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What Is Cognitive Consistency, and Why Does It Matter?

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n spring 2015, the first author of this chapter attended a small group confer-
ence where he had the opportunity to chat with one of the most distinguished
senior researchers in the area of cognitive dissonance. Puzzled by the increas-
ingly narrow focus of dissonance research since the publication of Festinger's
(1957) seminal book, the said author asked this eminent scholar about his
views on exposure to belief-conflicting information as a source of dissonance.
Causing even more puzzlement, the scholar replied that such mental conflicts
do not involve any dissonance. He further stated that dissonance is exclusively
caused by discrepancies between attitudes and behavior and occurs only for
behaviors with aversive consequences for which the actor takes personal
responsibility (Cooper & Fazio, 1984). After a short back-and-forth, the two
researchers ended the conversation by agreeing to disagree. Yet, one of them
was left with an unpleasant feeling caused by the conflict between his belief
that dissonance is a much broader phenomenon and the views of the eminent
scholar he had just been exposed to.

One potential interpretation of the two conflicting views is that they reflect
different empirical assumptions that could be tested in a carefully designed
study. For example, one could design an experiment in which participants are
presented with information that conflicts with their personal beliefs and mea-
sure whether exposure to this information elicits unpleasant feelings. Yet,
another potential interpretation is that the two conflicting views are rooted in
different definitions of theoretical concepts. In the latter case, it would be very
difficult (if not impossible) to resolve the disagreement on the basis of empirical

data (Gawronski & Bodenhausen, 2015). For example, even if participants experienced unpleasant feelings in response to information that conflicts with their beliefs, a skeptic might argue that these feelings are distinct from dissonance, because dissonance is (by definition) limited to discrepancies between attitudes and behavior.[1]

Expanding on the second interpretation, the current chapter aims to make a theoretical case for broader conceptualizations of cognitive consistency and dissonance that go beyond the relation between attitudes and behavior. In line with earlier concerns (e.g., Gawronski, 2012a; Greenwald & Ronis, 1978; Proulx, Inzlicht, & Harmon-Jones, 2012), we argue that the increasingly narrow focus on attitude-behavior discrepancies has led researchers to neglect the potential of Festinger's (1957) original theory in providing valuable insights into a much broader set of psychological phenomena (see Gawronski & Strack, 2012). Our main arguments are that (a) cognitive consistency plays a much more fundamental role for information processing than is commonly assumed in the dissonance literature and (b) embracing the ubiquitous role of cognitive consistency provides valuable insights into a wide range of phenomena that are rarely discussed in terms of Festinger's theory. In support of these arguments, we highlight various lines of consistency research beyond attitude-behavior discrepancies and suggest theoretical clarifications aimed at uniting these phenomena under the umbrella of dissonance theory.

WHAT IS COGNITIVE CONSISTENCY?

Although Festinger (1957) preferred the term *dissonance* over *inconsistency* (treating the two terms as interchangeable synonyms), we deem it important to distinguish between *(in)consistency* as a property of the relation between cognitive elements and *dissonance* as the aversive feeling that is assumed to arise from inconsistent cognitive elements. According to Festinger's (1957) original definition, two cognitive elements are inconsistent if one element follows from the opposite of the other. More formally, this definition can be restated as: "x and y are [inconsistent] if not-x follows from y" (p. 13), with x and y subsuming "any knowledge, opinion, or belief about the environment, about oneself, or about one's behavior" (p. 3).

What Are the Elements of Cognitive Consistency?

An important, yet frequently overlooked, aspect of Festinger's (1957) specification of x and y is that it refers to cognitive elements with propositional content (Gawronski & Strack, 2004). Conceptually, propositional thoughts

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[1] As we explain in this chapter, even this example could be interpreted in terms of dissonance, such that scientists may experience aversive feelings when they are exposed to evidence that contradicts their theoretical views. From this perspective, the resolution of inconsistency via reinterpretation of theoretical concepts could be regarded as a strategy to reduce dissonance (cf. Quine & Ullian, 1978).

involve mentally represented statements about states of affairs that are regarded as true or false by the individual. This specification is important, because it distinguishes cognitive consistency from other types of relations between cognitive elements.

First, a conceptualization in terms of propositional thoughts distinguishes cognitive consistency from purely semantic relations between mental concepts (Gawronski, 2012a). To illustrate this argument, consider the antonyms *agreeable* and *disagreeable*. Although the two concepts have semantically opposite meanings, simultaneous activation of the two concepts would lead to cognitive inconsistency only if they are part of two propositional thoughts that relate them to the same object (e.g., *Hillary is agreeable* and *Hillary is disagreeable*). Yet, simultaneous activation of the two concepts would not lead to cognitive inconsistency if they are part of two propositional thoughts that refer to different objects (e.g., *Hillary is agreeable* and *Donald is disagreeable*). Moreover, even if the two antonyms are part of propositional thoughts that refer to the same object, there would be no cognitive inconsistency if one of the involved propositions is regarded as true (e.g., *It is true that Hillary is agreeable*) and the other one as false (e.g., *It is false that Hillary is disagreeable*).

From this perspective, the elements of cognitive (in)consistency can be understood as propositional beliefs about states of affairs that (a) describe a particular relation between concepts (e.g., *Peter is extraverted*; *Smoking causes cancer*; *Jennifer likes dogs*) and (b) the assignment of a positive or negative truth value to the described relation (i.e., the subjective belief that the proposition is true or false). Propositional beliefs can be either general if they refer to categories of objects (e.g., *Canadians are friendly*) or specific if they refer to individual objects (e.g., *Uli is unfriendly*). Thus, different from Festinger's (1957) concern with the relation between two cognitive elements, inconsistency is most often the result of more than two propositional beliefs (e.g., *Canadians are friendly*; *Uli is unfriendly*; *Uli is Canadian*).

Second, a conceptualization in terms of propositional beliefs helps to distinguish cognitive (in)consistency from processing (dis)fluency (see Winkielman, Huber, Kavanagh, & Schwarz, 2012). Although the two constructs may seem rather similar, they are conceptually distinct in that cognitive *(in)consistency* refers to the content of mentally represented information (*what?*), whereas *(dis)fluency* refers to the ease of processing information (*how?*). For example, exposure to a news article reporting that a particular political candidate is leading in the polls may be inconsistent with the belief that a different candidate will win the election, and this inconsistency is driven by the contents of one's belief and the new information. Irrespective of the inconsistency in terms of contents, the new information may be more or less difficult to process as a result of content-unrelated features, such as the font in which the article is printed (e.g., Song & Schwarz, 2008) or the perceptual contrast between the text and the background (e.g., Reber, Winkielman, & Schwarz, 1998). Nevertheless, cognitive (in)consistency may sometimes influence processing fluency, in that new information that conflicts with one's beliefs may be more

difficult to process compared to new information that is consistent with one's beliefs (see Sherman, Lee, Bessenoff, & Frost, 1998). Conversely, high levels of processing fluency may contribute to cognitive inconsistency when fluent processing of belief-conflicting information increases the perceived validity of that information (see Reber & Schwarz, 1999).

What Determines the Relation Between Cognitive Elements?

Although Festinger's (1957) original definition puts a strong emphasis on logical relations between cognitive elements (i.e., x and y are inconsistent if not-x follows from y), he explicitly acknowledged the role of cultural mores, opinions, and personal experiences as important determinants of perceived (in)consistency. In this sense, cognitive (in)consistency can be said to describe psycho-logical (rather than strictly logical) relations between cognitive elements. Although psycho-logic and formal logic have considerable overlap, they are not equivalent. First, perceptions of (in)consistency have been shown to deviate from the laws of formal logic in a systematic fashion. Second, psycho-logical (in)consistency subsumes a broader range of relations between cognitive elements that go beyond the laws of formal logic.

Consistent with the notion of systematic deviations from the laws of formal logic, research by Johnson-Laird, Girotto, and Legrenzi (2004) showed that (a) people sometimes perceive consistency when there is logical inconsistency, and (b) people sometimes perceive inconsistency when there is logical consistency (for a review, see Johnson-Laird et al., 2004). According to Johnson-Laird et al., people assess the (in)consistency of a given set of propositions by creating a mental model in which all assumptions are true. To the extent that they can create such a mental model, the set of propositions is judged as being consistent. To the extent that they cannot find a mental model in which all assumptions are true, the set of propositions is judged as being inconsistent. Although this strategy leads to logically accurate judgments of consistency in most cases, it can lead to (a) systematic illusions of consistency in cases of logical inconsistency and (b) systematic illusions of inconsistency in cases of logical consistency.

An illustrative example of psycho-logical relations that go beyond the laws of formal logic is Heider's (1958) hypothesis that people strive for patterns of interpersonal relations that constitute balanced triads. According to Heider, a triad of interpersonal relations is balanced when it has either no or an even number of disliking relations, but it is imbalanced when it has an odd number of disliking relations. Consistent with Heider's hypothesis, several studies found that people tend to like individuals who are liked by people they like, but they tend to dislike individuals who are disliked by people they like. Conversely, people tend to dislike individuals who are liked by people they dislike, but they tend to like individuals who are disliked by people they dislike (e.g., Aronson & Cope, 1968; Gawronski, Walther, & Blank, 2005). In theoretical terms, these patterns can be interpreted as reflections of people's desire to achieve psycho-logical consistency between three cognitive elements: (a) their personal attitude toward another

Person A, (b) their knowledge of Person A's attitude toward another Person B, and (c) their personal attitude toward Person B. Formal logic does not have any implications for the (in)consistency between these three elements. Their perceived (in)consistency is determined by psycho-logic, not formal logic.

WHY IS COGNITIVE CONSISTENCY IMPORTANT?

Festinger (1957) described the desire for cognitive consistency as a psychological need that is as basic as hunger and thirst. Although some researchers argued that cognitive consistency might be better described as a means to an end rather than an end in itself (e.g., Kruglanski & Shteynberg, 2012), an important question is why cognitive consistency is so important (either as a means to an end or an ends in itself). According to Gawronski (2012a), an important aspect of cognitive inconsistency is that it serves as a cue for potential errors in one's system of beliefs (see Quine & Ullian, 1978). Although consistency is insufficient to establish accuracy, inconsistency is an unambiguous cue for errors that require belief updating. For example, if a person believes that (a) *Good friends always support each other when they need help*, (b) *Jill and Janet are good friends*, and (c) *Jill did not support Janet when Janet needed help*, the inconsistency between the three propositional beliefs requires a reassessment of their validity, which may lead to the revision of either one of them. It may lead to a revision of the belief that good friends always support each other by allowing for exceptions (e.g., *Good friends may sometimes fail to support each other when they have their own problems*); it may lead to a revision of the belief that Jill is actually a good friend of Janet (e.g., *Jill always claimed that she is a good friend of Janet, but that's not true*); or it may lead to a revision of the belief that Jill did not support Janet when Janet needed help (e.g., *Jill offered to help Janet, but Janet did not want Jill's help*).

From a pragmatic view, the identification of errors in one's system of beliefs is important, because erroneous beliefs can undermine context-appropriate behavior by suggesting inadequate courses of action (Quine & Ullian, 1978). Moreover, cognitive inconsistency itself can sometimes undermine context-appropriate behavior, because inconsistent beliefs may suggest mutually exclusive courses of action (Harmon-Jones, Amodio, & Harmon-Jones, 2009). In both cases, the aversive feeling that is assumed to be elicited by inconsistent beliefs serves as a signal that the current system of beliefs has to be revised for the sake of context-appropriate action. From this perspective, the need for cognitive consistency can be said to arise from its function as a means to an end rather than an end in itself (see Kruglanski & Shteynberg, 2012), in that (a) cognitive inconsistency signals a potential error in one's system of beliefs (*epistemic function*; see Gawronski, 2012a), and (b) errors in one's system of beliefs undermine context-appropriate action (*pragmatic function*; see Harmon-Jones et al., 2009).

The notion that cognitive consistency has basic epistemic and pragmatic functions is remarkably different from its presumed role in various revisions of Festinger's (1957) original theory. Several theorists have argued that phenomena

of dissonance-related attitude change are driven by mechanisms of ego-defense rather than cognitive inconsistency per se (e.g., Aronson, 1968; Cooper & Fazio, 1984; Steele & Liu, 1983; Stone & Cooper, 2001). The general idea underlying this hypothesis is that discrepancies between one's attitude and one's behavior pose a threat to the self, which triggers mental and behavioral reactions aimed at restoring a positive self-view. However, as noted by Greenwald and Ronis (1978), the exclusive focus on ego-defense in response to attitude-behavior discrepancies ignores the fundamental role of cognitive (in)consistency in various phenomena that do not involve any attitude-behavior discrepancies. For example, a large body of research has demonstrated pervasive effects of expectancy-violations on various stages of information processing, including attention, encoding, attribution, memory, and judgment (Roese & Sherman, 2007). One of the most common examples in these studies is the disconfirmation of social stereotypes via exposure to counterstereotypical exemplars (for a review, see Sherman, Allen, & Sacchi, 2012). None of these studies involve discrepancies between attitudes and behavior. Yet, they fit well to our argument that cognitive inconsistency can arise from conflicts between personal beliefs and exposure to belief-conflicting information, with downstream effects on various stages of information processing.
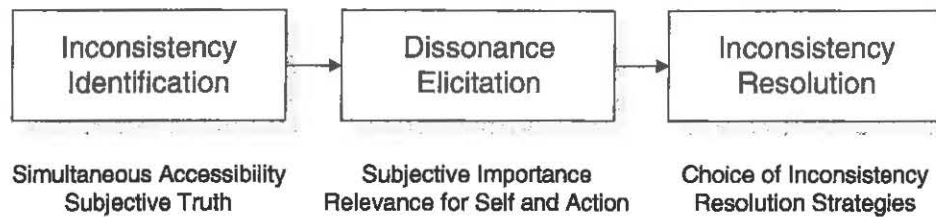
To be sure, self-relevance might be an important moderator of these downstream effects, in that self-relevance may determine the subjective significance of cognitive inconsistency. According to Festinger (1957), the degree of dissonance that is aroused by inconsistent cognitions depends on the subjective importance of the involved elements, which should increase as a function of their self-relevance. From this perspective, self-relevance may moderate the level of negative affect that is elicited by cognitive inconsistency. Yet, this moderating role pertains to the effect of cognitive inconsistency on the elicitation of aversive feelings, and therefore does not eliminate the fundamental role of cognitive (in)consistency as an antecedent of downstream effects on information processing.

A THREE-STAGE MODEL OF INCONSISTENCY PROCESSES

In our view, a major source of theoretical confusion is the conflation of three distinct stages in the processing of inconsistency (see Figure 5.1): (a) the identification of inconsistency, (b) the elicitation of aversive feelings of dissonance, and (c) the resolution of inconsistency (see Gawronski, Peters, & Strack, 2008). This conflation is particularly common in research on attitude-behavior discrepancies, where it has led to premature conclusions about the psychological properties of inconsistency and dissonance.

Inconsistency Identification

The first step in the sequence of inconsistency processes is the identification of inconsistency. People often hold inconsistent beliefs, but they may not

FIGURE 5.1. Three-Stage Model of Inconsistency Processes

Inconsistency Identification	→	Dissonance Elicitation	→	Inconsistency Resolution
Simultaneous Accessibility Subjective Truth		Subjective Importance Relevance for Self and Action		Choice of Inconsistency Resolution Strategies

Identification of inconsistency within one's system of beliefs is assumed to elicit aversive feelings of dissonance, which in turn motivate agents to resolve the inconsistency that gave rise to these feelings. General variables influencing the three steps are depicted below the respective boxes. From "Cross-Cultural Differences vs. Universality in Cognitive Dissonance: A Conceptual Reanalysis," by B. Gawronski, K. R. Peters, and F. Strack, in R. M. Sorrentino & S. Yamaguchi (Eds.), *Handbook of motivation and cognition across cultures* (p. 301), 2008, New York, NY: Elsevier. Copyright 2008 by Elsevier. Adapted with permission.

realize their inconsistency when these beliefs are not activated simultaneously (McGregor, Newby-Clark, & Zanna, 1999; see also Chapter 6, this volume). For example, many of our attitudes may be inconsistent with our behavior, but we may not experience any dissonance if we fail to think about one of the two elements. There will be no inconsistency identified if we fail to think about our behavior whenever we reflect on our attitudes; and there will be no inconsistency identified if we fail to think about our attitudes whenever we reflect on our behavior. For inconsistency to arise, both types of thoughts need to be simultaneously accessible.

Even though simultaneous accessibility is necessary for the identification of cognitive inconsistency, it is not sufficient. As noted previously, the contents of the relevant cognitions have to be regarded as true or false in order to acquire the potential of being (in)consistent with each other. For example, negative stereotypic associations pertaining to a disadvantaged minority group may not result in inconsistency with explicitly endorsed egalitarian goals when accessible stereotypic associations are rejected as inaccurate or false (Gawronski, Peters, Brochu, & Strack, 2008). Hence, the two major determinants of inconsistency identification are (a) the simultaneous accessibility of potentially inconsistent cognitions (McGregor et al., 1999) and (b) the assignment of truth values that makes these cognitions factually inconsistent (Gawronski & Strack, 2004).

The relevance of these arguments for the effects of attitude-behavior discrepancies can be illustrated with the experimental situation in the hypocrisy paradigm (e.g., Fried & Aronson, 1995; Stone, Aronson, Crain, Winslow, & Fried, 1994; Stone, Wiegand, Cooper, & Aronson, 1997). In this paradigm, participants are first asked to indicate their general opinion about a specific issue in a pro-attitudinal manner (e.g., advocating the importance of safe sex), and are then made aware of past failures to behave in line with their attitudes (e.g., past failures to use condoms). The common finding in this paradigm is that the inconsistency between personal attitudes and past behavior influences subsequent behavior in a manner consistent with the endorsed attitude (e.g., buying

condoms). In other words, the inconsistency between participants' attitudes and their cognitions about past behavior leads them to change the cognitions about their behavior, in this case by actually changing their behavior.[2] However, for this behavioral change to occur, it is necessary that (a) the attitude and the cognitions about past behavior are made simultaneously accessible by the experimental procedure, and (b) both of them are explicitly endorsed as valid. If one of the two conditions is not met, there will be no inconsistency identified in the first place, and thus no dissonance-related changes in behavior.

Dissonance Elicitation

If inconsistency in one's system of beliefs has been identified, this inconsistency may arouse aversive feelings of dissonance and the relative magnitude of dissonance should depend on the subjective importance of the involved elements (Festinger, 1957). As we noted earlier, one important determinant of subjective importance is the self-relevance of the involved elements. Another important determinant of subjective importance is the relevance of the involved cognitions for a current task (Harmon-Jones et al., 2009). If inconsistency is identified and the involved elements are either self-relevant or task-relevant, it should arouse aversive feelings of dissonance, and thereby set the stage for downstream effects of cognitive inconsistency. Yet, if inconsistency is identified, but the involved elements are neither self-relevant nor task-relevant, the degree of dissonance that is aroused by the inconsistency should be relatively low (e.g., Nohlen, van Harreveld, Rotteveel, Barends, & Larsen, 2016), which should reduce the likelihood of downstream reactions aimed at resolving the inconsistency.

An important aspect of our distinction between inconsistency identification and dissonance elicitation is that strategies to reduce aversive feelings of dissonance may target either (a) the aversive feelings themselves or (b) the inconsistency underlying these feelings (see Harmon-Jones et al., 2009). In fact, some strategies may effectively reduce the aversive feelings arising from inconsistency without resolving the underlying inconsistency. For example, trivialization of inconsistency, one of the strategies proposed by Festinger (1957), may help to reduce the aversive feeling arising from inconsistency, but it does little to resolve underlying inconsistency (Simon, Greenberg, & Brehm, 1995). Similarly, self-affirmation may be an effective strategy to reduce aversive feelings arising from inconsistency (Steele & Liu, 1983), but it seems ineffective in resolving the inconsistency that gave rise to these feelings. Although effects of self-affirmation on dissonance-related attitude change are typically interpreted as evidence for the role of ego-defense mechanisms (Steele & Liu, 1983), they do not question Festinger's (1957) original ideas about the

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[2] An alternative means of changing cognitions about behavior that does not imply actual changes in behavior would be a reinterpretation of the meaning of past behavior to make it consistent with one's attitude. To our knowledge, this possibility has not yet been investigated empirically.

fundamental nature of cognitive (in)consistency when self-affirmation is interpreted as a strategy to cope with the negative feelings arising from inconsistency. To the extent that aversive feelings of dissonance can be reduced without resolving the underlying inconsistency, any downstream reactions aimed at restoring consistency may become unnecessary from an emotion-regulation point of view.

Another important aspect of the distinction between inconsistency identification and dissonance elicitation is that people may be aware of the aversive feelings arising from cognitive inconsistency, but they may not be aware that these feelings were caused by cognitive inconsistency. Whereas the former refers to people's awareness of their affective state, the latter refers to people's awareness of the cause of their affective state (see Gawronski & Bodenhausen, 2012). Lack of knowledge about the cause of one's affective state opens the door for causal misattribution, such that people may attribute aversive feelings of dissonance to salient factors other than cognitive inconsistency. The most well-known demonstration of this phenomenon is Zanna and Cooper's (1974) "dissonance and the pill" study, in which participants were led to believe that their aversive feelings were caused by a (placebo) pill. As result, downstream reactions aimed at restoring consistency became unnecessary, thereby eliminating the effect of counter-attitudinal behavior on attitude change.

Inconsistency Resolution

Harmon-Jones et al. (2009) used the term *proximal motivation* to describe the desire to reduce the aversive feelings arising from cognitive inconsistency and the term *distal motivation* to describe the desire to resolve the inconsistency that gave rise to these feelings (see also Jonas et al., 2014). As we noted in the preceding section, distal motivation to restore consistency may often be low when people are able to reduce the aversive feeling arising from inconsistency in a direct manner (e.g., trivialization, self-affirmation). Yet, even if they aim to resolve the inconsistency underlying their aversive feelings of dissonance, they can rely on a broad range of potential strategies. According to Festinger (1957), inconsistency can be resolved either by adding a new cognitive element or by changing one of the inconsistent elements. In terms of the current framework, the former strategy can be described as the search for a new proposition that resolves the inconsistency, whereas the latter strategy involves a change of the (subjective) truth value of one of the inconsistent propositions (Gawronski & Strack, 2004). Applied to the case of attitude-behavior discrepancies, an example of "addition" is the search for consonant information (e.g., search for a situational factor that explains the counterattitudinal behavior); examples involving "change" are attitude change and behavior change.[3]

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[3] In a strict sense, inconsistency is resolved by changing the cognition about one's behavior. Although actual behavior change is an effective strategy to change cognitions about one's behavior, the latter may be changed without actual changes in behavior (e.g., reinterpretation of one's behavior).

The fact that inconsistency can always be resolved in multiple ways has important implications for the interpretation of moderator effects on dissonance-related attitude change. A widespread assumption in dissonance research is that the degree of attitude change in dissonance paradigms can be interpreted as a direct indicator of the degree of dissonance. For example, in Festinger and Carlsmith's (1959) induced compliance paradigm, the observed degree of attitude change is typically interpreted as an indicator of the degree of dissonance that is aroused by counterattitudinal behavior. Similarly, in Brehm's (1956) free-choice paradigm, the observed size of the spreading-of-alternatives effect is typically interpreted as an indicator of the degree of postdecisional dissonance. Thus, to the extent that a given factor influences either one of these effects, it is often inferred that this factor influenced the degree of dissonance that was aroused by participants' behavior.

A clear distinction between dissonance elicitation and inconsistency resolution suggests that any such interpretations may be premature. After all, it is possible that the observed difference in attitude change reflects a change in the strategy to restore consistency, and such changes may occur without any differences in the degree of dissonance that motivated the resolution of inconsistency. Similarly, observed differences in attitude change across conditions may be driven by differences in the employed strategies to reduce dissonance, such that participants in one condition may adopt a strategy to reduce their aversive feelings without resolving the underlying inconsistency (i.e., proximal motivation) whereas participants in another condition may aim to reduce their aversive feelings by restoring consistency (i.e., distal motivation). In either of these cases, it would be ill-founded to treat the observed differences in attitude change as direct indicators of differences in the degree of dissonance aroused by inconsistent cognitions.

In our view, this inferential problem has been the driving force behind the increasingly narrow focus of dissonance research. A puzzling finding in the early days of Festinger's (1957) theory was that attitude change in dissonance paradigms depends on numerous factors that have not been anticipated on the basis of the theory. For example, some studies found attitude change as a result of counterattitudinal behavior only when the counterattitudinal behavior had aversive consequences (for a review, see Cooper & Fazio, 1984; but see also Harmon-Jones, Brehm, Greenberg, Simon, & Nelson, 1996). Instead of interpreting these factors as determinants of different strategies to cope with the aversive feelings arising from inconsistency, many researchers treated the obtained effects as direct reflections of the aversive feelings themselves. These interpretations led to major revisions of Festinger's (1957) original theory (e.g., Aronson, 1968; Cooper & Fazio, 1984; Steele & Liu, 1983; Stone & Cooper, 2001). Yet, as we noted earlier in this chapter, most of these revisions are unable to capture the wide range of phenomena used by Festinger (1957) to illustrate the explanatory power of his theory (Greenwald & Ronis, 1978). Examples of these phenomena include responses to new information that conflicts with one's personal beliefs and various other instances in which people hold conflicting propositional beliefs.

IMPLICATIONS

Our conceptual reanalysis of cognitive consistency has a number of interesting implications that go far beyond the dominant focus on attitude-behavior discrepancies. The shared assumptions underlying these implications is that (a) people have a desire to maintain consistency among their propositional beliefs, (b) inconsistency between propositional beliefs arouses aversive feelings of dissonance, and (c) aversive feelings of dissonance trigger mental and behavioral reactions aimed at reducing these feelings (e.g., by resolving the inconsistency that gave rise to these feelings).

Cognitive Consistency and Belief Updating

By expanding the focus from attitude-behavior relations to relations between propositional beliefs, our analysis highlights not only the role of inconsistency processes in the retention and change of personal beliefs; it also explains how people can hold on to their beliefs when they are confronted with belief-conflicting information. After infiltrating a doomsday cult, Festinger, Riecken, and Schachter (1956) argued that human beings are motivated to vehemently defend their beliefs in the face of even overwhelming disconfirming information. Following the observations in their famous *When prophecy fails* study, Festinger (1957) proposed different ways in which dissonance can be abated without updating any beliefs. One such strategy is to simply ignore the new information. For example, people who are convinced that *Trump would make a good president* may willfully ignore any information that would question this belief (e.g., *Economists say that Trump's policy proposals would increase unemployment rates*). Further, to the extent that it is not possible to ignore such information, they may actively discount it (e.g., *The economists who say such things about Trump's policy proposals are Democrats, and their analysis is biased by their political views*) or generate alternative explanations if it is impossible to discount the available evidence (e.g., *The reason why the unemployment rate may increase under Trump's presidency is that his opponents will actively sabotage the economy*). Expanding on these ideas, Proulx et al. (2012) identified various other ways in which people may respond to inconsistency without updating their beliefs, including the perception of new patterns in the environment or affirmation of unrelated beliefs. For example, those who believe that *Trump would make a good president* may deal with new information that *economists say that Trump's policy proposals would increase unemployment rates* by perceiving patterns in the environment that do not exist or by enhancing their endorsement of unrelated beliefs (e.g., *iPhones are superior to Androids*). Neither of these strategies involves a resolution of the underlying inconsistency, but they are aimed at reducing the aversive feelings arising from the inconsistency.

Research on subtyping further suggests that people may respond to belief-conflicting information by treating it as an "exception to the rule" (Weber & Crocker, 1983). For example, upon meeting a gay man who is masculine, people who endorse the stereotype that *gay men are feminine* may protect their

stereotypic belief by creating a subtype for gay men who are masculine. Research has identified various moderators of subtyping, which provides valuable insights for research on cognitive consistency and belief updating. Examples of these moderators are the extremity of counterstereotypical exemplars (i.e., extreme exemplars promote subtyping; see Kunda & Oleson, 1997), ambiguous information about counterstereotypical exemplars (e.g., ambiguous information promotes subtyping; see Kunda & Oleson, 1995), and the availability of cognitive resources (e.g., subtyping requires cognitive resources; see Moreno & Bodenhausen, 1999; Yzerbyt, Coull, & Rocher, 1999).

Our emphasis on psycho-logic in the identification of inconsistency also provides valuable insights into how people can maintain their beliefs in response to disconfirming information. Specifically, people may not update their beliefs in the face of new information when they do not perceive that information as inconsistent with their beliefs. Indeed, recent research suggests that people prefer unfalsifiable beliefs over falsifiable ones and add elements of unfalsifiability to their beliefs in order to protect them (Friesen, Campbell, & Kay, 2015). For example, parents who are against vaccinating their children may argue that their choice is based on moral beliefs (unfalsifiable) rather than making appeals to testable facts (falsifiable). Thus, when presented with information that challenges their decision (e.g., *studies linking vaccinations and autism have been debunked*), they can continue holding their stance against vaccination because no evidence can falsify a moral belief. Similarly, mental models allow adherence to personal beliefs in response to conflicting information by providing additional support for one's beliefs and discounting any information that may conflict with these beliefs (cf. Johnson-Laird et al., 2004). For example, as long as one can come up with a mental model supporting the link between vaccination and autism (e.g., *Jenny McCarthy's child has autism as a result of vaccinations*), scientific studies disconfirming the proposed link will not change the belief that vaccines cause autism. Thus, people may protect their beliefs against contradictory information by (a) avoiding exposure to such information, (b) reducing negative feelings arising from inconsistency, (c) actively discounting the inconsistent information, (d) generating alternative explanations for the contradictory information, (e) deeming it as an exception to the rule, or (f) reinterpreting the status of one's beliefs in a manner that makes them unfalsifiable.

An important question for future research concerns the conditions under which each of these strategies is used to protect one's beliefs. Neither Festinger's (1957) original theory nor recently developed frameworks (e.g., Proulx et al., 2012) are precise enough to stipulate when each strategy is utilized. Similarly, neither of these theories includes specific assumptions about the conditions under which people will change their beliefs or try to protect them (see Gawronski, 2012b). Preliminary insights regarding the latter question can be gained by research on the moderators of subtyping, but more research is needed to demonstrate the generality of the identified principles. By adopting a broader interpretation of cognitive consistency in terms of propositional beliefs, we can move towards more refined frameworks that are broad in scope, yet precise in

their assumptions about the conditions under which people respond to conflicting information in a specific manner.

Contextualized Representation of Expectancy-Violating Information

Because inconsistency between personal beliefs and newly acquired information signals the presence of an erroneous component in one's system of beliefs (Gawronski, 2012a), a by-product of exposure to belief-incongruent information is enhanced attention. This idea has become a central component in developmental research with preverbal infants, which heavily relies on visual attention as an indicator of expectancy-violation (for a similar approach in animal research, see Tinklepaugh, 1928). In terms of the current framework, expectancy-violation indexed by enhanced attention can be interpreted as an instance of identified cognitive inconsistency, in which prior beliefs about states of affairs conflict with new information.

The notion that exposure to expectancy-violating information enhances attention was adopted by Gawronski, Ye, Rydell, and De Houwer (2014) to investigate the integration of incidental context cues into the mental representation of newly acquired information. The basic idea underlying this work is that exposure to expectancy-violating information enhances attention to the momentary context, which leads to an integration of the context into the mental representation of the expectancy-violating information. To test this hypothesis, Gawronski et al. (2014) asked participants to form an impression of a target individual and presented them with 30 behavioral statements about the individual one-by-one against different background colors. The initial 20 statements suggested either a positive or a negative trait. The 21st statement was used as a target statement and described a behavior that was either congruent or incongruent with the valence of the initial 20 statements. The target statement was followed by nine distracter statements that matched the valence of the initial 20 statements. After the impression formation task, participants completed a surprise recognition test, in which they had to identify the background color against which the target statement was presented during the impression formation task. Supporting the idea that expectancy-violation enhances attention to incidental context cues, participants showed better recognition memory for the background color of the target statement when it was incongruent than when it was congruent with the valence of the initial statements (see also Cacioppo, Crites, Berntson, & Coles, 1993).

An interesting implication of Gawronski et al.'s (2014) findings is that mental representations of expectancy-violating information often become linked to the context in which this information was acquired. That is, incidental context cues are more likely to become integrated into the representation of expectancy-incongruent information compared to expectancy-congruent information. As a result, subsequent activation of expectancy-incongruent information depends on the presence of contextual cues that had been present during the acquisition of the expectancy-incongruent information. Consistent with these hypotheses, a

series of studies by Gawronski and Rydell found that expectancy-violating information about another person influenced spontaneous evaluative responses only in the context in which this information had been acquired, whereas spontaneous evaluative responses in any other context continued to reflect the previously acquired information that gave rise to the initial expectancy (e.g., Gawronski, Rydell, Vervliet, & De Houwer, 2010; Rydell & Gawronski, 2009). In line with the above arguments, Gawronski et al. (2010) hypothesized that exposure to expectancy-violating information enhances attention to incidental context cues. Thus, new information that contradicts a first impression tends to be stored in contextualized representations, which leaves initially formed context-free representations intact. Interestingly, the mental contextualization of expectancy-violating information also prevents cognitive inconsistency from the simultaneous activation of conflicting representations (and thus the elicitation of dissonance), because context cues modulate which representation will be activated in a given situation: (a) the previously formed context-free representation that gave rise to the initial expectancy or (b) the subsequently formed contextualized representation of the expectancy-violating information (for reviews, see Gawronski & Cesario, 2013; Gawronski et al., 2018).

Cognitive Consistency and the Relation Between Implicit and Explicit Evaluations

Another interesting implication of our conceptualization of cognitive consistency in terms of propositional beliefs concerns the relation between explicit and implicit evaluations. Dissociations between explicit and implicit evaluations are commonly framed in terms of conscious versus unconscious attitudes (e.g., Greenwald & Banaji, 1995) or self-presentational effects on explicit evaluations (e.g., Fazio, Jackson, Dunton, & Williams, 1995). Different from these conceptualizations, Gawronski and Bodenhausen (2006) argued that (a) implicit evaluations reflect spontaneous affective reactions resulting from activated associations and (b) explicit evaluations reflect deliberate evaluative judgments that have passed a propositional assessment of subjective validity. Moreover, although spontaneous affective reactions often provide the basis for deliberate evaluative judgments, the two kinds of evaluative responses can differ when inconsistency leads to a rejection of one's affective reaction as a valid basis for an evaluative judgment.

To illustrate the role of consistency in this process, consider a case in which the activation of negative associations related to the stereotype of African Americans elicits a negative affective reaction in response to Black people. According to Gawronski, Peters, Brochu, et al. (2008), this affective reaction may be translated into a corresponding propositional evaluation (e.g., *I dislike Black people*), which may be assessed for its validity on the basis of its consistency with other propositional beliefs that are considered relevant for an evaluative judgment. In general, propositional evaluations of a given object may be assessed for their consistency with (a) nonevaluative beliefs about states of

affairs and (b) propositional evaluations of other attitude objects (Jones & Gerard, 1967). In the current example, these two kinds of propositions may include propositional beliefs about the prevalence of racial discrimination and propositional evaluations of discriminatory behavior. More specifically, the set of judgment-relevant elements may include the following three propositions:
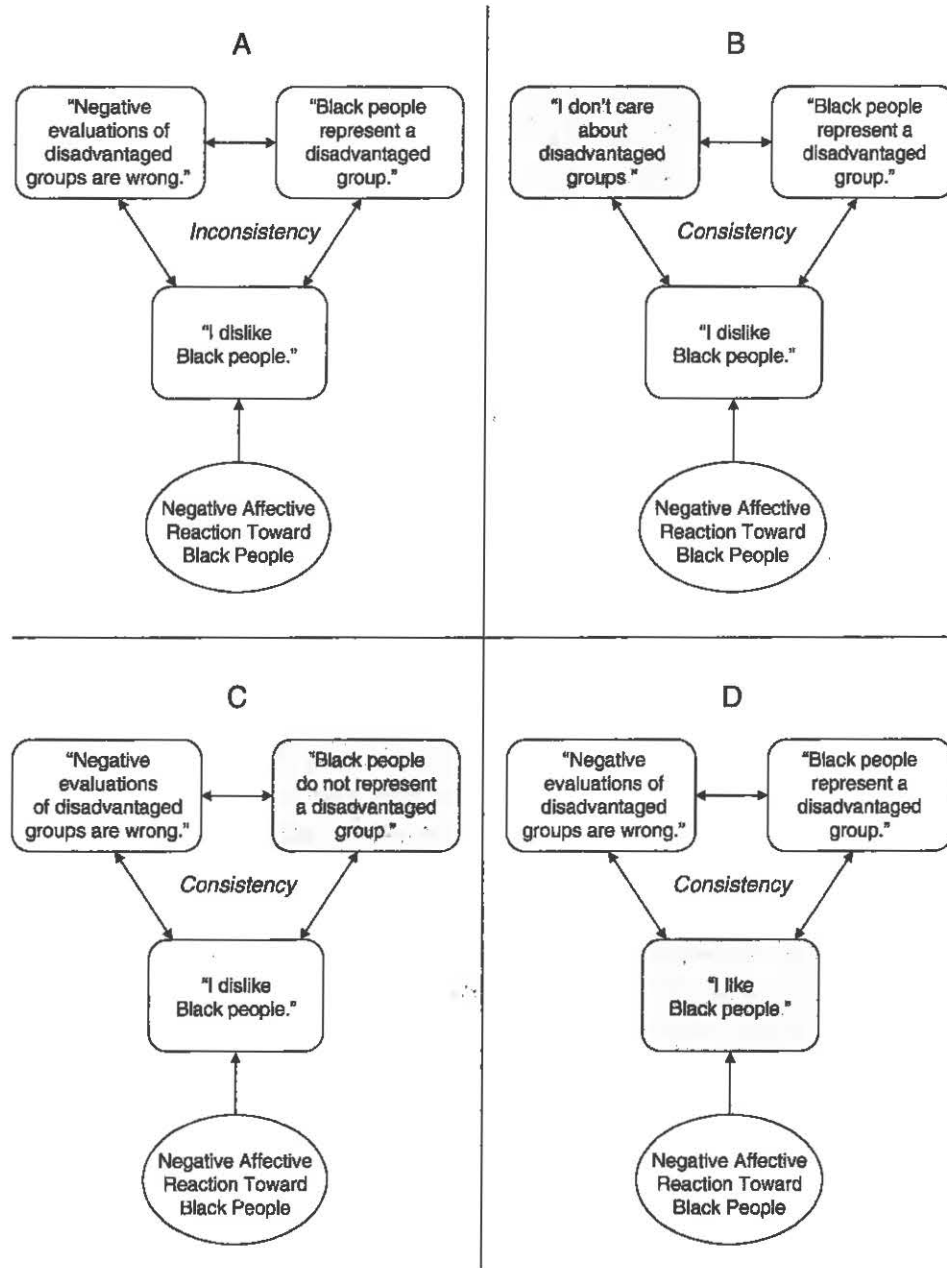
1. *I dislike Black people.*
2. *Black people represent a disadvantaged group.*
3. *Negative evaluations of disadvantaged groups are wrong.*

Together, these three propositions are inconsistent with each other in that they cannot be endorsed at the same time without violating the basic notion of cognitive consistency (see Figure 5.2, Panel A). Proposition 1 is inconsistent with the joint implication of Propositions 2 and 3; Proposition 2 is inconsistent with the joint implication of Propositions 1 and 3; and Proposition 3 is inconsistent with the joint implication of Propositions 1 and 2. To the extent that consistency is achieved through a rejection of either Proposition 2 (see Figure 5.2, Panel B) or Proposition 3 (see Figure 5.2, Panel C), the negative evaluation of Proposition 1 may be endorsed in a verbally reported evaluative judgment. In these cases, implicit and explicit evaluations should show corresponding responses, such that both reflect the negativity of the affective reaction resulting from activated associations. If, however, consistency is achieved through a rejection of Proposition 1 (see Figure 5.2, Panel D), people may endorse a neutral or positive evaluation in their verbally reported judgments. Importantly, merely reversing the subjective truth value of Proposition 1 does not necessarily deactivate the associations that gave rise to the affective reaction that served as the basis for this proposition (see Deutsch, Gawronski, & Strack, 2006). As a result, a rejection of Proposition 1 should lead to a dissociation between implicit and explicit evaluations, such that implicit evaluations should reflect the negativity of the affective reaction, whereas explicit evaluations should reflect the neutral or positive evaluation that is inferred in the propositional validation process. These predictions have been empirically confirmed for several target groups (e.g., African Americans, people who are overweight) using various measure of implicit evaluations (for a review, see Gawronski, Brochu, Sritharan, & Strack, 2012).

Cognitive Consistency and Changes in Implicit and Explicit Evaluations

Related to the notion that cognitive (in)consistency determines the relation between implicit and explicit evaluations, our conceptualization in terms of propositional beliefs implies that a reassessment of validity triggered by dissonance should lead to changes on explicit, but not implicit evaluations (Gawronski & Strack, 2004). The basic idea underlying this hypothesis is that a change of the (subjective) truth value of one of the inconsistent propositions does not necessarily deactivate the mental associations that provided the basis

FIGURE 5.2. Interplay Between Affective Reactions (Circles) and Propositional Beliefs (Squares) in Racial Prejudice Against Black People

A

"Negative evaluations of disadvantaged groups are wrong." ↔ "Black people represent a disadvantaged group."

Inconsistency

"I dislike Black people."

Negative Affective Reaction Toward Black People

B

"I don't care about disadvantaged groups." ↔ "Black people represent a disadvantaged group."

Consistency

"I dislike Black people."

Negative Affective Reaction Toward Black People

C

"Negative evaluations of disadvantaged groups are wrong." ↔ "Black people do not represent a disadvantaged group."

Consistency

"I dislike Black people."

Negative Affective Reaction Toward Black People

D

"Negative evaluations of disadvantaged groups are wrong." ↔ "Black people represent a disadvantaged group."

Consistency

"I like Black people."

Negative Affective Reaction Toward Black People

Panel A depicts the case of an inconsistent belief system; Panels B, C, and D depict consistent belief systems, involving either a reliance on affective reactions for evaluative judgments (Panels B and C) or a rejection of affective reactions for evaluative judgments (Panel D). From "Understanding the Relations Between Different Forms of Racial Prejudice: A Cognitive Consistency Perspective," by B. Gawronski, K. R. Peters, P. M. Brochu, and F. Strack, 2008, *Personality and Social Psychology Bulletin, 34*, p. 651. Copyright 2008 by SAGE. Adapted with permission.

for this proposition (see Deutsch et al., 2006). For example, in Festinger and Carlsmith's (1959) induced compliance paradigm, counterattitudinal behavior may give rise to a mental proposition about the participant engaging in that behavior, which may conflict with the participant's propositional evaluation of the relevant target object. To the extent that the behavior was not freely chosen, this conflict may be resolved by an additional proposition that provides a situational explanation for the counterattitudinal behavior. Yet, if there is no situational explanation for the counterattitudinal behavior, the conflict may be resolved by reversing the (subjective) truth value of the propositional evaluation of the target object, leading to a change in deliberate evaluative judgments (i.e., change in explicit evaluation). Importantly, because reversing the truth value of a propositional evaluation does not deactivate its underlying associations, the spontaneous affective reaction resulting from these associations should remain unaffected (i.e., no change in implicit evaluations). Consistent with these hypotheses, Gawronski and Strack (2004) found that counterattitudinal behavior in the induced compliance paradigm changes explicit, but not implicit, evaluations (for similar findings, see Wilson, Lindsey, & Schooler, 2000). Moreover, whereas explicit and implicit evaluations were highly correlated when inconsistency could be resolved by means of a situational explanation for the counterattitudinal behavior, explicit and implicit evaluations were uncorrelated when there was no situational explanation for the counterattitudinal behavior.

Does this mean that implicit evaluations should never change in traditional dissonance paradigms? The short answer is no, because change in implicit evaluations in these paradigms can be the result of other mechanisms that do not involve any dissonance. To illustrate this argument, consider Brehm's (1956) free-choice paradigm in which participants tend to show more favorable evaluations of chosen compared to rejected objects. The most common interpretation of this spreading-of-alternatives effect is that choosing between two equally valued alternatives elicits postdecisional dissonance. To reduce this aversive feeling, participants are assumed to selectively search for positive features of the chosen object and negative features of the rejected object, leading to more favorable evaluations of the chosen object and less favorable evaluations of the rejected object (i.e., spreading-of-alternatives effect).

Although there is no doubt that postdecisional dissonance can cause the spreading-of-alternatives effect, there is at least one alternative mechanism that can lead to similar outcomes. Importantly, this mechanism (a) does not involve any dissonance and (b) influences implicit evaluations via the formation of new associations. In line with the notion of mere-ownership effects, Gawronski, Bodenhausen, and Becker (2007) argued that the act of choosing an object creates an association between the chosen object and the self (cf. Ye & Gawronski, 2016). By virtue of this association, implicit evaluations of the self transfer to the chosen object, such that implicit evaluations of the chosen object depend on implicit evaluations of the self. To the extent that people show positive implicit evaluations of the self (e.g., Greenwald & Farnham,

2000; Koole, Dijksterhuis, & van Knippenberg, 2001), this mechanism can lead to ownership-related changes in implicit evaluations, and these changes may occur even in the absence of postdecisional dissonance (e.g., when people receive an object as a gift).[4] Moreover, mere-ownership effects on implicit evaluations may lead to downstream effects on explicit evaluations to the extent that people rely on their spontaneous affective reactions resulting from activated associations. Yet, if people reject their spontaneous affective reactions as a basis for evaluative judgments, mere-ownership effects should be limited to implicit evaluations without generalizing to explicit evaluations (see Gawronski & LeBel, 2008, Experiment 3).

EMERGING THEMES

In addition to the insights reviewed in the preceding section, our analysis raises a number of important questions for future research. One such question concerns the determinants of people's lay perceptions of (in)consistency at the identification stage (see Figure 5.1). As we noted earlier in this chapter, lay perceptions of (in)consistency go beyond the laws of formal logic, such that psycho-logical (in)consistency subsumes a much broader range of relations between cognitive elements. One example is the relation between warmth and competence in person perception (see Cuddy, Fiske, & Glick, 2008; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005). Using participants' memory for incidental context cues as an indicator of expectancy-violation during the encoding of novel information about a target individual (see Gawronski et al., 2014), Brannon, Sacchi, and Gawronski (2017) found an expectancy-violation effect for information that was incongruent with the valence of prior impressions. Interestingly, this expectancy-violation effect occurred regardless of whether the new information matched the dimension of the initial impression. That is, when participants formed an initial impression of the target as being warm (cold), they showed a surprise reaction when they were presented with new information suggesting that the target is incompetent (competent). Conversely, when participants formed an initial impression of the target as being competent (incompetent), they showed a surprise reaction when they were presented with new information suggesting that the target is cold (warm). Together, these results suggest that expectancy-violation effects in impression formation are

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[4] Another important implication of these findings is that they prohibit interpretations of the spreading-of-alternatives effect as a direct indicator of postdecisional dissonance. For example, it has been argued that the mere emergence of a spreading-of-alternatives effect demonstrates postdecisional dissonance in amnesic patients who do not remember their choice (Lieberman, Ochsner, Gilbert, & Schacter, 2001). From the perspective of our analysis, such a conclusion seems rather implausible, given that lack of memory for the choice implies low accessibility of one of the involved cognitions (see Figure 5.1). A more plausible conclusion is that spreading-of-alternatives effects in amnesic patients result from a mechanism that does not involve any dissonance, such as the formation of a new association between the chosen object and the self (Gawronski et al., 2007).

driven by the valence of prior expectations and novel information, and these effects occur regardless of whether prior expectations and novel information match in terms of their trait dimension.

Another interesting implication of Brannon et al.'s (2017) findings is that they echo the significance of distinguishing between the principles that guide inconsistency identification and those that guide inconsistency resolution. Given that negative behavior is often assumed to be more informative about the presence of a corresponding trait than positive behavior (for a review, see Skowronski & Carlston, 1989), new information about negative behavior may be perceived as more inconsistent with an initial positive impression than the reverse. Counter to this hypothesis, Brannon et al. (2017) found no evidence for valence asymmetries in lay perceptions of inconsistency (see also Brannon & Gawronski, 2018). That is, expectancy-incongruent negative information showed the same expectancy-violation effect as expectancy-incongruent positive information. Further, there were no valence asymmetries regardless of whether the impression dimension involved warmth or competence. These results suggest that the negativity bias in impression formation is most likely driven by the differential weighting of positive and negative information during the resolution of inconsistency. Yet, there seems to be no negativity bias in the identification of inconsistency (see Figure 5.1).

Another emerging question is whether the affective feelings elicited by cognitive inconsistency are generally aversive, or whether there are conditions under which inconsistency can elicit positive affect. An interesting example is the case of negative expectations that are violated by a positive outcome (e.g., a student expects a low grade on an exam, and this expectation is violated by a high grade). From a cognitive consistency view, expectancy-violations of this kind should elicit negative affect despite the positive outcome. Yet, from a purely hedonic view, it seems more likely that affective reactions to the unexpected outcome reflect the positive valence of the outcome. Reconciling the conflicting evidence on the two hypotheses, Noordewier, Topolinski, and Van Dijk (2016) argued that the nature of the affective response depends on the particular stage of information processing. According to their theory, the identification of inconsistency between expected and actual outcomes elicits a negative affective reaction regardless of whether the unexpected outcome is positive or negative. Yet, once the inconsistency is resolved and the belief system is updated in favor of the actual outcome, the initial negative reaction is overridden by the positive affect resulting from the valence of the outcome (e.g., Noordewier & Breugelmans, 2013; Topolinski & Strack, 2015).

IS THE NEED FOR COGNITIVE CONSISTENCY UNIVERSAL?

A final question that needs to be addressed in any chapter on the fundamental nature of cognitive consistency concerns its universal significance. Festinger (1957) famously argued that the need for consistency is as basic as hunger and

thirst. In line with this claim, researchers in developmental and comparative psychology have claimed that dissonance-related attitude change can be observed in infants and various animals (e.g., Egan, Santos, & Bloom, 2007; Lawrence & Festinger, 1962; Lydall, Gilmour, & Dwyer, 2010). Yet, counter to the presumed universality, many cross-cultural researchers have argued that dissonance is a culture-specific phenomenon that is limited to Western, individualist countries and less likely in Eastern, collectivist countries (e.g., Heine & Lehman, 1997; Markus & Kitayama, 1991). Although we agree with the view that consistency and dissonance phenomena can be found across age, species, and cultures, it seems important to carefully scrutinize the evidence that has been cited in support of the conflicting views.

With regard to claims about cultural differences, we want to reiterate our concerns about treating the absence of attitude change in traditional dissonance paradigms as evidence for a lack of dissonance (or even a lack of a need for consistency). As we explained earlier in this chapter, any factor that moderates the emergence of attitude change in these paradigms may do so by influencing (a) lay perceptions of what is deemed consistent versus inconsistent, (b) the relative importance of the involved elements, and thus the degree of dissonance that is elicited by inconsistent propositional beliefs, (c) the proximal focus on the aversive feelings versus the distal focus on the inconsistency that gave rise to these feelings, and (d), if the focus is on the underlying inconsistency, the particular strategy that is used to restore consistency (see Figure 5.1). Because cultural differences may influence any one of these processes (for a review, see Gawronski et al., 2008), claims that a lack of attitude change in dissonance paradigms among Eastern participants indicates the absence of a basic need for cognitive consistency seem premature.

Similar caveats seem appropriate for claims about dissonance in infants and various animals. Many studies cited in support of these claims relied on the free-choice paradigm (Brehm, 1956) to demonstrate the emergence of a spreading-of-alternatives effect (e.g., Egan et al., 2007; but see Lawrence & Festinger, 1962). However, as we explained earlier in this chapter, the mere demonstration of a spreading-of-alternatives effect is insufficient to establish the operation of dissonance processes, because this effect can be due to other mechanisms (Gawronski et al., 2007) and sometimes reflects artifacts of the experimental design (Chen & Risen, 2010). These issues make it impossible to draw inferences about the involvement of inconsistency or dissonance from the mere observation of a spreading-of-alternatives effect without additional measures or appropriate control conditions.

Despite these ambiguities, it is important to note that they do not undermine the ubiquitous effect of cognitive inconsistency on attention (Vachon, Hughes, & Jones, 2012), which is widely used as an indicator of expectancy-violation in infants (for a similar approach in animal research, see Tinklepaugh, 1928). To be sure, animals and infants may have lower working memory capacity than human adults, which may constrain the complexity of mental models to

identify inconsistency (see Johnson-Laird et al., 2004). However, this constraint does not imply the absence of a universal need for cognitive consistency. After all, any organism requires an accurate representation of the world for context-appropriate action, and inconsistency serves as an important signal of inaccurate representations.

CONCLUSION

The main goal of the current chapter was to make a theoretical case for broader interpretations of cognitive consistency and dissonance that go beyond the relation between attitudes and behavior. A central aspect of our analysis is the conceptualization of cognitive (in)consistency as a relation between propositional beliefs. In addition to shedding new light on the effects of attitude-behavior discrepancies, this conceptualization provides novel insights into a wide range of other phenomena, including belief updating, the formation of contextualized representations, the relation between implicit and explicit evaluations, and changes in implicit and explicit evaluations. Our analysis also raises interesting questions for future research regarding lay perceptions of (in)consistency, the affective feelings elicited by inconsistency, and the particular processing stages that are responsible for consistency phenomena. On the basis of these insights, we deem a broader conceptualization of consistency and dissonance as superior compared to narrow interpretations in terms of attitude-behavior discrepancies. We apologize for any dissonance this conclusion may elicit in people who endorse such narrow interpretations.

REFERENCES

Aronson, E. (1968). Dissonance theory: Progress and problems. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcombe, M. J. Rosenberg, & P. H. Tannenbaum (Eds.), *Theories of cognitive consistency: A sourcebook* (pp. 5–27). Skokie, IL: Rand-McNally.

Aronson, E., & Cope, V. (1968). My enemy's enemy is my friend. *Journal of Personality and Social Psychology, 8,* 8–12. http://dx.doi.org/10.1037/h0021234

Brannon, S. M., & Gawronski, B. (2018). In search of a negativity bias in expectancy violation. *Social Cognition, 36,* 199–220. http://dx.doi.org/10.1521/soco.2018.36.2.199

Brannon, S. M., Sacchi, D. L. M., & Gawronski, B. (2017). (In)consistency in the eye of the beholder: The roles of warmth, competence, and valence in lay perceptions of inconsistency. *Journal of Experimental Social Psychology, 70,* 80–94. http://dx.doi.org/10.1016/j.jesp.2016.12.011

Brehm, J. W. (1956). Postdecision changes in the desirability of alternatives. *Journal of Abnormal and Social Psychology, 52,* 384–389. http://dx.doi.org/10.1037/h0041006

Cacioppo, J. T., Crites, S. L., Jr., Berntson, G. G., & Coles, M. G. H. (1993). If attitudes affect how stimuli are processed, should they not affect the event-related brain potential? *Psychological Science, 4,* 108–112. http://dx.doi.org/10.1111/j.1467-9280.1993.tb00470.x

Chen, M. K., & Risen, J. L. (2010). How choice affects and reflects preferences: Revisiting the free-choice paradigm. *Journal of Personality and Social Psychology, 99,* 573–594. http://dx.doi.org/10.1037/a0020217

Cooper, J., & Fazio, R. H. (1984). A new look at dissonance theory. *Advances in Experimental Social Psychology, 17,* 229–266. http://dx.doi.org/10.1016/S0065-2601(08)60121-5

Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and the BIAS map. *Advances in Experimental Social Psychology, 40,* 61–149. http://dx.doi.org/10.1016/S0065-2601(07)00002-0

Deutsch, R., Gawronski, B., & Strack, F. (2006). At the boundaries of automaticity: Negation as reflective operation. *Journal of Personality and Social Psychology, 91,* 385–405. http://dx.doi.org/10.1037/0022-3514.91.3.385

Egan, L. C., Santos, L. R., & Bloom, P. (2007). The origins of cognitive dissonance: Evidence from children and monkeys. *Psychological Science, 18,* 978–983. http://dx.doi.org/10.1111/j.1467-9280.2007.02012.x

Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of Personality and Social Psychology, 69,* 1013–1027. http://dx.doi.org/10.1037/0022-3514.69.6.1013

Festinger, L. (1957). *A theory of cognitive dissonance.* Evanston, IL: Row Peterson.

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology, 58,* 203–210. http://dx.doi.org/10.1037/h0041593

Festinger, L., Riecken, H. W., & Schachter, S. (1956). *When prophecy fails.* Minneapolis, MN: University of Minnesota Press. http://dx.doi.org/10.1037/10030-000

Fried, C. B., & Aronson, E. (1995). Hypocrisy, misattribution, and dissonance reduction. *Personality and Social Psychology Bulletin, 21,* 925–933. http://dx.doi.org/10.1177/0146167295219007

Friesen, J. P., Campbell, T. H., & Kay, A. C. (2015). The psychological advantage of unfalsifiability: The appeal of untestable religious and political ideologies. *Journal of Personality and Social Psychology, 108,* 515–529. http://dx.doi.org/10.1037/pspp0000018

Gawronski, B. (2012a). Back to the future of dissonance theory: Cognitive consistency as a core motive. *Social Cognition, 30,* 652–668. http://dx.doi.org/10.1521/soco.2012.30.6.652

Gawronski, B. (2012b). Meaning, violation of meaning, and meaninglessness in meaning maintenance. *Psychological Inquiry, 23,* 346–349. http://dx.doi.org/10.1080/1047840X.2012.706507

Gawronski, B., & Bodenhausen, G. V. (2006). Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin, 132,* 692–731. http://dx.doi.org/10.1037/0033-2909.132.5.692

Gawronski, B., & Bodenhausen, G. V. (2012). Self-insight from a dual-process perspective. In S. Vazire & T. D. Wilson (Eds.), *Handbook of self-knowledge* (pp. 22–38). New York, NY: Guilford Press.

Gawronski, B., & Bodenhausen, G. V. (2015). Theory evaluation. In B. Gawronski & G. V. Bodenhausen (Eds.), *Theory and explanation in social psychology* (pp. 3–23). New York, NY: Guilford Press.

Gawronski, B., Bodenhausen, G. V., & Becker, A. P. (2007). I like it, because I like myself: Associative self-anchoring and post-decisional change of implicit evaluations. *Journal of Experimental Social Psychology, 43,* 221–232. http://dx.doi.org/10.1016/j.jesp.2006.04.001

Gawronski, B., Brochu, P. M., Sritharan, R., & Strack, F. (2012). Cognitive consistency in prejudice-related belief systems: Integrating old-fashioned, modern, aversive and implicit forms of prejudice. In B. Gawronski & F. Strack (Eds.), *Cognitive consistency: A fundamental principle in social cognition* (pp. 369–389). New York, NY: Guilford Press.

Gawronski, B., & Cesario, J. (2013). Of mice and men: What animal research can tell us about context effects on automatic responses in humans. *Personality and Social Psychology Review, 17,* 187–215. http://dx.doi.org/10.1177/1088868313480096

Gawronski, B., & LeBel, E. P. (2008). Understanding patterns of attitude change: When implicit measures show change, but explicit measures do not. *Journal of Experimental Social Psychology, 44,* 1355–1361. http://dx.doi.org/10.1016/j.jesp.2008.04.005

Gawronski, B., Peters, K. R., Brochu, P. M., & Strack, F. (2008). Understanding the relations between different forms of racial prejudice: A cognitive consistency perspective. *Personality and Social Psychology Bulletin, 34,* 648–665. http://dx.doi.org/10.1177/0146167207313729

Gawronski, B., Peters, K. R., & Strack, F. (2008). Cross-cultural differences versus universality in cognitive dissonance: A conceptual reanalysis. In R. M. Sorrentino & S. Yamaguchi (Eds.), *Handbook of motivation and cognition across cultures* (pp. 297–314). New York, NY: Elsevier. http://dx.doi.org/10.1016/B978-0-12-373694-9.00013-1

Gawronski, B., Rydell, R. J., De Houwer, J., Brannon, S. M., Ye, Y., Vervliet, B., & Hu, X. (2018). Contextualized attitude change. *Advances in Experimental Social Psychology, 57,* 1–52. http://dx.doi.org/10.1016/bs.aesp.2017.06.001

Gawronski, B., Rydell, R. J., Vervliet, B., & De Houwer, J. (2010). Generalization versus contextualization in automatic evaluation. *Journal of Experimental Psychology: General, 139,* 683–701. http://dx.doi.org/10.1037/a0020315

Gawronski, B., & Strack, F. (2004). On the propositional nature of cognitive consistency: Dissonance changes explicit, but not implicit attitudes. *Journal of Experimental Social Psychology, 40,* 535–542. http://dx.doi.org/10.1016/j.jesp.2003.10.005

Gawronski, B., & Strack, F. (Eds.). (2012). *Cognitive consistency: A fundamental principle in social cognition.* New York, NY: Guilford Press.

Gawronski, B., Walther, E., & Blank, H. (2005). Cognitive consistency and the formation of interpersonal attitudes: Cognitive balance affects the encoding of social information. *Journal of Experimental Social Psychology, 41,* 618–626. http://dx.doi.org/10.1016/j.jesp.2004.10.005

Gawronski, B., Ye, Y., Rydell, R. J., & De Houwer, J. (2014). Formation, representation, and activation of contextualized attitudes. *Journal of Experimental Social Psychology, 54,* 188–203. http://dx.doi.org/10.1016/j.jesp.2014.05.010

Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review, 102,* 4–27. http://dx.doi.org/10.1037/0033-295X.102.1.4

Greenwald, A. G., & Farnham, S. D. (2000). Using the implicit association test to measure self-esteem and self-concept. *Journal of Personality and Social Psychology, 79,* 1022–1038. http://dx.doi.org/10.1037/0022-3514.79.6.1022

Greenwald, A. G., & Ronis, D. L. (1978). Twenty years of cognitive dissonance: Case study of the evolution of a theory. *Psychological Review, 85,* 53–57. http://dx.doi.org/10.1037/0033-295X.85.1.53

Harmon-Jones, E., Amodio, D. M., & Harmon-Jones, C. (2009). Action-based model of dissonance. *Advances in Experimental Social Psychology, 41,* 119–166. http://dx.doi.org/10.1016/S0065-2601(08)00403-6

Harmon-Jones, E., Brehm, J. W., Greenberg, J., Simon, L., & Nelson, D. E. (1996). Evidence that the production of aversive consequences is not necessary to create cognitive dissonance. *Journal of Personality and Social Psychology, 70,* 5–16. http://dx.doi.org/10.1037/0022-3514.70.1.5

Heider, F. (1958). *The psychology of interpersonal relations.* New York, NY: Wiley. http://dx.doi.org/10.1037/10628-000

Heine, S. J., & Lehman, D. R. (1997). Culture, dissonance, and self-affirmation. *Personality and Social Psychology Bulletin, 23,* 389–400. http://dx.doi.org/10.1177/0146167297234005

Johnson-Laird, P. N., Girotto, V., & Legrenzi, P. (2004). Reasoning from inconsistency to consistency. *Psychological Review, 111,* 640–661. http://dx.doi.org/10.1037/0033-295X.111.3.640

Jonas, E., McGregor, I., Klackl, J., Agroskin, D., Fritsche, I., Holbrook, C., . . . Quirin, M. (2014). Threat and defense: From anxiety to approach. *Advances in Experimental Social Psychology, 49,* 219–286. http://dx.doi.org/10.1016/B978-0-12-800052-6.00004-4

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

Judd, C. M., James-Hawkins, L., Yzerbyt, V., & Kashima, Y. (2005). Fundamental dimensions of social judgment: Understanding the relations between judgments of competence and warmth. *Journal of Personality and Social Psychology, 89,* 899–913. http://dx.doi.org/10.1037/0022-3514.89.6.899

Koole, S. L., Dijksterhuis, A., & van Knippenberg, A. (2001). What's in a name: Implicit self-esteem and the automatic self. *Journal of Personality and Social Psychology, 80,* 669–685. http://dx.doi.org/10.1037/0022-3514.80.4.669

Kruglanski, A. W., & Shteynberg, G. (2012). Cognitive consistency as means to an end: How subjective logic affords knowledge. In B. Gawronski & F. Strack (Eds.), *Cognitive consistency: A unifying concept in social psychology* (pp. 245–264). New York, NY: Guilford Press.

Kunda, Z., & Oleson, K. C. (1995). Maintaining stereotypes in the face of disconfirmation: Constructing grounds for subtyping deviants. *Journal of Personality and Social Psychology, 68,* 565–579. http://dx.doi.org/10.1037/0022-3514.68.4.565

Kunda, Z., & Oleson, K. C. (1997). When exceptions prove the rule: How extremity of deviance determines the impact of deviant examples on stereotypes. *Journal of Personality and Social Psychology, 72,* 965–979. http://dx.doi.org/10.1037/0022-3514.72.5.965

Lawrence, D. H., & Festinger, L. (1962). *Deterrents and reinforcement: The psychology of insufficient reward.* Palo Alto, CA: Stanford University Press.

Lieberman, M. D., Ochsner, K. N., Gilbert, D. T., & Schacter, D. L. (2001). Do amnesics exhibit cognitive dissonance reduction? The role of explicit memory and attention in attitude change. *Psychological Science, 12,* 135–140. http://dx.doi.org/10.1111/1467-9280.00323

Lydall, E. S., Gilmour, G., & Dwyer, D. M. (2010). Rats place greater value on rewards produced by high effort: An animal analogue of the "effort justification" effect. *Journal of Experimental Social Psychology, 46,* 1134–1137. http://dx.doi.org/10.1016/j.jesp.2010.05.011

Markus, H., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98,* 224–253. http://dx.doi.org/10.1037/0033-295X.98.2.224

McGregor, I., Newby-Clark, I. R., & Zanna, M. P. (1999). "Remembering" dissonance: Simultaneous accessibility of inconsistent cognitive elements moderates epistemic discomfort. In E. Harmon-Jones & J. Mills (Eds.), *Cognitive dissonance: Progress on a pivotal theory in social psychology* (pp. 325–353). Washington, DC: American Psychological Association. http://dx.doi.org/10.1037/10318-013

Moreno, K. N., & Bodenhausen, G. V. (1999). Resisting stereotype change: The role of motivation and attentional capacity in defending social beliefs. *Group Processes & Intergroup Relations, 2,* 5–16. http://dx.doi.org/10.1177/1368430299021001

Nohlen, H. U., van Harreveld, F., Rotteveel, M., Barends, A. J., & Larsen, J. T. (2016). Affective responses to ambivalence are context-dependent: A facial EMG study on the role of inconsistency and evaluative context in shaping affective responses to ambivalence. *Journal of Experimental Social Psychology, 65,* 42–51. http://dx.doi.org/10.1016/j.jesp.2016.02.001

Noordewier, M. K., & Breugelmans, S. M. (2013). On the valence of surprise. *Cognition and Emotion, 27,* 1326–1334. http://dx.doi.org/10.1080/02699931.2013.777660

Noordewier, M. K., Topolinski, S., & Van Dijk, E. (2016). The temporal dynamics of surprise. *Social and Personality Psychology Compass, 10,* 136–149. http://dx.doi.org/10.1111/spc3.12242

Proulx, T., Inzlicht, M., & Harmon-Jones, E. (2012). Understanding all inconsistency compensation as a palliative response to violated expectations. *Trends in Cognitive Sciences, 16,* 285–291. http://dx.doi.org/10.1016/j.tics.2012.04.002

Quine, W. V. O., & Ullian, J. S. (1978). *The web of belief* (2nd ed.). New York, NY: McGraw-Hill.

Reber, R., & Schwarz, N. (1999). Effects of perceptual fluency on judgments of truth. *Consciousness and Cognition, 8,* 338–342. http://dx.doi.org/10.1006/ccog.1999.0386

Reber, R., Winkielman, P., & Schwarz, N. (1998). Effects of perceptual fluency on affective judgments. *Psychological Science, 9,* 45–48. http://dx.doi.org/10.1111/1467-9280.00008

Roese, N. J., & Sherman, J. W. (2007). Expectancies. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 91–115). New York, NY: Guilford Press.

Rydell, R. J., & Gawronski, B. (2009). I like you, I like you not: Understanding the formation of context-dependent automatic attitudes. *Cognition and Emotion, 23,* 1118–1152. http://dx.doi.org/10.1080/02699930802355255

Sherman, J. W., Allen, T. J., & Sacchi, D. L. M. (2012). Stereotype confirmation and disconfirmation. In B. Gawronski & F. Strack (Eds.), *Cognitive consistency: A unifying concept in social psychology* (pp. 390–423). New York, NY: Guilford Press.

Sherman, J. W., Lee, A. Y., Bessenoff, G. R., & Frost, L. A. (1998). Stereotype efficiency reconsidered: Encoding flexibility under cognitive load. *Journal of Personality and Social Psychology, 75,* 589–606. http://dx.doi.org/10.1037/0022-3514.75.3.589

Simon, L., Greenberg, J., & Brehm, J. (1995). Trivialization: The forgotten mode of dissonance reduction. *Journal of Personality and Social Psychology, 68,* 247–260. http://dx.doi.org/10.1037/0022-3514.68.2.247

Skowronski, J. J., & Carlston, D. E. (1989). Negativity and extremity biases in impression formation: A review of explanations. *Psychological Bulletin, 105,* 131–142. http://dx.doi.org/10.1037/0033-2909.105.1.131

Song, H., & Schwarz, N. (2008). If it's hard to read, it's hard to do: Processing fluency affects effort prediction and motivation. *Psychological Science, 19,* 986–988. http://dx.doi.org/10.1111/j.1467-9280.2008.02189.x

Steele, C. M., & Liu, T. J. (1983). Dissonance processes as self-affirmation. *Journal of Personality and Social Psychology, 45,* 5–19. http://dx.doi.org/10.1037/0022-3514.45.1.5

Stone, J., Aronson, E., Crain, A. L., Winslow, M. P., & Fried, C. B. (1994). Inducing hypocrisy as a means of encouraging young adults to use condoms. *Personality and Social Psychology Bulletin, 20,* 116–128. http://dx.doi.org/10.1177/0146167294201012

Stone, J., & Cooper, J. (2001). A self-standards model of cognitive dissonance. *Journal of Experimental Social Psychology, 37,* 228–243. http://dx.doi.org/10.1006/jesp.2000.1446

Stone, J., Wiegand, A. W., Cooper, J., & Aronson, E. (1997). When exemplification fails: Hypocrisy and the motive for self-integrity. *Journal of Personality and Social Psychology, 72,* 54–65. http://dx.doi.org/10.1037/0022-3514.72.1.54

Tinklepaugh, O. L. (1928). An experimental study of representative factors in monkeys. *Journal of Comparative Psychology, 8,* 197–236. http://dx.doi.org/10.1037/h0075798

Topolinski, S., & Strack, F. (2015). Corrugator activity confirms immediate negative affect in surprise. *Frontiers in Psychology, 6,* 134. http://dx.doi.org/10.3389/fpsyg.2015.00134

Vachon, F., Hughes, R. W., & Jones, D. M. (2012). Broken expectations: Violation of expectancies, not novelty, captures auditory attention. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 38,* 164–177. http://dx.doi.org/10.1037/a0025054

Weber, R., & Crocker, J. (1983). Cognitive processes in the revision of stereotypic beliefs. *Journal of Personality and Social Psychology, 45,* 961–977. http://dx.doi.org/10.1037/0022-3514.45.5.961

Wilson, T. D., Lindsey, S., & Schooler, T. Y. (2000). A model of dual attitudes. *Psychological Review, 107*, 101–126. http://dx.doi.org/10.1037/0033-295X.107.1.101

Winkielman, P., Huber, D. E., Kavanagh, L., & Schwarz, N. (2012). Fluency of consistency: When thoughts fit nicely and flow smoothly. In B. Gawronski & F. Strack (Eds.), *Cognitive consistency: A fundamental principle in social cognition* (pp. 89–111). New York, NY: Guilford Press.

Ye, Y., & Gawronski, B. (2016). When possessions become part of the self: Ownership and implicit self-object linking. *Journal of Experimental Social Psychology, 64*, 72–87. http://dx.doi.org/10.1016/j.jesp.2016.01.012

Yzerbyt, V. Y., Coull, A., & Rocher, S. J. (1999). Fencing off the deviant: The role of cognitive resources in the maintenance of stereotypes. *Journal of Personality and Social Psychology, 77*, 449–462. http://dx.doi.org/10.1037/0022-3514.77.3.449

Zanna, M. P., & Cooper, J. (1974). Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *Journal of Personality and Social Psychology, 29*, 703–709. http://dx.doi.org/10.1037/h0036651