 1999), it also may reflect basic categorization processes (e.g., Queller & Smith, 1992), including the fact that expertise increases the specificity with which category members are categorized (e.g., Johnson & Mervis, 1997; Tanaka & Taylor, 1991).

There is ample research on this process and the variables that moderate the extent to which disconfirming information does and does not influence group stereotypes. One of the most extensively tested representational moderators concerns the degree to which the individual target performing the disconfirming behavior is typical of the group as a whole. This research shows that to the extent that the individual is a typical group member, that person's disconfirming behaviors will generalize to the rest of the group. In this case, the disconfirming information is relatively difficult to discard or discount as inapplicable. In contrast, if the individual is too atypical across dimensions, then he or she is more likely to be isolated from the group and placed into a subtype (e.g., Kunda & Oleson, 1995, 1997; Rothbart & John, 1985; Rothbart & Lewis, 1988; Weber & Crocker, 1983). However, this effect appears to hold only if the target's behavior violates the stereotype in a disconfirming direction. If the target's behavior is hyperconfirming of the stereotype, then the group is perceived to be more stereotypic following exposure, in part, because hyperconfirmers are less likely to be perceived as atypical (Dolderer, Mummeny, & Rothermund, 2009; Garcia-Marques & Mackie, 1999). Subtyping also is more likely to occur if the stereotypic expectancy is extreme, which enhances the perceived atypicality of disconfirmers (Kunda & Oleson, 1997; Wyer, Sadler, & Judd, 2002), or if people are manipulated into excluding atypical category members from the group (Bless, Schwarz, Bodenhausen, & Thiel, 2001). These results highlight the importance of the categorization process in subtyping (but see Queller & Mason, 2008); variables that increase the perceived atypicality of disconfirmers increase the likelihood of subtyping and decrease the likelihood of stereotype change.

In terms of processes, the manner in which people explain disconfirming behavior is an important determinant of subtyping. For example, when attributed to stable, internal causes, counterstereotypic behavior leads to greater stereotype change than when it is attributed to unstable internal causes or external causes (Wildier, Simon, & Faith, 1996). Relatedly, stereotype change is more likely when disconfirming information describes the whole group rather than an individual group member, who can be more easily discounted or explained away (Paik, MacDougall, Fabrigar, Peach, & Jellous, 2009). Subtyping itself appears to be one process by which people are able to discount disconfirming group members. For example, people may use neutral target features that are irrelevant to the stereotype as a basis for explaining disconfirming behavior and, in doing so, form novel subtypes around those neutral features to account for deviant behavior (Kunda & Ole-

son, 1995; Yzerbyt, Coull, & Rocher, 1999). When people are prevented from doing the attributional work that leads to discounting and/or subtyping, then disconfirming information is more likely to change stereotypes (Moreno & Bodenhausen, 1999; Yzerbyt et al., 1999).

Finally, motivational factors also are important in subtyping behavior. For example, people are more likely to subtype if they expect to report their group impressions to an audience that has negative beliefs about the stereotyped group, particularly if the audience consists of an ingroup (vs. an outgroup; Carnaghi & Yzerbyt, 2007). In contrast, disconfirming information is more likely to lead to stereotype change if people expect to be held accountable for their impressions to a nonbiased source (Moreno & Bodenhausen, 1999).

Though the majority of research suggests that subtyping is a common response to disconfirming information and that it interferes with stereotype change, there are some notable exceptions. First, some research indicates that stereotypes do change in response to disconfirming information (e.g., Garcia-Marques & Mackie, 1999). But even when stereotypes do not change, disconfirming information may increase the perceived variability of the stereotyped group (Garcia-Marques & Mackie, 1999; Paolini, Hewstone, Rubin, & Pay, 2004), which increases the extent to which people are willing to acknowledge different kinds of group members and decreases generalization among groups and their members (Park & Hastie, 1987). In addition, even though stereotypes might not change in response to disconfirming information, people may be less likely to use those stereotypes. Instead, people may rely more heavily on narrow subtypes that apply to only a portion of all group members (e.g., Brewer, Dull, & Lui, 1981; Deutsch & Fazio, 2008; Rothbart & John, 1985), and that are applied independently of one another (e.g., Hugenberg, Blusiewicz, & Sacco, 2010). To the extent that the specificity of subtypes grants them greater accuracy than broad stereotypes (e.g., Messick & Mackie, 1989; Park, Ryan, & Judd, 1992), this would seem to decrease the negative impacts of stereotyping.

Some researchers have made a distinction between subcategories of social groups that are *subgroups* versus subtypes. The primary difference between the two is the extent to which the subcategory is connected to or isolated from the superordinate category from which it sprung. Whereas *subgroups* are conceived as subcategories that remain linked to the superordinate category, *subtypes* are subcategories that have been isolated from the superordinate category. The implication is that subgroups should still influence impressions of the broader category, whereas subtypes should not (e.g., Maurer, Park, & Rothbart, 1995; Park et al., 1992). Indeed, in contrast to subtyping, the process of subgrouping leads to decreased stereotyping and increased perceptions of superordinate category variability (e.g., Maurer et al., 1995; but see Queller & Mason, 2008). Much work remains in determining the conditions that lead subcategories to be linked or separated from their parent categories.

## CONCLUSION

Research on stereotype confirmation and disconfirmation has been one of the most active pursuits in the social psychological study of stereotyping. This brief summary can hardly do justice to the breadth and depth of this undertaking. We have tried to summarize the most important processes that produce confirmation and disconfirmation, and highlight the key moderators of these effects. One thing that is clear from the accumulated research is that people are uncomfortable with conflict between existing stereotypic beliefs and novel information that violates those beliefs. This fact places research on stereotype confirmation–disconfirmation squarely in the realm of classic consistency theories, suggesting that a distaste for such cognitive conflict may well contribute to processes that promote both confirmation and disconfirmation. Whether resolution of the conflict produces confirmation or disconfirmation varies according to the specific process in question (information seeking, attention, perceptual encoding, attribution, etc.), and according to the operation of critical moderating variables. For many reasons, this conflict is resolved largely in favor of confirmation. In general, stronger expectancies, reduced processing capacity, and diminished processing motivations enhance this tendency. The single most important variable in promoting disconfirmation appears to be a strong motivation to perceive group members accurately (which may be derived from a variety of individual differences and situational factors). When people possess such a motivation, diminished processing capacity may focus resources toward disconfirmation and/or permit disconfirming information greater influence on stereotypes.

However, despite the theoretical progress represented by the research summarized in this chapter, much work remains in understanding when, how, and why stereotypes do or do not change. We believe that more directly linking this research enterprise to the rich theoretical and empirical traditions of consistency theories may provide important and novel insights into these problems. Consistency theories (particularly cognitive dissonance theory) provide a common framework within which to understand both stereotype confirmation and disconfirmation. In both cases, the incompatibility among cognitions is reduced. This suggests that dissonance reduction motives may play an important role in stereotype confirmation and disconfirmation. Direct examination of these motives may offer novel solutions to achieving stereotype change. At the same time, the lessons learned in research on stereotype confirmation may have much to offer researchers seeking to deepen our understanding of cognitive dissonance and its operation.

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