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Forming Implicit and Explicit Attitudes Toward Individuals: Social Group Association Cues

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The authors explored how social group cues (e.g., obesity, physical attractiveness) strongly associated with valence affect the formation of attitudes toward individuals. Although explicit attitude formation has been examined in much past research (e.g., S. T. Fiske & S. L. Neuberg, 1990), in the current work, the authors considered how implicit as well as explicit attitudes toward individuals are influenced by these cues. On the basis of a systems of evaluation perspective (e.g., R. J. Rydell & A. R. McConnell, 2006; R. J. Rydell, A. R. McConnell, D. M. Mackie, & L. M. Strain, 2006), the authors anticipated and found that social group cues had a strong impact on implicit attitude formation in all cases and on explicit attitude formation when behavioral information about the target was ambiguous. These findings obtained for cues related to obesity (Experiments 1 and 4) and physical attractiveness (Experiment 2). In Experiment 3, parallel findings were observed for race, and participants holding greater implicit racial prejudice against African Americans formed more negative implicit attitudes toward a novel African American target person than did participants with less implicit racial prejudice. Implications for research on attitudes, impression formation, and stigma are discussed.

Keywords: attitudes, implicit attitudes, impression formation, prejudice, stigma

People would like to believe that their attitudes toward others reflect their careful evaluation of others' unique and individual merits. Although this undoubtedly occurs in some cases, social psychology research raises questions about the pervasiveness of such a reasoned approach to understanding others (Bargh, 1999; Bargh & Chartrand, 1999; Brewer, 1988; Fiske & Neuberg, 1990; Nisbett & Wilson, 1977; Schwarz & Bohner, 2001). At times, people are evaluated by the content of their character, but in other situations, this content can seem largely irrelevant. For example, individuating information about a person can often be relatively inconsequential when perceivers base their evaluations of a person on information associated with the individual's social group (Fiske, 1998; Fiske & Neuberg, 1990).

Indeed, research has demonstrated that cues providing information about social groups (e.g., obesity, physical attractiveness, race) can impact social perceptions. For example, target people can be viewed differently when their race or ethnicity influences perceptions and interpretations of ambiguous behaviors and events (e.g., Bodenhausen & Wyer, 1985; Duncan, 1976; Sagar & Schofield, 1980). Although these cues typically do not influence perceptions retroactively, they can influence interpretations of ambiguous acts during encoding (e.g., Bodenhausen & Wyer, 1985). However, when a target's actions are clear-cut instead of ambiguous, accessible social group categories produce little biased assimilation, reducing the influence of groups on perceptions of target individuals (Bruner, 1957; Higgins, 1989; Srull & Wyer, 1979).

Of course, the degree to which a target's actions can shape one's attitude is determined, in part, by the extent to which perceivers process individuated information about the target. In fact, Fiske and Neuberg's (1990) continuum model of impression formation considers the extent to which a target's behaviors guide social perception instead of information associated with a target's social group. They proposed that people rely on piecemeal integration (e.g., the behaviors performed by an individual) instead of categorization (e.g., knowledge associated with the group as a whole) under conditions where perceivers are able and willing to devote cognitive resources to understanding target individuals. For example, when motivated and presented with a number of behaviors, a perceiver may come to hold a positive attitude toward a target person who is obese (i.e., a member of a social group associated with negativity) whose behaviors are predominantly positive in nature. Indeed, there is considerable support for the continuum model (for an overview, see Fiske, Lin, & Neuberg, 1999).

However, one interesting feature of this work is its focus on how people use categorization and piecemeal integration in the forma-

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tion of *explicit attitudes* (i.e., evaluations that people can report and for which expression can be consciously controlled) toward individual group members. Yet, it is an open question as to how an individual's social group and individuated behaviors contribute to the formation of *implicit attitudes* (i.e., evaluations for which people may not initially have conscious access and for which activation cannot be controlled) toward individuals. Within the context of the continuum model, the impact of social group knowledge has been assumed to result from less effortful consideration of individuated information (Fiske et al., 1999). But in the current work, we suggest that group knowledge may impact implicit attitude formation even when perceivers devote considerable cognitive resources to understanding social targets. Specifically, we propose that many social groups are strongly associated with valence and that the nature of this knowledge (i.e., its associative basis) may also have important implications for attitude formation, especially for implicit attitudes. In the current work, we examine how group association cues affect attitude formation (implicit and explicit) toward individuals. Although these cues may have implications for other aspects of impression formation (e.g., stereotypes, attributions), here we focus exclusively on how these social group cues shape attitude formation toward novel individuals.

Systems of Evaluation

Recent work has established that the processes underlying the formation and change of implicit attitudes differ considerably from those involved in explicit attitudes (e.g., Rydell & McConnell, 2006; Rydell, McConnell, Mackie, & Strain, 2006; Rydell, McConnell, Strain, Claypool, & Hugenberg, 2007). Specifically, we (Rydell & McConnell, 2006; Rydell et al., 2006) have advanced a *systems of evaluation* approach to attitudes, proposing that there are two independent systems of evaluation that differ in both what information they use and how they act on it (see also Greenwald & Banaji, 1995; Sloman, 1996; Smith & DeCoster, 2000; Strack & Deutsch, 2004). The first system of evaluation, the *associative system*, operates using paired associations based on similarity and contiguity. In this case, learning is based on the accumulation of information over time to form and strengthen associations in memory. The second system of evaluation, the *rule-based system*, relies on logic and symbolic representations at a relatively higher order level of cognitive processing.

On the basis of a systems of evaluation account, one can delineate evaluations that tap into the associative and rule-based systems of evaluation: implicit and explicit attitudes, respectively (Rydell et al., 2006). This approach is congruent with current conceptualizations of how implicit and explicit attitudes operate, allowing one to generate novel predictions about how evaluations are formed and changed in memory (cf. Gawronski & Bodenhausen, 2006). The associative system of evaluation is relevant to the understanding of how implicit attitudes form and function because implicit attitudes are posited to follow the basic principles of similarity and association (Smith & DeCoster, 2000). The rule-based system, however, fits with a conceptualization of explicit attitudes as evaluations based on conscious deliberation or syllogistic reasoning, which can reveal quick changes in expression (Fazio, 1995) but require cognitive resources in their formation and change (Petty & Wegener, 1998).

This systems of evaluation approach has proven useful in understanding how implicit and explicit attitudes toward individuals form differently. As an example, Rydell et al. (2006) showed that implicit attitudes were formed in response to the valence of subliminal primes presented prior to the visual appearance of a target individual, whereas explicit attitudes were formed in response to consciously available descriptions of that target's behaviors. For instance, when concurrently presented with a series of negative subliminal primes and positive behavioral statements performed by a target person, participants' implicit attitudes toward the target person were negative but explicit attitudes toward the same person were positive. Consistent with a systems of evaluation account, implicit and explicit attitudes were formed relatively independently of each other, with each responding to the type of information assumed to influence the associative and rule-based systems, respectively. Although implicit attitudes can, given a sufficient amount of information, be responsive to verbal information about a target person (Rydell & McConnell, 2006), implicit attitudes are more responsive to information that is associative in nature (in the case of Rydell et al., 2006, associations that were subliminally paired with the target individual). In the current work, we again focus on how implicit and explicit attitudes (based on different systems of evaluation) can be differentially sensitive to distinct forms of social information.

These demonstrations of differences in implicit and explicit attitude change notwithstanding, much remains to be determined about the nature of implicit and explicit attitudes (see Gawronski & Bodenhausen, 2006). For example, in our previous work, we have only explored attitude formation and change for relatively impoverished targets (e.g., a nondescript White man named Bob). However, when perceivers encounter social targets, many group association cues such as skin color may be available. Although Bob could potentially be viewed as a member of several social categories, it is likely that such categorizations are not especially salient to our participants for several reasons. First, because they only meet one person instead of a target person in a context of differentiated others, Bob's race, sex, or other possible categories (e.g., his age, his hairstyle) should not be distinctive. Indeed, social categorization is inherently contextual (e.g., an overweight person may be categorized differently in a group of morbidly obese others), which means encountering a White male target in isolation reduces the number of salient social categories available to a perceiver. Further, a college-age, White male target is not likely to be viewed as deviant or as a member of a minority social group category (e.g., Miller, Taylor, & Buck, 1991), especially to college-age participants who themselves are predominantly European American (e.g., McGuire, McGuire, Child, & Fujioka, 1978). However, the introduction of a target individual with more distinctive social group association cues (e.g., an African American Bob) could presumably have a considerable effect on attitude formation.

If so, might these group association cues have different implications for implicit and explicit attitude formation? On the basis of a systems of evaluation analysis, we believe the answer is yes. As Rydell et al. (2006) showed, implicit attitudes were primarily affected by associative information rather than by detailed statements about the target's behaviors, whereas explicit attitudes were shaped by the valence of the behavioral information instead of the valence of subliminal primes. Because of the sensitivity exhibited by implicit attitudes to information based on associations (see also Sloman, 1996), we reasoned that when group association cues are presented about a target person, such as being overweight, being physi-

cally attractive, or being African American, these cues, because they are association based in nature, would be used more strongly by the associative system of evaluation and thus influence implicit attitudes toward the target in proportion to how strongly they are associated with positivity or negativity (i.e., stronger cues should have a greater impact). However, in the absence of such group association cues, implicit attitudes toward the person should eventually reflect the valence of target-relevant behavioral information (Rydell & McConnell, 2006). That is, implicit attitudes are sensitive to verbally conveyed information about a target's behavior, but they will be more strongly influenced by group cues that have strong valence associations. Indeed, Castelli, Zogmaister, Smith, and Arcuri (2004) showed that implicit attitudes can be formed simply by linking a person with a group very strongly associated with valence (e.g., child molesters) in the absence of behavioral information. However, if a person is a member of a social group more weakly associated with valence (or if no group association cues are available at all), implicit attitudes toward the target will reflect the individual's behaviors (e.g., Rydell & McConnell, 2006; Rydell et al., 2007).

In contrast, we expected that the valence of the verbal statements presented about the target person's behaviors would determine explicit attitudes toward the individual (Rydell & McConnell, 2006; Rydell et al., 2006) regardless of the group association cues presented. That is, when unambiguous statements clearly describe a target person who performs positive or negative behaviors, the likelihood that a group association cue can assimilate such clear-cut behaviors is exceedingly low (Higgins, 1989; Srull & Wyer, 1979). However, if a target person's individual behaviors are ambiguous with respect to valence, a target's group association cue may serve to disambiguate each behavior, exerting an assimilative effect and thus influencing explicit attitude formation toward the individual in these cases.

Group Association Cues

It has been shown that people have strong negative evaluations with groups ranging from the obese and the unattractive (e.g., Nosek, 2005; Rudman, Feinberg, & Fairchild, 2002) to racial outgroups (e.g., Greenwald, McGhee, & Schwartz, 1998; McConnell & Leibold, 2001). But in the current work, we were interested in whether these negative group associations would impact attitude formation about individual targets and, in particular, implicit attitudes toward them. Clearly, obesity (e.g., Crandall et al., 2001), attractiveness (e.g., Dion, Berscheid, & Walster, 1972), and race (e.g., Sagar & Schofield, 1980) can impact deliberate evaluations and judgments. Yet, it is important to note that many studies showing the impact of groups on perceptions and judgments involve situations engineered to be equivocal (e.g., an ambiguous shove in the hallway between two students, student court cases that present a mixture of guilt-suggestive and guilt-exonerating details about defendants) to maximize the likelihood that the cue (e.g., a sketch involving an African American child) will influence perceptions.

Thus, in the current study, we expected that group association cues would have a far greater impact on implicit attitudes than on explicit attitudes when a substantial amount of unambiguous verbal information was presented about the target person's behaviors. However, in cases where the behavioral information about the target person was ambiguous with respect to valence, we anticipated that group association cues would also influence explicit attitudes toward the target person, consistent with many existent findings showing that social groups can bias judgments in ambiguous situations.

In the current work, we examined visual cues strongly associated with positivity or negativity. Specifically, we explored obesity, physical attractiveness, and race. We were drawn to these cues because obesity and race have been studied extensively in research on stigma. For example, people avoid stigmatized group members (e.g., Pryor, Reeder, Yeadon, & Hesson-McInnis, 2004), devalue items associated with them (e.g., Neuberg, Smith, Hoffman, & Russell, 1994; Rozin, Markwith, & Nemeroff, 1992), and evaluate them negatively on implicit (e.g., Castelli et al., 2004; Fazio, Jackson, Dutton, & Williams, 1995; Greenwald et al., 1998; Nosek, 2005; Nosek & Banaji, 2001; Wittenbrink, Judd, & Park, 1997) and explicit (e.g., Crocker, Major, & Steele, 1998; Dovidio, Kawakami, & Gaertner, 2002; Plant & Devine, 1998) measures. Thus, being a member of a stigmatized group provides a strong, negative group association cue.

Physical attractiveness can also serve as a strong group association cue (for many of the same reasons as stigmatized group membership), but, unlike stigma, a person's physical attractiveness can serve as either a positive or a negative cue. For instance, people who are physically attractive are assumed to be competent and positive in domains unrelated to their looks (e.g., Chaiken, 1979; Dion et al., 1972; Eagly, Ashmore, Makhijani, & Longo, 1991), whereas those who are physically unattractive are viewed quite negatively (e.g., Ambady & Rosenthal, 1993; Berscheid & Walster, 1974), even by infants (e.g., Dion, 1973). Thus, whereas obesity and race provide ways to instantiate negative group association cues about target individuals, variability in attractiveness can provide positive and negative group association cues.[1]

Overview of the Current Work

We conducted four experiments to evaluate whether group association cues would, in general, have a stronger impact on implicit attitudes than on explicit attitudes when forming attitudes toward a group member, as anticipated by a systems of evaluation account. The basic paradigm and the attitudes measures used were the same as those applied in previous research (e.g., Rydell & McConnell, 2006; Rydell et al., 2006). Specifically, participants received detailed, verbal information about the behaviors of a novel target person (Bob or Bobbie, depending on the experiment) prior to reporting their implicit and explicit attitudes toward the target. Initially, a number of trials were presented featuring a target photo and behavioral statements about the person to induce either a positive or a negative initial attitude toward the target. New to the current work were manipulations of target photos (see Figure 1 for examples) that allowed us to present a target with negative or positive group association cues (or no salient group association cue

[1] In the current work, we use the term *group association cue* because participants are never directly told anything about the target person's membership in a social category (e.g., physical attractiveness is inferred from a visual image of the target person, who, on the basis of pretesting, was reliably viewed as normatively attractive). Also, we do not propose that these cues cannot affect explicit attitudes. For instance, group association cues are especially likely to affect deliberate evaluations in circumstances where the cue is perceived to be germane to one's impression (e.g., physical attractiveness is likely to influence explicit attitudes toward a potential dating partner; Petty & Wegener, 1998).

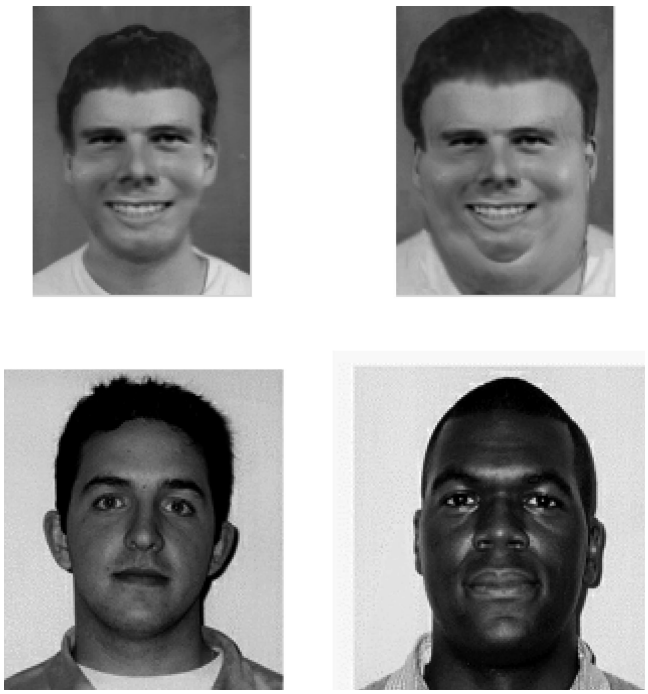

Figure 1. Sample stimuli used to manipulate obesity (Experiments 1 and 4, top row) and race (Experiment 3, bottom row). Top-row photos are from Nosek et al. (2004) and bottow-row photos are from Minear and Park (2004).

in some conditions). Next, participants received either additional neutral (control) statements about the target or additional counter-attitudinal (CA) statements about the target (i.e., the valence associated with these subsequent statements was the opposite of the valence of the behavioral statements in the initial learning trials). The CA conditions allowed us to examine how attitudes would change in the face of new and conflicting behavioral information about the target. Past research has shown that presenting a considerable number of CA behaviors (such as in the current work) results in a much more moderated attitude toward the target person (e.g., Kerpelman & Himmelfarb, 1971; Rydell & McConnell, 2006). Whether such revised attitudes toward the individual reflect relatively neutral or relatively ambivalent attitudes toward the target person is less important for the present concerns than is the fact that the introduction of CA information should produce meaningful shifts in attitudes toward the target. More important, we predicted that the introduction of CA information about a target presented with strong group association cues would have a differential impact on explicit and implicit attitudes toward the target person.

In general, we expected that explicit attitudes toward the target person would respond to the valence described in the behavioral statements and that they would change after the presentation of CA information. Also, when no salient group association cue was present or when the cue was weakly associated with valence, we expected that implicit attitudes toward the target person would show a pattern similar to the pattern of explicit attitudes. That is, similar to Rydell and McConnell (2006), when large amounts of CA information are presented, implicit attitudes should eventually change in the absence of group association cues. However, when strong group association cues were present, we expected implicit attitudes to primarily reflect the valence associated with the social group and thus not be strongly moderated by the CA information. We tested these predictions by manipulating group association cues related to obesity (Experiments 1 and 4), physical attractiveness (Experiment 2), and race (Experiment 3).

Finally, we anticipated that the group association cue would impact explicit attitudes toward the target when the behavioral statements describing the person were relatively uninformative with respect to valence. Thus, in Experiment 4, we manipulated whether the target individual was or was not obese, and we crossed this factor with another manipulation that varied whether the behavioral statements were clear-cut or ambiguous in terms of valence. As in the previous studies, we expected implicit attitudes to be influenced by the presence of a strong group association cue. However, we also anticipated that the group association cue would impact explicit attitudes toward the target under conditions where the individual's behaviors were ambiguous (but not when they were unambiguous). As noted previously, group membership should have an impact on explicit attitudes toward the target only when each behavior encountered is ambiguous with respect to valence and, thus, the cue can influence how each behavior is encoded at the time of encounter (e.g., Bodenhausen & Wyer, 1985). However, group cues should not affect explicit attitudes toward the target when each behavior is clear-cut in terms of valence (because each action is not subject to interpretation) even if, ultimately, the final attitude toward the individual is relatively mixed in nature (which is more likely in the CA conditions).

Experiment 1

In Experiment 1, we examined how implicit and explicit attitudes formed and changed for members of a stigmatized group (i.e., those who are overweight) relative to targets who are not stigmatized (i.e., those who are not overweight). This study replicated the basic experimental design of Rydell and McConnell (2006), but it also manipulated a group association cue for the target. Specifically, on a between-subjects basis, participants formed attitudes toward a person, Bob, who appeared to be either overweight or not overweight. In addition to seeing a photo of Bob, participants were presented with a number of positive and negative verbal behavioral statements about him and asked to determine whether each statement was characteristic of him. All participants received the same behavioral statements; however, whether a behavior was characteristic or uncharacteristic of Bob was manipulated systematically to indicate that Bob acted positively (positive behaviors were characteristic and negative behaviors were uncharacteristic of him) or negatively (negative behaviors were characteristic and positive behaviors were uncharacteristic of him). Finally, participants' implicit and explicit attitudes were assessed using the exact same measures as were used in past research (e.g., Rydell & McConnell, 2006; Rydell et al., 2006).

In line with the prediction that the associative system would reflect the negativity associated with a group association cue and the rule-based system would be sensitive to the valence of the behavioral information provided when forming an attitude toward an individual, it was expected that (a) explicit attitudes toward Bob would reflect the valence suggested by the verbal statements presented, (b) implicit attitudes would reflect the valence of the

group association cue that was salient (i.e., the overweight condition would lead to negative implicit attitudes toward Bob regardless of the valence of his behaviors), and (c) implicit attitudes would be based on the behavioral information when no group association cue was salient (i.e., in the not-overweight condition; Rydell & McConnell, 2006).

Method

Participants. A sample of 133 undergraduates at Miami University participated in return for research credit in their introductory psychology courses. They were randomly assigned to a 2 (Bob's weight: not overweight, overweight) × 2 (valence of the initial verbal behaviors: positive, negative) × 2 (CA condition: control [0 CA], CA conditioning [100 CA]) between-subjects factorial.

Learning task. A modified version of Kerpelman and Himmelfarb's (1971) attitude learning paradigm was used (see Rydell & McConnell, 2006; Rydell et al., 2006). In this learning task, participants received information about Bob on a computer over the course of 200 trials. On the basis of random assignment, one of four different White men served as the target Bob.[2] On each trial, participants were concurrently presented with a picture of Bob and verbal statements of behavior that might be characteristic of him. After reading each behavior, participants indicated whether they believed that behavior was characteristic or uncharacteristic of Bob by pressing the *c* key or the *u* key, respectively. After each response, participants were given feedback about whether each behavior was characteristic of Bob. Specifically, feedback consisted of the word *correct* (in blue text) or *incorrect* (in red text) positioned in the center of the computer monitor and, at the same time, the behavior was stated correctly, on the basis of the assigned condition, at the bottom of the monitor (e.g., "Helping the neighborhood children is characteristic of Bob" or "Helping the neighborhood children is uncharacteristic of Bob"). Thus, through systematically differing feedback (to be described), participants were exposed to the same behaviors, but the reinforcement was designed to indicate that Bob performed positive or negative acts.

Manipulation of Bob's weight. To manipulate whether Bob was perceived as overweight or not overweight, the picture of Bob differed as a function of condition. Half of the participants saw a picture of Bob during each trial that showed he was not overweight, but the rest saw a picture of Bob during each learning trial where the photo of Bob had been morphed from the original (i.e., the picture in which Bob was not overweight) so that Bob appeared to be overweight (see Nosek, Banaji, & Greenwald, 2004). Thus, each not-overweight face was used to create an overweight face that was almost identical except for apparent weight.

Manipulation of valence of the initial verbal information. During the first 100 trials, half of the participants received feedback that positive behaviors were characteristic of Bob and negative behaviors were uncharacteristic of Bob (positive initial verbal information). The remaining participants received feedback that negative behaviors were characteristic of Bob and positive behaviors were uncharacteristic of Bob (negative initial verbal information).

Manipulation of CA condition. After the first 100 trials, participants in the control condition received 100 neutral trials (i.e., the behavior characteristic of Bob was neither positive nor negative; e.g., "Bob waited at the street corner"). However, participants in the CA condition (100 CA) received CA feedback about Bob on 100 trials (i.e., the behaviors that were described as characteristic or uncharacteristic of Bob were opposite of the valence presented during the initial learning trials).[3] After completing the second block of 100 trials, participants completed measures assessing their attitudes toward Bob.[4]

Explicit attitude measure. To assess explicit attitudes, we had participants judge how likable Bob was on a scale ranging from 1 (*very unlikable*) to 9 (*very likable*). In addition, the participants completed five semantic differential scales, each using a 9-point scale to describe Bob with anchors of good–bad, pleasant–mean, agreeable–disagreeable, caring–uncaring, and kind–cruel. Further, participants provided their evaluation of Bob on a feeling thermometer that ranged in temperature from 0° to 100°. Following past research (e.g., Rydell & McConnell, 2006; Rydell et al., 2006), we standardized the responses for each explicit measure and computed an overall mean (in all experiments, $\alpha s > .90$). Thus, higher scores indicated more positive explicit attitudes toward Bob.

Implicit attitude measure. The Implicit Association Test (IAT; Greenwald et al., 1998) was used to assess implicit attitudes toward Bob, as implicit attitudes have been studied in previous research (e.g., Rydell & McConnell, 2006; Rydell et al., 2006). In this study, the IAT had 25 stimuli: 1 picture of Bob (Bob was either overweight or not overweight), 4 different pictures of White men who were not Bob (2 were overweight and 2 were not), 10 positive adjectives (e.g., *wonderful*), and 10 negative adjectives (e.g., *disgusting*). All stimuli were presented in the center of the monitor and the adjectives were always presented in lowercase letters.

As in past work (e.g., Rydell & McConnell, 2006; Rydell et al., 2006), the IAT task featured seven blocks with 20 trials per block. Participants were informed that the task involved making category judgments using one of two responses (the *d* or *k* keys on the keyboard) for a variety of stimuli (photos or words) presented on a computer monitor. During each block, verbal category label reminders appeared on the left and right sides of the display (assignment of particular labels to the *d* and *k* keys was counterbalanced across participants and produced no effects). Participants were instructed to complete that task quickly while also minimizing errors, and they were told to keep their index fingers on the *d* and *k* keys throughout the experiment to minimize delays in responding. There was a 250-ms intertrial interval.

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[2] This counterbalancing procedure produced no effects on any of the results. Similar counterbalancing was used in the other experiments and produced no effects as well.

[3] In the current work, we contrasted the 0 CA control condition (where no CA information was presented) with the 100 CA condition (where 100 CA items were presented). We selected 100 CA for our comparison because past research (Rydell & McConnell, 2006) has shown that even slow-changing implicit attitudes change after such a large number of CA behaviors. Thus, if implicit attitudes continue to reflect group association cue evaluations under conditions where, without the cue, they would be significantly moderated, it would be an especially compelling demonstration of the unresponsiveness of implicit attitudes to changing behavioral information that has been shown, in the absence of such cues, to produce markedly changed implicit attitudes.

[4] In all experiments reported in the current work, the order of attitude measure (i.e., implicit before explicit vs. explicit before implicit) was counterbalanced, and this factor did not qualify any of the results.

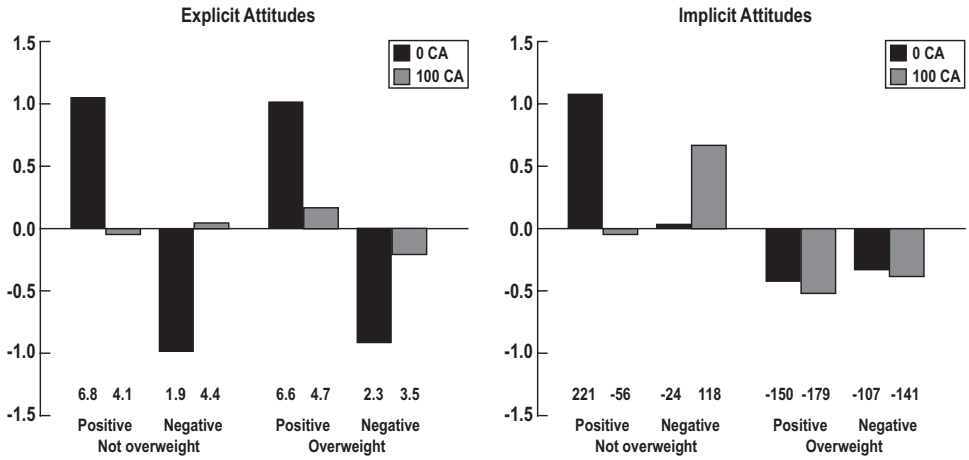

Figure 2. Explicit and implicit attitudes as a function of Bob's weight, valence of the initial verbal behaviors, and counterattitudinal condition in Experiment 1. Standardized means are presented on the *y*-axis, and nonstandardized means are listed along the abscissa. CA = counterattitudinal statements.

In Block 1, participants judged photos of Bob or not Bob, and in Block 2, they judged whether the adjectives were negative or positive. In Blocks 3 and 4 (Combination 1), participants judged whether the stimuli were "Bob or negative" or "not Bob or positive." In Block 5, participants performed the same judgment task as they did in Block 2 except the assignment of response keys to the two valence categories was reversed. Finally, in Blocks 6 and 7 (Combination 2), participants judged whether the stimuli were "Bob or positive" or "not Bob or negative." As in past IAT research, half of the participants performed Combination 1 in Blocks 3–4 and Combination 2 in Blocks 6–7, whereas the rest performed Combination 2 in Blocks 3–4 and Combination 1 in Blocks 6–7 (this counterbalancing manipulation produced no effects).[5]

To assess implicit attitudes toward Bob, we subtracted the mean response latencies of Combination 2 from the mean response latencies of Combination 1 (see Greenwald et al., 1998, for detailed scoring information).[6] As in past work (e.g., Rydell & McConnell, 2006; Rydell et al., 2006, 2007), these difference scores were standardized, with greater values indicating relatively more positive implicit attitudes toward Bob. Because IAT scores have long been viewed as relative (rather than absolute) measures of attitudes (e.g., Greenwald et al., 1998; Nosek, Greenwald, & Banaji, 2006), standardization maintains their relativistic nature. Moreover, by standardizing the implicit and explicit attitude measures and treating the type of attitude (implicit vs. explicit) as a within-subjects factor, we can evaluate how implicit and explicit attitudes respond differently to the between-subjects manipulations, testing the central predictions that group association cues have differential effects on implicit and explicit attitudes. Thus, the discussion of the results focuses on analyses of these data. However, to provide readers with a better sense of how measures varied within and across experiments (where standardization makes comparisons more difficult), each figure in the current study displays both the means for the standardized explicit and implicit attitude measures along the *y*-axis (because the inferential statistics were conducted on these values) and the means for nonstandardized explicit (the means of the liking and semantic differential responses, each assessed on 9-point scales) and implicit (the IAT difference score, in milliseconds) attitude measures along the base of each figure. Because the standardized measures provide the most direct tests of the theoretical predictions in the current work, in the *Results and Discussion* section, we focus on these data.[7]

Results and Discussion

The attitude measures were examined with a 2 (Bob's weight) × 2 (valence of the initial verbal information) × 2 (CA condition) × 2 (standardized attitude measure: implicit vs. explicit) mixed-model analysis of variance (ANOVA), with the latter factor within subjects. Several results obtained, but of greatest importance was the four-way interaction that approached significance (see Figure 2), $F(1, 125) = 3.01$, $p = .08$.[8] To better understand these data, we examined the three-way interactions of Bob's Weight × Valence of the Initial Verbal Information × CA Condition separately for implicit and explicit attitudes.

Explicit attitudes. For explicit attitudes, a main effect of valence of the initial verbal information was found, $F(1, 125) = 89.51$, $p < .001$. Specifically, for those initially receiving positive verbal information, participants reported more positive attitudes

[5] Within each block, an equal number of relevant stimuli were presented, with the particular order of presentation being randomly determined for each participant. Thus, in Blocks 1, 2, and 5, ten stimuli from the relevant two categories were presented. In Blocks 3, 4, 6, and 7, five stimuli from the relevant four categories (i.e., Bob, not Bob, positive, negative) were presented. With the exception of the inclusion of group association cues, the current IAT is identical to that used in past research (e.g., Rydell & McConnell, 2006; Rydell et al., 2006).

[6] Alternative IAT scoring approaches (e.g., Greenwald, Nosek, & Banaji, 2003) produced identical results in the current work.

[7] Parallel analyses conducted on the nonstandardized measures produced similar results.

[8] Although only marginal in this study, the same group association cue manipulation (i.e., obesity) was used again in Experiment 4 and revealed the predicted significant interaction. Also, this four-way interaction (using other group association cues) was significant at conventional levels in both Experiments 2 and 3. However, because the current four-way interaction was marginal, some degree of caution should be exercised in its interpretation.

toward Bob ($M = 0.54$) than did those initially receiving negative verbal information ($M = -0.51$). In addition, this effect was qualified by the expected interaction with CA condition, $F(1, 125) = 59.08$, $p < .001$. Simple effect analyses showed that for participants initially receiving positive verbal information, those in the 0 CA condition had more positive attitudes toward Bob ($M = 1.01$) than did those in the 100 CA condition ($M = 0.06$), $F(1, 125) = 22.27$, $p < .001$. For those initially receiving negative verbal information, the exact opposite pattern emerged, with those in the 0 CA condition evaluating Bob more negatively ($M = -0.88$) than those in the 100 CA condition ($M = -0.13$), $F(1, 125) = 44.10$, $p < .001$. The three-way interaction was not significant, $F(1, 125) = 2.30$, *ns* (see Figure 2, left panel). Thus, the CA information reversed the explicit attitudes that were strongly reflective of the initial verbal information. Also, note that Bob's weight did not play any role in explicit attitudes toward him whatsoever.

Implicit attitudes. In contrast, implicit attitudes showed a main effect of Bob's weight, $F(1, 125) = 32.43$, $p < .001$. That is, participants had more negative implicit attitudes toward the overweight Bob ($M = -0.42$) than toward the not-overweight Bob ($M = 0.43$). Thus, the group association cue had a direct impact on implicit attitudes. Also, the two-way interaction between the valence of the initial verbal information and CA condition was significant, $F(1, 125) = 8.30$, $p < .001$. For those who initially received positive verbal information, participants in the 0 CA condition had more positive implicit attitudes toward Bob ($M = 0.30$) than did those in the 100 CA condition ($M = -0.30$), $F(1, 125) = 6.01$, $p < .02$. For those who initially received negative verbal information, the opposite pattern emerged, as those in the 0 CA condition held more negative implicit attitudes toward Bob ($M = -0.13$) than did those in the 100 CA condition ($M = 0.12$), although this difference was not significant, $F(1, 125) = 1.98$, *ns*.

Although this two-way interaction suggests that implicit attitudes followed the valence of the initial verbal information and subsequently were changed by the CA information just like explicit attitudes were, this two-way interaction was qualified by the predicted three-way interaction with Bob's weight, $F(1, 125) = 8.38$, $p < .005$ (see Figure 2, right panel). Specifically, the two-way interaction between initial valence of the behavioral information and CA information held for the not-overweight Bob, $F(1, 125) = 16.40$, $p < .001$, but was absent for the overweight Bob, $F(1, 125) = 0.00$, *ns.* In other words, for the not-overweight Bob, those initially receiving positive verbal information about Bob had more positive implicit attitudes toward him in the 0 CA condition ($M = 1.06$) than did those in the 100 CA condition ($M = -0.03$), $F(1, 125) = 7.65$, $p < .01$. In the condition where initial verbal information was negative, the opposite pattern emerged, with those in the 0 CA condition having more negative implicit attitudes toward Bob ($M = 0.02$) than those in the 100 CA condition ($M = 0.66$), $F(1, 125) = 8.22$, $p < .01$.

As expected, when no salient group association cue was present (i.e., not-overweight Bob), implicit attitudes toward Bob followed the same pattern as explicit attitudes, tracking the valence of the large amount of behavioral information provided (Rydell & McConnell, 2006). That is, attitudes reflected the valence of the initial verbal information, and these attitudes reversed after the presentation of a considerable amount of CA information. However, when the group association cue of Bob's being overweight was displayed, implicit attitudes toward him reflected the well-established association between obesity and negativity and were unaffected by the valence of the verbal information (initial or CA) about him. Thus, when the group association cue was present, implicit attitudes toward the target reflected the valence of the group association cue instead of the valence of the behavioral information provided.

Experiment 2

Experiment 1 supported the systems of evaluation prediction that strong group association cues (in this case, being overweight), when present, would influence implicit attitudes toward a novel target. On the one hand, the valence of the behavioral statements determined explicit attitudes (in all cases) and implicit attitudes when no salient group association cue was provided. This work expands our earlier research (e.g., Rydell & McConnell, 2006; Rydell et al., 2006) by showing that social groups with a strong association value (e.g., obesity is negative) are used by the associative system when available. In other words, the negativity associated with Bob being overweight led to negative implicit attitudes toward him even when the statements about his actions conveyed exclusively positive behavioral information. On the other hand, because the behavioral statements were unambiguous with respect to valence, the group association cue had no impact on explicit attitudes toward the target person.

Although this provides strong support for our predictions derived from a systems of evaluation perspective, we anticipate that positive group association cues should produce similar outcomes for implicit attitudes as well, leading people to hold positive implicit attitudes toward a target described as performing numerous negative behaviors. Thus, in Experiment 2, we examined a different group association cue, physical attractiveness, which can provide positive (attractive) and negative (unattractive) associations. Indeed, a considerable amount of research on persuasion (Chaiken, 1979) and the "what is beautiful is good" effect (Dion et al., 1972) shows that attractive people are evaluated more positively than average individuals are and that unattractive people are evaluated more negatively than average or attractive individuals are.

In Experiment 2, participants learned about either an attractive female, an average female, or an unattractive female named Bobbie. On the basis of our reasoning about which types of information the associative and rule-based systems of evaluation would use, we expected that explicit attitudes toward Bobbie would reflect the valence of the behavioral statements provided about her and that implicit attitudes toward her in the absence of a distinctive group association cue (i.e., when Bobbie was of average attractiveness) would do the same. However, when strong salient group association cues were present (i.e., her physical attractiveness is salient), we expected that implicit attitudes toward Bobbie would reflect the valence associated with the cue instead of the valence of her behaviors, leading to relatively positive implicit attitudes toward her when she was presented as being very attractive and relatively negative implicit attitudes toward her when she was presented as being very unattractive.

Method

Participants. A sample of 185 undergraduates at Miami University participated in return for research credit. They were ran-

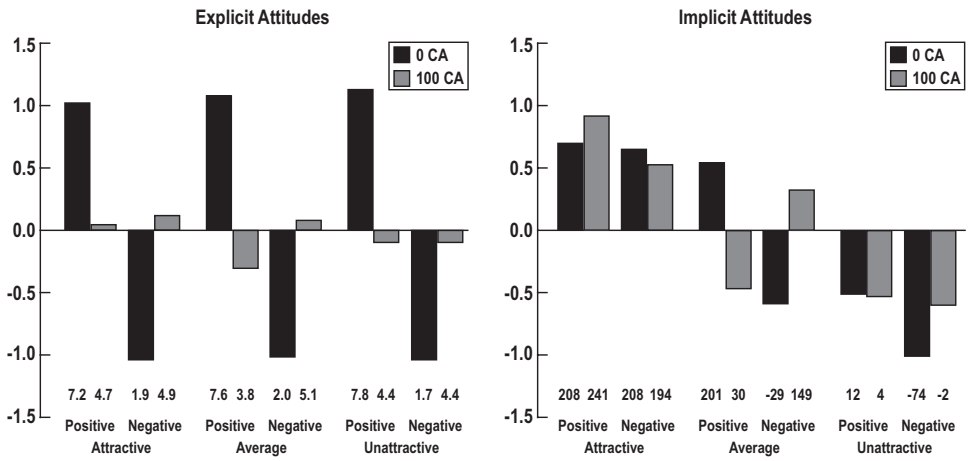

Figure 3. Explicit and implicit attitudes as a function of Bobbie's attractiveness, valence of the initial verbal behaviors, and counterattitudinal condition in Experiment 2. Standardized means are presented on the *y*-axis, and nonstandardized means are listed along the abscissa. CA = counterattitudinal statements.

domly assigned to a 3 (Bobbie's attractiveness: attractive, average, unattractive) × 2 (valence of the initial verbal information: positive, negative) × 2 (CA condition: 0 CA, 100 CA) between-subjects factorial.

Procedure. The procedure for Experiment 2 was the same as the procedure in Experiment 1 with three exceptions. First, a female target person, Bobbie, was used. Second, the "not-Bobbie" pictures used in the Bobbie IAT were a mixture of other attractive, average, and unattractive women. Third, to manipulate whether Bobbie was attractive, average, or unattractive, we chose images of Bobbie that differed in their level of physical attractiveness. Specifically, pictures were taken from an Internet dating Web site and a face database (Minear & Park, 2004) and rated by a separate group of 40 participants from the same university (none of whom participated in the current study). On the basis of these ratings, on a scale ranging from 1 (*extremely unattractive*) to 9 (*extremely attractive*), two images were selected to be attractive Bobbies ($M = 7.61$), two images were selected to be average Bobbies ($M = 5.38$), and two images were selected to be unattractive Bobbies ($M = 3.15$).[9] The attractiveness of these pictures differed significantly, $F(2, 76) = 205.68$, $p < .001$, with all three levels of attractiveness being significantly different, ps $< .001$.

Results and Discussion

The attitude measures were examined with a 3 (Bobbie's physical attractiveness) × 2 (valence of the initial verbal information) × 2 (CA condition) × 2 (standardized attitude measure: implicit vs. explicit) mixed-model ANOVA, with the latter factor being within subjects. Several results obtained, but of greatest importance was the predicted four-way interaction, $F(2, 173) = 4.52$, $p < .02$, which is presented in Figure 3. To examine this effect, we examined the three-way interactions of Bobbie's Physical Attractiveness × Valence of the Initial Verbal Information × CA Condition separately for implicit and explicit attitudes.

Explicit attitudes. Explicit attitudes once again showed a main effect of valence of the initial verbal information, $F(1, 173) = 169.99$, $p < .001$. Similar to the results of Experiment 1, those who initially received positive verbal information evaluated Bobbie more positively ($M = 0.50$) than did those initially receiving negative verbal information about her ($M = -0.51$). Also replicating the results of Experiment 1, this effect was qualified by CA condition, $F(1, 173) = 236.80$, $p < .001$. For those who initially received positive verbal information about Bobbie, participants in the 0 CA condition had more positive explicit attitudes toward her ($M = 1.14$) than did those in the 100 CA condition ($M = -0.13$), $F(1, 173) = 108.77$, $p < .001$. For those who initially received negative verbal information about her, the exact opposite pattern emerged, with those in the 0 CA condition evaluating Bobbie more negatively ($M = -1.06$) than those in the 100 CA condition ($M = 0.05$), $F(1, 173) = 136.92$, $p < .001$. The three-way interaction was not significant, $F(2, 173) = 0.80$, *ns* (see Figure 3, left panel). These analyses revealed two effects that paralleled those of Experiment 1. First, explicit attitudes were very responsive to the valence of the initial verbal information and changed dramatically after participants received the CA information. Second, the group association cue manipulation (i.e., Bobbie's physical attractiveness) did not qualify any of these effects.

Implicit attitudes. However, implicit attitudes showed a main effect of Bobbie's attractiveness, $F(2, 173) = 46.04$, $p < .001$. Specifically, participants had more positive implicit attitudes toward the attractive Bobbie ($M = 0.71$) than toward the unattractive Bobbie ($M = -0.66$) or the average Bobbie ($M = -0.05$), with the latter two also differing significantly. In addition, there was a Valence of the Initial Verbal Information × CA Condition interaction, $F(2, 173) = 8.61$, $p < .005$. This interaction showed that a simple effect of CA condition was not significant for those in the positive condition (0 CA $M = 0.25$, 100 CA $M = -0.04$), $F(1, 173) = 1.92$, *ns*, but it was significant in the negative condition (0 CA $M = -0.33$, 100 CA $M = 0.11$), $F(1, 173) = 4.63$, $p < .04$.

Most important, this effect was qualified by the predicted three-way interaction, $F(2, 173) = 8.87$, $p < .001$ (see Figure 3, right panel). To explore this effect, we examined the interaction be-

[9] There was one blonde and one brunette Bobbie for each of the three levels of attractiveness. The choice of target Bobbie (blonde vs. brunette) was randomly determined, and this factor did not qualify any of the results.

tween valence of the initial verbal information and CA information for the attractive, average, and unattractive Bobbie conditions separately. For the attractive and the unattractive Bobbies, the two-way interactions were not significant, Fs < 1, *ns*. Instead, implicit attitudes toward the attractive Bobbie were positive regardless of the valence of the verbal information, and implicit attitudes toward the unattractive Bobbie were negative regardless of the valence of the verbal information. However, the two-way interaction was significant for the average Bobbie, $F(1, 173) = 33.34$, $p < .001$. For those who received positive verbal information initially, those in the 0 CA condition had more positive implicit attitudes toward the average Bobbie ($M = 0.55$) than did those in the 100 CA condition ($M = -0.47$), $F(1, 173) = 18.08$, $p < .001$. For those who received negative verbal information initially, the opposite pattern was found, with those in the 0 CA condition having more negative implicit attitudes toward the average Bobbie ($M = -0.64$) than those in the 100 CA condition ($M = 0.34$), $F(1, 173) = 15.50$, $p < .001$.

Thus, Experiment 2 replicated the findings of Experiment 1. First, explicit attitudes and implicit attitudes (in the absence of a salient group association cue) followed the valence of the verbal information. Yet, when a distinctive group association cue was present, implicit attitudes reflected the evaluation associated with that cue and not the behaviors performed by the target person. Similar to Experiment 1, when the group association cue was negative (in this case, when the cue was the unattractive Bobbie), implicit attitudes toward her were negative even when the behavioral statements conveyed positivity. Moreover, Experiment 2 showed that when the group association cue was positive (i.e., when the cue was the attractive Bobbie), implicit attitudes toward her were positive, even in cases when the behavior statements suggested negativity. Once again, implicit attitudes reflected the valence of the salient group association cue when present, whereas explicit attitudes toward the target were unaffected by this group association cue and instead reflected the valence of the unambiguous actions performed by the individual.

Experiment 3

So far, we have shown that implicit attitudes can be unresponsive to behavioral information when strong group association cues are available. We contend that the evaluations associated with these cues dominate implicit attitudes because those attitudes are determined by a system of evaluation that is especially sensitive to associative information (Rydell et al., 2006). If this reasoning is correct, the extent to which implicit attitudes are driven by these group association cues should be related to the strength of the association between the cue and evaluations of it. For example, the overweight Bob in Study 1 revealed negative implicit attitudes even in circumstances when he performed many positive behaviors, presumably because most participants had strong associations between obesity and negativity in memory (Nosek, 2005). Yet, group association cues can be linked with valence to varying degrees. For example, although many individuals in American culture exhibit strong automatic associations between African Americans and negativity (Devine, 1989; Greenwald et al., 1998), there is meaningful variability in the extent to which people hold such associations (Fazio et al., 1995; McConnell & Leibold, 2001). Thus, we would anticipate that group association cues influence implicit attitudes more strongly for those with stronger cue-evaluation associations in memory. In other words, as the cue-to-valence association grows weaker, implicit attitudes toward the individual should be increasingly reflective of the behavioral statements about the person.

With this logic in mind, in Experiment 3, we examined another group association cue, a target's race. Specifically, we replicated Experiment 1 but manipulated target race to either provide a distinctive group association cue (i.e., an African American Bob) or not provide a distinctive group association cue (i.e., a White Bob). In addition, we also assessed participants' evaluative associations with the cue (i.e., their implicit attitudes toward African Americans in general) to examine the relation between their implicit evaluations of the social group cue and their attitudes toward a group target member in particular. We expected to replicate the findings of Study 1 using race as the group association cue, and we anticipated that implicit prejudice against African Americans would account for the magnitude of negative implicit attitudes toward Bob when he was African American. In other words, participants with stronger racial prejudice should be less influenced than those with less prejudice by the behavioral statements about an African American target when forming implicit attitudes toward him. Therefore, we predicted an inverse relation between implicit racial prejudice and implicit (but not explicit) attitudes toward Bob, but only when he was African American and not when he was White.

Method

Participants. A sample of 94 White undergraduates at the University of California, Santa Barbara, participated in return for research credit in their introductory psychology courses. They were randomly assigned to a 2 (Bob's race: African American, White) $\times$ 2 (valence of the initial verbal information: positive, negative) $\times$ 2 (CA condition: 0 CA, 100 CA) between-subjects factorial.

Procedure. The procedure was similar to the procedure of Experiment 1 with a few exceptions. First, in the current experiment, we examined the group association cue of race by presenting an African American Bob to half of the participants or a White Bob (as in Experiment 1) to the rest. Several minutes before engaging in the learning task, participants completed a racial IAT where African American and White names were presented with positive and negative adjectives using the same trial and block structure as was used with the IAT in Experiment 1 (see also McConnell & Leibold, 2001). Thus, in one set of critical blocks of this racial IAT, participants judged whether the stimuli were "African American or negative" or "White or positive." In the other set of critical blocks, they judged whether the stimuli were "African American or positive" or "White or negative." The difference in mean response latencies for the critical blocks was computed, with higher scores indicating relatively greater implicit prejudice against African Americans (McConnell & Leibold, 2001). After the learning task (involving either an African American or a White Bob target), participants completed the same implicit and explicit attitude measures used in Experiment 1, with the exception that the IAT presented non-Bob targets of the same race as the Bob target (to ensure it assessed implicit attitudes toward Bob specifically and not racial prejudice more generally).

Results and Discussion

Attitudes toward Bob were examined with a 2 (Bob's race) × 2 (valence of the initial verbal information) × 2 (CA condition) × 2 (standardized attitude measure: implicit, explicit) mixed-model ANOVA, with the latter factor being within subjects. Several results obtained, but of greatest importance was the predicted four-way interaction, $F(1, 86) = 4.13$, $p < .05$, which is presented in Figure 4. To explore this outcome, we examined the three-way interactions of Bob's Race × Valence of the Initial Verbal Information × CA Condition separately for implicit and explicit attitudes.

Explicit attitudes toward Bob. Replicating the results of Experiments 1–2, explicit attitudes showed a main effect of valence of the initial verbal information, $F(1, 86) = 24.83$, $p < .001$. Once again, those who initially received positive verbal information about Bob reported more favorable attitudes toward him ($M = 0.40$) than did those who initially received negative verbal information about him ($M = -0.43$). In addition, this main effect was qualified by the interaction with CA condition, $F(1, 86) = 10.24$, $p < .005$. Specifically, when initially receiving positive verbal information about Bob, those in the 0 CA condition had more positive attitudes toward him ($M = 0.77$) than did those in the 100 CA condition ($M = 0.02$), $F(1, 86) = 10.24$, $p < .005$. However, when initially receiving negative behavioral statements about Bob, those in the 0 CA condition had more negative attitudes toward Bob ($M = -1.06$) than did those in the 100 CA condition ($M = 0.21$), $F(1, 86) = 28.31$, $p < .001$. The three-way interaction was not significant, $F(1, 86) = 0.04$, *ns* (see Figure 4, left panel). Thus, the two-way interaction revealed that CA information reversed the attitudes that reflected the valence of the initial information about Bob. Yet, similar to the findings of Experiments 1 and 2, Bob's race did not play a role in any of these outcomes.

Implicit attitudes toward Bob. In stark contrast, implicit attitudes toward Bob revealed a main effect of Bob's race, $F(1, 86) = 6.07$, $p < .02$. That is, participants had more negative implicit attitudes toward Bob when he was African American ($M = -0.19$) than when he was White ($M = 0.23$). Thus, as in Experiments 1 and 2, the group association cue had a direct effect on implicit attitudes toward the target. Also, an interaction between the valence of the initial verbal information and CA condition was found, $F(1, 86) = 15.49$, $p < .001$. To examine this interaction, we analyzed the simple effects of CA condition as a function of the valence of the initial verbal information. When the valence of the initial verbal information was positive, participants in the 0 CA condition had more positive implicit attitudes toward Bob ($M = 0.51$) than did those in the 100 CA condition ($M = -0.21$), $F(1, 86) = 9.28$, $p < .01$. For those receiving initially negative verbal information, the opposite pattern emerged, with those in the 0 CA condition revealing more negative implicit attitudes toward Bob ($M = -0.40$) than those in the 100 CA condition ($M = 0.24$), $F(1, 86) = 7.12$, $p < .02$. Thus, overall, implicit attitudes toward Bob reflected the valence of the verbal information (i.e., the valence of the initial behavioral information, which was undercut by the CA information), similar to the explicit attitudes toward Bob.

But, unlike the explicit attitudes, this two-way interaction was qualified by Bob's race in the predicted three-way interaction, $F(1, 86) = 9.54$, $p < .005$ (see Figure 4, right panel). To explore this effect, we examined the interaction between the valence of the initial verbal information and CA condition for the White and African American Bobs separately. For the White Bob, the two-way interaction was significant, $F(1, 86) = 16.20$, $p < .001$; however, it was not significant for the African American Bob, $F(1, 86) = 0.01$, *ns*. To examine this interaction for the White Bob, we analyzed the simple effects of the CA condition as a function of the valence of the initial verbal information. For those initially receiving positive verbal information about the White Bob, those in the 0 CA condition had more positive implicit attitudes toward him ($M = 0.95$) than did those in the 100 CA condition ($M = -0.20$), $F(1, 86) = 12.45$, $p < .005$. For those initially receiving negative verbal information about the White Bob, the opposite pattern emerged, with those in the 0 CA condition having more negative implicit attitudes toward him ($M = -0.53$) than those in the 100 CA condition ($M = 0.68$), $F(1, 86) = 12.24$, $p < .005$.

In sum, these effects revealed that implicit attitudes toward a target without a distinctive group association cue (i.e., the White Bob) reflected the valence of the verbal behaviors presented about

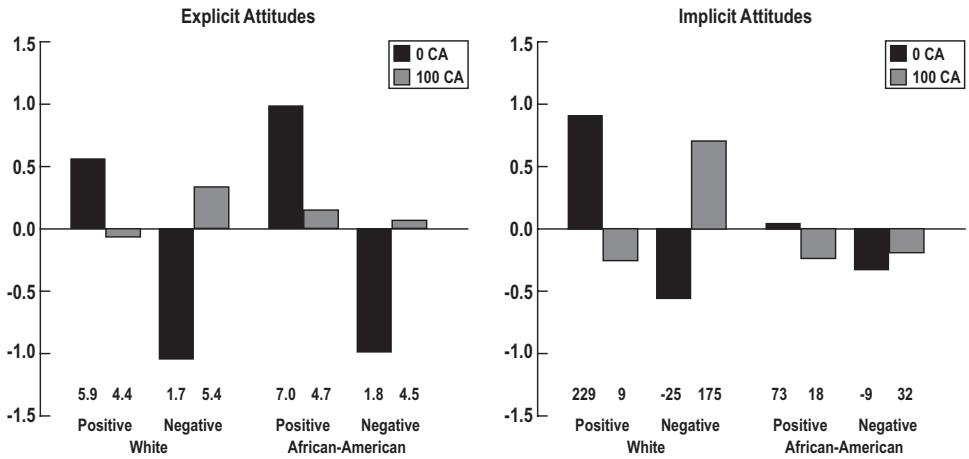

Figure 4. Explicit and implicit attitudes as a function of Bob's race, valence of the initial verbal behaviors, and counterattitudinal condition in Experiment 3. Standardized means are presented on the *y*-axis, and nonstandardized means are listed along the abscissa. CA = counterattitudinal statements.

him, replicating the results of Experiments 1 and 2 and past work involving nondescript targets (Rydell & McConnell, 2006). However, when a group association cue was present (i.e., the African American Bob), the implicit attitudes toward him were reflective of the valence of the group association cue, as found in Experiments 1 and 2.

Prejudice against African Americans. To examine if negative associations with the cue (i.e., prejudice against African Americans) can account for the implicit attitudes toward the African American Bob being negative, we explored the extent to which participants' implicit prejudice toward African Americans predicted their attitudes toward Bob. In our sample, the average participant revealed relatively strong implicit racial prejudice against African Americans ($M = 207.88$ ms IAT effect, $d = 1.35$). In essence, this effect reaffirms the relative negativity participants associated with the group association cue (i.e., being African American). Next, we examined the correlations among participants' racial prejudice, explicit attitudes toward Bob, and implicit attitudes toward Bob separately as a function of the race condition. As expected, when Bob was White, there were no relations between implicit racial prejudice and implicit attitudes toward Bob ($r = .05$, *ns*) or explicit attitudes toward him ($r = -.07$, *ns*). However, as predicted, a different pattern emerged when Bob was African American. Although participants' implicit racial prejudice was unrelated to their explicit attitudes toward Bob ($r = .14$, *ns*), implicit racial prejudice was significantly negatively correlated to their implicit attitudes toward him ($r = -.50$, $p < .001$). That is, the more negativity they associated with African Americans, the less positive their feelings toward Bob were on implicit (but not explicit) attitude measures, but only when he was Black. As expected, the relation between racial prejudice and implicit attitudes toward Bob differed as a function of race, $z = 2.81$, $p < .01$, but there were no race condition differences in the relation between racial prejudice and explicit attitudes toward Bob, $z < 1$. These data indicate that the magnitude of the valence associated with the group association cue can account for how Bob's race led to relatively negative implicit attitudes toward him when he was a member of that social group.

Experiment 4

To this point, we have shown in three different experiments using three different group association cues that implicit attitudes toward an individual reflect the valence (and, in Experiment 3, the extremity of valence) of a salient group association cue when such cues are present but that they are responsive to the valence of the behaviors describing the target when such cues are absent or when the cues have relatively weaker associations with valence. Yet, in each of these studies, explicit attitudes were unaffected by the group association cues. At first blush, these results may seem difficult to reconcile with findings in the literature showing that group membership can impact judgments. We have argued that because the behavioral statements ascribed to the target individuals in the current experiments were both numerous and clear-cut with respect to valence, the ability of the group association cue to induce assimilation effects on explicit attitudes was effectively curtailed. However, we would anticipate that if the target-relevant behaviors were more ambiguous with respect to valence instead of being clear-cut, group association cues would have an impact on explicit attitudes toward the individual by providing a means to bias the encoding of ambiguous actions (e.g., Bodenhausen & Wyer, 1985).

In Experiment 4, we revisited the group association cue used in Experiment 1 by manipulating Bob's apparent weight in a more simplified experimental design. Specifically, participants were only presented with 100 statements about Bob (whose weight was manipulated between subjects) and were told that each statement was characteristic of him. As part of another between-subjects factor, half of the participants read statements indicating that Bob performed unambiguous positive acts whereas the rest read statements that were relatively ambiguous (i.e., not strongly valenced). In the latter case, we predicted that the group association cue would have an assimilative effect, resulting in a relatively negative explicit attitude toward Bob when he was obese. Such a finding would not only be valuable to test the importance of behavioral ambiguity in how group association cues affect explicit attitudes, but it would also demonstrate that participants in our studies are not reticent to report negative explicit attitudes toward members of stigmatized groups (i.e., perhaps the lack of effect of cues in previous studies reflects engaging in positive impression management). However, when Bob's behaviors were unambiguously positive, we expected relatively positive explicit attitudes toward Bob regardless of his weight, replicating the results of Experiment 1. We chose positive unambiguous behaviors in this study to provide the best opportunity for Bob's stigma to impact attitudes toward him (i.e., avoid floor effects).

In addition to testing our reasoning that group association cues could impact explicit attitudes toward an individual whose behavior was relatively ambiguous, we also modified our IAT task in the current experiment. In the previous three experiments, we used images of people as IAT stimuli to render Bob (or Bobbie) versus not-Bob (or not-Bobbie) categorizations. It is possible that when making these judgments, participants could have been led by each presentation of Bob (or Bobbie) in conditions involving a group association cue to strengthen their association between the target person and the target's stigma. For example, for participants exposed to an overweight Bob, the IAT task continually re-presents images of an obese Bob throughout the IAT task, which may have served to further reinforce negativity toward Bob. Also, the alternative targets (e.g., the not Bobs) provided distractors that sometimes did and sometimes did not present the group association cue as well, which could introduce unwanted context effects. To any extent that the group association cue was re-presented during the IAT task, the possibility that the implicit attitude measure toward Bob (or Bobbie) reflects a confound of attitudes toward the target and attitudes toward the group association cue itself exists. To eliminate this possibility, in the current experiment, we used an IAT task that presented names and not images of the target and five nontargets. Because the current IAT task did not present visual images of people, we avoided the possibility that the implicit attitude measure was assessing a blend of attitudes toward the target and attitudes toward the group association cue.

To summarize, the overall design of the study crossed Bob's weight (overweight vs. not overweight) with type of behavioral information (100 positive vs. 100 ambiguous) in a more simplified experimental paradigm and with a modified IAT task. For implicit attitudes, a main effect of Bob's weight was expected, revealing more negative implicit attitudes toward Bob when he was overweight than when he was not (thus replicating the results of Experiment 1). However, for explicit attitudes, we predicted an

interaction, such that the group association cue (i.e., overweight Bob) would reduce the positivity of explicit attitudes toward Bob when his behaviors were ambiguous with respect to valence.

Method

Participants. A sample of 47 undergraduates at Miami University participated in return for research credit in their introductory psychology courses. They were randomly assigned to a 2 (Bob's weight: not overweight, overweight) × 2 (statement type: positive, ambiguous) between-subjects factorial.

Procedure. Participants were presented with 100 behavior statements about Bob and told that they were all characteristic of him. Each statement was presented on the monitor for 8 s. On the basis of pretested norms, participants assigned to the positive statement condition read 100 statements that implied positivity (e.g., "Bob helped friends move into a new house"), whereas those in the ambiguous statement condition read 100 statements that were relatively valence neutral (e.g., "Bob watched TV with friends"). The image of Bob presented on the monitor and associated with each statement was either overweight or not overweight, depending on condition assignment (using the same stimuli as Experiment 1).

Next, participants completed implicit and explicit attitude measures toward Bob (once again counterbalanced). The explicit measures were identical to those used in Experiment 1. However, the implicit measure was a slightly modified version of the IAT. Specifically, it was identical to the IAT used in Experiment 1 except that rather than the presented images being Bob and not-Bob targets, the person-related stimuli were names presented in uppercase font (positive and negative adjectives were presented in lowercase), either *BOB* or five not-Bob names that began with the same letter (e.g., *BEN*). There were an equal number of presentations of Bob and non-Bob names in each block.

Results and Discussion

Attitudes toward Bob were examined with a 2 (Bob's weight) × 2 (statement type) × 2 (standardized attitude measure: implicit, explicit) mixed-model ANOVA, with the latter factor being within subjects. As expected, we observed the predicted three-way interaction, $F(1, 43) = 4.16$, $p < .05$, which is illustrated in Figure 5. To explore this effect, the two-way interaction of Bob's weight and statement type were examined separately for implicit and explicit attitudes.

Explicit attitudes. The Bob's Weight × Statement Type ANOVA yielded three effects. First, not surprisingly, there was a main effect of statement type, $F(1, 43) = 15.45$, $p < .001$, revealing that explicit attitudes toward Bob were more positive when the 100 statements suggested positivity ($M = 0.55$) than when they were ambiguous with respect to valence ($M = -0.57$). Also, there was a main effect of Bob's weight, $F(1, 43) = 10.65$, $p < .01$, indicating that explicit attitudes toward Bob were more negative when he was overweight ($M = -0.29$) than when he was not ($M = 0.30$). It is important to note that this effect was qualified by an interaction with statement type, $F(1, 43) = 6.53$, $p < .02$ (see Figure 5, left panel). Although explicit attitudes toward the Bob described by unambiguous positive behaviors did not differ as a function of his weight, $F(1, 22) = 0.75$, *ns*, the same was not true when his behaviors were ambiguous, $F(1, 21) = 9.84$, $p < .01$, with Bob being viewed more negatively when he was overweight ($M = -1.19$) than when he was not ($M = -0.01$). Thus, as hypothesized, the group association cue did impact explicit attitudes toward the target individual, but only when his behaviors were not clear-cut with respect to valence.

Implicit attitudes. In contrast to the explicit attitudes data, the Bob's Weight × Statement Type ANOVA for implicit attitudes toward Bob revealed only a main effect of Bob's weight, $F(1, 43) = 13.86$, $p < .001$. Figure 5 (right panel) shows that participants had more negative implicit attitudes when Bob was overweight ($M = -0.49$) than when he was not ($M = 0.48$). Thus, impact of the group association cue was strong in all conditions.

In sum, these findings show that a group association cue (i.e., Bob's weight) can affect explicit attitudes, but only when the target's actions are relatively ambiguous and thus capable of being assimilated by the group association cue. However, when the target's behaviors were unequivocal, the group association had no impact on explicit attitudes, replicating the results of Experiments 1–3. These findings obtained using a more simplified attitude-

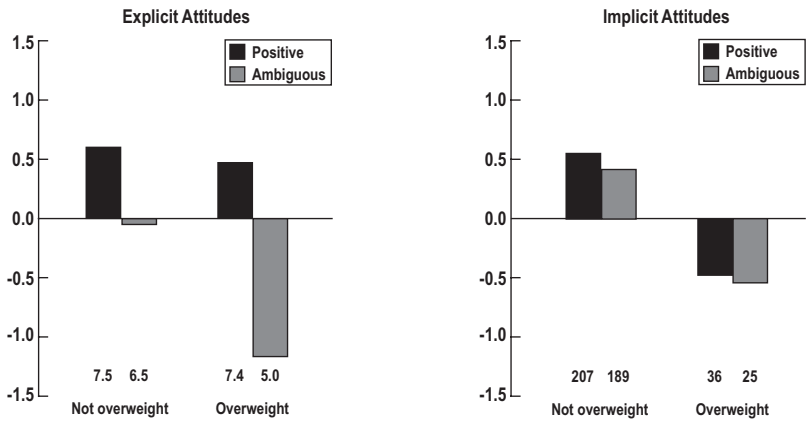

Figure 5. Explicit and implicit attitudes as a function of Bob's weight and statement type in Experiment 4. Standardized means are presented on the *y*-axis, and nonstandardized means are listed along the abscissa. CA = counterattitudinal statements.

learning paradigm and using a modified IAT designed to circumvent possible confounds that might exist with presenting target stimuli with the group association cue. It is interesting to note that there was no evidence that the type of statement (unambiguously positive vs. ambiguous) qualified the main effect of Bob's weight on implicit attitudes. Although the type of statement did impact explicit attitudes toward Bob, it appears that the strong group association cue (i.e., Bob's obesity) had a greater impact on implicit attitudes toward him. These data may, at first glance, seem at odds with the earlier studies showing that the valence of the behaviors impacted implicit attitudes toward targets when group association cues were absent. However, it should be noted that the current study differed from the first three experiments in that the valence manipulations in the former studies pitted two starkly different valence conditions (i.e., 100 positive vs. 100 negative) against each other, whereas the current manipulation (designed to introduce ambiguity rather than polar-opposite valences) was far more modest. Thus, it appears that information (i.e., group association cues) that is especially attuned to the system of evaluation underlying implicit attitudes (i.e., the associative system) has a greater impact on the attitudes produced.

In a similar vein, readers comparing the outcomes for explicit attitudes toward the not-overweight Bob between Experiments 1 and 4 might conclude that similar explicit attitudes resulted despite very different behavior presentations (i.e., 0 CA vs. 100 CA in Experiment 1 when positive information was initially presented, positive vs. ambiguous information in Experiment 4). However, this apparent similarity actually reflects a by-product of the standardization process. That is, although the standardized explicit attitudes between the two studies were nearly identical for the not-overweight Bob in Experiment 1 (i.e., initially positive behavioral characteristics followed by the 100 CA condition) and the not-overweight Bob in Experiment 4 (i.e., the ambiguous behavior condition), mean nonstandardized explicit attitudes were much more positive in the latter case ($M = 6.5$) than the former case ($M = 4.1$), $t(26) = 4.49$, $p < .001$, reflecting the absence of negative behavioral information about Bob in Experiment 4. In other words, although the standardization process appears to suggest similar explicit attitudes when comparing between studies (which is not what one would expect from such markedly different behavioral presentations), inspection of the nonstandardized values (see the bottom of Figures 2 and 5) indicates that, indeed, attitudes toward the not-overweight Bob who performed ambiguous behaviors in Experiment 4 were far more positive than were attitudes toward the not-overweight Bob in Experiment 1 who performed 100 positive behaviors followed by 100 negative behaviors. Although the focus on the standardized data in the current analyses can make comparisons between studies somewhat more difficult, the value they provide within studies to directly test the key theoretical questions of interest (i.e., how group association cues differentially impact implicit and explicit attitudes) is substantial.

General Discussion

In the current work, we explored how a target's social group that is strongly associated with valence affects the formation of attitudes toward the individual. Whereas a considerable amount of research has focused on the impact of social categorization on explicit attitudes toward people (Fiske et al., 1999), the current study is the first to consider how the formation of implicit attitudes toward targets is influenced by them. On the basis of a systems of evaluation perspective on attitudes (e.g., Rydell & McConnell, 2006; Rydell et al., 2006), a number of novel hypotheses were advanced. For example, because many social group cues have strong associations with valence (e.g., being physically attractive is desirable, being obese is undesirable), we anticipated that such cues would have an especially strong impact on implicit attitude formation for individuals because such attitudes rely on associative knowledge.

Indeed, across four experiments, we found strong and consistent support for this prediction. For example, implicit attitudes toward members of stigmatized groups were negative regardless of the valence of the behaviors attributed to these individuals. These outcomes were observed for a wide variety of stigmas, including being overweight (Experiments 1 and 4), being physically unattractive (Experiment 2), and being African American (Experiment 3). However, when groups were associated with positivity (i.e., being physically attractive in Experiment 2), implicit attitudes toward the target were positive, again regardless of the nature of the individual's actions. Overall, these data suggest that group association cues have an especially strong impact on implicit attitudes because such evaluations are based on a system of evaluation that uses associative knowledge (Rydell & McConnell, 2006; Sloman, 1996; Smith & DeCoster, 2000).

Further, these group association cues did not have much impact on explicit attitudes when the target's behavioral descriptions were clear-cut with respect to valence. However, when the target's actions were ambiguous, group association cues influenced explicit attitudes toward targets as well (Experiment 4). Thus, in cases where ambiguity exists, social groups can serve as an accessible construct to promote assimilation effects (Bruner, 1957; Higgins, 1989; Srull & Wyer, 1979). Yet, when a target's actions were unequivocal in their implications, group cues did not play a role in explicit evaluations.

It is also important to note that although we used group association cues that are widely held in society in the current research, there will be meaningful variability in the extent to which these cues are associated with valence. Accordingly, in Experiment 3, we saw that individual differences in the extent to which African Americans as a group were associated with negativity directly predicted the degree to which implicit attitudes toward a novel African American target were negative as well. This finding further reaffirms that it is the overarching association between group cues and valence that determines how a target's group identity shapes the formation of implicit attitudes toward the individual. Stronger cue-to-valence associations should result in more extreme implicit attitudes being formed more quickly. Further, meaningful differences in one's past history of group associations will play an important role in how implicit attitudes are affected by group association cues. Moreover, this outcome indicates that implicit attitudes toward an individual should be more sensitive to the valence of a target's behavioral information when cue-to-valence associations are relatively weak (just like they are in the absence of salient group association cues).

The current work sheds light on a number of important issues involved in understanding others. For instance, most research exploring group prejudice has focused on its pervasiveness, expression, and assessment (e.g., Devine, 1989; Dovidio et al., 2002; Greenwald et al., 1998; McConnell & Leibold, 2001) rather than on its specific impact when people are forming attitudes toward

individuals. And although some important work, both empirical and theoretical, has been directed at considering the impact of social groups on attitude formation (e.g., Brewer, 1988; Fiske & Neuberg, 1990), past work has not considered the implications of social groups for the formation of implicit attitudes toward individuals. Given many striking demonstrations of how implicit attitudes uniquely predict behavior toward members of social groups (e.g., Fazio et al., 1995; McConnell & Leibold, 2001) and toward individuals without any distinctive group identification (Rydell & McConnell, 2006), in the current work, we engaged an underexamined intersection of important issues with a framework for considering how particular types of information (i.e., associative vs. rule based) are especially likely to impact particular types of attitudes (Rydell & McConnell, 2006; Rydell et al., 2006). In general, the systems of evaluation perspective anticipated how group association cues would impact implicit and explicit attitude formation toward a novel individual quite well.

More generally, the current work points to the need to further develop models of impression formation to include implicit attitudes toward individuals, and we believe the systems of evaluation approach provides a compelling framework for doing so. In addition to considering the extent to which perceivers expend cognitive resources in attitude formation (e.g., Fiske & Neuberg, 1990), the systems of evaluation perspective suggests that the fit between information type and attitude type matters too. That is, correspondence between the type of knowledge (i.e., associative vs. rule based) and the type of attitude (i.e., implicit vs. explicit) is an important dimension to consider in the attitude formation process. Although in the current work we focused on social group cues as one form of associative knowledge, we would anticipate that many other types of cues strongly associated with valence (e.g., experts are good) would be especially influential in implicit attitude formation as well.

Extending this point, we believe that the current work can shed new light on processes involved in attitudes and persuasion. For example, several models of attitudes propose that heuristic and peripheral cues influence attitudes and behavior more strongly when one's motivation to process detailed information is low (e.g., Chaiken, 1979; Petty & Wegener, 1998). But what underlies this outcome? When one considers that nonconscious associations (Rydell et al., 2006) and association-based cues (the current work) play critical roles in determining implicit attitudes and that recent work reveals that implicit attitudes are more likely than explicit attitudes to determine spontaneous behaviors that do not involve deliberation and planning (e.g., Dovidio et al., 2002; Jellison, McConnell, & Gabriel, 2004; McConnell & Leibold, 2001; Rydell & McConnell, 2006), a mechanism to account for how these association-based cues influence behavior in low-effort situations becomes apparent. That is, cues such as physical attractiveness or others not considered in the current work (e.g., expertise) will shape implicit attitudes, which, in turn, are more likely to guide behavior in situations where the rule-based system does not (e.g., no verbal information is available for central route persuasion) or cannot (e.g., limited cognitive resources) operate. Thus, a systems of evaluation perspective suggests that implicit attitudes may serve as a mechanism to explain how association-based cues impact behavior in some situations. Moreover, as the current Experiment 3 suggests, the impact of these cues in shaping implicit attitudes varies on the basis of idiosyncratic associations with the target-relevant cue. Thus, not all cues will have the same impact across individuals.

In addition to these important conceptual issues, the current findings suggest a number of sizable roadblocks in reducing prejudice and discrimination. First, to the extent that stigmas impact implicit attitudes more strongly than they do explicit attitudes, it may often be the case that people will be unaware of their stigma-related biases because the biases are associative in nature, which, in turn, makes it less likely that correction processes will be used (Wegener & Petty, 1995). Further, such nonconscious biases may elicit behavioral confirmation from targets (e.g., Chen & Bargh, 1997), perpetuating such evaluations. Also, situational factors that reduce the impact of the rule-based system of evaluation (e.g., distraction, off-peak circadian rhythms) should exacerbate the influence of the associative system in directing behavior, increasing the likelihood that negative implicit attitudes will guide actions toward stigmatized targets (especially negative, nonverbal behaviors; see McConnell & Leibold, 2001; Richeson & Shelton, 2003).

It is interesting that these group association cues had little effect on explicit attitudes except under conditions where behavioral information was ambiguous. This suggests that although group association cues may play an important role in deliberate judgments and evaluations, their impact may be reduced in situations that are less ambiguous in nature. Does this mean that the consequences of stigma are less important than the literature suggests? We believe the answer to this question is no. First, although most of the behavioral statements presented about the targets in the current study were clear-cut, most social interactions contain considerable ambiguity, increasing the likelihood of biased assimilation (see Experiment 4). Further, in the current work, participants were compelled to process a large number of statements about the target individuals. However, in real life, people may be far less attentive to individuating information, especially for members of stigmatized groups (Kurzban & Leary, 2001). Thus, in many cases, stigmas may dissuade perceivers from encountering information that could present targets in a much more positive light. Moreover, even if such behaviors are encountered, the extent to which people effortfully individuate such information in such cases may be limited (Fiske & Neuberg, 1990). At any rate, it is clear that additional work is needed to examine how these trade-offs operate in more complex social interaction situations.

To conclude, the current work shows that the formation of implicit attitudes toward members of social groups may often reflect the valence of group association cues instead of the behavioral data available to the perceiver. Explicit attitudes, however, were less influenced by these cues and more determined by descriptions of the target person's behaviors, unless the available behavioral information was ambiguous with respect to evaluations. This research shows that stigmatized people may face challenges in changing others' implicit attitudes toward them, even when they perform good deeds, whereas members of highly valued groups can behave badly and still enjoy others' implicit approbation. Although knowledge of the impression formation process with respect to explicit attitudes is well-developed, the current study reveals that the formation of implicit attitudes toward individuals can operate quite differently (see also Rydell & McConnell, 2006; Rydell et al., 2006). In sum, we believe that a systems of evaluation perspective offers a very insightful theory and useful tools for building an understanding of implicit attitude formation pro-

cesses, and it demonstrates the importance of appreciating the consequences of these nonconscious evaluations as well.

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