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# Not All Stereotypic Biases Are Created Equal: Evidence for a Stereotype-Disconfirming Bias

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*Stereotype-confirming biases are well documented in the social psychological literature. However, motivations to disconfirm social stereotypes may be more influential for unprejudiced individuals. Three experiments are presented that test the hypothesis that extremely unprejudiced people exhibit a bias toward stereotype disconfirmation. Experiment 1 investigates stereotype disconfirmation in information-seeking preferences. Experiments 2 and 3 explore attributional strategies for stereotype disconfirmation. In all experiments, unprejudiced participants respond in ways reflecting a motivation to disconfirm social stereotypes. Implications for stereotype change and stereotypic influences on judgment and behavior are discussed.*

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**Keywords:** *prejudice; attributional bias; stereotype confirmation*

People only see what they are prepared to see.

—Ralph Waldo Emerson

**T**he capacity of humans to perceive a single reality in vastly different ways is well documented. Indeed, a great deal of social and cognitive research has been devoted to uncovering the many ways in which people may be biased in their interpretation of an event. One of the most robust examples of such a bias is that people tend to explain outcomes differently depending on the actor who produced the outcome. Research on self-serving and group-serving attributional biases (e.g., Hewstone, 1990; Hewstone & Jaspers, 1982; Miller & Ross, 1975) has demonstrated a clear role of motivational processes in producing divergent interpretations of a single event. People are more likely to explain positive outcomes experienced by themselves or their ingroups in terms of dispositional characteristics and negative outcomes in terms of situational ones, compared to when other individuals or groups experience those outcomes.

A common explanation for self-serving and group-serving biases is that they are driven by differential expectations (Deaux, 1976; Miller & Ross, 1975). Specifi-

cally, when considering an event that is consistent with personality-based or stereotype-based expectations, people tend to make dispositional attributions. In contrast, when an event contradicts those expectations, people search for a situational explanation, thereby resolving the apparent discrepancy between their beliefs and the event that contradicts them.

Stereotypic biases in attributional reasoning have been demonstrated in a number of domains. For example, a number of researchers have reported that participants attribute failure to internal causes when experienced by a racial outgroup but to external causes when experienced by the ingroup (Chatman & von Hippel, 2001; Jackson, Sullivan, & Hodge, 1993; Whitehead, Smith, & Eichhorn, 1982). Moreover, Wigboldus, Dijksterhuis, and van Knippenberg (2003) recently reported a series of studies indicating that spontaneous trait attributions are more likely to be made in response to stereotype-consistent than stereotype-inconsistent behaviors.

In other research, Bodenhausen and Lichtenstein (1987; see also Sommers & Ellsworth, 2000) found that participants were more likely to judge a defendant to be guilty when he was identified as Latino than when his race was not made salient, suggesting a stereotype-confirming bias in the attribution of responsibility for a crime. In addition, Power, Murphy, and Coover (1996) demonstrated that salient stereotypes increased the

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extent to which Black public figures (Rodney King and Magic Johnson) were held personally responsible for their negative life events.

Stereotypic attributional biases are not only manifested in explicit tasks involving the generation of explanations for behavior. Their influence can be seen in more subtle ways as well. For example, Maass, Salvi, Arcuri, and Semin (1989) introduced evidence of a "linguistic intergroup bias." Their research indicated that people are more likely to use abstract trait words to describe positive ingroup and negative outgroup behaviors but to produce more concrete and context-based descriptions for negative ingroup and positive outgroup behaviors. This pattern is entirely consistent with a stereotypic attributional bias in that dispositional attributions are more easily drawn from expectancy-consistent events than expectancy-inconsistent events. Support for this interpretation was provided by subsequent research by Maass and her colleagues (Maass, Milesi, Zabbini, & Stahlberg, 1995), which suggested that expectations rather than ingroup protection motives were responsible for the linguistic intergroup bias.

#### PREJUDICE-BASED DIFFERENCES IN THE STEREOTYPIC ATTRIBUTIONAL BIAS

Although the stereotypic attributional bias seems to be fairly robust, it may be influenced by individual differences in stereotypic or prejudicial beliefs. For example, Pettigrew (1979; see also Greenberg & Rosenfield, 1979) suggested that prejudice might moderate the "ultimate attribution error." He proposed that prejudiced, more so than unprejudiced, individuals should tend to attribute negative acts by the outgroup to internal causes and positive acts by the outgroup to external causes.

There is empirical evidence to support the contention that stereotypic attributional biases are moderated by personal beliefs. For example, Greenberg and Rosenfield (1979) reported that highly ethnocentric participants were more likely to show stereotypic biases in their attributions for ESP ability than were less ethnocentric participants. Furthermore, Garland and Price (1977) found that people with more positive attitudes toward women in management positions were more likely to attribute a female manager's success to internal causes than were those with more negative attitudes.

A more recent line of research by von Hippel, Sekaquaptewa, and their colleagues (Sekaquaptewa, Espinoza, Thompson, Vargas, & von Hippel, 2003; von Hippel, Sekaquaptewa, & Vargas, 1997) has suggested a clear link between prejudice and attributional reasoning about stereotype-related events. Taking a novel approach, they have used the strength of stereotypic attributional biases as an implicit measure of prejudice.

That is, they argued that the extent to which an individual shows such attributional biases could be viewed as an indication of their prejudicial beliefs. Consistent with this proposition, von Hippel et al. (1997) found that the strength of the linguistic intergroup bias, described above, was a significant predictor of prejudicial judgments of Black and female targets. Furthermore, Sekaquaptewa et al. (2003) reported the magnitude of participants' "stereotypic explanatory bias" (i.e., the extent to which participants engage in attributional reasoning in response to stereotypic versus counterstereotypic events) was a significant predictor of their behavior toward a Black confederate.

#### LACK OF STEREOTYPE CONFIRMATION ≠ STEREOTYPE DISCONFIRMATION

These studies are suggestive of a relationship between prejudice and stereotypic attributional biases. The general picture to emerge from this research is that prejudiced people are more likely to display the bias than are unprejudiced people. This is quite consistent with intuitive notions regarding the extent to which prejudiced and unprejudiced individuals should be motivated to maintain their stereotypic beliefs.

Yet, there has been surprisingly little research into the role of prejudice in moderating stereotype-confirming biases. Moreover, the vast majority of research on prejudice and stereotyping has been devoted to demonstrating the extent to which the presence of prejudice predicts the presence of stereotype-confirming, information-processing strategies. This emphasis necessarily neglects the possibility of an unprejudiced counterpart to prejudiced individuals' biases.

Here, "unprejudiced" refers not simply to individuals who do not have highly stereotypic beliefs about an outgroup but rather to individuals who actively reject such beliefs. Individuals for whom egalitarian values are highly important and self-defining may not only fail to endorse negative cultural stereotypes but may be motivated to disconfirm them. One intriguing possibility is that the very same processes may be involved for unprejudiced people seeking to disconfirm social stereotypes as for prejudiced people seeking to confirm them.<sup>1</sup>

The motivation to disconfirm cultural stereotypes may be based on past experiences in which negative emotional consequences resulted from being influenced by stereotypic beliefs. For example, Monteith and her colleagues have reported numerous studies in which unprejudiced individuals experienced guilt upon believing that they had behaved in a discriminatory manner (Devine, Monteith, Zuwerink, & Elliot, 1991; Monteith, 1993; Monteith, Devine, & Zuwerink, 1993). Furthermore, unprejudiced individuals were found to engage in reparative behavior after being informed that

they had made stereotypic or discriminatory judgments (Monteith, 1993). To prevent stereotypic responding in the future, and thereby forestalling the necessity of reparative behavior, unprejudiced individuals may learn (over time) to adopt an active stereotype-disconfirmation strategy.

#### MOTIVATED STEREOTYPE INHIBITION

The notion that individuals will, under some conditions, spontaneously choose to inhibit social stereotypes is not new to social psychology. Throughout the past 10 to 15 years, a large number of studies have accumulated that demonstrate stereotype inhibition in various forms, at either a conscious or unconscious level (e.g., Devine, 1989; Galinsky & Moskowitz, 2000; Macrae, Bodenhausen, Milne, & Ford, 1997; Macrae, Bodenhausen, Milne, & Jetten, 1994; Macrae, Bodenhausen, Milne, & Wheeler, 1996; Monteith, Spicer, & Tooman, 1998; Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Sinclair & Kunda, 1999; Wyer, Sherman, & Stroessner, 1998, 2000; for reviews, see Bodenhausen & Macrae, 1998; Kunda & Sinclair, 1999). For example, following Macrae et al.'s (1994) initial demonstration of stereotype suppression and its consequences, a number of studies identified conditions in which stereotype suppression may be voluntarily chosen by individuals wishing to avoid stereotypic influences. For example, Wyer et al. (1998, 2000) reported that situational factors could motivate the initiation or continuation of stereotype suppression (see also Macrae, Bodenhausen, & Milne, 1998). Furthermore, Monteith et al. (1998) found that prejudice moderated the consequences of stereotype suppression. In particular, their results indicated that unprejudiced individuals are not always subject to stereotype "rebound" (i.e., the increase in stereotype accessibility that typically follows suppression). This may reflect unprejudiced individuals' skill at suppressing stereotypes or it may indicate that unprejudiced people simply do not represent the stereotype in the same way. For example, if stereotypes were not salient in the first place, instructions to suppress them would have little effect on their accessibility. In either case, it seems that the unprejudiced participants in their research were successful in reducing the extent to which cultural stereotypes were activated and applied.

Other research has highlighted the powerful influence of motivation on stereotype activation and inhibition. Sinclair and Kunda (1999; Kunda & Sinclair, 1999) have reported a number of experiments that suggest that stereotype accessibility may be inhibited in conditions where people are motivated to view a target person in nonstereotypic ways. For example, Sinclair and Kunda (1999) found that when participants received positive feedback from a Black doctor, they inhibited stereotypes

about Blacks. Thus, when self-enhancement motives are served by viewing others in nonstereotypic ways, people are capable of inhibiting stereotypes that would otherwise be activated. If self-enhancement motives have the potential to instigate stereotype inhibition, other motives may serve a similar function. In particular, unprejudiced individuals may possess value-based motives to inhibit stereotypes, and they may do so by engaging in systematic stereotype disconfirmation.

#### OVERVIEW OF THE PRESENT RESEARCH

Three studies are presented here, each of which tested the hypothesis that unprejudiced individuals are motivated to disconfirm stereotypes of Blacks. The first of these studies used an information-seeking paradigm. The following two experiments employed attributional paradigms. In each case, prejudice was predicted to influence the extent to which participants used stereotype-confirming or -disconfirming information-seeking or attributional strategies.

#### EXPERIMENT 1

Experiment 1 used an information-seeking paradigm to test the hypothesis that unprejudiced individuals seek out information that is likely to provide disconfirmation of cultural stereotypes. Information seeking has been suggested by Johnston (1996; Johnston & Macrae, 1994; see also Skov & Sherman, 1986) to be one strategy through which people maintain existing stereotypes. In that research, participants were given the opportunity to select information to learn about members of a stereotyped group. Participants showed a marked tendency to choose stereotype-consistent information and were consequently able to maintain their stereotypes. The present study investigated the influence of prejudice on such information-seeking strategies.

#### *Method*

##### *PARTICIPANTS*

Sixty-seven undergraduate students at the University of California, Santa Barbara (UCSB), participated in this experiment. Participants were recruited from a larger pool of students who had participated in a mass-testing session earlier in the academic term, during which they completed the Modern Racism Scale (MRS; McConahay, 1986). Participants were paid U.S.\$5 for participating in the experiment, which took approximately 45 min. No Black participants took part in the experiment.

##### *MATERIALS AND PROCEDURE*

After arriving at the laboratory, participants were introduced to a study on "impression formation." Participants were asked to read short descriptions of four

**TABLE 1: Participants' Choice of Target, by Level of Prejudice (based on a median split of MRS scores), Target Race, and Target Consistency With Cultural Stereotypes (Experiment 1)**

	<i>Consistent Targets</i>			<i>Inconsistent Targets</i>		
	<i>Black</i>	<i>White</i>	<i>Total</i>	<i>Black</i>	<i>White</i>	<i>Total</i>
Unprejudiced	6	6	12 (32%)	20	6	26 (68%)
Prejudiced	14	9	23 (77%)	7	0	7 (23%)

NOTE: Consistent targets include the relatively high-status White target and the relatively low-status Black target. Inconsistent targets include the relatively low-status White target and the relatively high-status Black target.

individuals and to choose the one about whom they wished to learn during the subsequent impression formation task. The descriptions of the targets varied in both race and the extent to which they confirmed cultural stereotypes. Two of the descriptions identified the target as a Black man, whereas the other two identified the target as a White man. In addition, one target of each race was described in ways that confirmed the Black stereotype but disconfirmed the White stereotype (e.g., uneducated, having a job doing menial labor), whereas the other was described in ways that confirmed the White stereotype but disconfirmed the Black stereotype (e.g., educated, having a white-collar job). Participants' choice of target was recorded.

After choosing the target person about whom they wanted to learn, all participants were presented with identical information about the target. This information consisted of 16 statements, 8 of which described negative behaviors and 8 of which described positive behaviors. All of the behaviors were neutral with respect to both the White and Black stereotypes. After reading the statements, participants rated the target on a number of positive and negative trait dimensions.

## Results

### TARGET CHOICE

Participants' choices of target were analyzed using multinomial logistic regression, in which target choice was entered as the dependent variable and scores on the MRS<sup>2</sup> were entered as the independent variable. MRS significantly predicted target choice,  $\chi^2(3) = 12.360$ ,  $p = .006$ . Binary logistic regressions were then conducted to investigate the relationship between MRS and probabilities of choosing stereotype-confirming (vs. disconfirming) and White (vs. Black) targets.<sup>3</sup> First, MRS was significantly and positively related ( $B = .410$ ) to choice of a stereotype-confirming target, Wald = 5.154,  $p = .023$ . Furthermore, MRS was significantly and positively re-

lated ( $B = .579$ ) to choice of a White target, Wald = 5.793,  $p = .016$ . Frequencies are displayed in Table 1 (for ease of interpretation, cell frequencies are presented by level of prejudice, which is based on a median split of MRS scores).

### IMPRESSIONS OF THE TARGET

Participants' evaluations of the target person also were analyzed. A principal components analysis (PCA) with varimax rotation was used to identify clusters of traits that could be combined for the purposes of analysis. The PCA identified three distinct factors: general positivity (friendly, respectful, likeable, lazy [reverse scored], and aggressive [reverse-scored]); sociability (outgoing, shy [reverse-scored], and passive [reverse scored]); and competence (intelligent, hardworking). The traits included in each factor had average loadings of .724, .700, and .816, respectively.

The three trait factors were entered as a repeated measure in a three-way multivariate analysis of covariance (MANCOVA) in which target choice was entered as an independent variable and MRS was entered as a covariate.<sup>4</sup> The analysis revealed only a significant main effect of the trait factor,  $F(2, 120) = 4.183$ ,  $p = .018$ . Paired comparisons indicated that ratings were highest on traits in the competence factor ( $M = 7.875$ ,  $SD = .803$ ), followed by the general positivity factor ( $M = 6.803$ ,  $SD = .870$ ) and the sociability factor ( $M = 5.098$ ,  $SD = 1.081$ ). All pairwise comparisons were significant, smallest  $t(67) = 9.234$ ,  $p < .001$ .

### Discussion

Prior research has demonstrated an expectancy-confirming bias in information seeking. People tend to look for information that they have reason to believe will be consistent with their expectations. In past research on stereotyping, this bias has been translated into a stereotype-confirming bias: Participants in a number of studies (Johnston, 1996; Johnston & Macrae, 1994) have shown a preference for stereotype-confirming information.

The results of the present study, however, cast doubt on the universality of such a bias. When participants in this study were presented with four potential individuals about whom they could spend some time forming an impression, prejudiced and unprejudiced participants indicated clearly different preferences. As shown in Table 1, prejudiced participants showed an overwhelming preference for learning about stereotype-confirming targets. They were three times as likely to choose to learn about someone who could be expected to confirm cultural stereotypes than someone who was likely to disconfirm them. Furthermore, prejudiced individuals were twice as likely as unprejudiced individuals to

choose a stereotype-confirming target. In contrast, unprejudiced participants showed a marked preference for learning about stereotype-disconfirming targets. They were twice as likely to choose a stereotype-disconfirming target as opposed to a stereotype-confirming one, and they were nearly three times as likely as prejudiced participants to select a stereotype-disconfirming target.

Taken in the context of past research on the role of expectations in information seeking, these results might suggest that prejudiced and unprejudiced individuals differ in their expectations. However, it seems unlikely that unprejudiced individuals actually have expectations that are exactly opposite of those dictated by cultural stereotypes. Common conceptions of prejudice would be more likely to predict that unprejudiced individuals simply have weaker expectancies than do prejudiced individuals. If so, their choices in this experiment should have been randomly distributed across the four targets. Instead, they appeared to seek out the very information that would be most likely to disconfirm existing stereotypes. Thus, a more plausible interpretation of these results is that unprejudiced individuals are motivated to disconfirm social stereotypes, and they use biased information-seeking strategies to do so.

Somewhat surprisingly, neither prejudice nor characteristics of the target had any effect on participants' ultimate impressions of him. One might have expected that participants would form impressions that were evaluatively consistent with the stereotype of the target they had chosen. The target was described by a combination of negative and positive behaviors; thus, participants' expectations might be predicted to bias their attention to and interpretation of expectancy-consistent behaviors. Yet, no biases in interpretation were evidenced in their subsequent impressions. Thus, we are left with the question of *why* participants' evaluations were relatively unaffected by their personal beliefs or by target characteristics. One possibility is that a variety of attributional processes were engaged by both prejudiced and unprejudiced participants to reconcile the range of behaviors that they encountered. One purpose of Experiment 2 will be to investigate attributional reasoning by prejudiced and unprejudiced individuals in response to stereotype-confirming and -disconfirming information.

#### EXPERIMENT 2

Unprejudiced individuals appear to take a proactive role in seeking out stereotype-disconfirming information. Yet, despite their efforts to seek such information, there may be times when they encounter information that appears to confirm cultural stereotypes. In such circumstances, unprejudiced individuals may employ

specific attributional strategies to deal with stereotype-confirming events. Both prejudiced and unprejudiced individuals should exhibit biases in their attributions for stereotype-relevant behaviors, but the nature of those biases should differ in systematic ways. People tend to search for external or situational causes for others' behavior only when the behavior is unexpected. In other words, the default attribution is an internal one (Heider, 1958; Jones & Davis, 1965; Ross, 1977; Winter & Uleman, 1984), and only unexpected events trigger an alternative response. For prejudiced individuals, behaviors that conform to their stereotype-based expectancies should not elicit any special response and should therefore be attributed to dispositional causes. In contrast, behaviors that violate their stereotype-based expectancies should initiate a search for situational explanations. For unprejudiced individuals, however, a reverse pattern may be predicted. For such individuals, who seek out and thereby should not need to discount stereotype-disconfirming information, counterstereotypic behaviors should not trigger attempts to find an external explanation and, thus, a dispositional inference should be made. In contrast, stereotypic behaviors should be relatively threatening to unprejudiced individuals' beliefs and thus should be dealt with by seeking situational explanations.

Sherman, Stroessner, and Azam (in press) have recently obtained relatively direct evidence for a moderating effect of prejudice on stereotypic attributional biases. Using a sentence-completion paradigm, Sherman et al. asked participants to provide extensions for a number of stereotypic and counterstereotypic behaviors that were exhibited by a gay male target person about whom they had previously formed an impression. The results of their research revealed a stereotype-confirming bias among prejudiced participants. Specifically, these participants produced more internal attributions for stereotypic behaviors and external attributions for counterstereotypic behaviors. No such attributional bias was observed for unprejudiced participants. Although no stereotype-disconfirming bias among unprejudiced individuals was found in this research, the fact that participants had already formed an impression of the target may have eliminated the need to engage in disconfirmation processes. Indeed, other measures collected in Sherman et al.'s research suggested that unprejudiced participants had engaged in much more integrative and individuating processing while forming their impressions than did prejudiced participants. Prejudiced participants, who did not form individuated impressions of the target, persisted in viewing him as representative of the group and thus employed stereotype-confirming strategies in generating attributions for his behavior. In

contrast, once unprejudiced participants had successfully individuated the target person, he would not be seen as merely a representative of the stereotyped group. Thus, attributions for his behavior would have had little relevance for beliefs about the cultural stereotype. A quite different pattern of results might be expected had unprejudiced participants not successfully individuated the target person.

In the present experiment, participants were asked to provide explanations for a series of behaviors, each of which was attributed to a different target person who was identified as being either Black or White. The behaviors were stereotypic, counterstereotypic, or neutral with respect to the Black stereotype. It was hypothesized that participants should exhibit attributional biases in the extent to which they explain each behavior in terms of internal or external causes. However, the nature of this bias was expected to differ depending on participants' prejudicial beliefs. Prejudiced participants were predicted to display the standard stereotypic attributional bias. In other words, they should attribute stereotypic behaviors to internal causes and counterstereotypic behaviors to external causes. In contrast, unprejudiced participants were predicted to show a counterstereotypic attributional bias; that is, they should be more likely to attribute counterstereotypic behaviors to internal causes and stereotypic behaviors to external causes.

### Method

#### PARTICIPANTS

Eighty-four undergraduate students at UCSB participated in this experiment. Participants were again recruited from a larger pool of students who had completed the MRS during an earlier mass-testing session. Participants were paid U.S.\$5 for their participation in the primary experiment, which took 30 to 40 min. No Black individuals participated in the experiment.

#### DESIGN

The experiment involved a  $2 \times 3$  within-participants design, involving target race (White or Black) and behavior stereotypicality (Black stereotypic, Black counterstereotypic, or neutral).

#### MATERIALS

A series of 48 statements, each describing a specific behavior, appeared in a response booklet in one of two random orders. Response booklets were constructed such that one statement appeared on each page of the booklet. The statements were selected from a larger pool of statements that had been previously rated by a separate group of 30 participants (recruited from the same participant pool) for their consistency with the Black ste-

ereotype. These ratings were made on a scale from  $-3$  (*highly inconsistent*) to  $+3$  (*highly consistent*).

Sixteen statements were selected for each behavior type (Black stereotypic, Black counterstereotypic, and neutral). There were approximately equal numbers of evaluatively positive and negative behaviors within each type. Black stereotypic behaviors (e.g., told a dirty joke to his friends, was the DJ at the party) received an average rating of  $+1.94$ . Black counterstereotypic behaviors (e.g., wouldn't dance at the club, walked away from the fight) received an average rating of  $-1.88$ . Neutral behaviors (e.g., spilled his drink on the table, made breakfast for his girlfriend) received an average rating of  $0.02$ . Average ratings for each behavior were determined to be significantly different from one another using a one-way ANOVA,  $F(2, 47) = 695.595, p < .001$ . Bonferroni post hoc tests confirmed that all pairwise differences were significant,  $p < .001$ . Statements in each condition were matched for social desirability and were neutral with respect to stereotypes of Whites (average ratings of White stereotypicality for each type ranged from  $-0.40$  to  $+0.47$ ). A one-way ANOVA confirmed that the three types of behaviors did not differ in their stereotypicality of Whites,  $F(2, 47) = 2.386, p > .10$ .

Forty-eight photographic slides were used. These slides included photographs of 24 White men and 24 Black men. The photographs were matched for age and physical attractiveness.

#### PROCEDURE

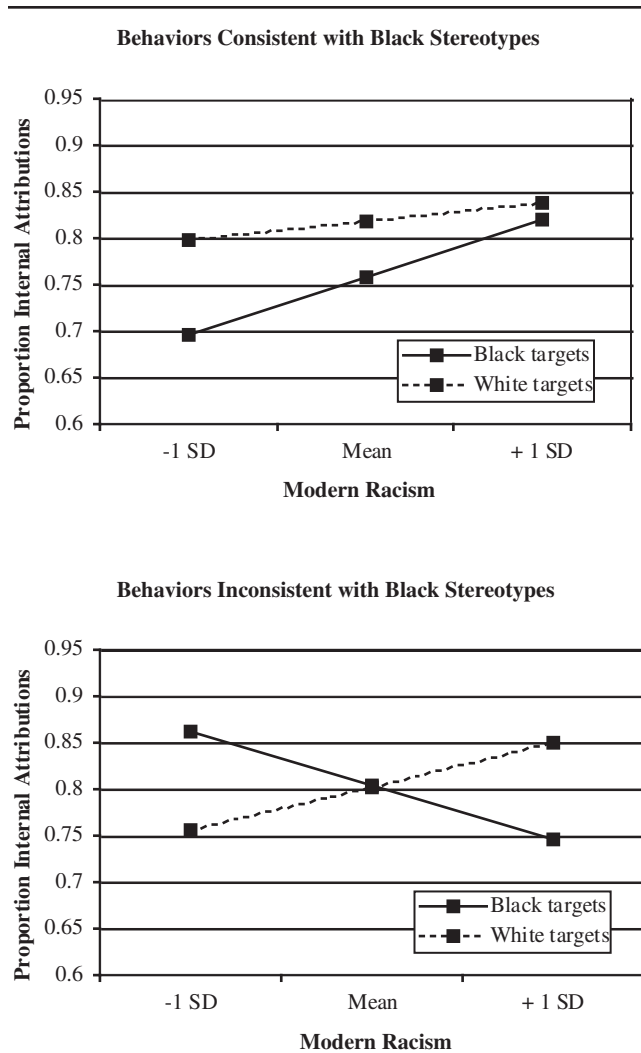
After arriving at the laboratory, participants were informed that the experiment concerned how people use the appearance of others as a cue to explaining their behavior. Participants were instructed that they would view a number of photographs, each of a different person. For each photograph, they would read a statement describing something that the person had recently done. Participants were told to look at each photograph and to write down an explanation for why the person had performed the behavior described. They were allowed 30 s to generate the explanation.

The order of the slides and of the behavioral statements was such that each statement was presented with a Black face for half of the participants and with a White face for the other half. Furthermore, for each participant, half of the statements describing each type of behavior (Black stereotypic, Black counterstereotypic, and neutral) appeared with a Black face, whereas the other half of the statements appeared with a White face.

### Results

#### CODING RESPONSES

Two independent and trained coders read and judged each response. Responses were coded as internal



**Figure 1** Proportion of attributions made to internal causes for behaviors consistent with Black stereotypes (top panel) and inconsistent with Black stereotypes (bottom panel) as a function of Modern Racism Scale (MRS) scores and target race (Experiment 2).

NOTE: Mean MRS = -6.650; standard deviation = 5.574.

attributions if the explanation produced reflected dispositional qualities of the actor. Responses were coded as external attributions if the explanation reflected characteristics of the situation or environment. The two coders were reasonably reliable ( $r = .79$ ). When differences occurred, they were resolved through discussion between both coders and the author.

A small number of the total responses (4.3%) did not reflect an attribution and thus were excluded from further analyses. These responses were randomly distributed across participants and experimental conditions.

#### ATTRIBUTIONS

The proportion of internal (to total) attributions was calculated for each trial type for each participant. An analysis of covariance (MANCOVA) was conducted in which target race and behavior stereotypicality were entered as within-subjects factors, and MRS scores<sup>5</sup> were entered as a covariate. MRS was expected to moderate the extent to which participants displayed a stereotype-confirming bias, such that the bias would be strongest among more prejudiced (higher MRS) participants and reverse itself among unprejudiced (lower MRS) participants. This pattern would be reflected by a significant three-way interaction between prejudice, target race, and behavior stereotypicality. As predicted, this interaction was in fact significant,  $F(2, 81) = 10.396, p < .001$ .

Simple regression analyses were conducted to determine the relationship between MRS scores and the proportion of internal behaviors generated in each condition. MRS significantly predicted internal attributions to Black stereotypic behaviors performed by Black targets,  $\beta = .279, p = .010$ , but not by White targets,  $\beta = .096, p = .386$  (see Figure 1, top panel). Furthermore, MRS predicted internal attributions to Black counterstereotypic behaviors performed by Black targets,  $\beta = -.262, p = .016$ , but only marginally predicted attributions for the same behaviors performed by White targets,  $\beta = .208, p = .057$  (see Figure 1, bottom panel). Finally, MRS did not significantly predict internal attributions for neutral behaviors performed by either Black targets,  $\beta = -.095, p = .393$ , or White targets,  $\beta = .065, p = .560$ .

#### EVIDENCE OF STEREOTYPIC BIASES

To evaluate the hypothesis that unprejudiced individuals would display a pattern of stereotype-disconfirming attributions, further analyses were conducted for participants scoring at the low end of the MRS (i.e., scores of -7 and less). A two-way repeated-measures ANOVA was conducted on the attributions produced by these participants. This analysis revealed only a significant Target Race  $\times$  Behavior Stereotypicality interaction,  $F(2, 76) = 4.704, p = .012$ . Consistent with the hypotheses, unprejudiced participants showed a (nonsignificant) tendency to produce fewer internal attributions for Black stereotypic behaviors when those behaviors were performed by Black targets than by White targets,  $t(38) = 1.627, p = .112$ . In contrast, they generated a higher proportion of internal attributions for Black counterstereotypic behaviors when those behaviors were performed by Blacks than by Whites,  $t(38) = 2.062, p = .046$ . This pattern reflects a stereotype-disconfirming bias by unprejudiced participants (see Table 2).

The parallel analysis was conducted on the attributions produced by participants scoring in the medium to high range on the MRS (-7 and greater). Contrary to

**TABLE 2: Proportions of Internal (to total) Attributions Generated, by Prejudice Level, Target Race, and Behavior Stereotypicality (Experiment 2)**

	<i>Unprejudiced</i>		<i>Prejudiced</i>	
	<i>Black</i>	<i>White</i>	<i>Black</i>	<i>White</i>
	<i>Target</i>	<i>Target</i>	<i>Target</i>	<i>Target</i>
Black stereotypic	.744 (.211)	.804 (.187)	.769 (.183)	.830 (.184)
Neutral	.747 (.173)	.739 (.220)	.702 (.218)	.751 (.182)
Black counterstereotypic	.812 (.183)	.710 (.175)	.792 (.205)	.857 (.160)

predictions, the interaction between target race and behavior stereotypicality was not significant,  $F(2, 88) < 1$ . The main effect of target race was significant,  $F(1, 44) = 5.758$ ,  $p = .021$ , such that prejudiced participants generated a higher proportion of internal attributions in response to the same behaviors when they were performed by White targets than when they were performed by Black targets. There was also a significant main effect of behavior stereotypicality,  $F(2, 88) = 10.429$ ,  $p < .001$ , indicating that neutral behaviors inspired fewer internal attributions than did stereotypic or counterstereotypic behaviors.

### Discussion

The results of this experiment were largely consistent with the hypothesis that unprejudiced individuals would display a stereotype-disconfirming bias in their attributions for Black and White targets' behaviors. Unprejudiced participants were less likely to generate internal attributions for Black than White targets when the behavior confirmed the Black stereotype. In contrast, unprejudiced participants were more likely to make internal attributions for Black than White targets when the behavior was counter to the Black stereotype. In other words, unprejudiced participants were more likely to find situational explanations for stereotype-confirming behaviors while tending to draw dispositional inferences from stereotype-disconfirming behaviors.

Contrary to expectations, however, relatively prejudiced participants did not show a systematic bias toward stereotype confirmation. Rather, they were less likely to make internal attributions regarding any type of behavior performed by Black than White targets. This finding suggests one of two possible conclusions. First, relatively prejudiced participants may view Blacks as more affected by situational factors than Whites, who may be seen as having more freedom to behave in ways consistent with their personalities. In other words, prejudiced individu-

als may view Whites as having greater self-efficacy than Blacks.

A second explanation for the pattern of attributions generated by prejudiced participants is that their sentence completions were motivated by self-presentational concerns. Given that social norms discourage people from making overgeneralizations about members of stereotyped groups, prejudiced participants may have been more cautious about generating dispositional explanations for Blacks' behavior. That is, relatively prejudiced individuals may have actually shown a stereotype-confirming bias in their attributions if they had not been able to monitor their responses. A third experiment was designed to investigate this possibility.

### EXPERIMENT 3

Gilbert, Pelham, and Krull (1988; see also Jones & Davis, 1965, Trope, 1986; Trope & Alfieri, 1997) illustrated that attributional reasoning is a multistage process. After witnessing and identifying a behavior, individuals first judge its trait implications and then make corrections for situational constraints that may have produced the behavior (and thereby mitigate a dispositional inference). As a special case of attributional reasoning, stereotypic attributional biases are also the result of a multistage process. Individuals proceed through the same stages of classification, characterization, and correction as described by Gilbert and his colleagues. However, as proposed in this article, the correction stage may be influenced by the perceivers' personal beliefs about the perpetrator of the behavior (Vonk & Konst, 1998). If the behavior conflicts with those beliefs, a search for situational constraints is more likely to be undertaken than if the behavior is consistent with what the perceiver expects. Consequently, correction processes are more likely to ensue following expectancy violations.

According to Gilbert et al. (1988), later stages of the attribution process (i.e., correction) are less automatic than earlier stages and therefore require greater cognitive resources. As such, interference with a perceiver's cognitive capacity should tend to result in stronger dispositional attributions. However, when the search for situational constraints is congruent with perceivers' personal beliefs, correction may not be as easily disrupted. Indeed, if individuals are highly practiced at making situational corrections for certain types of behavior, those correction processes should be quite difficult to interrupt (Trope & Alfieri, 1997; but see Franco & Maass, 1996). Specifically, relatively unprejudiced individuals may be more practiced at producing situational corrections for stereotype-confirming behaviors, whereas relatively prejudiced individuals may be more skillful at finding situational factors to explain stereotype-disconfirming behaviors.

In contrast, processes related to self-presentational motives should be disrupted by decreased cognitive capacity. Researchers such as Paulhus (1993; Paulhus, Graf, & van Selst, 1989; see also Pontari & Schlenker, 2000) have argued that self-presentational strategies can be disrupted when a cognitive load is imposed. For example, Paulhus et al. (1989) reported that participants endorsed more positive self-evaluations when placed under a cognitive load. This suggests that self-presentational concerns (e.g., a motive not to appear conceited) may lose their influence when cognitive capacity is drained.

Experiment 3 investigated the role of cognitive capacity in the production of stereotype-confirming and -disconfirming attributional biases by manipulating the extent to which participants were under time pressure to make a response. Following from the reasoning above, two competing hypotheses may be derived. If responses by prejudiced participants in Experiment 2 were driven primarily by self-presentational concerns, then they should revert to stereotype-confirming biases when their ability to engage in correction is disrupted (see Gordon & Anderson, 1995). In this case, the pattern of attributions found for prejudiced participants in Experiment 2 should be replicated only under control conditions. Under conditions of limited capacity (i.e., time pressure), they should display a stereotype-confirming attributional pattern.

Alternatively, if the results of Experiment 2 were driven by prejudiced and unprejudiced individuals having different levels of skill at correcting for potential situational constraints when it comes to stereotype-confirming and -disconfirming behaviors, then limiting cognitive capacity should have little effect on the attributions that they report. In this case, the pattern of attributions for both prejudiced and unprejudiced participants should be similar to that found in Experiment 2 regardless of whether they are required to respond under time pressure. Experiment 3 was designed to discriminate between these two possibilities by imposing a time limit on participants' production of attributions.

### *Method*

#### *PARTICIPANTS*

One hundred and seven students at the University of Colorado participated in this experiment in exchange for partial credit toward fulfillment of an introductory psychology requirement. No Black individuals participated in the experiment. The primary experiment lasted for approximately 20 to 30 min.

#### *DESIGN*

The experiment involved a  $2 \times 2 \times 3$  mixed-participants design. Time pressure (time pressure or

control) was manipulated between participants. Target race (Black or White) and behavior stereotypicality (Black stereotypic, Black counterstereotypic, or neutral) were varied within participants.

#### *MATERIALS AND PROCEDURE*

After arriving at the laboratory, participants were seated in individual cubicles. They were informed that they would be completing a number of unrelated tasks during the course of an hour. In the first phase of the experiment, they were introduced to an attribution task similar to that described in Experiment 2. Prior to beginning the task, participants received an explanation of how responsibility for a behavior may be distributed between internal/dispositional and external/situational causes.

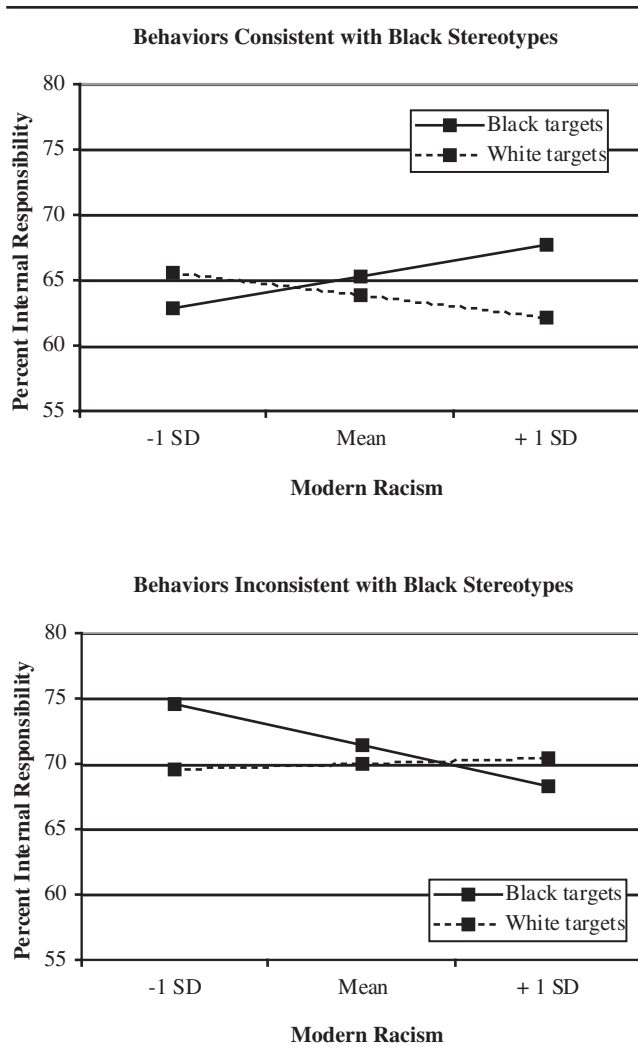
There were a number of other important changes to the procedures followed in Experiment 2. First, Macintosh computers were used to present target photographs and behavioral descriptions. The photographs and descriptions appeared simultaneously on the computer screen in random order. The change from a paper-and-pencil task to a computerized task was made to allow a manipulation of time pressure to be included in the experiment. Participants in the time pressure condition were required to enter their response within 5 s of the time that the statement appeared on the screen. After 5 s, a warning beep occurred and participants were told that they would be automatically taken to the next trial of the experiment. Participants in the control condition were allowed to complete each trial without a time deadline.

To allow participants to make a complete response within the amount of time given in the time pressure condition, participants gave a numerical estimate of the proportion of responsibility that could be attributed to the target. Thus, after each photograph and description appeared, participants were instructed to type in a number from 0% to 100% to indicate the extent to which responsibility for the behavior should be attributed to internal/dispositional causes. After completing the attribution task, participants spent approximately 25 min on unrelated activities, after which they completed the MRS.

### *Results*

#### *ATTRIBUTIONS*

The average percentage of responsibility attributed internally in each condition was calculated and these averages were analyzed using a MANCOVA, in which target race and behavior stereotypicality were entered as within-subjects factors, time pressure was entered as a between-subjects factor, and MRS score<sup>6</sup> was entered as a covariate. The results indicated a significant three-way



**Figure 2** Percentage of responsibility attributed internally for behaviors consistent with Black stereotypes (top panel) and inconsistent with Black stereotypes (bottom panel) as a function of Modern Racism Scale (MRS) scores and target race (Experiment 3).

NOTE: Mean MRS =  $-6.735$ ; standard deviation =  $4.909$ .

interaction between target race, behavior stereotypicality, and MRS,  $F(2, 206) = 5.305$ ,  $p = .006$ . This interaction was not moderated by time pressure,  $F(2, 206) = 1.042$ ,  $p = .355$ .

Simple regressions were conducted to identify the relationship between MRS and the percentage of responsibility attributed internally in each condition. The results indicated that MRS was marginally related to internal attributions for Black stereotypic behaviors by Black targets,  $\beta = .179$ ,  $p = .065$ , but not to the same behaviors performed by White targets,  $\beta = -.109$ ,  $p = .264$  (see Figure 2,

top panel). Similarly, MRS significantly predicted internal attributions to Black counterstereotypic behaviors by Black targets,  $\beta = -.235$ ,  $p = .015$ , but not by White targets,  $\beta = .032$ ,  $p = .745$  (see Figure 2, bottom panel). Finally, MRS was unrelated to internal attributions generated in response to neutral behaviors by either Black,  $\beta = -.127$ ,  $p = .191$ , or White targets,  $\beta = -.075$ ,  $p = .444$ .

#### EVIDENCE OF STEREOTYPIC BIASES

As in Experiment 2, to assess the extent to which relatively unprejudiced participants displayed stereotype-disconfirming biases, further analyses were conducted for participants scoring at the low end of the MRS (less than  $-7$ ). A two-way repeated-measures ANOVA was conducted on the attributions produced by these participants. This analysis revealed a marginal main effect of target race,  $F(1, 52) = 3.064$ ,  $p = .086$ , and a significant main effect of behavior stereotypicality,  $F(2, 104) = 7.931$ ,  $p = .001$ . These effects were qualified by a significant Target Race  $\times$  Behavior Stereotypicality interaction,  $F(2, 104) = 13.162$ ,  $p < .001$ . Consistent with the hypotheses, unprejudiced participants attributed less internal responsibility for Black stereotypic behaviors when those behaviors were performed by Black targets than by White targets,  $t(52) = 3.007$ ,  $p = .004$ . In contrast, they attributed greater internal responsibility for Black counterstereotypic behaviors when those behaviors were performed by Blacks than by Whites,  $t(52) = 4.780$ ,  $p < .001$ . This pattern reflects a stereotype-disconfirming bias by unprejudiced participants.

The parallel analysis was conducted on the attributions produced by participants scoring in the medium to high range on the MRS ( $-7$  and greater). This analysis yielded a significant main effect of behavior stereotypicality,  $F(2, 106) = 7.599$ ,  $p = .001$ , which was qualified by an interaction with target race,  $F(2, 106) = 44.331$ ,  $p < .001$ . Unlike the relatively unprejudiced participants described above, more prejudiced participants made stronger internal attributions for Black stereotypic behaviors when those behaviors were performed by Black targets than by White targets,  $t(53) = 4.116$ ,  $p < .001$ . These participants also made weaker internal attributions for Black counterstereotypic behaviors when those behaviors were performed by Black targets than by White targets,  $t(53) = 2.072$ ,  $p = .043$ . Thus, the relatively prejudiced participants in this experiment displayed a stereotype-confirming pattern of attributions.

#### A SECOND LOOK AT TIME PRESSURE

Because one of the purposes of this experiment was to assess the possibility that the failure to find a stereotype-confirming bias among prejudiced participants in Experiment 2 was the result of relatively controlled process-

ing (i.e., the operation of self-presentational motives), further analyses were conducted to more closely examine the effects of time pressure. Separate MANCOVAs were conducted within the time pressure and control conditions. Although the three-way interaction among target race, behavior stereotypicality, and MRS was significant in both cases, it was somewhat stronger in the time pressure condition,  $F(2, 104) = 20.067, p < .001$ , than in the control condition,  $F(2, 102) = 4.478, p = .014$ . Further analyses were conducted for relatively unprejudiced and prejudiced participants in each condition. For relatively unprejudiced participants, the interaction between target race and behavior stereotypicality was significant in the time pressure condition,  $F(2, 50) = 12.063, p < .001$ , but only marginally significant in the control condition,  $F(2, 50) = 2.869, p = .066$ . This suggests that the stereotype-disconfirming bias displayed by these participants was actually exaggerated under conditions of limited capacity. Likewise, the Target Race  $\times$  Behavior Stereotypicality interaction for relatively prejudiced participants was significant in the time pressure condition,  $F(2, 54) = 14.967, p < .001$ , but not in the control condition,  $F(2, 50) = 1.803, p = .175$ . This suggests that time pressure also led to an amplification of stereotype-confirming biases.

### Discussion

Experiment 3 provided further evidence for a stereotype-disconfirming attributional bias among unprejudiced individuals. Unprejudiced participants in this experiment were again more likely to attribute Black stereotypic behaviors to situational causes when the actor was Black than when he was White. In contrast, unprejudiced participants were more likely to make internal attributions for counterstereotypic behaviors performed by Blacks than by Whites. These tendencies were even more pronounced when time pressure was imposed on participants' responding.

In contrast, more prejudiced participants displayed a stereotype-confirming bias in their attributions, which was most pronounced when they had limited time to consider their responses. As in Experiment 2, the stereotype-confirming bias was weak under control conditions but emerged more strongly in this experiment under conditions of time pressure. This suggests that relatively controlled processes (e.g., those stemming from self-presentational concerns) may have influenced attributions generated by participants in both Experiment 2 and in the control condition of this experiment.

An alternative interpretation of these results is suggested by research reported by Chun, Spiegel, and Kruglanski (2002). According to their work, cognitive

load can disrupt even early stages in the attributional process. As discussed earlier, Gilbert et al. (1988) suggested that correction, the last stage of the attributional process, requires the most cognitive control and thus is most vulnerable to interference. However, Chun et al. (2002) propose that even the preliminary behavioral identification (or classification) stage may be resource dependent. Their research demonstrated that when the behavioral identification task was difficult, it was susceptible to constraints on cognitive capacity. In such conditions, no dispositional inference was made.

In the present experiment, if prejudiced and unprejudiced participants differed in the ease with which they classified Black stereotypic and counterstereotypic behaviors that were exhibited by Black and White targets, they also might differ in the extent to which they made internal attributions for those behaviors. Indeed, it may seem plausible to assume that prejudiced participants found it more difficult to classify the counterstereotypic behaviors of Blacks than of Whites, leading them to draw fewer dispositional inferences from them. However, it seems improbable that even the least prejudiced individual would find it more difficult to classify stereotypic behaviors performed by Blacks than by Whites. Moreover, the behavioral statements used in this research had been pretested as having clear trait implications. Thus, it seems unlikely that Chun et al.'s model would apply to this experiment.

Thus, the results of Experiment 3 lend support to the contention that unprejudiced individuals are motivated to see stereotype-disconfirming evidence wherever it may occur. When confronted with stereotype confirmation, they attempt to discredit the value of that information. In contrast, prejudiced individuals have no such motivation to engage in stereotype disconfirmation. Consequently for these individuals, stereotypes function in a similar manner to other expectancies and thus guide attributions in an expectancy- (or stereotype-) confirming way.

### GENERAL DISCUSSION

#### *The Unprejudiced Person and Stereotype-Disconfirming Biases*

The three experiments reported here provide a clear demonstration of a stereotype-disconfirming bias among unprejudiced individuals. Past research has focused its attention on stereotype confirmation as a mechanism by which people are able to maintain their stereotypes. This focus, although important, has perhaps prevented consideration of the possibility that some individuals are motivated not to maintain their stereotypes but to disconfirm them. The research reported in this

article suggests that very unprejudiced individuals have such a motivation. Not only do these individuals seek out information that is most likely to provide stereotype disconfirmation (Experiment 1), but they also systematically discount stereotype-consistent information while drawing strong dispositional inferences from stereotype-inconsistent information (Experiments 2 and 3). Moreover, these stereotype-disconfirming strategies appear to proceed for unprejudiced participants even when cognitive resources are limited.

How do unprejudiced individuals cultivate counter-stereotypic expectancies? This would certainly seem to contradict much of what is believed about the automatic nature of stereotype-driven processes (Bargh, 1999; Devine, 1989; but see also Blair, Ma, & Lenton, 2001; Kawakami, Dion, & Dovidio, 1998; Locke, MacLeod, & Walker, 1994; Rudman, Ashmore, & Gary, 2001). One possibility is that people who hold strong unprejudiced beliefs are well practiced at seeking nonstereotypic information (e.g., Blair & Banaji, 1996; Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000) and at inhibiting stereotypes in any way available to them (e.g., Monteith et al., 1998). Repeatedly seeking to discount stereotypic information, and attending to counter-stereotypic information, may result in a high level of efficiency when it comes to these processes (Bargh, 1997; Schneider & Shiffrin, 1977; Shiffrin & Schneider, 1977).

#### *To What End, Disconfirmation?*

Just as stereotype-confirming biases have a wide range of consequences for stereotype maintenance and change, prejudicial judgments, and discriminatory behavior, so too may stereotype-disconfirming biases. Indeed, stereotype disconfirmation may be expected to increase the likelihood of stereotype change. For example, Johnston, Bristow, and Love (2000; see also Johnston & Macrae, 1994) reported clear evidence that participants who were given a situational explanation for a stereotypic behavior by a single group member engaged in less stereotyping than did participants who were given a dispositional explanation for the same behavior. Of interest, this difference in stereotype use was found following exposure to a single situational attribution. Thus, the effects of repeatedly generating situational explanations may be much more far reaching.

Stereotype-disconfirming attributional biases may have further implications for judgment and behavior. Sekaquaptewa and her colleagues (Sekaquaptewa et al., 2003; von Hippel et al., 1997) have provided a great deal of evidence that biases in information processing (e.g., the stereotype explanatory and linguistic intergroup biases) are predictive of prejudicial judgments and dis-

criminatory behavior. As the converse of the stereotype-confirming bias that they have explored, stereotype-disconfirming biases may well predict positive biases in judgments of (as well as prosocial behavior toward) members of a stereotyped group. In fact, Sekaquaptewa et al. (2003) have reported results consistent with this proposal.

#### *Is Stereotype Disconfirmation the Answer?*

The preceding discussion may leave the impression that stereotype-disconfirming attributional biases promote decidedly positive effects on stereotype change, prejudice reduction, and positive intergroup behavior. However, recent research suggests some potential pitfalls of the stereotype-disconfirmation bias. For example, Yzerbyt, Corneille, Dumont, and Hahn (2001) have reported an intriguing series of experiments in which they demonstrated that generating a situational attribution for a behavior entails the simultaneous suppression of the dispositional attribution that would otherwise be made. Ironically, the suppressed dispositional attribution is likely to rebound in subsequent judgments, making later dispositional inferences more likely to occur. An interesting question stemming from this work is whether participants who are well practiced at making situational attributions in a particular context are equally vulnerable to these rebound effects.

In another program of research, Seta, Seta, and McElroy (2003) proposed that when individuals encounter stereotype-disconfirming behaviors in one group member, they are likely to compensate for the disconfirmation by judging other group members in more stereotypic ways. This compensation allows the group stereotype to be maintained. In the studies they reported, participants were not allowed to discount the initial stereotype-disconfirming event. One might expect that being unable to explain away stereotype-inconsistent information, participants might have adjusted their stereotypes accordingly. On the contrary, however, participants apparently became even more motivated to engage in stereotype confirmation at the first available opportunity. Thus, it appears that stereotype disconfirmation must be pursued intentionally and voluntarily if it is to result in diminished stereotype use.

#### *Conclusions*

The unprejudiced person is not merely someone who is free from prejudice and its corresponding biases. She or he is, in fact, susceptible to many of the same biases in information processing as are prejudiced individuals. It is the content, rather than the process, of the bias that shapes the outcomes produced, in terms of beliefs, judgments, and behaviors. The research reported in these

pages highlights some of the strategies that unprejudiced individuals use to meet their goals of stereotype disconfirmation. Indeed, they are precisely those strategies that have long been held accountable for stereotype maintenance.

#### NOTES

1. The role of prejudice in stereotype disconfirmation, proposed here, should be distinguished from the construct of motivation to control prejudice, proposed by Fazio and his colleagues (Dunton & Fazio, 1997; Fazio, Jackson, Dunton, & Williams, 1995; Towles-Schwen & Fazio, 2003). Motivation to control prejudice refers to the dual motivations of avoiding conflict regarding one's stereotypic beliefs and of avoiding the appearance of prejudice. Both of these concerns are somewhat self-presentational in nature. Plant and Devine (1998; Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002) have similarly argued for the role of motivation in controlling prejudiced reactions. In their view, individuals vary in both internal and external sources of motivation to behave in unprejudiced ways. The proposals of both Dunton and Fazio (1997) and of Plant and Devine (1998) concern the reduction of bias in overt judgments of and behaviors toward Blacks. In contrast, the unprejudiced individual who seeks disconfirmation of cultural stereotypes does so to maintain his or her personal beliefs regarding the illegitimacy of those stereotypes.

2. The theoretical range of scores on the Modern Racism Scale (MRS) is  $-14$  (*extremely unprejudiced*) to  $+14$  (*extremely prejudiced*). The actual range of scores in this study was  $-14$  to  $+2$  ( $M = -7.701$ ,  $SD = 4.074$ ).

3. Logistic regression utilizes one category (i.e., level of the dependent variable) as a reference group for generating parameter estimates for the remaining categories. Because there is no clear logic in using any particular target as a reference group for the others, binary logistic regressions were conducted to interpret the results. Parameter estimates ( $B$ s) are evaluated using a Wald statistic. The Wald statistic is equal to  $(B/SE)^2$  and has a chi-square distribution with 1 degree of freedom.

4. Because this study (as well as Experiments 2 and 3) involved a repeated-measures design, MANCOVA is used instead of multiple regression. Here, and in the following two experiments, MRS is entered as a covariate. Although the default model tested in this type of analysis is one in which the effects of the covariate are simply controlled for, it is also possible to specify a model in which interactions involving the covariate are tested. In such a model, separate regression lines are fit for the covariate (in this case, MRS) on each dependent variable (in this case, each level of the repeated measure "trait type"). The interaction tests for homogeneity of these regression lines. Thus, to the extent that the slopes are significantly different, this will be indicated by significant interactions. The same analytic strategy will be followed in Experiments 2 and 3.

5. MRS scores for Experiment 2 ranged from  $-14$  to  $+9$  ( $M = -6.650$ ,  $SD = 5.574$ ).

6. MRS scores for Experiment 3 ranged from  $-14$  to  $+6$  ( $M = -6.735$ ,  $SD = 4.909$ ).

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