Social Cognition, Vol. 25, No. 5, 2007, pp. 687-717

UNRAVELING THE PROCESSES UNDERLYING EVALUATION: ATTITUDES FROM THE PERSPECTIVE OF THE APE MODEL

Bertram Gawronski
University of Western Ontario

Galen V. Bodenhausen
Northwestern University

The present article provides an analysis of the attitude construct from the perspective of the Associative–Propositional Evaluation Model (APE Model). It is argued that evaluative responses should be understood in terms of their underlying mental processes: associative and propositional processes. Whereas associative processes are characterized by mere activation, independent of subjective truth or falsity, propositional reasoning is concerned with the validation of evaluations and beliefs. Associative processes are claimed to provide the basis for primitive affective reactions; propositional processes are assumed to form the basis for evaluative judgments. Implications of this conceptualization for a variety of questions are discussed, such as automatic features of attitudes, processes of attitude formation and change, attitude representation in memory, context–sensitivity and stability of attitudes, and the difference between personal and cultural evaluations.

The attitude construct is probably one of the most important concepts in psychology. A recent PsycINFO database search on *attitude* returned 40,850 hits. Attitudes are the subject of so much research because they have proven to be highly consequential. Indeed, attitudes have been

Preparation of this article was supported by grants from the Canada Research Chairs Program (CRC), the Social Sciences and Humanities Research Council of Canada (SSHRC), and the Academic Development Fund of the University of Western Ontario (ADF).

We are grateful to Etienne LeBel for helpful comments on an earlier version of this article and to Jeffrey Sherman, who served as Action Editor for this article.

Please address correspondence to Bertram Gawronski, Department of Psychology, University of Western Ontario, Social Science Centre, London, ON N6A 5C2, Canada; E-mail: bgawrons@uwo.ca; or to Galen V. Bodenhausen, Department of Psychology, Northwestern University, 2029 Sheridan Road, Evanston, IL 60208–2710; E-mail: galen@northwestern.edu.

shown to guide human behavior in multiple ways, such as by influencing attention (e.g., Roskos–Ewoldsen & Fazio, 1992), categorization (e.g., Smith, Fazio, & Cejka, 1996), memory (e.g., Ross, McFarland, & Fletcher, 1981), interpretation (e.g., Lord, Ross, & Lepper, 1979), and information search (Frey, 1986). This ubiquity of attitudinal influence is probably one of the reasons why the attitude construct was never abandoned despite recurrent controversies about its proper definition (Eagly & Chaiken, 2005; Fazio, 1995; Schwarz & Bohner, 2001; Wilson & Hodges, 1992; Zanna & Rempel, 1988). In fact, many researchers successfully stayed away from these controversies by adopting an operational approach. In other words, researchers assessed attitudes with commonly accepted measures and investigated the relation of these measures to particular outcomes or their responsiveness to experimental manipulations, without devoting much attention to the conceptual analysis of the attitude construct or to the extent to which operational definitions provided a good approximation of that construct. This operational approach allowed researchers to study "attitudes" despite ongoing controversies about what an attitude is.

Over the last decade, however, the operational approach was challenged by the development of a new class of indirect measures that have also been adopted in research on attitudes (for reviews, see Fazio & Olson, 2003; Petty, Fazio, & Briñol, in press; Wittenbrink & Schwarz, 2007).[1] These measures differ from traditional self–report measures, such that they do not require an explicit evaluation of an object. Instead, evaluations can be inferred from these measures based on participants' performance in experimental paradigms, such as sequential priming (Neely, 1977) or response compatibility tasks (Kornblum, Hasbroucq, & Osman, 1990). Examples of these measures are the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), affective priming (Fazio, Jackson, Dunton, & Williams, 1995), the Extrinsic Affective Simon Task (De Houwer, 2003), the Go/No–Go Association Task (Nosek & Banaji, 2001), and the Affect Misattribution Procedure (Payne, Cheng, Govorun, & Stewart, 2005).

One problem that emerged with the development of these indirect measures is that they often show dissociations from traditional self–report measures. For instance, some factors have been shown to affect indirectly assessed but not self–reported evaluations (e.g., Karpinski & Hilton, 2001; Olson & Fazio, 2006), whereas other factors have been shown to influence self–reported but not indirectly assessed evaluations

1. The new indirect measures are often referred to as implicit measures. Drawing on De Houwer (2006a), we classify measurement procedures as direct versus indirect and the outcome of a measurement procedure as implicit versus explicit.

(e.g., Gawronski & Strack, 2004; Gregg, Seibt, & Banaji, 2006). Given these dissociations, the operational approach caused a much deeper, more fundamental controversy regarding the proper definition of the attitude construct. If attitudes are defined implicitly by the measures used to assess them, how can it be that different types of measures lead to different outcomes? Do people have multiple attitudes toward the same object? If yes, is there something like a "real" attitude that can be contrasted with other sorts of evaluations, and which one is the "real" attitude?

The main goal of the present article is to address these questions from the perspective of our recently proposed Associative–Propositional Evaluation Model (APE Model; Gawronski & Bodenhausen, 2006a, 2006b). Drawing on integrative dual–process models of social information processing (e.g., Smith & DeCoster, 2000; Strack & Deutsch, 2004), the APE Model distinguishes between two different types of mental processes that influence evaluative responses to an object: associative and propositional processes. The crucial difference between these processes is their dependency on truth values. Whereas the activation of associations can occur regardless of whether a person considers these associations to be true or false, processes of propositional reasoning are generally concerned with the validation of evaluations and beliefs.

In the present article, we outline the basic assumptions of the APE Model and discuss their implications for the conceptualization of attitudes. For this purpose, we adopt a strategy that may appear somewhat surprising. In order to avoid misinterpretations resulting from a priori conceptualizations of the attitude construct, we will refrain from using the term *attitude* until the very end of this article. Instead, we will focus on the processes that underlie people's tendency to respond either positively or negatively to a given object. In the final section of this article, we will then come back to the original question and discuss how the term *attitude* may be most fruitfully defined, given our assumptions about the mechanisms underlying positive or negative responses.

THE APE MODEL

The APE Model (Gawronski & Bodenhausen, 2006a, 2006b) argues that there are two qualitatively distinct processes at work in the human mind. Specifically, the model holds that tendencies to respond positively or negatively to a given object can have their roots in two different types of mental processes: associative and propositional processes. In advancing this conceptualization, the APE model has been strongly influenced by earlier dual–process approaches, such as Strack and Deutsch's (2004) Reflec-

tive–Impulsive Model and Smith and DeCoster's (2000) distinction between associative and rule–based processes (see also Lieberman, Gaunt, Gilbert, & Trope, 2002; Sloman, 1996). In fact, many of the basic assumptions of the APE Model are directly derived from these models. However, the APE Model also goes beyond these models by making specific assumptions about how cognitive consistency influences propositional reasoning, and thereby the mutual interplay between associative and propositional processes.

ASSOCIATIVE AND PROPOSITIONAL PROCESSES

The first source of evaluative tendencies resides in associative processes, which build the basis for *immediate affective reactions* to a given object. Specifically, we argue that people often show either positive or negative affective reactions to a given stimulus depending on the particular associations that are activated in response to that stimulus. The defining feature of associative processes—and thus of the affective reactions resulting from activated associations—is that they are independent of the assignment of truth values (Strack & Deutsch, 2004). In other words, associations can be activated irrespective of whether a person considers the evaluations implied by these associations to be accurate or inaccurate. For example, the activation level of negative associations regarding African Americans may be high even though an individual regards these associations to be inadequate or false (Devine, 1989; Monteith & Voils, 1998). Thus, affective reactions resulting from activated associations are not "personal" in the sense that they are not necessarily personally endorsed (cf. Arkes & Tetlock, 2004). Instead, the primary determinants of association activation are feature similarity and spatiotemporal contiguity (Bassili & Brown, 2005; Smith & DeCoster, 2000).

The second source of evaluative tendencies comes from propositional processes, which build the basis for *endorsed evaluative judgments* about a given object. According to the APE Model, processes of propositional reasoning aim to determine the validity of evaluations and beliefs by assessing their consistency with other relevant propositions (Jones & Gerard, 1967; Quine & Ullian, 1978). Drawing on a central assumption of Strack and Deutsch (2004), we argue that people typically translate their spontaneous affective reaction to a given object into propositional format (e.g., a negative affective reaction to object × is transformed into the proposition "I dislike X"). The resulting proposition is then subject to syllogistic inferences that assess its validity. Thus, the most central feature that distinguishes propositional from associative processes is their dependency on truth values. Whereas the activation of associations can

occur regardless of whether a person considers these associations to be true or false, processes of propositional reasoning are generally concerned with the validation of evaluations and beliefs. Moreover, whether or not the propositional evaluation implied by an affective reaction will be explicitly endorsed depends on the subjective validity of that evaluation, as determined by the consistency of this proposition with other salient, relevant propositions (Gawronski & Bodenhausen, 2006a).

In line with other researchers (e.g., Strack & Deutsch, 2004), we argue that the new class of indirect measures, such as the IAT (Greenwald et al., 1998), and affective priming tasks (Fazio et al., 1995), provide a proxy for primitive affective reactions that are independent of subjective truth or falsity. These reactions primarily reflect the valence of the particular associations that are activated by a given stimulus. In contrast, traditional self–report measures typically require an evaluative judgment of an object. As such, evaluative responses on these measures are substantially influenced by what respondents consider to be true or false. Put differently, whereas the new class of indirect measures assesses the outcome of associative processes (i.e., affective reactions), traditional self–report measures assess the outcome of propositional processes (i.e., evaluative judgments).[2]

INTERPLAY BETWEEN ASSOCIATIVE AND PROPOSITIONAL PROCESSES

According to the APE Model, associative and propositional processes are qualitatively distinct in that associative processes are characterized by the *activation* of associations, whereas propositional processes are characterized by the *validation* of evaluations and beliefs (Gawronski & Bodenhausen, 2006b). It is important to note, however, that the two kinds of processes are not mutually independent (Strack & Deutsch, 2004). As previously mentioned, associative processes can influence propositional processes, such that the affective reactions resulting from

2. The proposed equation of affective reactions with the outcome of indirect measures should be understood as a simplifying proxy, as none of these measures is process pure. In that spirit, all our theoretical considerations should be understood as referring to specific constructs (e.g., affective reactions resulting from associative processes) rather than the outcome of a particular measure (e.g., response latency differences in the IAT). Given the advancement of process–dissociation procedures to quantify the contribution of multiple processes within a single task (e.g., Conrey, Sherman, Gawronski, Hugenberg, & Groom, 2005), future research employing these procedures may provide more stringent tests of our assumptions.

activated associations provide inputs for processes of propositional reasoning. Moreover, propositional processes can impact associative processes, such that processes of propositional reasoning may activate particular associations in memory. The crucial question is when such influences do or do not occur.

As for the influence of associative processes on propositional ones, we argue that people tend to use the affective reactions resulting from activated associations as a basis for their evaluative judgments. In other words, the default mode of propositional reasoning is the affirmation of the validity of spontaneous affective reactions (Gilbert, 1991). However, evaluative judgments can also be independent of affective reactions when the propositional translation of these reactions is rejected as a valid basis for an evaluative judgment. According to the APE Model, the perceived validity of a proposition depends on its consistency with other propositions that are momentarily considered to be relevant for the judgment at hand (Gawronski & Bodenhausen, 2006a). In the case of evaluative judgments, such propositions may include nonevaluative propositions referring to factual beliefs as well as propositional evaluations of other attitude objects. These types of propositions resemble, respectively, the belief premises and value premises in Jones and Gerard's (1967) syllogism model of attitude structure, as well as the beliefs and evaluations that are hypothesized to give rise to attitudes in Fishbein and Ajzen's (1975) theory of reasoned action. If the evaluation implied by an affective reaction is consistent with other relevant propositions, it will most likely be considered valid and thus will serve as the basis for an evaluative judgment. If, however, the evaluation implied by an affective reaction is inconsistent with other relevant propositions, it may be considered invalid. For example, the propositional translation of a negative affective reaction to a minority member (e.g., "I dislike African Americans.") may be inconsistent with the implication of propositional evaluations of another attitude object (e.g., "It is bad to evaluate members of disadvantaged minority groups negatively.") and other nonevaluative propositions (e.g., "African Americans are a disadvantaged minority group."). Hence, the resulting inconsistency between the three propositions may lead to a rejection of the negative affective reaction as a valid basis for an evaluative judgment (Gawronski, Peters, Brochu, & Strack, 2006a). However, the negative affective reaction may still serve as the basis for an evaluative judgment if either the nonevaluative proposition is considered invalid (e.g., "African Americans are not a disadvantaged minority group.") or the propositional evaluation of another relevant attitude object is rejected (e.g., "Negative evaluations of disadvantaged minority members are okay.").

As for the influence of propositional processes on associative pro-

cesses, we argue that a crucial determinant of such influences is whether propositional processes imply an affirmation or a negation of a given evaluation (Deutsch, Gawronski, & Strack, 2006; Gawronski, Deutsch, Mbirkou, Seibt, & Strack, in press). Drawing on a central assumption of Strack and Deutsch's (2004) Reflective–Impulsive Model, we argue that propositional processes can influence affective reactions resulting from activated associations when propositional reasoning activates new evaluative associations. This is typically the case when processes of propositional reasoning imply an *affirmation* of a given evaluation. However, propositional processes should leave primitive affective reactions unaffected when propositional reasoning simply leads to a rejection of these reactions as a basis for an evaluative judgment.[3] This is usually the case when processes of propositional reasoning imply a *negation* of a given evaluation. The central assumption underlying this claim is that the validation process of affirming or negating a proposition implies an assignment of truth values, and thus cannot be performed associatively (Deutsch et al., 2006). However, affirming or negating a given proposition may still activate the associative components of that proposition (e.g., Grant, Malaviya, & Sternthal, 2004). Thus, affirming a propositional evaluation should directly activate its underlying associative evaluation (e.g., affirming the proposition *old people are good drivers* activates *old people* and *good drivers*). However, negating a propositional evaluation should activate the underlying non–negated associative evaluation (e.g., negating the proposition *old people are bad drivers* activates *old people* and *bad drivers*), which often leads to ironic effects on the associative level (Wegner, 1994).

CONSISTENCY AND ELABORATION

As outlined above, consistency plays a significant role in assessing the validity of propositions. In fact, we argue that consistency is exclusively a concern of propositional reasoning (Gawronski & Strack, 2004; Gawronski, Strack, & Bodenhausen, in press). According to the APE Model, consistency results from a propositional process of consistency assessment that is based on the assignment of truth values and the applica-

3. Note that even though a rejection of primitive affective reactions may leave these reactions unaffected, the resulting discrepancy between affective reactions and explicitly endorsed evaluations can influence more complex, higher–order emotions, such as compunction or feelings of guilt (e.g., Monteith, Voils, & Ashburn–Nardo, 2001; see also Russell, 2003; Smith & Neumann, 2005).

tion of syllogistic rules and logical principles (Gawronski & Bodenhausen, 2006a). From a logical perspective, two propositions are consistent with each other when both are regarded as true, and one does not imply the opposite of the other. In contrast, two propositions are inconsistent when both are regarded as true, and one follows from the opposite of the other (see Festinger, 1957). Importantly, because (in)consistency between two propositions cannot even be defined without an assignment of truth values, inconsistency has to be resolved by means of propositional reasoning (i.e., either by changing the truth value of one proposition, or by finding an additional proposition that resolves the inconsistency) (Quine & Ullian, 1978). For example, if exposure to a minority member activates negative associations, people may either reject the evaluation implied by their negative affective reaction because of its inconsistency with other accepted propositions (see above), or they may find an additional proposition that resolves the inconsistency (e.g., "This African American person was very unfriendly."). These assumptions were supported by Gawronski and Strack (2004), who showed that cognitive dissonance leads to changes in self–reported evaluative judgments, but not in indirectly assessed affective reactions. Moreover, self–reported evaluations were significantly related to indirectly assessed evaluations when dissonance could be resolved by an additional proposition, but not when dissonance was resolved by a rejection of affective reactions as a basis for evaluative judgments.

An important secondary factor that can influence the perceived validity of a given proposition is the number of other propositions that are considered in forming a specific judgment. Typically, the more propositions a person considers for an evaluative judgment, the more likely it becomes that the propositional translation of an affective reaction is inconsistent with other relevant propositions, and thus will be rejected as a basis for the judgment. This assumption resembles the claims of earlier models (e.g., Fazio & Olson, 2003; Wilson, Lindsey, & Schooler, 2000) arguing that higher levels of cognitive elaboration typically reduce the relation between self–reported and indirectly assessed evaluations (e.g., Florack, Scarabis, & Bless, 2001; Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005; Koole, Dijksterhuis, & Van Knippenberg, 2001). However, the APE Model differs from these models with regard to its assumptions about the underlying processes. According to the APE Model, higher levels of cognitive elaboration should enhance the complexity of propositional reasoning by increasing the number of judgment–relevant propositions that are considered in addition to one's affective reaction (Gawronski & Bodenhausen, 2006a). To the extent that any of these additional propositions is inconsistent with the affective reaction, the extra elaboration will be likely to reduce the impact of affec-

tive reactions on evaluative judgments. This assumption is consistent with research by Shiv and Nowlis (2004) showing that evaluative judgments about consumer products were more likely influenced by affective rather than informational components when cognitive elaboration was low. In contrast, evaluative judgments were more likely influenced by informational rather than affective components when cognitive elaboration was high.

Notwithstanding these findings, it is important to note that increased cognitive elaboration does not inevitably reduce the impact of affective reactions on evaluative judgments. According to the APE Model, cognitive elaboration should reduce the impact of affective reactions on evaluative judgments only if additionally considered propositions question the validity of one's affective reaction as a basis for an evaluative judgment (Gawronski & Bodenhausen, 2006a). However, if additionally considered propositions do not question the validity of one's affective reaction, the impact of affective reactions on evaluative judgments should be unaffected by cognitive elaboration. Moreover, if additionally considered propositions confirm the subjective validity of one's affective reaction, the impact of affective reactions on evaluative judgments should actually increase (rather than decrease) as a function of cognitive elaboration. For example, if increased cognitive elaboration identifies an additional proposition (e.g., "This African American person was very unfriendly.") that resolves the inconsistency between a propositionally transformed affective reaction (e.g., "I dislike African Americans."), other nonevaluative propositions (e.g., "African Americans are a disadvantaged minority group."), and propositional evaluations of other attitude objects (e.g., "It is bad to evaluate members of disadvantaged minority groups negatively."), then the impact of the affective reaction on evaluative judgments should actually increase rather than decrease as a function of cognitive elaboration. This conceptualization deviates from earlier models arguing that the relation between self–reported and indirectly assessed evaluations primarily depends on motivational factors, such as social desirability (e.g., Greenwald et al., 2002) or motivation to control (e.g., Fazio et al., 1995). In the APE Model, the primary determinant of this relation is cognitive rather than motivational in nature (i.e., the consistency of affective reactions with other relevant propositions) (Gawronski & Bodenhausen, 2006b). To be sure, motivational processes may nevertheless be important, as they can influence propositional processes via motivated reasoning (Gawronski & Bodenhausen, 2006a). However, such motivational influences are indirect rather than direct, in that they are mediated by the propositional process of consistency assessment. This assumption is supported by a meta–analysis conducted by Hofmann et al. (2005), who found that

social desirability did *not* predict variations in correlations between self–reported and indirectly assessed evaluations above and beyond spontaneity in the course of making a judgment.

AUTOMATIC FEATURES OF AFFECTIVE REACTIONS

Indirect measures, such as the IAT; Greenwald et al., 1998) or affective priming (Fazio et al., 1995), are often assumed to reflect automatic evaluations of an object. We agree with the contention that affective reactions reflected in these measures may indeed have some features of automaticity. However, given the multifaceted nature of automaticity (Bargh, 1994), it seems most prudent to fine–tune empirical claims about the automaticity of evaluation. In that spirit, we argue that whether affective reactions are automatic is a question that needs to be assessed separately for each of the four aspects of automaticity: awareness, intentionality, efficiency, and controllability.[4]

AWARENESS

In terms of the first aspect of automaticity, evaluations assessed with indirect measures are often regarded as introspectively inaccessible or unconscious (e.g., Banaji, Lemm, & Carpenter, 2001; Wilson, 2002). The APE Model disagrees with this contention. To be sure, the new class of indirect measures does not *require* introspection for the assessment of an evaluation. However, this does not imply that the assessed evaluation is necessarily unconscious (Gawronski & Bodenhausen, 2007).

In our conceptualization, evaluative responses assessed with indirect measures reflect affective reactions resulting from activated associations. Moreover, we assume that people generally (although not inevitably) do have some degree of conscious access to their affective reactions and that they tend to rely upon these reactions in making evaluative judgments. Still, people also sometimes reject their affective reactions as

4. In this context, it is again important to distinguish between theoretical constructs (e.g., affective reactions resulting from associative processes) and the outcome of measurement procedures (e.g., response latency differences in the IAT). As outlined in Footnote 2, the outcomes of indirect measures do not provide process–pure reflections of a single construct, but should be understood as a simplifying proxy. Our empirical assumptions about automatic features primarily refer to theoretical constructs, rather than to the outcome of particular measurement procedures. Given recent advances in process–dissociation (e.g., Conrey et al., 2005), future research employing these procedures may provide more stringent tests of our assumptions.

a valid basis for an evaluative judgment when these reactions are inconsistent with other momentarily considered propositions. However, this independence of affective reactions and evaluative judgments does not imply that the affective reactions are unconscious. This claim is consistent with a recent review by Gawronski, Hofmann, and Wilbur (2006), who found no evidence for the assumption that indirect measures assess introspectively inaccessible or unconscious evaluations. Rather, the impact of indirectly assessed evaluations on evaluative judgments seems to depend on several factors that can be directly derived from the APE Model, such as, for example, the degree of cognitive elaboration in the course of making an evaluative judgment (e.g., Florack et al., 2001; Hofmann et al., 2005; Koole et al., 2001).

It is important to note, however, that even though people may commonly be consciously aware of the affective reactions resulting from activated associations, they may be unaware of the associative processes that lead to these reactions (Nisbett & Wilson, 1977). For example, Lewicki (1985) showed that people can develop evaluative (avoidance) responses toward previously unfamiliar persons, based on their superficial similarity to a previously encountered person, yet they are not be able to articulate the reasons for these reactions. The influence of the previously encountered person was thus operating outside of awareness. In terms of the APE Model, such effects can be explained by the processes that influence association activation, in this case feature similarity (see Bassili & Brown, 2005; Smith & DeCoster, 2000). Specifically, the feature similarity between the two individuals may activate specific associations related to your old friend, thus leading to a positive affective reaction. Most important, these associations may often remain unconscious even when people are consciously aware of the affective reaction resulting from these associations. In other words, people may be consciously aware of their affective reactions to a person or object, but they may be unaware of the associative processes that have led to these reactions (e.g., Bechara, Damasio, Tranel, & Damasio, 1997; Lieberman, Ochsner, Gilbert, & Schachter, 2001; see also Gawronski, Bodenhausen, & Becker, 2007). This assumption implies that people may sometimes confuse object–related affective reactions with transient mood states, thus leading to evaluative judgments that directly reflect the valence of a current mood state (e.g., Schwarz & Clore, 1983).

INTENTIONALITY

In regard to the second aspect of automaticity, evaluations assessed with indirect measures are often regarded as unintentional—that is, the acti-

vation of evaluative associations and their resulting affective reactions is assumed to occur irrespective of the intention to evaluate an object (e.g., Bargh, Chaiken, Raymond, & Hymes, 1996). Even though the capability of some indirect measures to assess goal–independent evaluations is controversial (e.g., De Houwer, Hermans, Rothermund & Wentura, 2002; De Houwer & Randell, 2004; Klauer & Musch, 2002), there is evidence from cognitive neuroscience suggesting that affective responses in the amygdala and in the right insula are indeed independent of the intention to evaluate (e.g., Cunningham, Raye, & Johnson, 2004; see also Cunningham, Zelazo, Packer, & Van Bavel, this issue). Based on these findings, affective reactions can be regarded as fulfilling the second criterion of automaticity, in that they can be activated unintentionally. It is important to note, however, that the existence of spontaneous evaluations does not imply that affective reactions cannot also be activated by intentional processes. As outlined above, processes of propositional reasoning may influence the activation of associations—and thus affective reactions—when they imply an affirmation of a particular evaluation. Thus, even though the activation of affective reactions does not require intention, intentional processes may still modulate affective reactions. We will return to this issue when we discuss controllability as the fourth marker of automaticity.

EFFICIENCY

With respect to the third aspect of automaticity, evaluations assessed with indirect measures are often considered to be efficient, in that they do not require much cognitive capacity in order to become activated. The APE Model generally agrees with this contention. However, as with intentionality, it is important to note that the efficiency of activation processes does not imply that affective reactions cannot also be the result of effortful processes. Even though evaluative associations—and thus affective reactions resulting from these associations—do not *require* cognitive effort to become activated, evaluative associations can be activated in the course of propositional reasoning when people retrieve new evaluative information from memory (e.g., De Houwer, 2006b; see also Blair, Ma, & Lenton, 2001). Given that such retrieval processes can be more or less effortful, affective reactions resulting from activated associations can also be the product of effortful processes.

Similar considerations apply to evaluative judgments based on processes of propositional reasoning. As outlined in the context of cognitive elaboration, the content of propositional reasoning can be more or less complex, depending on the number of propositions that are momen-

tarily considered for a particular judgment. Thus, evaluative judgments can be the result of highly effortful processes when people retrieve additional information from memory that might be relevant for the judgment. In this case, whether or not affective reactions form the basis for an evaluative judgment depends on the consistency of this reaction with the information retrieved from memory. However, evaluative judgments can also be made without investing a high amount of cognitive effort. In such cases, people tend to base their evaluative judgments on their affective reactions while ignoring other potentially relevant information about the attitude object (e.g., Shiv & Novlis, 2004). Thus, it is not the propositional process of generating an evaluative judgment that is cognitively effortful (cf. Strack & Deutsch, 2004). Rather, propositional processes can be more or less effortful depending on the relative number of propositions that are considered for a particular judgment (Kruglanski & Thompson, 1999).

CONTROLLABILITY

The fourth aspect of automaticity, uncontrollability, has also been used to characterize indirectly assessed evaluations. According to Bargh (1994), controllability refers to people's ability to alter or terminate a given process. Hence, the activation of evaluative associations—and thus of the affective reactions resulting from these associations—would be uncontrollable if this activation process cannot be altered or terminated once it is initiated. Drawing on the basic assumptions of the APE Model, we argue that the controllability of affective reactions depends on the nature of the adopted control strategy. The crucial factor that determines success in controlling affective reactions is whether the adopted control strategy implies a negation of an already activated evaluation or an affirmation of a new evaluation (Deutsch et al., 2006; see also Strack & Deutsch, 2004). As outlined above, a negation of affective reactions simply leads to a propositional rejection of the validity of these reactions. Such a rejection reduces the influence of affective reactions on evaluative judgments. However, it does not alter or terminate the affective reactions per se. In contrast, an affirmation of new evaluative information typically activates new evaluative associations in memory, which in turn should directly influence the affective reactions resulting from activated associations. These assumptions are supported by research on emotion regulation, showing that deliberate attempts to suppress affective reactions (i.e., negation) usually leave these reactions unaffected, whereas attempts to attribute a different meaning to the response-eliciting stimulus via reappraisal (an affirmational strategy) is

capable of modifying affective reactions (e.g., Butler et al., 2003; Gross, 1998). In a similar vein, Gawronski, Deutsch et al. (in press) have shown that only training in the affirmation of stereotype–inconsistent information, but not training in the negation of stereotype–consistent information, leads to a subsequent reduction in stereotype activation (cf. Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000).

SUMMARY

The present considerations underscore the importance of theoretical specificity in making empirical claims about the automaticity of evaluation. Rather than characterizing evaluative processes as inherently or monolithically automatic, it is important to delineate when, and in what senses, evaluative processes are likely to operate in an automatic fashion. More precisely, we argued that (a) affective reactions are most often consciously accessible; (b) affective reactions do not require intention to get activated, although they can get activated intentionally, (c) affective reactions do not require much cognitive capacity to get activated, although they can get activated by effortful processes; and (d) whether or not affective reactions can be successfully controlled depends on whether the employed control strategy involves an affirmation or a negation focus.

CHANGES IN ASSOCIATIVE AND PROPOSITIONAL PROCESSES

Originally, indirect measures were assumed to assess highly robust evaluative representations that have their roots in long–term socialization experiences (e.g., Dovidio, Kawakami, & Beach, 2001; Petty, Tormala, Briñol, & Jarvis, 2006; Rudman, 2004; Wilson et al., 2000). This assumption stands in contrast to more recent research showing that evaluations assessed with indirect measures are highly context–sensitive and sometimes are much easier to change than self–reported evaluations (for a review, see Gawronski & Bodenhausen, 2006a). In fact, previous research has obtained a very heterogeneous set of findings, with some studies showing changes in self–reported, but not indirectly assessed evaluations (e.g., Gawronski & Strack, 2004; Gregg et al., 2006); changes in indirectly assessed, but not self–reported evaluations (e.g., Karpinski & Hilton, 2001; Olson & Fazio, 2006); antagonistic changes in self–reported and indirectly assessed evaluations (e.g., Rydell, McConnell, Mackie, & Strain, 2006; Strack & Deutsch, 2004); and corresponding changes in self–reported and indirectly assessed evaluations

(e.g., Olson & Fazio 2001; Richeson & Nussbaum, 2004). Even though this variety of patterns seems rather difficult to explain from the perspective of extant models of attitude change (e.g., Albarracín, 2002; Chen & Chaiken, 1999; Kruglanski & Thompson, 1999; Petty & Wegener, 1999), the APE Model makes specific predictions about the particular conditions producing each of these patterns (Gawronski & Bodenhausen, 2006a). Drawing on the distinction between associative and propositional processes, there are two questions that need to be answered in order to determine the specific pattern that can be expected for a given factor's influence on evaluations: (a) which of the two kinds of processes is *directly* influenced in the first place, and (b) do changes in one kind of process lead to *indirect* changes in the other process? In the following sections, we first discuss factors that may influence associative and propositional processes and then turn to the questions of direct versus indirect effects and relative robustness.

INFLUENCES ON ASSOCIATIVE PROCESSES

In our original presentation of the APE Model (Gawronski & Bodenhausen, 2006a), we argued that the activation of associations depends on two factors: (a) the preexisting structure of associations in memory, and (b) the particular set of input stimuli. This assumption resembles the notion of pattern activation implied by parallel distributed processing models (Smith, 1996; see also Conrey & Smith, this issue). In these models, the term *pattern activation* refers to the idea that association activation is not an all–or–none process, such that encountering a given object activates each and every mental association of that object. Rather, a particular stimulus event will activate only a limited subset of all associations available in memory. Which subset of associations is activated depends on the particular configuration of input stimuli. For example, the associative pattern activated by the stimuli *basketball* and *gym* may include concepts such as *bouncing* but not concepts like *floating*. However, the associative pattern activated by the stimuli *basketball* and *water* may include concepts like *floating* but not *bouncing*. In other words, even though the concept *basketball* is associated with both *bouncing* and *floating* in memory, which of the two becomes activated depends on the particular context in which the stimulus *basketball* is encountered (see Barsalou, 1982). Thus, applied to evaluative responses, one and the same object may activate different associative patterns, and thus different affective reactions, depending on the particular context in which the object is encountered (e.g., Barden, Maddux, Petty, & Brewer, 2004; Wittenbrink, Judd, & Park, 2001).

However, this does not imply that affective reactions are purely context driven, as association activation additionally depends on the pre-existing structure of associations in memory. Given the general notion of pattern activation, changes in association activation—and thus in the affective reactions resulting from these associations—can be due either to (a) changes in the particular set of input stimuli, or (b) changes in the structure of associations in memory. Whereas the first factor reflects the context–sensitive nature of evaluations (see Schwarz, this issue), the second factor points to the chronic or dispositional nature of evaluations (see Fazio, this issue). Evidence for the first type of influence is implied by research showing that the valence of affective reactions to one and the same individual depends on the particular context in which this individual is encountered (e.g., Barden et al., 2004; Wittenbrink et al., 2001); evidence for the second type of influence comes from research on evaluative conditioning showing that repeated pairings of a neutral conditioned stimulus (CS) with positive or negative unconditioned stimuli (US) can lead to subsequent changes in affective reactions to the formerly neutral CS (e.g., Olson & Fazio, 2001, 2006).

INFLUENCES ON PROPOSITIONAL PROCESSES

According to the APE Model, evaluative judgments are the result of propositional reasoning. Thus, any factor that influences the outcome of propositional reasoning is likely to affect evaluative judgments. Gawronski and Bodenhausen (2006a) identified three such factors: (a) changes in the affective reaction to an object, (b) changes in the set of considered propositions, and (c) changes in the strategy to achieve consistency.

The first type of influence involves cases in which temporary or persistent changes in the affective reaction to an object are taken as a basis for an evaluative judgment. As outlined above, such a reliance on affective reactions is likely to occur when these reactions are consistent with all other momentarily considered propositions. Consistent with this assumption, Gawronski and LeBel (2007) have shown that changes in the affective reaction to a given object (e.g., as a result of evaluative conditioning) led to corresponding changes in evaluative judgments only when participants focused on their feelings in the course of making their judgments. However, persistent changes in the affective reaction left evaluative judgments unaffected when participants were asked to focus on their knowledge about the attitude object.

The second type of influence is represented by cases in which people are exposed to or retrieve additional information about an object that

promotes a different evaluative judgment of that object. An illustrative example for such cases is research on persuasion in which participants are typically presented with either strong or weak arguments favoring a particular evaluation (for a review, see Crano & Prislin, 2006). In terms of the APE Model, exposure to persuasive arguments adds new propositions to the set of propositions that are considered for an evaluative judgment (Gawronski & Bodenhausen, 2006a). If such changes in the set of considered propositions imply a different evaluation, exposure to persuasive arguments is likely to change evaluative judgments. However, if the changes in the set of considered propositions do not imply a different evaluation, exposure to persuasive arguments may leave evaluative judgments unaffected.

The third type of influence involves cases in which people consider the same set of inconsistent propositions but change their strategy to resolve the inconsistency. Drawing on the example outlined above, a negative affective reaction to a minority member (e.g., "I dislike African Americans.") may be inconsistent with the propositional evaluation of another attitude object (e.g., "It is bad to evaluate members of disadvantaged minority groups negatively.") and other nonevaluative propositions (e.g., "African Americans are a disadvantaged minority group."). Hence, the resulting inconsistency between the three propositions may lead to a rejection of the negative affective reaction as a valid basis for an evaluative judgment (Gawronski, Peters et al., 2006). However, the negative affective reaction may still serve as a basis for an evaluative judgment if either the nonevaluative proposition is considered invalid (e.g., "African Americans are not a disadvantaged minority group.") or the propositional evaluation of another relevant attitude object is rejected (e.g., "Negative evaluations of disadvantaged minority members are okay."). Thus, any factor that promotes a change in the strategy to achieve consistency can lead to changes in evaluative judgments.

DIRECT VERSUS INDIRECT INFLUENCES

An important aspect in the APE Model is whether the impact of a given factor on a particular type of evaluative response is direct or indirect (Gawronski & Bodenhausen, 2006a). As outlined above, direct changes in the affective reaction to a given object may or may not lead to indirect changes in evaluative judgments depending on whether the affective reaction is used as a basis for an evaluative judgment (e.g., Gawronski & LeBel, 2007). If the new affective reaction is consistent with the set of momentarily considered propositions, it will most likely be used for an evaluative judgment, thus leading to an indirect change in evaluative

judgments that is mediated by changes in affective reactions. If, however, the new affective reaction is inconsistent with the set of momentarily considered propositions, it may be rejected as a basis for an evaluative judgment. In this case, changes in affective reactions will leave evaluative judgments unaffected. Whereas the first case should lead to corresponding changes in self–reported and indirectly assessed evaluations with changes in self–reported evaluations being fully mediated by changes in indirectly assessed evaluations, the second case should change only indirectly assessed but not self–reported evaluations.

Similar considerations apply to direct influences on propositional reasoning that may or may not lead to an indirect change in the affective reactions resulting from activated associations. As outlined above, processes of propositional reasoning are likely to influence affective reactions when they imply an affirmation of a new evaluation, but not when they involve a negation of an already activated evaluation. Whereas the first case should lead to corresponding changes in self–reported and indirectly assessed evaluations with changes in indirectly assessed evaluations being fully mediated by changes in self–reported evaluations, the second case should change only self–reported but not indirectly assessed evaluations.

RELATIVE ROBUSTNESS

As previously noted, the assumption that indirect measures provide access to highly robust evaluative representations (e.g., Dovidio et al., 2001; Petty et al., 2006; Rudman, 2004; Wilson et al., 2000) has been challenged by research, showing that evaluations assessed with indirect measures are highly context–sensitive, and sometimes are much easier to change than self–reported evaluations (for a review, see Gawronski & Bodenhausen, 2006a). From the perspective of the APE Model, the question of relative robustness of the two types of evaluative responses cannot be answered without specifying the nature of the influencing factors. For instance, factors that have a direct effect on the activation of associations may be more likely to influence affective reactions rather than evaluative judgments (e.g., when affective reactions are rejected as a basis for an evaluative judgment). Conversely, factors that have a direct effect on propositional reasoning may be more likely to influence evaluative judgments rather than affective reactions (e.g., when propositional reasoning leads to a negation rather than an affirmation of a particular evaluation). Thus, whether self–reported or indirectly assessed evaluations are more robust overall depends on the prevalence of the re-

spective factors. From this perspective, the question of relative robustness may be regarded as disoriented. The relative robustness of a particular type of evaluation is determined by the nature of the influencing factor, not by the type of evaluation per se. For instance, a change in the affective reactions resulting from associative processes (e.g., as a result of evaluative conditioning) may influence only indirectly but not directly assessed evaluations, when these reactions are rejected as a basis for an evaluative judgment (e.g., Gawronski & LeBel, 2007; see also Karpinski & Hilton, 2001; Olson & Fazio, 2006). Conversely, a change in the strategy to achieve consistency (e.g., as a result of cognitive dissonance) may influence only directly but not indirectly assessed evaluations, when this change simply leads to a rejection of affective reactions as a basis for an evaluative judgment (e.g., Gawronski & Strack, 2004; see also Gregg et al., 2006). Thus, either type of evaluation can be more or less robust than the other, depending on (a) the associative versus propositional nature of a given influence and (b) the presence versus absence of indirect effects of one type of process on the other.

MEMORY AND REPRESENTATION

So far, we have mainly focused on the processes that underlie positive or negative responses to a given object. Obviously, these processes presuppose at least some kind of stored memory representation upon which they are based. In the following sections, we will outline the notion of memory representation from the perspective of the APE Model. The two major issues that we discuss are (a) the antagonism between dynamic and stable features of evaluations and (b) the difference between personal versus cultural associations.

STABILITY VERSUS CONTEXT–SENSITIVITY

The APE Model implies that both associative and propositional processes are dynamic in the sense that both are sensitive to contextual influences. For associative processes, a dynamic aspect is implied by the notion of pattern activation, which involves a significant role of the particular set of input stimuli. For propositional processes, a dynamic aspect is implied by the notion of consistency assessment, which attributes an important role to the particular set of momentarily considered propositions. From this perspective, both affective reactions and evaluative judgments may be regarded as being constructed on the spot (Schwarz & Bohner, 2001; Wilson & Hodges, 1992; see also Schwarz, this issue).

Notwithstanding these dynamic features, it is obvious that many evaluative responses show at least some degree of stability across contexts. Our affective reaction toward rotten eggs will likely be the same regardless of the particular context in which they are encountered. In a similar vein, our evaluative judgments of George W. Bush may primarily depend on our political orientation rather than on fluctuating contexts. For affective reactions, stability is likely to prevail when the associative representation of a given object is relatively homogeneous, such that different sets of input stimuli activate similar patterns of associations. However, if the associative representation of an object is rather heterogeneous, different sets of input stimuli may activate different patterns of associations, thus leading to different affective reactions as a function of the particular context. A crucial factor that determines the heterogeneity of associative representations is the heterogeneity of prior experiences with the attitude object (Rydell & Gawronski, 2006). Specifically, we argue that new experiences do not override or erase old associations, but simply add new associations to the already existing representation (Gregg et al., 2006; Petty et al., 2006). This assumption deviates from other models (e.g., Wilson et al., 2000) claiming that indirectly assessed evaluations reflect earlier experiences whereas self–reported evaluations reflect more recent experiences. In contrast to these models, we claim that both earlier and recent experiences influence the associative representation of an object, and that whichever subset of associations gets activated depends on the particular context in which the object is encountered. Thus, if prior experiences with an object were relatively heterogeneous, different contexts may activate different subsets of the associative representation, thus leading to different affective reactions to that object. If, however, prior experiences were relatively homogeneous, the same pattern of associations may be activated regardless of the particular context.

For evaluative judgments, stability will prevail when the outcome of propositional reasoning is consistent across different contexts. According to the APE Model, people may show stability in evaluative judgments (a) when they generally base their evaluative judgments on their affective reactions and these reactions are stable across contexts or (b) they generally consider the same set of propositions for an evaluative judgment and at the same time adopt the same strategy to resolve potential inconsistencies among these propositions. However, people should show cross–situational variation in their evaluative judgments when any of the conditions implied in these two cases is violated. For example, if people generally base their evaluative judgments on their affective reactions, evaluative judgments may exhibit either a high or low level of stability, depending on the cross–situational stability of these reactions.

However, even if affective reactions show a low level of stability, evaluative judgments could still exhibit a high level of stability if people generally reject their affective reactions as a valid basis for an evaluative judgment, consistently consider the same set of propositions, and employ the same strategy to achieve consistency. Thus, even though the APE Model attributes a significant role to dynamic features, it makes specific predictions regarding the conditions under which stability should prevail.

PERSONAL VERSUS CULTURAL ASSOCIATIONS

Many researchers share the assumption that the new indirect measures assess affective responses that have their roots in evaluative associations (Fazio & Olson, 2003). However, there is some controversy as to whether these associations reflect personal or cultural evaluations. Olson and Fazio (2004), for example, argued that the standard variant of the IAT (Greenwald et al., 1998) conflates personal with cultural associations (see also Arkes & Tetlock, 2004). To overcome this problem, they suggested a modified version of the IAT that was intended to reduce the impact of cultural associations and thereby provide a more reliable measure of personal associations.

We argue that a theoretical distinction between personal and cultural associations is difficult to maintain from a representational perspective (Smith, 1998). Specifically, the proposed distinction implies that the representation of associations in memory can differ as a function of their source. In other words, for this distinction to hold, the source of an association (i.e., personal vs. cultural) must be an essential part of its cognitive representation. This assumption, however, seems implausible from the perspective of research on source memory, which suggests an independent representation of source information in memory (for a review, see Johnson, Hashtroudi, & Lindsay, 1993). A similar conclusion can be drawn from research on the sleeper effect, which also suggests that source and content information are stored independently in memory (for a meta–analysis, see Kumkale & Albarracín, 2004).

Drawing on the basic assumptions of the APE Model, we argue that the personal character of associations is determined by their endorsement on the propositional level rather than by the nature of their representation in memory (Gawronski & Bodenhausen, 2006a)—that is, the representation of associations in memory does not differ as a function of whether they are personal or cultural. Rather, some of these associations may be more likely to be endorsed, whereas others may be rejected as a basis for propositional judgments. Still, procedural differences between

tasks may make some indirect measures more likely to tap associations that are propositionally endorsed (e.g., Olson & Fazio, 2004). However, this personal character is determined by propositional processes rather than by the representation of the underlying associations in memory. It is an interesting empirical question as to whether individuals experience their evaluative associations as being personal versus cultural products (see Uhlmann & Nosek, 2005), but in our view such attributions arise from propositional processes rather than from different kinds of associative representations.

WHAT IS AN ATTITUDE?

What implications do these considerations have for the definition of attitude? Given the complexity of factors that contribute to positive or negative responses toward an object, the answer is certainly not straightforward. Some theorists have argued that attitudes should be defined as object–evaluation associations (e.g., Fazio, 1995; see also Fazio, this issue). In terms of the APE Model, this definition would exclusively refer to structural aspects of associative memory. However, other researchers seem to reserve the term attitude for explicitly endorsed evaluations (e.g., Karpinski & Hilton, 2001; Kruglanski & Stroebe, 2005; see also Schwarz, this issue). In the APE Model such a definition would exclusively refer to the outcome of propositional processes, namely evaluative judgments. However, other researchers have defined attitude as a psychological tendency to evaluate an object with some degree of favor or disfavor (e.g., Eagly & Chaiken, 1993; see also Eagly & Chaiken, this issue). Given that evaluative tendencies may take the form of affective reactions or evaluative judgments, this definition would refer to the outcome of both associative and propositional processes.

We think that there are plausible arguments for any of these positions and that the controversy between their proponents may be difficult to resolve. However, a possible solution that may facilitate the communication between the theorists of different camps is to focus on the processes underlying different kinds of evaluative responses. The APE Model identifies two different types of evaluative responses: affective reactions and evaluative judgments. Whereas affective reactions are assumed to have their roots in associative processes that are characterized by mere activation independent of subjective truth or falsity, evaluative judgments have their roots in processes of propositional reasoning that are concerned with the validation of evaluations and beliefs. Thus, when studying the determinants and the consequences of evaluative re-

sponses, researchers should specify the particular aspect of the responses to which they refer. This strategy provides a common ground for discussions of any empirical question that has been addressed in attitudes research. Still, the term *attitude* could be used as a general integrative label that subsumes any aspect or process that is responsible for positive or negative responses toward a given object.

The strategy to focus on specific processes underlying evaluative responses may also help to resolve other controversies that currently prevail in attitudes research. For instance, some researchers have argued that we hold only one attitude toward a given object, but that this attitude can be measured either directly or indirectly (e.g., Fazio & Olson, 2003). In contrast, other researchers have claimed that we often hold two attitudes toward the same object (i.e., an explicit and an implicit attitude), and that direct and indirect measures are differentially sensitive in assessing these two types of attitudes (e.g., Wilson et al., 2000). This controversy, in turn, raised the question of which type of measure provides access to the "real" attitude. Whereas some researchers seem to suggest that indirect measures assess the "real" attitude (e.g., Fazio et al., 1995), others seem to suggest that direct self–report measures tap into the "real" attitude (e.g., Karpinski & Hilton, 2001). The APE Model provides a new perspective that may help to resolve these controversies. Although we argue that there are two different types of evaluative responses (i.e., affective reactions and evaluative judgments), the mere fact that these responses can be different does *not* imply that people hold two different attitudes toward the same object (cf. Wilson et al., 2000). Rather, the specific interplay of associative and propositional processes may sometimes lead to corresponding and sometimes to noncorresponding evaluations for the two types of responses. Thus, dissociations between the two have their roots in different underlying *processes*, not in two different *attitudes* that are stored independently in memory. Moreover, both types of responses are "real" in the sense that they reflect evaluative reactions to a given object that have behavioral consequences (e.g., Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Fazio et al., 1995; Hofmann, Rauch, & Gawronski, 2007; McConnell & Leibold, 2001). Thus, the questions of "how many attitudes do we hold?" or "which attitude is the 'real' one?" become obsolete when they are considered from the perspective of the APE Model.

Finally, it may be useful to relate the assumptions of the APE Model to a relatively widespread conceptualization: tripartite models of attitudes (see Eagly & Chaiken, 1993). Even though there are different interpretations of the tripartite approach, all of them share the assumption that attitudes involve three major components: an affective component, a cognitive component, and a behavioral component. All these compo-

nents can also be found in the APE Model. The affective component is represented by the affective reactions resulting from activated associations. These reactions often provide the basis for evaluative judgments. However, evaluative judgments can also be independent of affective reactions when the propositional translation of these reactions is inconsistent with other momentarily considered propositions. These other propositions may be regarded as the cognitive component that influences evaluative judgments above and beyond affective reactions. Finally, a behavioral component is implied by the fact that both affective reactions and evaluative judgments have behavioral counterparts, such that affective reactions assessed with indirect measures are more likely to predict spontaneous rather than deliberate behavior, whereas evaluative judgments assessed with self–report measures are more likely to predict deliberate rather than spontaneous behavior (e.g., Dovidio et al., 1997; Fazio et al., 1995; McConnell & Leibold, 2001). From this perspective, the APE Model includes all three components that have been addressed by classic tripartite models of attitudes. However, the APE Model goes beyond these models by making specific assumptions about their mutual interplay.

CONCLUSION

In summary, we believe that the APE Model provides a useful framework for the study of evaluative responses. Specifically, we suggest that current controversies about the proper definition of the term *attitude* could be resolved by focusing on the specific processes underlying positive or negative responses to a given object. In the present article, we identified two different types of evaluative responses: affective reactions and evaluative judgments. Whereas affective reactions are assumed to have their roots in associative processes that are characterized be mere activation, independent of subjective truth or falsity, evaluative judgments have their roots in processes of propositional reasoning that are concerned with the validation of evaluations and beliefs. Thus, when studying the determinants and consequences of evaluative responses, researchers might profitably specify the particular aspect of these responses to which they refer. Still, all of these aspects may be subsumed under the integrative label *attitude*, which would then become a general term for the conglomerate of processes and mechanisms underlying evaluative responses.

REFERENCES

Albarracín, D. (2002). Cognition in persuasion: An analysis of information processing in response to persuasive communications. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 61–130). San Diego: Academic Press.

Arkes, H. R., & Tetlock, P. E. (2004). Attributions of implicit prejudice, or "Would Jesse Jackson 'fail' the Implicit Association Test? *Psychological Inquiry, 15,* 257–278.

Banaji, M. R., Lemm, K. M., & Carpenter, S. J. (2001). The social unconscious. In A. Tesser & N. Schwarz (Eds.), *Blackwell handbook of social psychology: Intraindividual processes* (pp. 134–158). Oxford, UK: Blackwell.

Barden, J., Maddux, W. W., Petty, R. E., & Brewer, M. B. (2004). Contextual moderation of racial bias: The impact of social roles on controlled and automatically activated attitudes. *Journal of Personality and Social Psychology, 87,* 5–22.

Bargh, J. A. (1994). The four horsemen of automaticity: Awareness, intention, efficiency, and control in social cognition. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition. Vol. 1: Basic processes* (2nd ed., pp. 1–40). Hillsdale, NJ: Erlbaum.

Bargh, J. A., Chaiken, S., Raymond, P., & Hymes, C. (1996). The automatic evaluation effect: Unconditional automatic activation with a pronunciation task. *Journal of Experimental Social Psychology, 32,* 104–128.

Barsalou, L. W. (1982). Context–independent and context–dependent information in concepts. *Memory & Cognition, 10,* 82–93.

Bassili, J. N., & Brown, R. D. (2005). Implicit and explicit attitudes: Research, challenges, and theory. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 543–574). Mahwah, NJ: Erlbaum.

Bechara, A., Damasio, H., Tranel, D., & Damasio, A. R. (1997). Deciding advantageously before knowing the advantageous strategy. *Science, 275,* 1293–1295.

Blair, I. V., Ma, J., & Lenton, A. (2001). Imagining stereotypes away: The moderation of implicit stereotypes through mental imagery. *Journal of Personality and Social Psychology, 81,* 828–841.

Butler, E. A., Egloff, B., Wilhelm, F. H., Smith, N. C., Erickson, E. A., & Gross, J. J. (2003). The social consequences of expressive suppression. *Emotion, 3,* 48–67.

Chen, S., & Chaiken, S. (1999). The Heuristic–Systematic Model in its broader context. In S. Chaiken & Y. Trope (Eds.), *Dual–process theories in social psychology* (pp. 73–96). New York: Guilford Press.

Conrey, F. R., Sherman, J. W., Gawronski, B., Hugenberg, K., & Groom, C. (2005). Separating multiple processes in implicit social cognition: The Quad–Model of implicit task performance. *Journal of Personality and Social Psychology, 89,* 469–487.

Conrey, F.R., & Smith, E.R. (2007). Attitude representation: Attitudes as patterns

in a distributed connectionist representational system. *Social Cognition, 25*(5), 718–735.

Crano, W. D., & Prislin, R. (2006). Attitudes and persuasion. *Annual Review of Psychology, 57,* 345–374.

Cunningham, W. A., Raye, C. I., & Johnson, M. K. (2004). Implicit and explicit evaluation: fMRI correlates of valence, emotional intensity, and control in the processing of attitudes. *Journal of Cognitive Neuroscience, 16,* 1717–1729.

Cunningham, W. A., Zelazo, P.D., Packer, D.J., & Van Bavel, J.J. (2007). The Iterative Reprocessing Model: A multilevel framework for attitudes and evaluation. *Social Cognition, 25*(5), 736–760.

De Houwer, J. (2003). The extrinsic affective Simon Task. *Experimental Psychology, 50,* 77–85.

De Houwer, J. (2006a). What are implicit measures and why are we using them? In R. W. Wiers & A. W. Stacy (Eds.), *The handbook of implicit cognition and addiction* (pp. 11–28). Thousand Oaks, CA: Sage Publishers.

De Houwer, J. (2006b). Using the Implicit Association Test does not rule out an impact of conscious propositional knowledge on evaluative conditioning. *Learning and Motivation, 37,* 176–187.

De Houwer, J., Hermans, D., Rothermund, K., & Wentura, D. (2002). Affective priming of semantic categorisation responses. *Cognition & Emotion, 16,* 643–666.

De Houwer, J., & Randell, T. (2004). Robust affective priming effects in a conditional pronounciation task: Evidence for the semantic representation of evaluative information. *Cognition and Emotion, 18,* 251–264.

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.

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56,* 5–18.

Dovidio, J. F., Kawakami, K., & Beach, K. R. (2001). Implicit and explicit attitudes: Examination of the relationship between measures of intergroup bias. In R. Brown & S. L. Gaertner (Eds.), *Blackwell handbook of social psychology: Intergroup processes* (pp. 175–197). Malden, MA: Blackwell.

Dovidio, J. F., Kawakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). On the nature of prejudice: Automatic and controlled processes. *Journal of Experimental Social Psychology, 33,* 510–540.

Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes.* Fort Worth, TX: Harcourt Brace Jovanovich.

Eagly, A. H., & Chaiken, S. (2005). Attitude research in the 21st century: The current state of knowledge. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 743–767). Mahwah, NJ: Erlbaum.

Eagly, A. H., & Chaiken, S. (2007). The advantages of an inclusive definition of attitude. *Social Cognition, 25*(5), 582–602.

Fazio, R. H. (1995). Attitudes as object–evaluation associations: Determinants,

consequences, and correlates of attitude accessibility. In R. E. Petty & J. A. Krosnick (Eds.), *Attitude strength* (pp. 247–282). Mahwah, NJ: Erlbaum.

Fazio, R. H. (2007). Attitudes as object-evaluation associations of varying strength. *Social Cognition, 25*(5), 603–637.

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.

Fazio, R. H., & Olson, M. A. (2003). Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology, 54,* 297–327.

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

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Reading, MA: Addison–Wesley.

Florack, A., Scarabis, M., & Bless, H. (2001). When do associations matter? The use of automatic associations toward ethnic groups in person judgments. *Journal of Experimental Social Psychology, 37*, 518–524.

Frey, D. (1986). Recent research on selective exposure to information. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 19, pp. 41–80). New York: Academic Press.

Gawronski, B., & Bodenhausen, G. V. (2006a). Associative and propositional processes in evaluation: An integrative review of implicit and explicit attitude change. *Psychological Bulletin, 132,* 692–731.

Gawronski, B., & Bodenhausen, G. V. (2006b). Associative and propositional processes in evaluation: Conceptual, empirical, and meta–theoretical issues. Reply to Albarracín, Hart, and McCulloch (2006), Kruglanski and Dechesne (2006), and Petty and Briñol (2006). *Psychological Bulletin, 132,* 745–750.

Gawronski, B., & Bodenhausen, G. V. (2007). What do we know about implicit attitude measures and what do we have to learn? In B. Wittenbrink & N. Schwarz (Eds.), *Implicit measures of attitudes: Procedures and controversies*. New York: Guilford Press.

Gawronski, B., Bodenausen, 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.

Gawronski, B., Deutsch, R., Mbirkou, S., Seibt, B., & Strack, F. (in press). When "just say no" is not enough: Affirmation versus negation training and the reduction of automatic stereotype activation. *Journal of Experimental Social Psychology*.

Gawronski, B., Hofmann, W., & Wilbur, C. J. (2006). Are "implicit" attitudes unconscious? *Consciousness and Cognition, 15,* 485–499.

Gawronski, B., & LeBel, E. P. (2007). *Dual processes in attitude change: Understanding the relative robustness of implicit and explicit evaluations.* Manuscript submitted for publication.

Gawronski, B., Peters, K. R., Brochu, P., & Strack, F. (2006). *Understanding the relation between different forms of racial prejudice: The role of associative and propositional processes.* Manuscript submitted for publication.

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.

Gawronski, B., Strack, F., & Bodenhausen, G. V. (in press). Attitudes and cognitive consistency: The role of associative and propositional processes. In R. E. Petty, R. H. Fazio, & P. Briñol (Eds.), *Attitudes: Insights from the new implicit measures*. Mahwah, NJ: Erlbaum

Gilbert, D. T. (1991). How mental systems believe. *American Psychologist, 46,* 107–119.

Grant, S. J., Malaviya, P., & Sternthal, B. (2004). The influence of negation on product evaluations. *Journal of Consumer Research, 31,* 583–591.

Greenwald, A. G., Banaji, M. R., Rudman, L. A., Farnham, S. D., Nosek, B. A., & Mellott, D. S. (2002). A unified theory of implicit attitudes, stereotypes, self–esteem, and self–concept. *Psychological Review, 109,* 3–25.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. K. L. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74,* 1464–1480.

Gregg, A. P., Seibt, B., & Banaji, M. R. (2006). Easier done than undone: Asymmetry in the malleability of implicit preferences. *Journal of Personality and Social Psychology, 90,* 1–20.

Gross, J. J. (1998). Antecedent– and response–focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology, 74,* 224–237.

Hofmann, W., Gawronski, B., Gschwendner, T., Le, H., & Schmitt, M. (2005). A meta–analysis on the correlation between the Implicit Association Test and explicit self–report measure. *Personality and Social Psychology Bulletin, 31,* 1369–1385.

Hofmann, W., Rauch, W., & Gawronski, B. (2007). And deplete us not into temptation: Automatic attitudes, dietary restraint, and self–regulatory resources as determinants of eating behavior. *Journal of Experimental Social Psychology, 43,* 497–504.

Johnson, M. K., Hashtroudi, S., & Lindsay, D. S. (1993). Source monitoring. *Psychological Bulletin, 114,* 3–28.

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

Karpinski, A., & Hilton, J. L. (2001). Attitudes and the Implicit Association Test. *Journal of Personality and Social Psychology, 81,* 774–788.

Kawakami, K., Dovidio, J. F., Moll, J., Hermsen, S., & Russin, A. (2000). Just say no (to stereotyping): Effects of training in the negation of stereotypic associations on stereotypic activation. *Journal of Personality and Social Psychology, 78,* 871–888.

Klauer, K. C., & Musch, J. (2002). Goal–dependent and goal–independent effects of irrelevant evaluations. *Personality and Social Psychology Bulletin, 28,* 802–814.

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.

Kornblum, S., Hasbroucq, T., & Osman, A. (1990). Dimensional overlap: Cognitive basis for stimulus–response compatibility—a model and taxonomy. *Psychological Review, 97,* 253–270.

Kruglanski, A. W., & Stroebe, W. (2005). The influence of beliefs and goals on attitudes: Issues of structure, function, and dynamics. In D. Albarracín, B. T. Johnson, & M. P. Zanna (Eds.), *The handbook of attitudes* (pp. 323–368). Mahwah, NJ: Erlbaum.

Kruglanski, A. W., & Thompson, E. P. (1999). Persuasion by a single route: A view from the unimodel. *Psychological Inquiry, 10,* 83–109.

Kumkale, G. T., & Albarracín, D. (2004). The sleeper effect in persuasion: A meta–analytic review. *Psychological Bulletin, 130,* 143–172.

Lewicki, P. (1985). Nonconscious biasing effects of single instances on subsequent judgments. *Journal of Personality and Social Psychology, 48*, 563–574.

Lieberman, M. D., Gaunt, R., Gilbert, D. T., & Trope, Y. (2002). Reflection and reflexion: A social cognitive neuroscience approach to attributional inference. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 199–249). New York: Academic 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.

Lord, C. G., Ross, L., & Lepper, M. R. (1979). Biased assimilation and attitude polarization: The effects of prior theories on subsequent considered evidence. *Journal of Personality and Social Psychology, 37,* 2098–2109.

McConnell, A. R., & Leibold, J. M. (2001). Relations among the Implicit Association Test, discriminatory behavior, and explicit measures of racial attitudes. *Journal of Experimental Social Psychology, 37,* 435–442.

Monteith, M. J., & Voils, C. I. (1998). Proneness to prejudiced responses: Toward understanding the authenticity of self–reported discrepancies. *Journal of Personality and Social Psychology, 75*, 901–916.

Monteith, M. J., Voils, C. I., & Ashburn–Nardo, L. (2001). Taking a look underground: Detecting, interpreting, and reacting to implicit racial bias. *Social Cognition, 19,* 395–417.

Neely, J. H. (1977). Semantic priming and retrieval from lexical memory: Roles of inhibitionless spreading activation and limited–capacity attention. *Journal of Experimental Psychology: General, 106*, 226–254.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, *84*, 231–259.

Nosek, B. A., & Banaji, M. R. (2001). The Go/No–Go Association Task. *Social Cognition, 19,* 625–666.

Olson, M. A., & Fazio, R. H. (2001). Implicit attitude formation through classical conditioning. *Psychological Science, 12,* 413–147.

Olson, M. A., & Fazio, R. H. (2004). Reducing the influence of extra–personal as-

sociations on the Implicit Association Test: Personalizing the IAT. *Journal of Personality and Social Psychology, 86,* 653–667.

Olson, M. A., & Fazio, R. H. (2006). Reducing automatically activated racial prejudice through implicit evaluative conditioning. *Personality and Social Psychology Bulletin, 32,* 421–433.

Payne, B. K., Cheng, S. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes: Affect misattribution as implicit measurement. *Journal of Personality and Social Psychology, 89,* 277–293.

Petty, R. E., Fazio, R. H., & Briñol, P. (Eds.). (in press). *Attitudes: Insights from the new implicit measures*. Mahwah, NJ: Erlbaum

Petty, R. E., Tormala, Z. L., Briñol, P., & Jarvis, W. B. G. (2006). Implicit ambivalence from attitude change: An exploration of the PAST Model. *Journal of Personality and Social Psychology, 90,* 21–41.

Petty, R. E., & Wegener, D. T. (1999). The Elaboration Likelihood Model: Current status and controversies. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 41–72). New York: Guilford Press.

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

Richeson, J. A, & Nussbaum, R. J. (2004). The impact of multiculturalism versus color–blindness on racial bias. *Journal of Experimental Social Psychology, 40,* 417–423.

Roskos–Ewoldsen, D. R., & Fazio, R. H. (1992). On the orienting value of attitudes: Attitude accessibility as a determinant of an object's attraction of visual attention. *Journal of Personality and Social Psychology, 63,* 198–211.

Ross, L., McFarland, C., & Fletcher, G. J. O. (1981). The effect of attitude on recall of personal histories. *Journal of Personality and Social Psychology, 40,* 627–634.

Rudman, L. A. (2004). Sources of implicit attitudes. *Current Directions in Psychological Science*, *13*, 79–82.

Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review, 110,* 145–172.

Rydell, R. J., & Gawronski, B. (2006). *I like you, I like you not: Understanding the context dependency of implicit evaluations*. Manuscript submitted for publication.

Rydell, R. J., McConnell, A. R., Mackie, D. M., & Strain, L. M. (2006). Of two minds: Forming and changing valence–inconsistent implicit and explicit attitudes. *Psychological Science, 17,* 954–958.

Schwarz, N. (2007). Attitude construction: Evaluation in context. *Social Cognition, 25*(5), 638–656.

Schwarz, N., & Bohner, G. (2001). The construction of attitudes. In A. Tesser & N. Schwarz (Eds.), *Blackwell handbook of social psychology: Intraindividual processes* (pp. 436–457). Malden, MA: Blackwell Publishers.

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well–being: Informative and directive functions of affective states. *Journal of Personality and Social Psychology, 45,* 513–523.

Shiv, B., & Nowlis, S. M. (2004). The effect of distractions while tasting a food sample: The interplay of informational and affective components in subsequent choice. *Journal of Consumer Research, 31,* 599–608.

Sloman, S. A. (1996). The empirical case for two systems of reasoning. *Psychological Bulletin, 119,* 3–22.

Smith, E. R. (1996). What do connectionism and social psychology offer each other? *Journal of Personality and Social Psychology, 70,* 893–912.

Smith, E. R. (1998). Mental representation and memory. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed., Vol. 1, pp. 391–445). New York: McGraw–Hill.

Smith, E. R., & DeCoster, J. (2000). Dual–process models in social and cognitive psychology: Conceptual integration and links to underlying memory systems. *Personality and Social Psychology Review, 4,* 108–131.

Smith, E. R., Fazio, R. H., & Cejka, M. A. (1996). Accessible attitudes influence categorization of multiply categorizable objects. *Journal of Personality and Social Psychology, 71,* 888–898.

Smith, E. R., & Neumann, R. (2005). Emotion processes considered from the perspective of dual process models. In L. Feldman Barrett, P. M. Niedenthal, & P. Winkielman (Eds.), *Emotion and consciousness* (pp. 287–311). New York: Guilford Press.

Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review, 8,* 220–247.

Uhlmann, E., & Nosek, B. A. (2005). *My culture made me do it! Lay theories of socialization and responsibility*. Unpublished manuscript, Yale University, New Haven, CT.

Wegner, D. M. (1994). Ironic processes of mental control. *Psychological Review, 101*, 34–52.

Wilson, T. D. (2002). *Strangers to ourselves: Discovering the adaptive unconscious*. Cambridge, MA: Harvard University Press.

Wilson, T. D., & Hodges, S. D. (1992). Attitudes as temporary constructions. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 37–65). Hillsdale, NJ: Erlbaum.

Wilson, T. D., Lindsey, S., & Schooler, T. Y. (2000). A model of dual attitudes. *Psychological Review, 107,* 101–126.

Wittenbrink, B., Judd, C. M., & Park, B. (2001). Spontaneous prejudice in context: Variability in automatically activated attitudes. *Journal of Personality and Social Psychology, 81,* 815–827.

Wittenbrink, B., & Schwarz, N. (Eds.). (2007). *Implicit measures of attitudes: Procedures and controversies.* New York: Guilford Press.

Zanna, M. P., & Rempel, J. K. (1988). Attitudes: A new look at an old concept. In D. Bar–Tal & A. W. Kruglanski (Eds.), *The social psychology of knowledge* (pp. 315–334). Cambridge, UK: Cambridge University Press.