

# Prejudice at the Nexus of Race and Gender: An Outgroup Male Target Hypothesis

Carlos David Navarrete and Melissa M. McDonald  
Michigan State University

Ludwin E. Molina  
University of Kansas

Jim Sidanius  
Harvard University

Adopting an evolutionary approach to the psychology of race bias, we posit that intergroup conflict perpetrated by male aggressors throughout human evolutionary history has shaped the psychology of modern forms of intergroup bias and that this psychology reflects the unique adaptive problems that differ between men and women in coping with male aggressors from groups other than one's own. Here we report results across 4 studies consistent with this perspective, showing that race bias is moderated by gender differences in traits relevant to threat responses that differ in their adaptive utility between the sexes—namely, aggression and dominance motives for men and fear of sexual coercion for women. These results are consistent with the notion that the psychology of intergroup bias is generated by different psychological systems for men and women, and the results underscore the importance of considering the gender of the outgroup target as well as the gender of the agent in psychological studies on prejudice and discrimination.

*Keywords:* intergroup bias, evolutionary psychology, prejudice, sex differences, social dominance

Viewed on an evolutionary timescale, it is only recently that humans have encountered members of different races (Stringer & McKie, 1997). Accordingly, the phenotypic differences now used to classify people on the basis of race are likely processed by features of the mind that evolved to identify social or coalitional groups but not racial groups (Gil-White, 2001; Kurzban, Tooby, & Cosmides, 2001). Because natural selection is unlikely to have shaped the human mind to produce racism specifically, this form of intergroup bias is likely to be the epiphenomenon of an evolved psychological system adapted to address the challenges of living in a social world of groups and coalitions—the categories to which such arbitrary phenotypic distinctions such as “race” are then mapped. Nevertheless, the understanding that modern race bias is a cultural by-product of an evolved psychology does not preclude it from being studied in terms of the underlying adaptive functions of the psychology that generates it.

We posit that intergroup conflict poses adaptive challenges that differ between men and women, and that these distinct challenges have shaped the psychology of intergroup bias differently between the sexes. We apply insight from parental investment and sexual selection theories (Darwin, 1871; Trivers, 1972), arguing along the lines of how selection pressures may have operated on separate psychological systems that manage the cognitive processing of the risks and benefits of physical and sexual aggression (Thornhill & Palmer, 2000; Tooby & Cosmides, 1988). In doing so, we draw attention to the idea that intergroup bias is a fundamentally gendered phenomenon and that attending to the gender of both the agents and the targets of prejudice and discrimination is crucial to understanding the psychological underpinnings of racism and xenophobia.

## Evolution and Intergroup Conflict

### Intrasexual Competition and Intergroup Conflict

Sexual selection is a type of natural selection that takes on two separate forms (Andersson, 1994; Darwin, 1871; Fisher, 1930). The first is where traits evolve because of *intrasexual* competition, or competition between members of the same sex (e.g., elongated teeth, horns, fighting). The second reflects a process of *intersexual* competition, where the strategies and preferences of one sex give rise to counterstrategies and preferences in the other (e.g., plumage, nuptial gifts).

Due to the differences between men and women in obligate parental investment (e.g., mammalian females bear the costs of internal fertilization, placentation, gestation, and lactation), the marginal fitness gains from acquiring multiple mates are far

---

Carlos David Navarrete and Melissa M. McDonald, Department of Psychology, Michigan State University; Ludwin E. Molina, Department of Psychology, University of Kansas; Jim Sidanius, Departments of Psychology and African American Studies, Harvard University.

This material is based upon work supported by National Science Foundation Grants SES-0409798 and BCS-0847237. We thank Dan Fessler, Norbert Kerr, and Joe Cesario for helpful comments on a previous version of this article. We also thank Katie LaRoche, Janna David, Mike Mead, Ben Asher, Kierstin Lorence, Nicole Boucher, Nicole Minty, Katie Laroche, Simone Terfa, Joseph Sbar, Leslie Saxon, Valerie Rygiel, Demaree Bruck, Katie Heikennen, and Alissa Cardone for their help as research assistants.

Correspondence concerning this article should be addressed to Carlos David Navarrete, Department of Psychology, Michigan State University, East Lansing, MI 48840. E-mail: cdn@msu.edu

greater for men than for women. This fundamental difference between men and women produces an asymmetry in the strength of intrasexual competition, with competition for mates operating more strongly on men. This difference creates an incentive structure where the payoffs for pursuing risky, aggressive, and dangerous tactics to eliminate or debilitate same-sex competitors are greater among men. This reasoning suggests that when one applies the logic of intrasexual selection to the problem of intergroup aggression, one should expect men to be both its primary agents as well as its targets (D. M. Buss & Shackelford, 1997; Daly & Wilson, 1988; Sidanius & Pratto, 1999; Tooby & Cosmides, 1988). The logic of the *risk contract of war* described by Tooby and Cosmides (1988) suggests that, although the costs of failure in aggressive intergroup conflicts are potentially devastating for men, the offsetting gains could be immense, because the benefits to a few extremely successful men within a coalition can readily compensate for the losses to many unsuccessful others. Therefore, when intergroup conflict occurs, men, compared with women, should more readily engage in risky and aggressive strategies in order to dominate other groups, as well as to avoid being dominated, because “it is reproductively ‘safer’ for them to do so” (p. 6). The potential for dramatic zero-sum imbalances between successful and unsuccessful male coalitions would have created a strong selection pressure for a suite of *male-specific* psychological mechanisms that motivate aggression toward, and dominance of, other social groups. Like men, women have much to lose from aggressive intergroup conflict, but they also have less to gain relative to men, and so selection would have been weaker in shaping a high risk/high payoff female-specific psychology of intergroup aggression and dominance.

Wide-ranging examples consistent with this basic framework are found across various disciplinary boundaries. For example, across human societies, intergroup aggression is characterized by an asymmetry between men and women as both the targets and the aggressors, such that lethal aggression in domains ranging from gang fights to regional and geopolitical conflict can be described as primarily a male affair (for reviews see Daly & Wilson, 1988; Keegan, 1993; Wrangham & Peterson, 1996). Archeological, primatological, and genetic studies have affirmed that this is likely to have been the case throughout human evolutionary history (e.g., Keeley, 1996; Kelly, 2005; Makova & Li, 2002). Modern societal instantiations of this general phenomenon are found across a whole host of indicators demonstrating that men bear the brunt of the most violent acts of group-based violence such as lynchings and hate crimes (reviewed in Sidanius & Pratto, 1999). Less violent but equally discriminatory outcomes are readily found in the educational system (Gordon, Piana, & Keleher, 2000), the labor market (Arai & Thoursie, 2009; Carlsson & Rooth, 2007; Stroh, Brett, & Reilly, 1992), and criminal sentencing (Bushway, & Piehl, 2001; Steffensmeier, Ulmer, & Kramer, 1998).

Reasoning along the same lines, Sidanius and Veniegas (2000) argued that the psychological underpinnings of this phenomenon might be found in studies of the psychology of prejudice and discrimination, detectable as a low-level form of intergroup aggression. They hypothesized that, at the psychological level, men should be expected to be more biased than women, particularly when the outgroup targets are men of a subordinate social group. Evidence consistent with this *subordinate male target hypothesis* can be found in survey data, where it has been reported that men

are, on average, more biased than women on explicit measures of race bias (Ekehammar, 1985; Ekehammar & Sidanius, 1980, 1982; Furnham, 1985; Marjoribanks, 1981; Sidanius, Cling, & Pratto, 1991; Sidanius & Ekehammar, 1980) and are more likely than women to endorse the goal of generalized intergroup dominance (e.g., Sidanius, Pratto, & Brief, 1995). Recent psychological studies investigating the role of target gender in eliciting bias suggest that the salience of male outgroup targets, relative to female outgroup targets, elicits greater bias with respect to criminal sentencing (Haley, Sidanius, Lowery, & Malamuth, 2004), employment opportunities (Arai, Bursell, & Nekby, 2008), intergroup competition (van Vugt, De Cremer, & Janssen, 2007), and the resistance to extinction of learned fear (Navarrete, Olsson, et al., 2009).

Although the findings across such studies are largely consistent with the predictions derived from the subordinate male target hypothesis, the evidence for the predicted target gender and agent gender effects is not always supportive. For example, in reports in which the gender of the outgroup target is manipulated, significant differences in levels of bias between male and female research participants are not always found (e.g., Haley et al., 2004; Navarrete, Olsson, et al., 2009). Likewise, reversed gender differences in bias (i.e., greater bias expressed by women compared with men) have been reported by some researchers (Fisman, Iyengar, Kamenica, & Simonson, 2008; Owens, Shute, & Slee, 2000; Stets & Straus, 1990). Such findings demonstrating that women can sometimes be at least as biased as men suggest that psychological processes other than those that have evolved via intrasexual competition among men may be operative in the expression of male-targeted bias. To address this lacuna, we submit that an evolutionary account of a *female-specific* psychology of intergroup bias may be warranted—and one that speaks to the underlying dispositional differences in fear and aggression that vary between individuals and vary between the sexes.

## Intersexual Selection and Intergroup Conflict

Among social psychological theories of prejudice and discrimination that are informed by an evolutionary perspective (Cottrell & Neuberg, 2005; Sidanius & Pratto, 1999; van Vugt et al., 2007), to our knowledge, none include an account of the evolutionary bases for a female-specific psychology of intergroup bias. As such, the framing of the evolved psychology of intergroup biases as a strictly male enterprise may not be warranted, and investigating the potential for a female-specific psychology of bias may provide a clearer picture of existing data and may generate new predictions. Toward this end, we provide an evolutionary account of a female-specific psychology of intergroup bias. Importantly, not only do we consider the evolutionary processes involving *intrasexual competition* among men, but we also consider the processes of *intersexual selection* that may operate on the conflict of sexual interests between men and women.

Far from having little to fear from intergroup conflict, women have much to lose from hostile contact with unfamiliar men—even if it is not necessarily their lives. Women have often been the victims of brutal sexual aggression in intergroup conflicts across history and societies (Thornhill & Palmer, 2000; Wrangham & Peterson, 1996). Instances of sexual aggression in animal societies, including among chimpanzees, are not uncommon, suggesting that

this phenomenon may have deep evolutionary roots. Accounts of wartime atrocities such as those that have occurred in Bosnia, Rwanda, Darfur, or the U.S. conflicts in Vietnam and Iraq are relatively recent instances that highlight the sexual brutality that women can be subjected to in intergroup contexts, typically as victims of aggressors who might be described as “normal” in their everyday lives (Malamuth, 1981).

Conflict in intergroup contexts can lower the perceived costs associated with harming others. This may be due to any combination of several social processes, including deindividuation in group activities, reduced accountability across group boundaries, and ethnocentric double standards in the activation of empathy or the determination of when normal rules of moral judgment apply. Regardless of the precise nature of the proximate psychological causes of sexual aggression by men, it is reasonable to assume that in intergroup contexts, unfamiliar men categorized as belonging to a group other than one’s own have historically posed greater risks of sexual assault against women than have familiar men of one’s own group. Research on sexual aggression across cultures suggests that societies in which men rarely aggress against women are the exception, not the norm (e.g., Broude & Green, 1978; Smuts, 1992), and that since ancient times, warfare has provided even greater affordances for sexual attacks on women (reviewed in Vikman, 2005). Given that violent intergroup conflict may have been even more common in prehistoric societies than has been the case in historical societies (Bamforth, 1994; Chagnon, 1996; Daly, & Wilson, 1988; Ember, 1978; Ghiglieri, 1999; Keeley, 1996; Knauff, 1987; Krech, 2002; Wrangham & Peterson, 1996), women may have faced a considerably high probability of sexual assault by men from groups other than their own (the outgroup). Over the course of a lifetime, this threat may have been staggeringly high if baseline differences in the amount of time spent in proximity among men of their own group (the ingroup) were held constant (sensu Daly & Wilson, 1997). Therefore, because control over reproductive choice is crucial for the higher investing sex (Trivers, 1972), intersexual selection acting on the conflict of reproductive interests between coercive men and discerning women may have favored a female-specific psychology that predisposed women to be both vigilant against sexual coercion and wary of outgroup men.

To be sure, there are potential fitness benefits to broadening the pool of mate choices to include mates of any social group. However, because reproductive choice is such a fundamental component of mammalian female fitness, if choice is more likely to be compromised by outgroup men relative to ingroup men, then a negativity bias characterized by avoidant fear of outgroup men might be under strong selection pressure and would be expected to evolve. But because such biases entail costs—such as attention, energy, and forgone mating opportunities—the strategy of avoiding outgroup men is not likely to be invariantly expressed. Rather, it should be expected to vary as a function of a woman’s appraised vulnerability to sexual coercion (Navarrete, Fessler, Santos Fleischman, & Geyer, 2009). That is, women who believe themselves to be particularly vulnerable to sexual coercion should also be most prone to prejudicial beliefs, attitudes, and negative emotional reactions to outgroup men. Therefore, in comparison to how intergroup bias is expressed among men (i.e., approach-oriented aggression), bias among women will be associated with an avoidant-oriented approach motivated by fear. This fear strategy would be reflected in a personality profile consistent with behav-

ioral vigilance—such as locking doors, avoiding nighttime walks, and maintaining social distance from unfamiliar men—but also with the chronic accessibility of thoughts related to the threat of sexual assault. Taken together, the above reasoning implies that a woman’s reported behavior and attitudes along these lines can be construed as a reflection of her appraised vulnerability to sexual coercion—a psychological dimension we predict should be correlated with bias against outgroup male targets.

### An Outgroup Male Target Hypothesis

In clarifying the evolutionary assumptions of current evolutionary accounts of intergroup bias, we affirm a core feature of the subordinate male target hypothesis (Sidanius & Veniegas, 2000), in that we expect men to be the primary targets of negativity in most intergroup contexts. However, we make a key qualification, such that we expect both sexes to be implicated in its expression and that such expressions will reflect different underlying motivations. Because men have a higher benefit to cost ratio in terms of reproductive success by intergroup competition, male bias at the psychological level will map most closely onto the logic of costly, competitive, and aggressive group conflict. On the other hand, because women have less to gain from intergroup conflict but are more vulnerable to sexual coercion in intergroup contexts, female bias is more likely to be characterized by a psychology of avoidant fear.

Importantly, the present research investigates the notion that aggression is used differently between men and women as a motivator of bias and that it is primarily the purview of men with the chronically salient goal of dominating outgroups. Our reasoning for predicting this interaction is as follows: To the extent that negativity toward outgroups is construed as an aggressive enterprise, it is also a potentially costly one. As such, the association between physical aggression and intergroup bias is expected to be strongest among those who stand to gain the most out of intergroup conflict—namely, men. However, because aggression is not likely to be a motive in itself but rather is used as an instrumental means to an end (Berkowitz, 1993; Betzig, 1993; Gilbert, 1994; Scott, 1992), it is expected to be most strongly tied to bias when men are motivated by the goal of dominating outgroups. That is, when intergroup domination is a chronically salient goal, a man’s appraised aggressive formidability as the adaptive means to that goal should be most strongly predictive of intergroup bias. Therefore, we expect that physically aggressive behavior should be a predictor of bias primarily among men when group dominance motives are high. This is not to say that we predict no relationship among these variables for women but rather that on the basis of the evolutionary logic described above, we have no prediction. As such, we have cause to predict that the interaction between aggressive behavior and social dominance motives should be most strongly, consistently, and positively fused with bias against outgroup male targets among male research participants.

The clarification of the basis of the evolutionary logic underlying the gendered nature of intergroup bias may be sufficient to do away with the expectation that the psychology of prejudice be solely a male affair. To be sure, we affirm the expectation that men should typically be the primary target of negativity to outgroups and expect that men should be expected to be more aggressively biased, but we make no claim as to which sex should be more biased in general. To frame our predictions for the current re-

search, we propose an outgroup male target hypothesis that states that *intergroup bias is primarily directed at males and is motivated by separate psychological systems between men and women that reflect the selection pressures that shaped these systems*. To the extent that mental representations of race employ fundamental categories of ingroup and outgroup, we derive three predictions that are tested in the studies described in this article. These are (1) males are the primary targets of race bias; (2) aggression forms the basis of race bias among men, particularly when the goal of dominating outgroups is chronically salient; and (3) fearfulness—particularly as a result of a perceived vulnerability to sexual coercion—forms an important basis of race bias among women.

In Study 1 we demonstrate the role of target and participant gender in the expression of race bias in which ingroup and outgroup distinctions are bifurcated along gender lines in a punitive allocation task (Predictions 1 and 2). In Study 2 we explore the moderating roles of gender, aggression, and group dominance motives on explicit race bias and voting preferences (Prediction 2). In Study 3 we examine the female-specific psychology of race bias by examining the relationship between perceived vulnerability to sexual coercion on the one hand and explicit race bias and negativity toward black men on the other (Predictions 1 and 3). Finally, in Study 4 we combine these investigations in a fear-conditioning paradigm using intergroup stimuli and demonstrate how fear, aggression, and group dominance motives operate differently between men and women (Predictions 1, 2, and 3).

### Study 1

Given the dynamics of intergroup aggression as a costly enterprise, when considering its applications to the expression of race or ethnic bias, we expect that discrimination will be primarily a male–male enterprise in competitive situations in which negativity toward outgroup male targets is characterized by spiteful aggression at a cost to oneself or one's group. In Study 1, we measure this tendency in a spiteful allocation task using a Tajfelian-type allocation matrix (for a similar use of these matrices, see Sidanius, Haley, Molina, & Pratto, 2007). On our particular measure, participants allocated a punitive levy between an ingroup and an outgroup in which, at one extreme, participants could elect to minimize the punishment to their own group by allowing an outgroup to be punished less heavily. At the other extreme, they could elect to punish the outgroup more heavily than the ingroup but at cost to their own group. Following Sidanius and Pratto (1999), we labeled this preference for spiteful allocation a *Vladimir's Choice*—so named after the Russian peasant who is said to have been granted a wish by God and, when told that his wish would be bestowed twofold to his neighbor, asked that his left eye be gouged out. We predicted that a Vladimir's Choice will most likely occur when (a) the allocator is a man and (b) the target group toward which allocations are made is composed of all men.

### Method

**Participants.** Participants were undergraduates at the University of California, Los Angeles, who participated for a payment of \$8 in a study described as a survey of personality, social attitudes, and resource allocations. Of participants who initially volunteered, the ethnic breakdown was Latino American ( $n = 48$ ), Euro-

American ( $n = 23$ ), Asian American ( $n = 20$ ), and African American ( $n = 5$ ). After removing responses from participants who failed to complete all questionnaire items, we analyzed data for 62 women and 31 men. Participants ranged in age from 18 to 43 years ( $M = 20.6$ ,  $SD = 3.7$ ), with 95% of participants under the age of 24.

**Materials and procedure.** Upon arrival at the lab, participants were given a packet containing a series of questionnaires and an allocation matrix that varied depending on the experimental condition: (a) In the male target condition, allocations were made between male ethnic ingroup organizations and male ethnic outgroup organizations; (b) in the female target condition, allocations were made between female ethnic ingroup organizations and female ethnic outgroup organizations.

**Vladimir's Choice.** Participants completed an allocation matrix in which they were asked to weigh in on the imposition of fines to student organizations bifurcated along the lines of ethnicity, described as predominantly “White American” versus “Ethnic American.” Participants were given a scenario in which the regents of the University of California were forced to extract money from student organizations on campus because of a budget crisis, and the student could choose how the fee allocations would be distributed between groups. Participants could distribute monetary assessments equally (\$13,000 fine to each group), or they could choose from among a range of options that, at one extreme, minimized the cost to the ingroup (\$7,000) but also minimized the cost to the outgroup (\$1,000) to an even greater degree. At the other extreme, participants could make a Vladimir's Choice, which would maximize the penalty to the outgroup (\$25,000), but this would mean the ingroup would incur a larger cost as well (\$19,000). Response options ranged from  $-6$  (minimizing penalties) to  $+6$  (Vladimir's Choice), with allocation equity anchored at the zero midpoint.

### Results and Discussion

To test whether the tendency toward a Vladimir's Choice was most likely when the ingroup and outgroup targets were composed of men, we computed a  $2 \times 2$  (Gender of Target  $\times$  Gender of Participant), between-subjects analysis of variance. Consistent with predictions, the results revealed that the Vladimir's Choice was significantly greater in the male ingroup/outgroup situation ( $M = 0.59$ ,  $SE = 0.35$ ) than in the female ingroup/outgroup situation ( $M = -0.45$ ,  $SE = 0.35$ ),  $F(1, 89) = 4.39$ ,  $p < .05$ ,  $\eta_p = .22$ , and that male participants showed greater levels of discrimination ( $M = 0.58$ ,  $SE = 0.40$ ) than did female participants ( $M = -0.43$ ,  $SE = 0.29$ ),  $F(1, 89) = 4.15$ ,  $p < .05$ ,  $\eta_p = .21$ . More importantly, both of these main effects were qualified by the presence of a two-way interaction between participant gender and target gender,  $F(1, 89) = 7.05$ ,  $p < .01$ ,  $\eta_p = .27$ , such that a Vladimir's Choice was strongest when male participants were confronted with the ingroup/outgroup male situation ( $M = 1.75$ ,  $SE = 0.56$ ) and weakest when faced with the ingroup/outgroup female situation ( $M = -0.60$ ,  $SE = 0.58$ ). Exploring this interaction further, we found that within-gender contrasts revealed a significant bias among men,  $F(1, 89) = 8.80$ ,  $p < .01$ , but not among women,  $F(1, 89) < 1$ . No differences for ethnicity of participants were found. Figure 1 shows a graphical representation of these results.

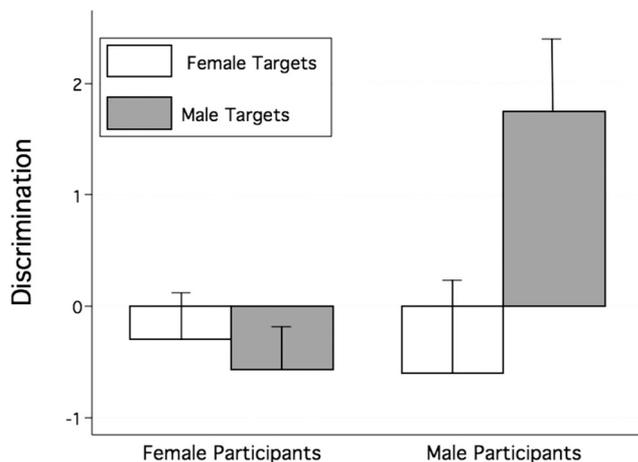


Figure 1. Discrimination between punishment of ingroup and outgroup targets as a function of participant gender and target group gender.

In sum, consistent with expectations, men showed evidence of spiteful interethnic discrimination in a punitive allocation task when faced with male groups but not when faced with female groups. Among women, discrimination was unrelated to target gender and was not significantly different between ingroup and outgroup.

## Study 2

Study 2 was designed to extend the evidence that intergroup bias characterized by aggression and group dominance motives is stronger among men than women. In doing so we adopted the Attitudes Toward Blacks Scale (Brigham, 1993), a widely used measure of explicit race bias against Black Americans that has strong ties to a host of personality, social, and political attitudes. We complemented this widely used scale with a more subtle measure of race bias: evaluations of Barack Obama along a positive/negative dimension. We chose to use evaluations of Obama as a dependent measure because the demonstrated link between political attitudes and the motivation to dominate outgroups (e.g., Pratto, Sidanius, Stallworth, & Malle, 1994) suggests that the psychology of prejudice is relevant to political psychology and thus “real-world” political attitudes and behavior. Likewise, evaluations of Obama would allow us to triangulate on race bias in a way that is less likely to invoke psychological processes that give rise to self-presentational confounds in responses—a limitation of most explicit race bias measures.

With respect to practical implications, there is reason to believe that race still plays a major role in national elections, despite the gains made in recent years in terms of race inequities in political representation (Citrin, Green, & Sears, 1990; Hajnal, 2006). For example, although 2008 presidential election exit polls showed a majority of voters preferred Obama to John McCain by about 53% to 46%, the results were, in part, due to the high turnout of voters from minority racial groups, whose votes were clearly bifurcated along racial lines. CNN reported that voters from non-White racial groups overwhelmingly preferred Obama, ranging from 60% to 95% (depending on the group) but that only 43% of White voters voted for Obama (CNN, 2008). Importantly for the issue at hand,

among White voters, Obama was least preferred by White men (41%) compared with White women (46%). In sum, political attitudes toward Obama are bifurcated along racial group and gender lines that are consistent with our framework and provide a reliable real-world outcome variable to complement our investigations on how intergroup bias may be generated by separate psychological systems between men and women.

Within this context, we predicted that explicit race bias and negative evaluations of Obama would be predicted by the interaction of aggression and social dominance motives but that this would be primarily true of men rather than women.

## Method

**Participants and procedure.** Participants were 967 initial volunteers, recruited from the Michigan State University psychology participant study pool, advertisements posted to online classified pages, psychology-related websites, and mass e-mails. The survey was described as a study on personality, social attitudes, and perceptions of Barack Obama. Data were removed for participants who (a) were minors, (b) were not White U.S. citizens, (c) were not registered voters, (d) could not identify Obama in a photo, and (e) did not agree to the item “I answered all items honestly.” Analyses include observations from 167 men and 521 women ages 18–76 years ( $M = 23.74$ ,  $SD = 10.34$ ). One hundred eighty-three respondents were nonstudents. Embedded within the survey were the following measures used for our analyses.

### Dependent measures.

**Explicit race bias.** Five items from the Attitudes Toward Blacks Scale (Brigham, 1993) were presented to participants (e.g., “Generally, Blacks are not as smart as Whites,” “It is likely that Blacks will bring violence to neighborhoods when they move in”), with responses recorded on a 7-point scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), anchored at both poles ( $M = 2.19$ ,  $SD = 1.15$ ; Cronbach’s  $\alpha = .77$ ).

**Negative evaluations of Obama.** Four items from the Interpersonal Judgment Scale (IJS; Byrne, 1971) were used to measure participants’ evaluative assessment of Obama. The items required that participants rate Obama on the dimensions of likeability, intelligence, knowledge, and morality. Responses were measured on a 7-point scale ranging from 1 (*Not at All*) to 7 (*Very*) and including the relevant descriptors (e.g., *Likeable*, *Intelligent*), anchored at both poles ( $M = 5.58$ ,  $SD = 1.39$ ;  $\alpha = .89$ ). For ease of interpretation, these values were reverse-coded for our analyses, such that higher values denoted more negative evaluations of Obama ( $M = 2.42$ ,  $SD = 1.39$ ).

### Predictor variables.

**Aggressive behavior.** The physical aggression subscale (Items 1–9) from the Buss–Perry Aggression Questionnaire (A. H. Buss & Perry, 1992) was used to assess participants’ history of aggressive behavior. Sample items include (a) “I get into fights a little more than the average person.” (b) “If somebody hits me, I hit back.” Items were assessed on a 7-point response scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*;  $M = 2.79$ ,  $SD = 1.19$ ;  $\alpha = .85$ ).

**Social dominance.** The desire for group-based social dominance was measured with the first eight items from the 16-item Social Dominance Orientation scale (Pratto et al., 1994). *Social dominance orientation* (SDO) is defined as one’s preference for

group-based dominance hierarchies, with the first eight items tapping the goal of dominance of one's own group over others (Jost & Thompson, 2000). Sample items from this subscale include "In getting what your group wants, it is sometimes necessary to use force against other groups" and "To get ahead in life, it is sometimes necessary to step on other groups." Responses were measured on a 7-point scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*;  $M = 2.23$ ,  $SD = 1.21$ ;  $\alpha = .91$ ).

## Results and Discussion

Bivariate correlations between our predictor and dependent variables are displayed in Table 1. The analyses showed that gender (0 = male, 1 = female), aggression, and SDO were correlated with explicit race bias and negative evaluations of Obama.

To test the prediction that aggression would be related to explicit, anti-Black attitudes among male research participants, and that this relationship would be moderated by the goal of intergroup dominance, we conducted a regression analysis in which explicit attitudes was the dependent variable and gender, aggression, SDO, and their product terms were the predictor variables. Following Aiken and West (1991), we grand-mean-centered the continuous variables.

The results of the regression analysis (see Table 2) revealed a significant three-way interaction between gender, aggression, and SDO, such that the interaction of aggression with SDO led to greater bias among men, relative to women. Importantly, the three-way interaction was accompanied by a predicted, positive two-way interaction between aggression and SDO among men,  $F(1, 680) = 5.15$ ,  $p = .02$ , but not among women ( $F < 1$ ). In decomposing the nature of the predicted two-way interaction among men, we assessed simple effects at high and low levels of SDO ( $\pm 1.5 SD$  above and below the grand mean), which revealed that aggression led to greater bias when SDO was high ( $\beta = .29$ ,  $SE = .11$ ),  $F(1, 680) = 6.98$ ,  $p = .008$ , but not when SDO was low ( $F < 1$ ). Figure 2 provides a graphical representation of these results.

We then examined negative evaluations of Obama using the same regression model just described (see Table 2). Consistent with expectations, the results revealed a significant three-way interaction between gender, aggression, and SDO that reflected the predicted, positive two-way interaction for aggression and SDO among male participants,  $F(1, 680) = 5.55$ ,  $p = .02$ . The interaction for women was nonsignificant,  $F(1, 680) = 3.00$ ,  $p = .08$ , and

in the opposite direction. Simple effects assessed when SDO levels were high ( $\beta = .15$ ,  $SE = .11$ ),  $F(1, 680) = 1.69$ ,  $p = .19$ , and low ( $\beta = -.27$ ,  $SE = .15$ ),  $F(1, 680) = 1.77$ ,  $p = .08$ , did not quantitatively reveal the precise nature of the predicted interaction among male participants, but a graphical inspection of the results (see Figure 3) revealed a pattern clearly consistent with expectations.

In sum, these results are consistent with the notion that intergroup bias is motivated by separate psychological systems in men and women, because the fusion of aggression with group dominance motives led to significantly greater negativity toward Blacks in general and significantly greater negativity toward Obama in particular, but only among male research participants. Our third study complements these findings by addressing the flip side of our model of intergroup bias: avoidant fear.

## Study 3

In Study 3 we investigate the female-specific psychology of prejudice by complementing the domain-general Attitudes Toward Blacks Scale with a measure that was targeted to our predictions regarding the specificity of bias against men of a racial outgroup and the specificity of a woman's perceived vulnerability to sexual coercion (VSC) as a predictor of bias against them. Along these lines, we predicted that in a university sample of college-age women (a) explicit bias against Black Americans in general and fear of Black men in particular will be predicted by the perceived VSC; (b) Black men will be more feared than Black women, White men, or White women; and (c) the relationship between perceived VSC and fear of Black men will be predictive above and beyond that which could be expected from a domain-general fear orientation not specific to fear of sexual coercion.

## Method

**Participants and procedure.** Data were analyzed for 248 White American women who volunteered through Michigan State University's psychology study participant pool for an investigation described as a study on social attitudes. Participants were excluded from analyses if they failed to complete all relevant items. Participants ranged in age from 18 to 38 years ( $M = 19.15$ ,  $SD = 1.68$ ) and participated in groups of three to five individuals. Measures were assessed electronically with the computer program MediaLab (Jarvis, 2006). Item presentation order was randomized within and between measures, with items blocked by measure.

### Predictor variables.

**VSC.** Self-appraised VSC was measured via self-report of behavior and attitudes. Senn and Dzinis' (1996) 30-item Fear of Rape Scale was designed to tap a psychological dimension related to clinical descriptions of a female-specific syndrome (Holgate, 1989) consisting of fear reactions to specific situational cues that denote vulnerability to rape, the wariness or suspicion of men, and chronic worries about the possibility of future sexual victimization. For these reasons, the scale is a good fit for the goals of the present research, because it includes a mixture of items assaying past behavioral vigilance (e.g., "Before I go to bed at night I double check to make sure the doors are securely locked"), behavioral intentions in hypothetical situations (e.g., "If I was waiting for an elevator and it arrived with one man alone inside, I would wait for

Table 1  
*Correlations Between Aggression/Social Dominance and Explicit Race Bias in Study 2*

Variable	1	2	3	4	5
1. Gender	—				
2. Explicit race bias	-.18**	—			
3. Negativity to Barack Obama	-.14**	.45**	—		
4. Aggression	-.44**	.23**	.07	—	
5. SDO	-.16**	.54**	.31**	.34**	—

Note. Gender (0 = male, 1 = female). SDO = social dominance orientation.

\*\*  $p < .001$ .

Table 2  
Regression Analyses Predicting Explicit Race Bias and Negativity Toward Barack Obama in Study 2

Variable	Explicit race bias			Negativity toward Obama		
	<i>b</i>	<i>SE</i>	$\beta$	<i>b</i>	<i>SE</i>	$\beta$
Gender	-0.12	0.10	-.05	-0.27	0.16	-.08
SDO	0.38**	0.08	.40	0.26*	0.12	.23
Aggression	0.10	0.08	.11	-0.07	0.12	-.06
Gender $\times$ SDO	0.10	0.09	.08	0.07	0.13	.05
Gender $\times$ Aggression	-0.14	0.09	-.11	-0.06	0.11	-.04
SDO $\times$ Aggression	0.09*	0.04	.14	0.13*	0.06	.17
Gender $\times$ SDO $\times$ Aggression	-0.13*	0.07	-.13	-0.20*	0.07	-.17

Note. Gender (0 = male, 1 = female). SDO = social dominance orientation.  
\*  $p < .05$ . \*\*  $p < .001$ .

the next one”), and the endorsement of explicit statements with face-valid interpretations (e.g., “I am wary of men” and “I am afraid of being sexually assaulted”). Research participants noted the extent to which they agreed or disagreed with each item on a 7-point scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*;  $M = 4.30$ ,  $SD = 0.78$ ;  $\alpha = .90$ ).

**Domain-general fear.** To assess domain-general fear, we used the Fear Survey Schedule-II (Geer, 1965), a 51-item measure that taps fear toward various aversive stimuli and situations (e.g., sharp objects, spiders, rats and mice, crowded places, strange dogs). One item (“... being with a member of the opposite sex”) was removed because of its similarity to items on the Fear of Rape Scale. Responses were measured on a 7-point scale ranging from 0 (*No Fear*) to 6 (*Terror*), with higher values denoting greater domain-general fear ( $M = 3.5$ ,  $SD = 0.68$ ;  $\alpha = .92$ ).

**Dependent variables.**

**Explicit race bias.** Explicit race bias against Black Americans in general was assessed with the Attitudes Toward Blacks Scale (Brigham, 1993) described in Study 2 ( $M = 2.76$ ,  $SD = 0.93$ ;  $\alpha = .90$ ).

**Fear of outgroup men.** Fear toward men of a racial outgroup was measured with a scale composed of these four items: (a) “I’m

afraid of Black men,” (b) “Black men are dangerous,” (c) “Black men are aggressive,” and (d) “Black men are violent.” The scale ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), and reliability was high ( $M = 2.85$ ,  $SD = 1.45$ ;  $\alpha = .94$ ). As a check that we would assess fearfulness specific to Black men and not features of the target group shared by other categories (e.g., Black women or White men), we presented three additional scales identical to the first, with the exception that the words *Black men* were replaced with *Black women* ( $M = 2.32$ ,  $SD = 1.21$ ;  $\alpha = .90$ ), *White men*, ( $M = 1.97$ ,  $SD = 0.98$ ;  $\alpha = .87$ ), and *White women* ( $M = 1.52$ ,  $SD = 0.67$ ;  $\alpha = .80$ ).

**Results and Discussion**

We tested our prediction that explicit bias against Black Americans in general and fear of Black men in particular will be predicted by one’s perceived VSC by examining the bivariate correlations among them. Results were consistent with expectations, such that explicit race bias and fear of Black men rose as a function of increased VSC (see Table 3).

We tested our prediction regarding the specificity of outgroup male fear by contrasting the mean scores between fear of Black

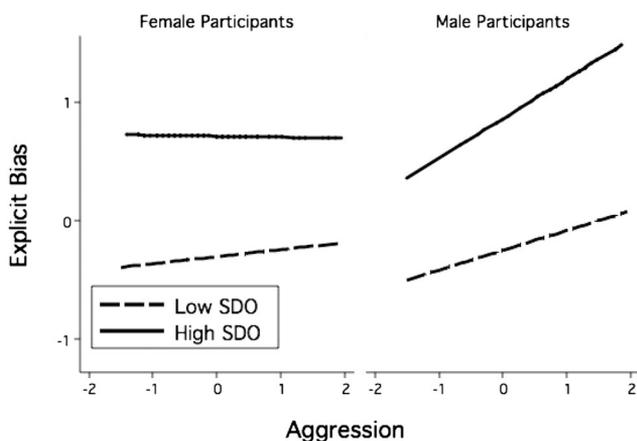


Figure 2. Explicit race bias as a function of gender, social dominance orientation (SDO), and aggression. SDO is separated above and below the top quartile for visualization purposes.

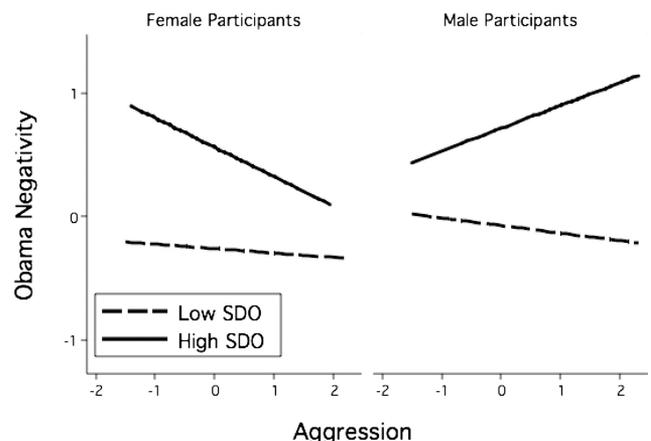


Figure 3. Negative evaluations of Barack Obama as a function of gender, social dominance orientation (SDO), and aggression. SDO is separated above and below the top quartile for visualization purposes.

Table 3  
Correlations Between Gender/Race and Vulnerability to Sexual Coercion in Study 3

Variable	1	2	3	4	5	6
1. VSC	—					
2. Explicit race bias	.14*	—				
3. Fear of Black men	.25***	.64***	—			
4. Fear of White men	.08	.23**	.46***	—		
5. Fear of Black women	.15*	.60**	.83***	.48***	—	
6. Fear of White women	.00	.18**	.26***	.75***	.38***	—
7. General fear	.35***	.19**	.29***	.12	.26***	.07

Note. VSC = vulnerability to sexual coercion.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

men on the one hand and the other three target groups on the other. One-sample  $t$  tests revealed that Black men were evaluated as more fear-including than were Black women,  $t(247) = 10.19$ ,  $p < .0001$ , White men  $t(247) = 10.40$ ,  $p < .0001$ , and White women,  $t(251) = 13.50$ ,  $p < .0001$ .

We then tested the idea that the relationship between VSC and fear of Black men would be stronger than the relationship between VSC and fear of the other race/gender targets by comparing the slope of VCS and fear of Black men with the VSC slopes for the other targets (see Table 3 for bivariate slopes). Contrasts conducted on the slopes from a multivariate regression in which the race/gender fear scores were the dependent variables and VSC was the predictor revealed that the relationship between VSC and fear of Black men was stronger than the relationship found for Black women,  $F(1, 246) = 7.67$ ,  $p = .006$ , White men,  $F(1, 246) = 6.93$ ,  $p = .009$ , and White women,  $F(1, 246) = 11.06$ ,  $p = .001$ .

Finally, we tested the prediction that the relationship between VSC and the target-specific fear of Black men would be predictive above and beyond what should be expected from domain-general fear. To do so, we added participants' scores on the Fear Survey Schedule-II to the regression model so that we would be able to examine the extent to which fear of Black men was uniquely predicted by VSC when domain-general fear was held constant.

Consistent with expectations, the results revealed that VSC uniquely predicted fear of Black men ( $\beta = .17$ ,  $SE = .06$ ),  $F(1, 245) = 7.29$ ,  $p = .007$ , even when the effect of general fear ( $\beta = .23$ ,  $SE = .06$ ),  $F(1, 245) = 12.24$ ,  $p = .0006$ , was held constant. This was not true of the slope for VSC and fear of Black women, which was no longer significant ( $\beta = .07$ ,  $p = .31$ ), once the confounding effect for domain-general fear ( $\beta = .17$ ,  $SE = .06$ ),  $F(1, 245) = 7.29$ ,  $p = .007$ , was held constant. No changes in the nonsignificant slopes for White men and women were found.

The results of this study demonstrated that women who perceived themselves as being vulnerable to the threat of sexual coercion reported significantly greater race bias against a racial outgroup in general and toward men of the outgroup in particular. The domain-specific nature of the relationship between fear of sexual coercion and fear of outgroup men was affirmed when individual differences in domain-general fear were held constant. We consider the results of the analyses using domain-specific variables telling and illustrative of the evolved psychology of intergroup bias among women, because it is men and not women of the outgroup who pose the greatest threat to women's reproductive choice with respect to sexual coercion.

Study 4 provides a synthesis of Studies 2 and 3 by investigating the underlying mechanisms of male and female race bias within a single sample of both White and Black Americans. In doing so, we use the previously discussed perspectives on the relationships between aggression, social dominance, gender, and fear of coercion using a unique measure of implicit race bias: anxious arousal in a fear-conditioning paradigm.

#### Study 4

Researchers have demonstrated that anxious responses conditioned to danger-relevant stimuli such as poisonous animals or predators resist extinction, whereas responses toward danger-irrelevant stimuli such as ducks or butterflies are more readily extinguished (Öhman & Mineka, 2001). Such domain-specific learning biases are said to be "prepared" toward stimuli with which primates have had sufficient exposure over evolutionary time for natural selection to affect the neural circuitry underlying associative learning. This psychological system can then give rise to functional behavioral responses, such as avoidance or elimination of stimuli to which one has had aversive experiences, thereby avoiding future harm (Seligman, 1971).

There is evidence that infants demonstrate decreased stranger anxiety toward women compared with men (Freedman, 1961; Greenberg, Hillman, & Grice, 1973), suggesting that even in the early months of human development, the psychological system underlying adaptive learning may be sensitive to sex-differentiated patterns of aggression. Recently, researchers have begun applying this framework to understanding the persistence of learned fear toward racial outgroups. For example, Olsson, Ebert, Banaji, and Phelps (2005) demonstrated that conditioned fear toward facial displays of individual exemplars of a racial outgroup resist extinction, whereas conditioned fear toward ingroup exemplars readily fade. Navarrete, Olsson, et al. (2009) extended these findings by demonstrating that conditioned fear toward faces of outgroup exemplars resists extinction solely when the outgroup targets are male and not female. In both studies, the results held for both White and Black American research participants toward the corresponding outgroup target.

In both fear-conditioning studies just described, biased fear extinction did not differ by race or gender of the participant, and given our theoretical framework described here, these null results are not surprising. With respect to race, we argue that, although intergroup bias may have deep evolutionary roots, modern race

prejudice is but an epiphenomenon of the underlying evolved psychology. As such, race, per se, is but a historically contingent category that, when mapped onto more primitive categories of ingroup and outgroup, can tap into the underlying evolved architecture of intergroup bias (cf. Gil-White, 2001), within which we do not predict differences between Black and White Americans. The lack of gender differences is also not surprising because of the nature of the dependent measure in the reported results of Olsson et al. (2005) and Navarrete, Olsson, et al. (2009): anxious arousal measured via skin conductance in a fear-conditioning paradigm. Because anxious arousal can result from a number of eliciting events, both men and women could be equally aroused but for different reasons. It could be that men are becoming aroused because their bodies are being readied for aggressive conflict, whereas women's bodies are aroused because they are preparing to flee or resist aggression.

In Study 4, we test this interpretation by conducting new analyses on the data reported in Navarrete, Olsson, et al. (2009) along the lines of the theoretical and methodological framework advanced in the present article. Namely, we test our model of the interactive nature of gender, social dominance, aggression, and fear on the persistence of anxious arousal in a fear-conditioning paradigm. In doing so, we predicted that anxious arousal engendered by aversive conditioning to ingroup and outgroup exemplars would persist more strongly (i.e., be resistant to extinction) among men scoring high on aggression and social dominance, as well as among women scoring high on perceived VSC.

## Method

**Participants.** Data were analyzed for 143 White and 25 Black U.S. citizens from the psychology study pools at Harvard University ( $n = 74$ ) and Michigan State University ( $n = 94$ ). Volunteers were composed of 96 women and 72 men who were students, university staff, or community members (age range: 18–61 years;  $M = 21.7$ ,  $SD = 7.2$ ). Participants received course credit or were paid \$20 to participate in “a study that explores the mind-body connection in response to social groups.” Stimuli and experimental protocol were identical across both samples.

**Procedure.** Upon arrival in the lab, participants completed an electronic pretest that included the predictor measures described in the next section. Following the pretest, participants were escorted to a small room where they were fitted with skin-conductance electrodes to the fingers on the left hand and shock electrodes to the right wrist. Shock amplitude was calibrated to a level assessed by the participant as “uncomfortable, but not painful.”

Participants were then assigned to one of two conditions in a delayed fear-conditioning protocol (Olsson et al., 2005) in which a computer monitor displayed images of Black and White faces that were either all male (male target condition) or all female (female target condition). Each image was presented for 6 s once per trial across three habituation trials, five acquisition trials, and six extinction trials while skin-conductance responses (SCRs) were being recorded. During the acquisition phase, one image from each target-race category (the reinforced conditioned stimulus, CS+) was paired with an electrical shock and a burst of white noise (90 dB), together constituting the unconditioned stimulus (US). Another image from each category (the unreinforced conditioned stimulus, CS-) was presented without the US. During the extinc-

tion phase that immediately followed, stimuli were presented without the US. The largest SCR that occurred as each stimulus was presented was used to calculate the conditioned responses for each trial. Conditioned responses were measured as the differential SCR in squared microsiemens ( $\mu\text{S}$ ) between the CS+ and the CS- from the same category, so as to minimize preexisting differences in the emotional salience of any given image as a potential confound. Further details, including raw means for each category within each learning phase, are provided in Navarrete, Olsson, et al. (2009).

**Predictor variables.** As in Study 2, aggression and group dominance motives were assayed with the Buss-Perry aggression scale ( $M = 2.89$ ,  $SD = 1.25$ ;  $\alpha = .88$ ) and the SDO scale ( $M = 2.29$ ,  $SD = 1.10$ ;  $\alpha = .90$ ). Perceived VSC was measured with the Fear of Rape Scale ( $M = 3.32$ ,  $SD = 1.14$ ;  $\alpha = .95$ ) described in Study 3.

### Dependent measure.

**Extinction bias.** Resistance to extinction was defined as the conditioned response, measured via SCR toward ingroup and outgroup exemplars that persisted across the last five phase trials of the fear-conditioning protocol: the extinction phase. Outgroup exemplars were presented as images of Black Americans if the participant was White and images of White Americans if the participant was Black (vice versa for ingroup exemplars).

Bias in the resistance to extinction of anxious arousal to ingroup and outgroup exemplars was measured as the average extinction phase response to the outgroup category minus the average extinction phase response to the ingroup category. Doing so controlled for the general effect of conditionability among participants. Extinction bias was thus calculated as the differential extinction response between ingroup and outgroup targets.

## Results and Discussion

A group mean comparison between conditions revealed a significant difference in extinction bias between participants in the male target condition ( $M = 0.07$ ,  $SD = 0.25$ ,  $n = 85$ ) and those in the female target condition ( $M = -0.01$ ,  $SD = 0.29$ ,  $n = 83$ ), such that the extinction bias between ingroup and outgroup targets was greater when the targets were all male,  $t(166) = 2.04$ ,  $p = .04$ . No effects for participant gender or race were found within each condition, but an unpredicted main effect for gender emerged across conditions, revealing that women showed slightly higher levels of extinction bias than did men ( $M$  difference = 0.08,  $SE = 0.04$ ),  $t(166) = 2.04$ ,  $p = .04$ .

Inspection of the bivariate correlations between extinction bias by condition and the predictors of VSC, aggression, SDO, participant age, race, and gender revealed no significant results. However, when the data were further decomposed by participant gender, the predicted relationship between VSC and extinction bias in the male target condition was found for women ( $r = .31$ ,  $p = .03$ ). A nonsignificant, negative relationship was found for men ( $r = -.29$ ,  $p = .08$ ). As expected, no relationships for VSC and extinction bias were found for either male or female participants in the female target condition.

In testing the prediction that the extinction bias in the male target condition would rise as a function of aggression and social dominance motives for men, we conducted a multiple regression analysis in which biased extinction toward male targets was the

dependent variable, whereas gender, aggression, SDO, and their cross-products were the independent predictors.

Consistent with expectations, a significant three-way interaction between participant gender, aggression, and SDO emerged, revealing that the interaction between aggression and SDO led to greater extinction bias toward male targets among male participants, relative to female participants (see Table 4 for regression results). Importantly, this interaction was supported by a predicted, two-way interaction between aggression and SDO for men,  $F(1, 72) = 7.61, p = .007$ . The interaction was nonsignificant for women,  $F(1, 72) = 3.38, p = .07$ , and in the opposite direction. Decomposing the nature of the predicted interaction, we assessed simple slopes at high and low levels of SDO ( $\pm 1.5 SD$ ) and found that aggression led to greater extinction bias among men when SDO was high ( $\beta = .09, SE = .04, F(1, 72) = 4.62, p = .03$ , but not when it was low ( $F < 1$ ; see Figure 4). A separate regression model for the female target condition yielded no significant effects (see Table 4), affirming that these effects were specific to anxious arousal that was conditioned toward male targets only.

**General Discussion**

Using several measures of bias, across four studies we found that race bias is targeted primarily toward male targets and that such bias is generated by distinct individual difference variables between men and women. In two studies, we found results consistent with the notions that the fear of sexual coercion motivates bias against outgroup male targets among women and that aggression and social dominance motivates bias against outgroup male targets among men. These notions are consistent with current perspectives that conceptualize aggression as a means to an end of broader social goals (e.g., Cottrell & Neuberg, 2005) and that this goal can include domination of the racial outgroup.

These results underscore the importance of studying the psychology of race bias as both an intergroup phenomenon and a gendered phenomenon—and in terms of both the targets of bias and its agents. These results also highlight the need for further exploration of approach-oriented responses to outgroup threat, such as aggression and social dominance, and not only avoidant responses. The latter point suggests the potential for a fresh look into the underlying mechanisms that generate prejudice and discrimination, including a balanced view of discrimination that includes not only avoidant motives but active, agentic approach

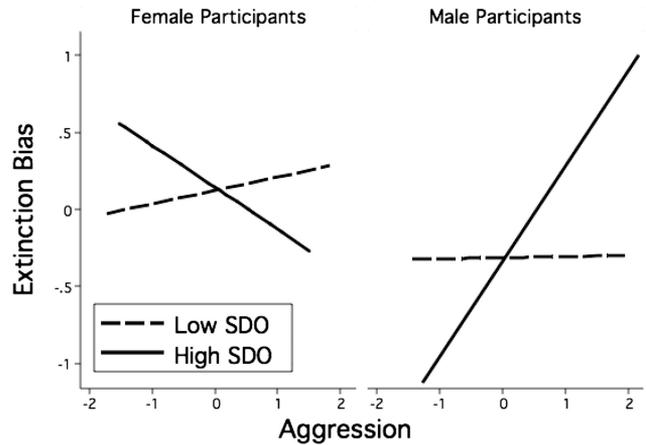


Figure 4. Extinction bias in the male target condition as a function of gender, social dominance orientation (SDO), and aggression. SDO is separated above and below the top quartile for visualization purposes.

motives. Given that recent neurophysiological studies have implicated the amygdala in the expression of race bias (Phelps et al., 2000), our results (particularly Study 4) raise the question of whether the syndrome that includes race prejudice, ethnocentrism, and xenophobia is motivated by fear or some other kind of negative emotional state associated with subcortical neural activation. For individuals of any species, an aversive encounter with a threatening agent often leads to fear and avoidance. However, for those with the self-appraised ability to meet the challenge, such threats may evoke the motivation to retaliate, aggress against, and eliminate the offending agent. As such, the dispositional traits of fearfulness, aggression, and social dominance measured in the present study may have their roots in phylogenetically ancient emotional states that affect the computations generating responses that fit the individual on the basis of the potential for adaptive outcomes. This phenomenon is found in many animal societies, in which solutions to threats include fleeing or hiding for most individuals, whereas dispatching the threat is the purview of the more formidable adult male members of the group (Rowell, 1974; van Shaik & Noordwijk, 1989). Such strategies may fulfill proximate motives for status and reputation, which may ultimately have

Table 4  
Regression Analyses Predicting Fear Extinction Bias Between Ingroup and Outgroup Targets in Study 4

Variable and interaction	Male target condition			Female target condition		
	<i>b</i>	<i>SE</i>	$\beta$	<i>b</i>	<i>SE</i>	$\beta$
Gender	0.13*	0.07	.28	0.09	0.06	.18
SDO	-0.04*	0.02	-.21	0.00	0.04	.01
Aggression	0.03	0.03	.16	-0.02	0.04	-.08
Gender $\times$ SDO	0.03	0.03	.10	-0.02	0.04	-.05
Gender $\times$ Aggression	-0.06	0.04	-.22	0.02	0.05	.08
SDO $\times$ Aggression	0.03*	0.01	.16	-0.05	0.02	-.27
Gender $\times$ SDO $\times$ Aggression	-0.08*	0.03	-.32	0.01	0.03	-.04

Note. Gender (0 = male, 1 = female). SDO = social dominance orientation.  
\*  $p < .05$ .

strong, positive fitness benefits for a select few over evolutionary time.

Although Blacks are widely viewed as subordinate to Whites in the American racial milieu (Sidanius & Pratto, 1999), culturally specific power asymmetries between groups did not appear to influence levels of bias among research participants in our studies in which both majority and minority groups were used (Studies 1 and 4). We note that, in addition to these empirical findings, there is no prediction that is readily derived from sexual selection theory as to why the expression of bias should be restricted toward men of subordinate groups. To be sure, targeting outgroup men for the most lethal forms of aggression might be a more likely outcome when power asymmetries are stark, given the strategic advantage that power imbalances bestow on the dominant group (Chagnon, 1992; Tooby & Cosmides, 1988; Wrangham & Peterson, 1996). Although such asymmetries may work to exacerbate intergroup aggression, they may not be fundamental to understanding the building blocks underlying the psychology of male targeted bias. As such, on first principles we see no reason to expect that, at the psychological level, outgroup animus should be greater toward subordinate groups rather than vice versa, nor that these effects should be unique to the North American racial or ethnic milieu. To be sure, there are other, more proximate, intrapsychic reasons to predict such imbalances in bias (e.g., Jost & Banaji, 1994), but such considerations rely on ancillary assumptions orthogonal to the predictions derived from an evolutionary perspective. As such, even though there is evidence that bias might occur in an attenuated form when subordinates target dominants, we reiterate the claim that male-targeted bias should be a general intergroup phenomenon and not limited to the psychology of members of dominant groups against subordinate groups. The current work does not attempt to address these issues in an empirically rigorous way, but the point is made solely for conceptual clarity.

Consistent with contemporary approaches emphasizing the specificity of psychological systems in addressing particular adaptive problems (e.g., Cottrell & Neuberg, 2005; van Vugt et al., 2007), there is reason to believe that because men and women have faced different adaptive challenges throughout human evolutionary history, their separate psychologies should bear the signature of these distinct challenges. To be sure, we do not claim that aggression, fear, and social dominance orientation are the sole evolved motivations for intergroup bias, and we acknowledge that studying cooperative, prosocial behavior within groups may be fundamental to understanding between-group processes (Boyd & Richerson, 1990; Choi & Bowles, 2007; Gintis, Bowles, Boyd, & Fehr, 2003; Richerson & Boyd, 2001). Indeed, there is evidence that psychological mechanisms that facilitate ingroup love are more common in people's everyday lives than are mechanisms that produce outgroup hate (e.g., Brewer, 1999), as can be inferred in the present research. Thus, we do not claim that gender differences in the psychological traits associated with prejudice are more important than traits shared between the sexes.

Finally, the account we present regarding women's motivations to avoid outgroup men is also consistent with an alternative, or perhaps complementary, evolutionary account, whereby uncertainty about the monitoring and sanctioning of norm violations between groups (*sensu* Yamagishi, 1998) may exacerbate women's already existing wariness of unfamiliar men, regardless of group membership. Such an account has yet to be tested. As we

learn more about the adaptive challenges that may have faced our Stone Age ancestors, as well as those current adaptive challenges facing men and women in modern societies, we may be able to add more psychological dimensions to this basic framework and further complete the picture of the psychological architecture of intergroup bias.

## Conclusion

In this article we follow along the lines of reasoning begun by other researchers (e.g., Thornhill & Palmer, 2000; Tooby & Cosmides, 1988) in applying the insights derived from parental investment and sexual selection theories (Darwin, 1871; Trivers, 1972) to understanding the psychological mechanisms underlying intergroup and interpersonal conflict. We have framed our empirical investigation into how racial bias might operate on the workings of psychological adaptations for intergroup aggression among men (intrasexual selection) and counteradaptations to male sexual coercion among women (intersexual selection). In doing so, we qualify the predictions of the subordinate male target hypothesis (Sidanius & Veniegas, 2000) and shape it into a more general outgroup male target hypothesis. By clarifying the evolutionary assumptions of this hypothesis, we have broadened it to include predictions regarding the psychology of not only men but women. These expectations fall along the lines of how men and women respond to general threats (e.g., approach vs. avoid) as well as to domain-specific threats (intrasexual competition vs. sexual coercion). We hope that our enterprise addressing this intriguing hypothesis will draw attention to more integrative approaches to the social psychology of prejudice, such that principles of selection that apply across all domains of life can be utilized as enrichments and correctives to current theory and research.

In closing, we think it is wise to emphasize that the contribution of the conceptual framework and empirical results presented here is indicative of advances that can be had by adopting a certain *approach* to the psychology of prejudice rather than a new theory *per se*. This approach would be characterized by consideration of the possible selective pressures under which intergroup bias may have arisen, as a way of generating hypotheses about the psychology of prejudice. Crucial to the enterprise of the scientific understanding of intergroup bias as a natural phenomenon is the realization that as a product of the natural world, human minds are subject to the constraints and opportunities afforded by the principles of natural selection. And as a product of selection, the psychological systems that evolve are indifferent as to whether the information processed is transmitted via genetic or social pathways. In this view, it is pointless to argue whether some feature of the mind is "genetic" or "learned," because both processes are subject to the universal principles of selection that apply across all life forms on earth (Dennett, 1995).

Finally, to gain a deeper and more accurate understanding of the psychological architecture of intergroup bias, it is important to consider the discomfiting possibility that intergroup bias, at root, may serve ultimate, evolutionary functions. That is, the cognitive machinery that undergirds the psychology of prejudice exists because, as a function of both social and biological evolutionary processes, it has been useful to the agents of prejudice. As such, we caution against deriving inferences for practical implications of the perspectives advanced, because to be consistent with nature's

raison d'être is neither philosophically nor morally justifiable (Moore, 1903). Still, we are hopeful that the approach presented here, though perhaps unsettling, will inspire new hypotheses informed by an evolutionary perspective, generating fruitful predictions regarding the psychological architecture underlying one of humanity's most persistent social problems.

## References

- Aiken, L., & West, S. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Andersson, M. (1994). *Sexual selection*. Princeton, NJ: Princeton University Press.
- Arai, M., Bursell, M., & Nekby, L. (2008). *Between meritocracy and ethnic discrimination: The gender difference* (SULCIS Working Papers 2008: 2). Stockholm University, Linnaeus Center for Integration Studies.
- Arai, M., & Thoursie, P. S. (2009). Renouncing personal names: An empirical examination of surname change and earnings. *Journal of Labor Economics*, 27, 127–147.
- Bamforth, D. B. (1994). Indigenous people, indigenous violence: Precontact warfare on the North American Great Plains. *Man*, 29, 95–115.
- Berkowitz, L. (1993). *Aggression*. New York, NY: McGraw-Hill.
- Betzig, L. (1993). Sex, succession, and stratification in the first six civilizations: How powerful men reproduced, passed power on to their sons, and used power to defend their wealth, women, and children. In L. Ellis (Ed.), *Social stratification and socioeconomic inequality: A comparative biosocial analysis* (pp. 37–74). New York, NY: Praeger.
- Boyd, R., & Richerson, P. J. (1990). Culture and cooperation. In J. J. Mansbridge (Ed.), *Beyond self-interest* (pp. 111–132). Chicago, IL: University of Chicago Press.
- Brewer, M. B. (1999). The psychology of prejudice: Ingroup love or outgroup hate? *Journal of Social Issues*, 55, 429–444.
- Brigham, J. C. (1993). College students' racial attitudes. *Journal of Applied Social Psychology*, 23, 1933–1967.
- Broude, G. J., & Greene, J. (1978). Cross-cultural codes on twenty sexual attitudes and practices. *Ethnology*, 15, 409–430.
- Bushway, S. D., & Piehl, A. M. (2001). Judging judicial discretion: Legal factors and racial discrimination in sentencing. *Law & Society Review*, 35, 733–764.
- Buss, A. H., & Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, 63, 452–459.
- Buss, D. M., & Shackelford, T. K. (1997). Human aggression in evolutionary psychological perspective. *Clinical Psychology Review*, 17, 605–619.
- Byrne, D. (1971). *The attraction paradigm*. San Diego, CA: Academic Press.
- Carlsson, M., & Rooth, D. O. (2007). Evidence of ethnic discrimination in the Swedish labor market using experimental data. *Labour Economics*, 14, 716–729.
- Chagnon, N. A. (1992). *Yanomamo* (4th ed.). New York, NY: Harcourt Brace.
- Chagnon, N. A. (1996). Chronic problems in understanding tribal violence and warfare. In G. Bock & J. Goode (Eds.), *The genetics of criminal and antisocial behavior* (pp. 202–236). New York, NY: Wiley.
- Choi, J., & Bowles, S. (2007, October 26). The coevolution of parochial altruism and warfare. *Science*, 318, 636–640.
- Citrin, J., Green, D. P., & Sears, D. O. (1990). White reactions to black candidates: When does race matter? *Public Opinion Quarterly*, 54, 74–96.
- CNN. (2008). *ElectionCenter 2008: Exit polls*. Retrieved from <http://www.cnn.com/ELECTION/2008/results/polls/#USP00p1>
- Cottrell, C. A., & Neuberg, S. L. (2005). Different emotional reactions to different groups: A sociofunctional threat-based approach to prejudice. *Journal of Personality and Social Psychology*, 88, 770–778.
- Daly, M., & Wilson, M. (1988). *Homicide*. Hawthorne, NY: Aldine de Gruyter.
- Daly, M., & Wilson, M. (1997). Crime and conflict: Homicide in evolutionary psychological perspective. *Crime & Justice*, 22, 51–100.
- Darwin, C. (1871). *The descent of man and selection in relation to sex*. London, England: Murray.
- Dennett, D. (1995). *Darwin's dangerous idea: Evolution and the meanings of life*. New York, NY: Simon & Schuster.
- Ekehammar, B. (1985). Sex differences in sociopolitical attitudes revisited. *Educational Studies*, 11, 3–9.
- Ekehammar, B., & Sidanius, J. (1980). Negative similarities versus correlational similarities. *Multivariate Behavioral Research*, 15, 95–98.
- Ekehammar, B., & Sidanius, J. (1982). Sex differences in sociopolitical attitudes: A replication and extension. *British Journal of Social Psychology*, 21, 249–257.
- Ember, C. (1978). Myths about hunter-gatherers. *Ethnology*, 27, 239–248.
- Fisher, R. A. (1930). *The genetical theory of natural selection*. Oxford, England: Oxford University Press.
- Fisman, R., Iyengar, S. S., Kamenica, E., & Simonson, I. (2008). Racial preferences in dating. *Review of Economic Studies*, 75, 117–132.
- Freedman, D. G. (1961). The infant's fear of strangers and the flight response. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 2, 242–248.
- Furnham, A. (1985). Adolescents' sociopolitical attitudes: A study of sex and national differences. *Political Psychology*, 6, 621–636.
- Geer, J. H. (1965). The development of a scale to measure fear. *Behaviour Research and Therapy*, 3, 45–53.
- Ghiglieri, M. P. (1999). *The dark side of man: Tracing the origins of male violence*. Reading, MA: Perseus Books.
- Gilbert, P. (1994). Male violence: Towards an integration. In J. Archer (Ed.), *Male violence* (pp. 352–389). New York, NY: Routledge.
- Gil-White, F. J. (2001). Are ethnic groups biological "species" to the human brain? Essentialism in our cognition of some social categories. *Current Anthropology*, 42, 515–554.
- Gintis, H., Bowles, S., Boyd, R., & Fehr, E. (2003). Explaining altruistic behavior in humans. *Evolution & Human Behavior*, 24, 153–172.
- Gordon, R., Piana, L. D., & Keleher, T. (2000). *Facing the consequences: An examination of racial discrimination in U.S. public schools*. Oakland, CA: Applied Research Center.
- Greenberg, D., Hillman, D., & Grice, D. (1973). Infant and stranger variables related to stranger anxiety in the first year of life. *Developmental Psychology*, 9, 207–212.
- Hajnal, Z. L. (2006). *Changing white attitudes toward black political leadership*. New York, NY: Cambridge University Press.
- Haley, H., Sidanius, J., Lowery, B., & Malamuth, N. (2004). The interactive nature of sex and race discrimination: A social dominance perspective. In G. Philogene (Ed.), *Racial identity in context: The legacy of Kenneth B. Clark* (pp. 149–160). Washington, DC: American Psychological Association.
- Holgate, A. (1989). Sexual harassment as a determinant of women's fear of rape. *Australian Journal of Sex, Marriage & Family*, 10, 21–28.
- Jarvis, B. G. (2006). MediaLab [Computer software]. New York, NY: Empirisoft.
- Jost, J. T., & Banaji, M. R. (1994). The role of stereotyping in system-justification and the production of false consciousness. *British Journal of Social Psychology*, 33, 1–27.
- Jost, J. T., & Thompson, E. P. (2000). Group-based dominance and opposition to equality as independent predictors of self-esteem, ethnocentrism, and social policy attitudes among African Americans and European Americans. *Journal of Experimental Social Psychology*, 36, 209–232.
- Keegan, J. (1993). *The history of warfare*. New York, NY: Knopf.
- Keeley, L. H. (1996). *War before civilization: The myth of the peaceful savage*. New York, NY: Oxford University Press.

- Kelly, R. C. (2005). The evolution of lethal intergroup violence. *Proceedings of the National Academy of Sciences, USA*, 102, 15294–15298.
- Knauff, B. (1987). Reconsidering violence in simple human societies. *Current Anthropology*, 28, 457–500.
- Krech, S. (2002). Genocide in tribal society. *Nature*, 371, 14–15.
- Kurzban, R., Tooby, J., & Cosmides, L. (2001). Can race be erased? Coalitional computation and social categorization. *Proceedings of the National Academy of Sciences, USA*, 98, 15387–15392.
- Makova, K. D., & Li, W.-H. (2002, April 11). Strong male-driven evolution of DNA sequences in humans and apes. *Nature*, 416, 624–626.
- Malamuth, N. M. (1981). Rape proclivity among males. *Journal of Social Issues*, 57, 138–157.
- Marjoribanks, K. (1981). Sex-related differences in socio-political attitudes: A replication. *Educational Studies*, 7, 16.
- Moore, G. E. (1903). *Principia ethica*. New York, NY: Prometheus Books.
- Navarrete, C. D., Fessler, D. M. T., Fleischman, D., & Geyer, J. (2009). Race bias tracks conception risk across the menstrual cycle. *Psychological Science*, 20, 661–665.
- Navarrete, C. D., Olsson, A., Ho, A. K., Mendes, W., Thomsen, L., & Sidanius, J. (2009). Fear extinction to an outgroup face: The role of target gender. *Psychological Science*, 20, 155–158.
- Öhman, A., & Mineka, S. (2001). Fear, phobias and preparedness: Toward an evolved module of fear and fear learning. *Psychological Review*, 108, 483–522.
- Olsson, A., Ebert, J. P., Banaji, M. R., & Phelps, E. A. (2005, July 29). The role of social groups in the persistence of learned fear. *Science*, 309, 785–787.
- Owens, L., Shute, R., & Slee, P. (2000). “Guess what I just heard!”: Indirect aggression among teenage girls in Australia. *Aggressive Behavior*, 26, 67–83.
- Panchanathan, K., & Boyd, R. (2004, November 25). Indirect reciprocity can stabilize cooperation without the second-order free rider problem. *Nature*, 432, 499–502.
- Phelps, E. A., O'Connor, K. J., Cunningham, W. A., Funayama, E. S., Gatenby, J. C., Gore, J. C., & Banaji, M. R. (2000). Performance on indirect measures of race evaluation predicts amygdala activation. *Journal of Cognitive Neuroscience*, 12, 729–738.
- Pratto, F., Sidanius, J., Stallworth, L. M., & Malle, B. F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology*, 67, 741–763.
- Richerson, P. J., & Boyd, R. (2001). The evolution of subjective commitment to groups: A tribal instincts hypothesis. In R. M. Nesse (Ed.), *Evolution and the capacity for commitment* (pp. 184–220). New York, NY: Russell Sage Foundation.
- Rowell, T. (1974). Contrasting adult male roles in different species of nonhuman primates. *Archives of Sexual Behavior*, 3, 143–149.
- Scott, J. P. (1992). Aggression: Functions and control in social systems. *Aggressive Behavior*, 18, 1–20.
- Seligman, M. (1971). Phobias and preparedness. *Behavior Therapy*, 2, 307–321.
- Senn, C. Y., & Dzinan, K. (1996). Measuring fear of rape: A new scale. *Canadian Journal of Behavioural Science*, 28, 141–148.
- Sidanius, J., Cling, B. J., & Pratto, F. (1991). Ranking and linking as a function of sex and gender role attitudes. *Journal of Social Issues*, 47, 131–149.
- Sidanius, J., & Ekehammar, B. (1980). Sex-related differences in socio-political ideology. *Scandinavian Journal of Psychology*, 21, 17–26.
- Sidanius, J., Haley, H., Molina, L., & Pratto, F. (2007). Vladimir's choice and the distribution of social resources: A group dominance perspective. *Group Processes & Intergroup Relations*, 10, 259–268.
- Sidanius, J., & Pratto, F. (1999). *Social dominance: An intergroup theory of social hierarchy and oppression*. New York, NY: Cambridge University Press.
- Sidanius, J., Pratto, F., & Brief, D. (1995). Group dominance and the political psychology of gender: A cross-cultural comparison. *Political Psychology*, 16, 381–396.
- Sidanius, J., & Veniegas, R. C. (2000). Gender and race discrimination: The interactive nature of disadvantage. In S. Oskamp (Ed.), *Reducing prejudice and discrimination: The Claremont Symposium on Applied Social Psychology* (pp. 47–69). Mahwah, NJ: Erlbaum.
- Smuts, B. (1992). Male aggression against women. *Human Nature*, 3, 1–44.
- Steffensmeier, D., Ulmer, J., & Kramer, J. (1998). The interaction of race, gender, and age in criminal sentencing: The punishment cost of being young, Black, and male. *Criminology*, 36, 763–793.
- Stets, J. E., & Straus, M. A. (1990). Gender differences in reporting of marital violence and its medical and psychological consequences. In M. A. Straus & R. J. Gelles (Eds.), *Physical violence in American families* (pp. 151–165). New Brunswick, NJ: Transaction.
- Stringer, C., & McKie, R. (1997). *African exodus: The origins of modern humanity*. London, England: Cape.
- Stroh, L. K., Brett, J. M., & Reilly, A. H. (1992). All the right stuff: A comparison of female and male managers' career progression. *Journal of Applied Psychology*, 77, 251–260.
- Thornhill, R., & Palmer, C. (2000). *A natural history of rape: Biological bases of sexual coercion*. Cambridge, MA: MIT Press.
- Tooby, J., & Cosmides, L. (1988). *The evolution of war and its cognitive foundations* (Technical Report No. 88–1). Palo Alto, CA: Binghamton University, Institute for Evolutionary Studies.
- Trivers, R. L. (1972). Parental investment and sexual selection. In B. Campbell (Ed.), *Sexual selection and the descent of man* (pp. 136–179). Chicago, IL: Aldine-Atherton.
- van Shaik, C. P., & Noordwijk, M. A. (1989). The special role of male Cebus monkeys in predation avoidance and its effect on group composition. *Behavioral Ecology and Sociobiology*, 24, 254–255.
- van Vugt, M., De Cremer, D., & Janssen, D. (2007). Gender differences in competition and cooperation: The male warrior hypothesis. *Psychological Science*, 18, 19–23.
- Vikman, E. (2005). Ancient origins: Sexual violence in warfare, part I. *Anthropology & Medicine*, 12, 21–31.
- Wrangham, R. W., & Peterson, D. (1996). *Demonic males: Apes and the origins of human violence*. Boston, MA: Houghton Mifflin.
- Yamagishi, T. (1998). *The structure of trust: The evolutionary game of mind and society*. Tokyo, Japan: University of Tokyo Press.

Received January 13, 2009

Revision received September 14, 2009

Accepted September 15, 2009 ■