

FEELINGS TELL US FRIEND OR FOE: THREAT AS JUSTIFICATION FOR PREJUDICE

BY

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Abstract

Knowing how we feel about a group is enough to influence whether we perceive the group as threatening or non-threatening. Some theories assume that threat causes prejudice, such as integrated threat theory (ITT; Stephan & Renfro, 2002; Stephan & Stephan, 2000) and other cognitively-oriented models of prejudice. An affective primacy perspective (Crandall et al., 2011; Pryor et al., 1999; Zajonc, 1980) instead suggests that prejudice can cause perception of threat. Four experiments tested the hypothesis that prejudice causes heightened perception of threat, using affective conditioning to create negative (Expts. 1-3) or emotionally specific (disgust-provoking or fear-provoking; Expt. 4) affective associations with unfamiliar social groups. When a group was associated with negative affect, its members were stereotyped as more threatening and less warm (but no less competent) compared to when it was associated with positive affect (Expts. 1, 3). Conditioned prejudice increased perception of threat (Expts. 2 and 4), and caused a consistent pattern of behavioral response tendencies (Expts. 3 and 4). Groups associated with negative affect were more likely to be aggressed against, and less likely to be approached. The effect of conditioning was statistically reliable for judgments of warmth and threat, but not for judgments of competence (Expts. 1-3). Disgust conditioning increased perception of symbolic threat and realistic threat, and increased aggressive response tendencies (Expt. 4). The effect of disgust on aggressive behaviors was mediated by symbolic threat, and the effect of disgust on avoidance and approach behaviors was mediated by realistic threat. Together, the findings demonstrate that prejudice can *cause* perception of threat, which undermines the favored interpretation of the correlational basis of cognitively-oriented theories such as ITT. Correlational data in support of cognitively-oriented theories is consistent with both directional paths—threat can cause prejudice, and prejudice can cause perception of threat.

Experiments are necessary to distinguish between threat's role as a cause for prejudice and threat's role as a justification of prejudice.

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Feelings Tell Us Friend or Foe: Threat as Justification for Prejudice

Articulate reasons are cogent for us only when our inarticulate feelings of reality have already been impressed in favor of the same conclusion.

--William James (1902), p. 74, "The Varieties of Religious Experience"

Affective reactions are fast, automatic, and potent. They are fundamental components of human interaction and guide our behavior in intergroup settings. Affective information is evolutionarily significant, helping us decide whether to seek affiliation with, attack, or avoid members of other groups. Yet current theoretical models of prejudice focus mainly on cognitive factors that lead to prejudiced responses, such as mere categorization (Tajfel & Turner, 1986) and appraisal of threat (Mackie, Devos, & Smith, 2000; Stephan & Stephan, 2000). By contrast, the present research investigates the possibility that prejudice—the activation of negative affect toward a social group—temporally precedes and causally influences perception of threat in intergroup contexts.

The relative contributions of affect and cognition in explaining human thought and behavior is a complex issue that demands empirical attention (Monin, Pizarro, & Beer, 2007). Some theorists support a separate systems view (Zajonc, 1980, 2001), suggesting that affect and cognition operate via independent, though often interacting, systems. Others argue that affect and cognition are part of a single information-processing system (Lazarus, 1984). My research adopts Zajonc's separate systems view, and extends the analysis to consider the presumed direction of causality (and, by extension, temporal patterning) in the affective and cognitive components of prejudice.

Prejudice, stereotypes and perception of threat are conceptually and empirically distinct concepts. Stereotypes are cognitive schemas for organizing knowledge about a social group

(Dovidio, Brigham, Johnson, & Gaertner, 1996). Perception of threat is a cognitive appraisal of potential harm or other negative consequences to oneself or to one's ingroup (Stephan & Renfro, 2002; Stephan & Stephan, 2000). Prejudice, by comparison, is affective in nature and reflects negative feelings about a social group. I adopt the definition of prejudice from integrated threat theory—"negative affect associated with outgroups" (Stephan & Stephan, 2000, p. 27; see also Crandall & Eshleman, 2003; Crandall, Eshleman, & O'Brien, 2002)—and I operationalize prejudice in my experiments as a negative affective association with a social group.

Often, a perceiver that holds stereotypic or threat-relevant beliefs about a social group also has prejudice toward the group. But it could be that stereotypes and threat cause the prejudice, prejudice causes the stereotypes and threat perception, or both causal pathways may be equally valid descriptions of the relationship between prejudice and threat. Experimental methods are needed to evaluate each of these possibilities.

Cognition as Causal

The cognitive revolution of the 1950's and 1960's shifted the emphasis within psychological research and theory to focus on human mental processes such as mental representation, judgment and decision making, internal mental states, language, and problem solving skills. The area of stereotyping and prejudice was strongly influenced by the cognitive zeitgeist—many conceptual perspectives on prejudice adopt a cognitive approach in which prejudice is assumed to be caused by categorization and the mental representation of stereotypes. Tajfel's (1969, 1970) work on categorization and the minimal groups situation was very influential in orienting the field to a cognitive perspective. Research on the minimal groups paradigm showed that categorization into groups, provided that the basis of categorization was not patently arbitrary, was enough to produce ingroup bias. This was an important discovery

because it suggested that stereotyping and prejudice are products of normal cognitive functioning. The shift to cognitive explanations of intergroup bias marked an important departure from an earlier focus on individual differences (e.g., Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Dollard, Doob, Miller, Mowrer, & Sears, 1939).

For the next several decades, stereotyping and prejudice researchers focused primarily on documenting the consequences of social categorization. An impressive array of findings were amassed by research in the cognitive tradition, including work on illusory correlation (Hamilton & Gifford, 1976), numerical distinctiveness (Taylor, 1981), outgroup homogeneity (Park & Rothbart, 1982), the ultimate attribution error (Pettigrew, 1979), self-fulfilling prophecies (Snyder, Tanke, & Berscheid, 1977), and many other important findings that have enhanced the field's understanding of categorization processes.

Decades of research emphasizing cognitive explanations for stereotyping and prejudice has left its mark on the field both theoretically and empirically. Reflecting on the consequences of the cognitive revolution for research on intergroup relations, Park and Judd (2005) noted that “the evaluative aspects of stereotype content took center stage and came to be viewed as the cause of prejudice, rather than the other way around” (p. 110). This cognitive theoretical focus was in part due to the adaptability of cognitive methods that dominated existing research paradigms. In his review of the stereotyping literature, Jack Brigham reasoned that “in order to feel negatively toward a group, one must be able to perceive the different individuals of the given ethnic group as having certain constant characteristics, as being similar to other individuals in the same group, and as being different from individuals not of that ethnic group,” (Brigham, 1971, p. 26). This statement reflects the prevailing belief that stereotypes are a necessary precursor to prejudiced affect.

The cognitive movement has not yet lost momentum nor been overthrown. There have been occasional pockets of dissent, with scholars like Silvan Tomkins warning that the neglect of affect in psychological science “is yet another unfortunate consequence of the hypertrophy of cognitive imperialism (Tomkins, 1981, p. 328).” The minority view, however, has yet had minimal impact on the field as a whole.

Putting Affect First

The causal focus on cognition apparent in many contemporary models of prejudice is at odds with empirical findings regarding the automaticity of evaluative processing (Forgas, 2001; Hamilton, 1981; Park & Judd, 2005; Pettigrew, 2004). William James surely appreciated the significance of affect in explaining human thought and behavior, writing “Our judgments concerning the worth of things, big or little, depend on the *feelings* [emphasis added] the things arouse in us. Where we judge a thing to be precious in consequence of the idea we frame of it, this is only because the idea is itself associated already with a feeling (James, 1899, p. 229).” Yet James’ insight has largely been overlooked in contemporary psychological theories of stereotyping and prejudice.

There are several reasons to believe that the activation of the mental representation of affect is likely to precede the activation of associated cognitions, among these being speed and automaticity. Zajonc and other separate-systems theorists have characterized affective responses as quicker, more automatic, and less complex than cognitive responses (Cacioppo, Gardner, & Bernston, 1999; Zajonc, 1980, 2001; Zajonc, Pietromonaco, & Bargh, 1981). Many different features of affect, including its valence, arousal properties, and motivational properties, have the potential to influence social judgments and behaviors (Forgas, 1995).

Several different dual-process models propose that people's reactions to attitude objects or events are best described by separable automatic and controlled processes (Devine, 1989; Fazio, 1990; Pryor, Reeder, & Landau, 1999; Weiner, 1986). First, an associative process automatically activates an affective reaction; second, a more deliberative process guides consideration of possible reasons for the affective reaction, and occasionally makes adjustments to the initial reaction. Pryor and his colleagues (1999) adopt the dual-process framework in their two-factor theory of stigma. The theory suggests that people's negative affective reactions to people with AIDS are automatically activated by the negative affect associated with the disease, stigma, homosexuality, and other related concepts. This initial reaction can be adjusted to become more positive through involvement of a cognitive, rule-based system, though such an adjustment requires adequate time, cognitive resources, and motivation.

Pryor et al. note that their model is consistent with Zajonc's (1980) ideas about the primacy of affect: "Evaluative responses often flow immediately from our encounters with a stimulus. We don't have to think about them" (Pryor et al., 1999, p. 1200). Further, their focus on explaining reactions to stigma extends the affective primacy perspective to the area of stereotyping and prejudice. Substantial empirical evidence attests to the primacy of affective reactions in intergroup contexts; affective reactions predict intergroup attitudes better than cognitive factors (Dijker, 1987; Esses, Haddock, & Zanna, 1993; L. A. Jackson & Sullivan, 1989; Jussim, Nelson, Manis, & Soffin, 1995). Nevertheless, many theoretical perspectives on prejudice focus on cognitive factors as primary and causal. The present research evaluates the idea that in intergroup contexts, affective responses may come first, followed by associated cognitions. This work adopts an affective primacy perspective (Crandall, Bahns, Warner, & Schaller, 2011; Pryor et al., 1999; Zajonc, 1980) to challenge the assumption that cognitive

factors such as perception of threat and stereotyping cause prejudice, and instead tests the hypothesis that prejudice can cause perception of threat.

Prevailing Models of Prejudice and Threat

Emotions and threat are central concepts in much intergroup relations research. Yet many theoretical models of prejudice suggest a causal ordering of the affective and cognitive components of prejudice that is exactly the opposite of how emotions and threat are experienced in real social interactions. Emotions are fast, potent, and difficult to control; they are part of an automatic response system that instinctively guides social behavior (Cacioppo et al., 1999; Lang, Bradley, & Cuthbert, 1990). By comparison, stereotypes and perception of threat are more reasoned responses that are slower to develop and easier to control; they are part of a controlled, rule-based processing system (Pryor et al., 1999). Bodenhausen and Moreno (2000) note that “as important as stereotypes may be in shaping the nature of intergroup perception and behavior, it is the feeling states that arise in the presence of members of stereotyped groups that provide the background tone for all intergroup interactions” (p. 283). Thus it is quite surprising that several theories of prejudice propose that threat (not affect or emotion) causes prejudice, and fail to consider the alternative possibility that prejudice might also cause perception of threat.

Social Dominance Theory

Social dominance theory (SDT; Sidanius & Pratto, 1999) describes prejudice as stemming from attitudes, values, and beliefs about social hierarchy called legitimizing myths. High status group members use legitimizing myths such as the Protestant Work Ethic, meritocracy beliefs, or political conservatism to endorse and maintain a system of inequality among social groups. SDT predicts that threat—in particular, threat to the existing social

hierarchy—causes prejudice. Prejudice is expressed through endorsement of hierarchy-enhancing rather than hierarchy-attenuating ideals and policies.

While there is support for the notion that threat to social hierarchy causes prejudice, the possibility that prejudice causes perception of threat has not been empirically tested.

Experimental studies that have manipulated threat to the ingroup's status have found increased prejudice toward low status outgroups (L. M. Jackson & Esses, 2000; Nierman & Crandall, 2008, February; Pratto & Shih, 2000). For example, L. M. Jackson and Esses (2000) found that increasing perceived economic competition reduced support for empowering forms of help for immigrant groups. Future studies should test the reverse causal model by manipulating prejudice toward a group and measuring perceived threat to social hierarchy posed by that group.

Integrated Threat Theory

Compared to SDT, integrated threat theory (ITT; Stephan & Renfro, 2002; Stephan & Stephan, 2000) adopts a broader approach to understanding the relationship between prejudice and threat. The model identifies four types of threat—realistic threats, symbolic threats, intergroup anxiety, and negative stereotyping—as causes of prejudice. *Realistic threats* include any threat to the welfare of the ingroup such as a threat to the ingroup's political or economic power, or physical well-being. The concept of realistic threat is based on Realistic Group Conflict Theory (LeVine & Campbell, 1972; Sherif, 1966). *Symbolic threats* are threats to the ingroup's values and beliefs and may be real or imagined. The concept of symbolic threat comes from Modern and Symbolic Racism Theories (Kinder & Sears, 1981; McConahay, 1986). *Intergroup anxiety* stems from the anticipation of negative or uncomfortable intergroup interactions. The idea is derived from Intergroup Anxiety Theory (Stephan & Stephan, 1985). *Negative stereotypes* are considered to be a specific type of threat because they foster fear of

negative consequences in intergroup interactions. For example, the belief that a group is dangerous can evoke a sense of threat by communicating the expectation that one may be harmed by members of the stereotyped group.

Insofar as negative stereotypes represent a type of threat, ITT suggests that stereotypes are *causes* of prejudice. Some empirical evidence attests to this idea; manipulating the valence of stereotype traits ascribed to a group revealed that negative stereotypes increased negative attitudes toward that group (Stephan, Renfro, Esses, Stephan, & Martin, 2005, Study 2).

But stereotypes might also be *consequences* of prejudice, emerging after the activation of negative affect. Crandall et al. (2011)¹ provide initial experimental evidence that negative affective associations with social groups cause stereotypes to emerge as justifications for prejudice. Using both subliminal and supraliminal conditioning methods, Crandall et al. created negative associations with unfamiliar social groups. Groups associated with negative affect were stereotyped as less warm but no less competent. The present research extends this work by considering emergent stereotypes that result from prejudice as part of the more general process of threat perception.

The very core of ITT is the assumption that the perception of threat causes prejudice. But many of the initial studies cited in support of the theory provide only correlational evidence. Stephan, Ybarra, and Bachman (1999) measured realistic threats, symbolic threats, intergroup anxiety, and stereotypes associated with Cuban, Mexican and Asian immigrants, as well as prejudice toward these immigrant groups. Prejudice was significantly related to all four types of threat. Stephan, Ybarra, Martinez, Schwarzwald, and Tur-Kaspa (1998) found similar results for attitudes toward immigrant groups in other cultural contexts. These findings have been interpreted as supportive of the basic causal assumption that threat causes prejudice. Yet the data

are wholly consistent with the reverse causal model—that prejudice causes perception of threat. Experimental evidence is needed in order to draw conclusions about either causal direction.

Experimental methods have been used to test the causal predictions of ITT. Realistic threats, symbolic threats, negative stereotypes, and intergroup anxiety were each manipulated and found to increase prejudice toward immigrants (Stephan et al., 2005). However, Stephan and colleagues acknowledge that “although these studies clearly support the basic causal assumption of the theory (threats lead to prejudice), they do not preclude the possibility that the opposite causal pathway exists” (Stephan & Renfro, 2002, p. 196). To my knowledge the causal pathway from prejudice to perception of threat still has not been experimentally tested (with the exception of Crandall et al. (2011), which experimentally tested the causal pathway from prejudice to stereotypes).

Since its original instantiation, Stephan and colleagues have revised ITT to include antecedents and consequences of threat, although they assert “the core of the model is still the idea that threat causes prejudice” (Stephan & Renfro, 2002; Stephan & Stephan, 2000, p. 37). One of the antecedent factors shown to influence perceived threat is intergroup contact. Positive intergroup contact is associated with lesser threat and more positive attitudes, whereas negative contact is associated with greater threat and more negative attitudes (e.g., Stephan, Diaz-Loving, & Duran, 2000). The quality of the contact being positive/favorable or negative/unfavorable is inevitably shaped by the feelings aroused during an intergroup encounter. Thus one could argue that quality of intergroup contact is really a proxy for affect. Accordingly, the possibility that prejudice (i.e., negative affect) causes threat may already be implicit in the ITT framework.

Prejudice as Specific Emotion

ITT treats prejudice as a unidimensional construct, collapsing across negative emotions such as hatred and disdain and evaluative reactions such as disliking and disapproval. Recently, however, many different researchers have called for a multidimensional view of prejudice that is more sensitive to the constraints of specific intergroup contexts (Cottrell & Neuberg, 2005; Fiske, Cuddy, Glick, & Xu, 2002; Mackie et al., 2000). Several theoretical models conceive of prejudice as specific negative emotions such as disgust, anger, fear, contempt, guilt, envy, admiration, and pity. Proponents of these models argue that measuring prejudice as general negative affect masks interesting variability in the specific emotional reactions evoked by different groups. Specific threats may trigger specific emotions (e.g., threat to safety→ fear), which in turn direct behavioral responses (e.g., fear→ escape); the traditional conception of prejudice as a general attitude or evaluation is not able to distinguish between the differentiated intergroup consequences of fear and disgust, for example.

The sociofunctional approach. Cottrell and Neuberg's sociofunctional threat-based approach to prejudice (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2002) asserts that specific feelings associated with different social groups depend on specific tangible threats posed by the groups; a sociofunctional framework suggests, "from qualitatively different threats should emerge qualitatively different, and functionally relevant, emotions" (Cottrell & Neuberg, 2005, p. 770). The theory adopts a threat-based appraisal framework and focuses on group-relevant threats rather than individual threats. The core assumption is that the perception of specific threats to tangible ingroup resources or group structures leads to specific emotional reactions. A defining characteristic of the approach is that it allows for multiple threats to be posed by a single outgroup, which in turn may evoke multiple emotional reactions. Thus the sociofunctional

approach to prejudice affords a more nuanced and multidimensional view of intergroup relations compared to traditional models that view prejudice as a general attitude or evaluation such as SDT or ITT.

Cottrell and Neuberg (2005) had participants rate a number of social groups on specific types of threat posed by the groups and specific emotional reactions they experienced in thinking about the groups. Different social groups were associated with different types of threat and different emotional reactions. For example, African Americans were associated with threats to the ingroup's property and physical safety, and with emotional reactions of fear and pity; gay men were associated with threat to the ingroup's health and value systems, and with emotional reactions of disgust and pity. Because the sociofunctional framework "assigns causal priority to perceived threats," the researchers used multiple regression to demonstrate that specific emotions are predicted by specific threats (Cottrell & Neuberg, 2005, p. 783). But these data only demonstrate that specific threats are correlationally linked to specific emotions. It could be that perceiving that a group poses a threat to safety causes fear, or it could be that being afraid of a group fosters the perception that the group poses a threat to safety. If researchers could manipulate the type of threat posed by a group in the absence of pre-existing feelings toward or beliefs about the group, and measure the specific emotional reactions that result, it would provide a stronger causal test of the theory. Alternatively, the reverse causal model could be tested by manipulating emotional reactions to a novel group, and measuring perceived threats that result.

Intergroup emotions theory. Intergroup emotions theory (IET; Mackie et al., 2000; E. R. Smith, 1993) predicts that situational appraisals of potential harm or benefit to the ingroup cause specific emotional reactions, which in turn lead to differentiated intergroup action tendencies. The theory incorporates ideas from appraisal-theories of emotions (Frijida, 1986;

Roseman, 1984; Scherer, 1988; C. A. Smith & Ellsworth, 1985) and extends these ideas to the group level—most importantly the assertion that cognitive involvement is necessary in order to experience an emotion. In this regard, IET draws from social identity and self-categorization theories (Tajfel & Turner, 1986; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) in its assumptions that individuals who identify with a social group evaluate their own circumstances in intergroup terms. An IET framework conceptualizes threat as “appraisals of situations or events related to social identity [that] focus on social rather than personal concerns:

Individuals...experience emotions because their group may be helped or hurt by it” (Mackie et al., 2000, p. 603). Social identity relevant appraisals evoke social emotions in reference to an outgroup target. Thus IET is consistent with the assertion that cognitive appraisal of threat causes prejudice.

Mackie and colleagues (2000) found that when social identity was made salient in the context of a value conflict, appraisals of ingroup strength (relative to the outgroup) increased feelings of outgroup anger, which in turn predicted the desire to move against (confront, oppose, or argue with) the outgroup opponent. They experimentally manipulated appraisals of ingroup strength, thus lending support to the theory’s causal assumption that cognitive appraisal influences emotional reactions and intergroup behavior. If, however, affect were conceived of as the primary causal factor in this process, a revised model might instead predict that first encountering an outgroup member evokes a specific emotional reaction, and second, cognitive appraisal processes help to interpret the affect. There is some evidence in support of this revised model; the experience of (context-free) group-based anger increased women’s appraisal of gender discrimination in response to an ambiguous event, which in turn increased collective action (Leonard, Moons, Mackie, & Smith, 2011). But a strict interpretation of IET would

suggest that a situation-specific emotional response mediated the effect of the discrimination appraisal on collective action. Additional research is needed in support of the idea that incidental emotion prompts emotion consistent appraisals of group-based threat.

Evaluating the Prevailing Models

SDT, ITT, IET, and the sociofunctional approach each make similar predictions about the role of threat in prejudice. All assume that threat causes prejudice, although to differing degrees of specificity. SDT and ITT consider prejudice as a general negative evaluation of a social group. IET and the sociofunctional approach instead highlight the role of threat in evoking specific emotional reactions to social groups. Each of these theories is plausible, and there is good data to support the predictions (with the exception of the sociofunctional approach (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2002) for which there is not yet a published experimental test of the theory's basic causal assumption). Even so, the existing evidence does not rule out the possibility that the reverse causal direction—prejudice causes perception of threat—might be an equally valid depiction of the relationship between prejudice and threat.

As affective responses are so quick and automatic, it is plausible and even likely that affective reactions may, in fact, precede and causally influence cognitive appraisal processes such as the perception of threat. If affect were instead conceptualized as primary and causal, each of these theories might instead predict that encountering an outgroup member first and foremost evokes an affective reaction, and that the affect in turn influences the perception of threat.

Threat as Justification for Prejudice

The causal pathway I propose and test in this research is consistent with the justification-suppression model of prejudice expression (JSM; Crandall & Eshleman, 2003). According to the JSM, the experience of prejudice creates psychological tension and discomfort due to conflict

between genuinely felt negative affect toward a group and egalitarian beliefs and social norms of non-prejudice. Consequently, people are reluctant to openly express prejudice, and prejudice is often initially suppressed. People are more willing to express prejudice, however, when there is an available justification for it. Justification processes serve as releasers of prejudice by forming an acceptable explanation for having negative feelings about a group. Prejudice expression—made possible by justification—is a pleasant experience for the perceiver because it decreases built-up tension and restores psychological balance.

Classic writings on prejudice have theorized about the justification function of stereotypes and threat perceptions (Allport, 1954; Katz & Braly, 1933; LaPiere, 1936; Lippman, 1922), but there is surprisingly little empirical evidence to support the idea. LaPiere (1936) identified perceived threats, which he called “type-rationalizations”, as the primary reasons given to explain Californians’ antipathy toward Armenian immigrants. Specifically, LaPiere identified beliefs that Armenians were “dishonest, lying and deceitful,” “parasitic and not self-sufficient,” and that they had “an inferior code of social morality” as perceived threats used to rationalize negative attitudes (LaPiere, 1936, p. 233-234). While his analysis suggests that Armenian antipathy predated the development and application of type-rationalizations, the data are unable to address the causal relationship between prejudice and threat.

There is plenty of evidence to suggest that stereotypes may function as justifications for behavioral discrimination (e.g., Jost & Banaji, 1994; McGarty, Yzerbyt, & Spears, 2002; Rutland & Brown, 2001). For example, following an experimental manipulation that induced Scottish students to discriminate in favor of Scotland and against England, these students (compared to those in control conditions) showed evidence of more favorable stereotypes of Scots and more negative stereotypes of the English (Rutland & Brown, 2001).

There is also evidence to suggest that threat perception serves a justification function. Pereira, Vala and Costa-Lopez (2010) found that prejudice was associated with increased perceptions of realistic and symbolic threat, which in turn was associated with opposition to immigration and naturalization, respectively. Pereira et al. propose that threat perception serves as justification for discrimination.

But there is no prior evidence to suggest that threat perception and stereotypes are justifications for mere prejudice. This is an important distinction because overt behavioral discrimination is usually publicly observable, unlike the intrapsychic experience of prejudiced affect. Thus threat perceptions and stereotypes may emerge as justifications for discrimination as part of an impression-management process. If threat perception and stereotypes do in fact emerge as justifications for mere prejudice, it implies the formation of stereotypes that are truly internalized. The current study departs from Pereira et al. (2010) in two important ways: Experimental methods are used to test the causal prediction that prejudice causes perception of threat, and threat is conceptualized as a justification for mere prejudice rather than as justification for discrimination.

Even in the absence of behavioral discrimination, perceptions of threat can offer acceptable justification for prejudiced affect. Negative feelings about a group are uncomfortable and problematic if left unexplained. Perceiving that a group is dangerous, violent, or untrustworthy may be an acceptable justification for having bad feelings about them. Justifications may be general or specific (Crandall & Eshleman, 2003); thus perceiving a group as threatening—even if the perception is vague—could be adequate justification for prejudice. The task of justifying specific negative emotions experienced in conjunction with a particular group may be better served, however, by more specific types of threat perception. For example,

perceiving a group as threatening the traditional morals and values of the ingroup might justify feeling disgusted by (or, potentially, angry at) the group. Alternatively, perceiving a threat to the safety and well-being of the ingroup might justify feeling afraid of the group.

The present research experimentally manipulated either positive and negative (Experiments 1-3) or emotionally specific (disgust-provoking or fear-provoking; Experiment 4) affective associations with novel social groups. This method was used in order to test the hypothesis consistent with an affective primacy perspective (Crandall et al., 2011; Pryor et al., 1999; Zajonc, 1980) that prejudice causes heightened perception of threat. These experiments will help determine whether correlational evidence linking prejudice and threat is uniquely supportive of ITT's (Stephan & Stephan, 2000) claim that threat causes prejudice, or, whether both directional paths—threat causes prejudice and prejudice causes perception of threat—are equally valid descriptions of the relationship between prejudice and threat.

Overview

Four experiments tested the hypothesis that stereotypes and perceptions of threat emerge from mere prejudice. I used affective conditioning methods to create novel prejudices toward unfamiliar social groups. These methods drew upon evidence that affectively-laden attitudes can be created through associative learning processes (De Houwer, Thomas, & Baeyens, 2001; Krosnick, Betz, Jussim, & Lynn, 1992; Livingston & Drwecki, 2007; Olson & Fazio, 2001). Perceiving an attitude object in coincidence with positively- or negatively-valued stimuli fosters a corresponding positive or negative attitude toward that object. Because affective reactions are diffuse and nonspecific, they can be easily displaced onto unrelated stimuli. It has been shown, for example, that affective primes produce significant shifts in evaluations of novel stimuli. Participants rated Chinese ideographs that were initially affectively neutral as more likeable

when they were preceded by happy facial expressions and less likeable when they were preceded with angry facial expressions compared to when they were preceded by a neutral prime (Murphy & Zajonc, 1993).

Experiments 1-3 employed a supraliminal conditioning paradigm adapted from Olson and Fazio (2001) to create negative and positive affective associations with unfamiliar groups. Experiment 4 used an adapted version of this conditioning paradigm to create the emotionally specific associations of disgust and fear with unfamiliar groups. The immediate consequence of these methods was the creation of "pure" prejudices—mere affective associations uncontaminated by prior stereotypes, prior threat perceptions, or even any prior knowledge about the groups.

Following the creation of these prejudices, I assessed stereotypic beliefs about the target groups, perceptions of threat posed by the target groups, and behavioral response tendencies. These methods allowed me to test the hypothesis that prejudice causes heightened perception of threat, thereby reversing the causal pathway between threat and prejudice that is suggested by ITT (Stephan et al., 2000; Stephan & Renfro, 2002).

Experiment 1

ITT (Stephan & Renfro, 2002; Stephan & Stephan, 2000) suggests that negative stereotypes, as one of the four major types of threat, are *causes* of prejudice. An affective primacy perspective instead suggests that stereotypes may be *consequences* of prejudice, emerging after the activation of negative affect (Crandall et al., 2011; Pryor et al., 1999; Zajonc, 1980). Experiment 1 tested the hypothesis that newly created prejudice causes stereotypes to emerge as justifications for prejudice.

The stereotype content model (Fiske et al., 2002) asserts that group stereotypes can be usefully summarized in terms of two fundamental dimensions of social judgment: *warmth* and *competence*. Warmth connotes a group's competitive intent (i.e., friend or foe). Competence connotes a group's ability to enact its intent. Group stereotypes can be highly negative along one dimension while being positive along the other (Fiske et al., 2002; Schaller & Abeyesinghe, 2006). Therefore, in testing whether affectively conditioned prejudice causes stereotypes, I assessed separately the extent to which these emerging stereotypes had specific contents relevant to the warmth dimension, the competence dimension, or both.

Method

Participants

Participants were 105 undergraduates (77 women) at the University of Kansas from the introductory psychology subject pool. They received course credit for participating in the study.

Pre-testing of Target Countries

A separate sample ($N = 32$) rated 12 real or made-up countries (Poland, Vietnam, Egypt, Eritrea, Mauritania, Niger, Latvia, Azerbaijan, Singapore, Oman, Yoralia (made-up), Tajikistan) on affect and familiarity. A feeling thermometer (0 = *very negative*, 100 = *very positive*) assessed general affect toward each country. Two countries received mean ratings that were very close to the midpoint of the scale (Eritrea $M = 55.19$, $SD = 21.01$, Mauritania $M = 53.57$, $SD = 19.85$); the mean difference was not significant, $p > .42$). On a rating scale (1 = *I've never heard of it*, 2 = *I've heard of it but don't know where it is*, 3 = *I've heard of it and know where it is*), the same two countries were rated as unfamiliar (Eritrea $M = 1.62$, $SD = 0.90$, Mauritania $M = 1.43$, $SD = 0.69$; the mean difference was not significant, $p > .18$). Eritrea and Mauritania were chosen as the target countries for being affectively neutral and unfamiliar; this ensured that participants in the

main study would be unlikely to have pre-existing knowledge of or feelings about these countries. Complete pre-testing results are reported in Table 1.

Conditioning Procedure

Cover story. The experimenter told participants the study was about attention and vigilance, and gave them instructions for a video surveillance task described as testing the skills a security guard needs “to be alert and ready to respond to intruders.” Participants viewed a rapid stream of images and words and were given the task of pushing the space bar whenever a designated country name appeared on the screen. This task was designed to distract participants from focusing on the countries Eritrea and Mauritania but also to ensure that participants were attending to the stimuli. The distracter country names that participants searched for were: Moldova, Slovenia, Oman, Azerbaijan, and Tajikistan. Each country name appeared 10 times and participants searched for a different country name in each block of the experiment. On some trials, the country name appeared on-screen alone, and on other trials it was paired with either a neutral image or a neutral word.

Procedural details. SuperLab 4.0 stimulus presentation software was used for the experiment. Participants were presented with 430 screens of information, broken down into five experimental blocks. Stimulus materials were presented for 1500 ms each on Dell Optiplex 755 Minitowers, with Dell E207WFPc monitors and a refresh rate of 85Hz. Participants were seated approximately 18 inches away from the computer screen, which was positioned at eye-level. The entire conditioning phase lasted about 12 minutes.

Across all five blocks, there were 40 critical trials (8 per block) involving the target countries (20 trials involving Eritrea and 20 involving Mauritania) in which positive-affect stimuli were consistently paired with one country, and negative-affect stimuli were consistently

paired with the other country. In one condition, Eritrea was paired with positive stimuli and Mauritania was paired with negative stimuli; in the other condition, the pairings were reversed. The unconditioned stimuli paired with Eritrea and Mauritania for the critical trials were: Ten negative and ten positive images (see Appendix A), and ten negative and ten positive words (see Appendix B). Stimulus images were selected from the International Affective Picture System database (Lang, Bradley, & Cuthbert, 2005) and words were selected based on pre-testing from our lab ($N = 35$).

In each block of the experiment, the country names Eritrea and Mauritania appeared 4 times each (2 times paired with a positive-affect or negative-affect image and 2 times paired with a positive- or negative-affect word). Interspersed among these critical conditioning trials were 10 trials of the distracter country names which prompted a participant response, 16 trials of blank screens, and 52 trials of affectively neutral filler stimuli that were not paired with either Eritrea or Mauritania (see Appendix C). Sometimes a filler stimulus appeared on-screen alone, and sometimes it was paired with another filler stimulus. All stimulus words and images were presented only once (duration of 1500 ms) during the entire experiment.

Dependent Measures

Stereotype traits. After completing the affective conditioning procedure, participants were presented with a list of 25 trait words. Sixteen traits reflected the *warmth* dimension (friendly, warm, good-natured, courteous, liars, stubborn, happy, quarrelsome, threatening, quick-tempered, generous, conceited, trustworthy, humorless, sincere, and arrogant; $\alpha = .94$); nine traits reflected the *competence* dimension (lazy, messy, capable, skillful, intelligent, confident, competent, efficient, and physically clean; $\alpha = .85$). Stereotype content dimensions were confirmed by factor analysis. Participants were asked to indicate whether each trait was

more descriptive of people from Eritrea or Mauritania on a forced-choice, binary response scale. Warmth and competence traits were intermixed and presented in random order. After reverse-scoring negative items, separate warmth and competence stereotype indices were computed, representing the proportion of warmth- and competence-relevant trait terms ascribed to each group.

Affective ratings. In order to assess the success of the affective conditioning manipulation, participants rated their feelings toward each of the countries (including the five distracter countries participants were searching for as well as Eritrea and Mauritania) whose names appeared during the five blocks of trials (0 = *very negative*, 100 = *very positive*). Affective ratings were assessed last. The order in which countries were rated was randomized across participants.

Results and Discussion

Affective Ratings

Analyses on ratings of Eritrea and Mauritania revealed only the expected interaction (counterbalanced main effect) of the affective manipulation and within-participants assessment of country rated, indicating more negative feelings toward the country paired with negative stimuli ($M = 51.11$, $SD = 26.13$) compared to the country paired with positive stimuli ($M = 59.48$, $SD = 23.50$), $F(1, 103) = 5.21$, $p = .025$, $\eta = .22$. These results indicate that the manipulation was successful.²

Stereotypes

A 2 X 2 mixed model ANOVA was conducted on the stereotype content indices. The between-participants factor was Country Paired with Negative Stimuli (Eritrea or Mauritania),

which constituted the manipulation of affect. The within-participants factor was stereotype endorsement along two distinct Stereotype Content Dimensions (warmth, competence).

There was a main effect of the experimental manipulation, indicating a relatively more negative stereotype of the country paired with negative stimuli, $F(1,103) = 5.54, p = .020, \eta = .22$. This main effect was qualified by an interaction between the manipulation and the Stereotype Content Dimension variable, $F(1,103) = 6.28, p = .014, \eta = .24$.

Figure 1 reveals the nature of this interaction. When a country was paired with negative-affect stimuli, its inhabitants were stereotyped as lower in warmth ($M = 6.56, SD = 6.10$),³ compared to the inhabitants of the country paired with the positive-affect stimuli ($M = 9.77, SD = 5.23$), $F(1,103) = 8.43, p = .005; \eta = .28$. No such effect was observed on perceived competence, $F < 1, \eta = .00$. Competence stereotypes were endorsed to a similar extent regardless of whether a country was paired with negative-affect stimuli ($M = 4.17, SD = 2.43$) or positive-affect stimuli ($M = 4.62, SD = 2.36$).

These results demonstrate that the creation of mere prejudice (i.e., a content-free affective association) gives rise to content-based stereotypes. ITT suggests that negative stereotypes cause prejudice; by contrast, the current data show that prejudice can cause stereotypes. The data presented here are also reported in Crandall et al. (2011, Experiment 2). Crandall et al. found that stereotypes emerged along the warmth dimension but not the competence dimension across three experiments, using both subliminal and supraliminal conditioning methods. That we have consistently found null results for competence allows us to rule out the possibility that participants were simply matching negative affect to negative trait words, as stereotypes with specific content emerged in response to mere prejudice.

One explanation for why effects emerged on warmth but not competence is that warmth-related information carries straightforward implications for behavior (warmth = approach), whereas competence-related information can have a variety of behavioral consequences depending on additional contextual information. For example, when group members are perceived to be friendly, their competence is surely valued and consequently invites approach behaviors. By contrast, when group members are perceived to be hostile, competence can be dangerous and may instead prescribe behavioral avoidance. Therefore, stereotypes that focus specifically on warmth may carry the most straightforward and unambiguous justifications for prejudice (addressed more fully in the General Discussion).

Experiment 1 demonstrated that prejudice can increase endorsement of negative stereotypes in the warmth domain. Although negative stereotypes are considered by ITT to be a specific type of threat, Experiment 1 did not directly test the hypothesis that prejudices causes heightened perception of threat. Experiment 2 will introduce a measure of perceived threat. An additional limitation of Experiment 1 is that it used a forced-choice measure of stereotype traits, which introduces statistical dependency among evaluations of the two target groups. In response to this concern, dependent measures were assessed with continuous response scales in all subsequent experiments.

Experiment 2

Experiment 2 focused on the perception of threat and its relation to prejudice. Threat perception is an integral component of self-protective (or group-protective) strategies that is readily activated in intergroup contexts. ITT suggests that “the essence of threat is the fear of negative consequences” (Stephan & Stephan, 2000, p. 27). The theory assumes that the anticipation of negative consequences (i.e., threat perception) causes prejudiced responses,

though an equally plausible prediction is that the activation of prejudice makes threat perception more likely to occur. Prejudice is likely to cause perception of threat because potential negative outcomes are consistent with felt negative affect, and hence, may be more accessible than potential positive outcomes. Threat can cause prejudice (e.g., L. M. Jackson & Esses, 2000; Stephan et al., 2005), and the primary goal of Experiment 2 was to reverse the direction of causality proposed by ITT, to determine whether prejudice might also cause perception of threat.

Experiment 2 used the same affective conditioning procedure as in Experiment 1 to create content-free affective associations with the unfamiliar social groups Eritrea and Mauritania. A new dependent measure, perceived threat, was assessed following the activation of negative affect. This measure combines cognitive and behavioral facets of threat including the belief that the group is threatening and comfort with intergroup contact. Experiment 1's measure of stereotype trait endorsement assessed perceptions of warmth and competence, which are abstract qualities that may not directly capture the concept of threat as articulated by ITT. If the essence of threat is the anticipation of negative consequences, then threat—unlike warmth and competence—bears a certain immediacy that often comes from actual or anticipated intergroup contact. Thus Experiment 2 used a measure of perceived threat that incorporated social distance items, which required that participants imagine the possibility of interacting with members of the group being evaluated.

Method

Participants

Participants were 75 undergraduates (49 women) at the University of Kansas from the introductory psychology subject pool. They received course credit for participating in the study.

Conditioning Procedure

The conditioning procedure and cover story were exactly the same as in Experiment 1.

Dependent Measures

Perceived threat scale. Following the conditioning procedure, participants completed the primary dependent measure of perceived threat. Each of the groups was rated within-participants. The three-item scale ($\alpha = .67, .62$ for Eritrea and Mauritania, respectively) included the following items: “How threatening are Eritreans (Mauritanians) likely to seem to their neighbors? (1 = *not at all threatening*, 7 = *extremely threatening*),” “I would like Eritreans (Mauritanians) to move into my neighborhood [reversed],” and “Eritreans (Mauritanians) are the kind of people I tend to avoid” (1 = *strongly disagree*, 7 = *strongly agree*). The latter two of these items were adapted from Crandall’s (1991) adaptation of the Bogardus social distance scale (Bogardus, 1933). The order in which countries were rated (Eritrea first or Mauritania first) was varied across the three threat scale items. Items were presented in the same order for all participants.

Affective ratings. Affective ratings were assessed last, using the same scale as used in Experiment 1.

Results and Discussion

Affective Ratings

Analyses on ratings of Eritrea and Mauritania revealed only the expected interaction (counterbalanced main effect) of the affective manipulation and the within-participants assessment of country rated, indicating more negative feelings toward the country paired with negative stimuli ($M = 51.25, SD = 19.78$) compared to the country paired with positive stimuli

($M = 56.98$, $SD = 18.86$), $F(1, 73) = 5.88$, $p = .018$, $\eta = .27$. These results indicate that the manipulation was successful.

Perceived Threat

A 2 X 2 mixed model ANOVA was conducted on the perceived threat scale. The between-subjects factor was Country Paired with Negative Stimuli (Eritrea or Mauritania), which constituted the manipulation of affect. The within-subjects factor was Country Rated (Eritrea, Mauritania). Results revealed only a significant interaction (counterbalanced main effect) between the manipulation of affect and Country Rated, $F(1, 73) = 5.49$, $p = .02$, $\eta = .26$. When a country was paired with negative-affect stimuli, its inhabitants were perceived as more threatening ($M = 3.42$, $SD = 1.37$) compared to when a country was paired with positive-affect stimuli ($M = 3.06$, $SD = 1.16$). In the absence of any information about the countries, associating a country with negative affect resulted in its inhabitants being perceived as more threatening and more like the kind of people that ought to be avoided, compared to when a country was associated with positive affect.

Analysis of the single item from the perceived threat scale that taps the cognitive rather than behavioral component of threat perception (“How threatening are Eritreans (Mauritanians) likely to seem to their neighbors?”) revealed the same pattern of results. The expected interaction (counterbalanced main effect) between the manipulation of affect and Country Rated was significant, $F(1, 73) = 4.06$, $p < .05$, $\eta = .23$.

The creation of a mere affective association with a social group caused new perceptions of threat posed by that group to emerge. ITT suggests that threat causes prejudice; Experiment 2 tested the reverse causal model and demonstrated that prejudice can cause heightened perception

of threat. Perceptions of threat emerged after the activation of negative affect, in the absence of any content-based information about the groups.

These findings are consistent with the idea that threat perception provides an acceptable justification for prejudice. In intergroup situations, one may become aware of negative feelings toward the outgroup before having formed an explanation for why one has such feelings. Unexplained prejudice is uncomfortable for the perceiver because it is at odds with egalitarian ideals and social norms of non-prejudice (Crandall & Eshleman, 2003). Threat perception that is consistent with affective reactions (bad groups are threatening; good groups are non-threatening) minimizes psychological tension and helps to maintain balance (Heider, 1958). Thus threat perception is a likely outcome when prejudiced feelings are activated because it can provide the perceiver with an acceptable justification for prejudice.

ITT suggests that threat reflects the fear of negative consequences; threat posed by another group becomes an immediate concern when one anticipates intergroup contact. Participants in Experiment 2 were more likely to perceive members of the target group as threatening after the activation of negative affect toward that group. This emergent threat perception reflects concern over potential negative consequences of the anticipated contact, sparked by the suggestion that members of the group might move into the neighborhood. Perceiving the group as threatening may be an acceptable explanation for the affect-driven inclination to stay away from members of the disliked group. Findings from Experiment 2 suggest that threat perception can be constructed in response to a mere affective association—perhaps even without conscious awareness—as justification for prejudice.

Experiment 3

Experiments 1 and 2 found that newly created prejudice leads to a reliable pattern of cognitive responses—increased stereotyping in the dimension of warmth but not competence, and heightened perception of threat. One might infer that these effects will in turn direct behavioral responses, with unfriendly and threatening groups being more likely to be avoided. IET (Mackie et al., 2000; E. R. Smith, 1993) and the sociofunctional approach to prejudice (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2002) propose that affective reactions direct intergroup behavior. Cottrell and Neuberg have named their framework the sociofunctional approach because its focus is on how threat evokes *functionally relevant* emotions. For example, the theory predicts that fear motivates escape-oriented behaviors, disgust motivates avoidance-oriented behaviors, and anger motivates aggressive behaviors.

Both IET and the sociofunctional approach assume that cognitive appraisal of threat has temporal and causal precedence in evoking the affective reactions that guide behavior. Experiment 3 tested the reverse causal model to determine whether prejudiced affect has a direct effect on behavioral response tendencies that is independent of threat perception. In contrast to cognitively-oriented theories, an affective primacy perspective conceptualizes stereotyping and threat perception as mediators of the effect of affect on behavior. Experiment 3 tested the mediational hypothesis that prejudice directs behavioral response tendencies through emerging stereotypes and perceptions of threat. Experiment 2 used an exploratory measure of perceived threat for which construct validity has not been established. In effort to improve measurement of the construct, Experiment 3 adapted a measure of perceived threat from an empirically validated scale (Avery, Bird, Johnstone, Sullivan, & Thalhammar, 1992).

The pattern of stereotypes found in Experiment 1 might reasonably be accounted for by the relative clarity of behavioral implications provided by warmth-related information compared to competence-related information. Warmth carries straightforward behavioral implications (warmth = approach), whereas competence can have a variety of behavioral implications depending on the context. For example, a competent group might wisely be approached if they are also perceived to be friendly, but a competent enemy surely warrants avoidance. It seems plausible that prejudice would cause stereotypes of warmth to emerge more readily than stereotypes of competence, because warmth is unambiguous in its behavioral implications, but this explanation was not empirically tested in Experiment 1. Thus the primary goal of Experiment 3 was to test the hypothesis that a newly created prejudice affects behavioral response tendencies. Three different categories of behavioral response tendency were measured: approach behaviors, avoidance behaviors, and aggressive behaviors. These three categories map onto the action tendencies described by the sociofunctional theory. Additionally, Experiment 3 sought to replicate the pattern of results from previous experiments with a continuous measure of stereotype trait endorsement assessing three stereotype content dimensions: warmth-relevant, competence-relevant, and threat-relevant traits.

Method

Participants

Participants were 88 undergraduates (58 women) at the University of Kansas from the introductory psychology subject pool. They received course credit for participating in the study.

Pre-testing of Target Countries

The same pre-testing sample reported in Experiment 1 (see Table 1) was used to select a different pair of target countries for Experiment 3, in order to determine whether the previous

findings could be replicated with a different set of countries. Two countries received mean affect ratings that were very close to the midpoint of the scale (Azerbaijan $M = 55.17$, $SD = 19.39$, Mauritania $M = 53.57$, $SD = 19.85$); the mean difference was not significant, $p > .57$. On a rating scale (1 = *I've never heard of it*, 2 = *I've heard of it but don't know where it is*, 3 = *I've heard of it and know where it is*), the same two countries were rated as unfamiliar (Azerbaijan $M = 1.82$, $SD = 0.72$, Mauritania $M = 1.43$, $SD = 0.69$; the mean difference was not significant, $p > .05$). Azerbaijan and Mauritania were chosen as the target countries for Experiment 3.

Evaluative Conditioning Procedure

The conditioning procedure and cover story were exactly the same as in Experiments 1 and 2, except that Azerbaijan replaced Eritrea as one of the target countries, and Eritrea replaced Azerbaijan as one of the five country names participants searched for in the video surveillance task. In addition, I selected the set of the positive and negative words used in the conditioning procedure from the Affective Norms for English Words database (Bradley & Lang, 1999; see Appendix B).

Dependent Measures

Experiment 3 introduced a new measure of stereotype traits that used a continuous rather than forced-choice response scale. A new stereotype content dimension, threat-relevant traits, was also introduced in Experiment 3, as well as a measure of behavioral response tendencies.

Affective ratings. In contrast to previous experiments, affective ratings were assessed first. Participants completed the same affective rating scale used in Experiments 1-2.

Stereotype traits. Immediately following the affective rating scales, participants were presented with a series of paired stereotype traits which they rated on 7-point semantic differential scales. Five pairs of traits reflected the *warmth* dimension (unfriendly-friendly,

insincere-sincere, not warm-warm, dishonest-honest, selfish-generous; $\alpha = .80$), five pairs of traits reflected the *competence* (lazy-hardworking, messy-neat, incapable-capable, unconfident-confident, incompetent-competent; $\alpha = .90$), and five pairs of traits comprised a *threat* dimension (safe-dangerous, good-bad, non-threatening-threatening, nonviolent-violent, trustworthy-cannot be trusted; $\alpha = .84$). Warmth and competence traits were adapted to the semantic differential format from the stereotype measure used in Experiment 1. Threat-relevant traits were adapted from the perceived threat scale (Avery et al., 1992). The order in which countries were rated (Azerbaijan first or Mauritania first) was randomized across participants. For ratings of each country, stereotype traits were intermixed across the three content dimensions and presented in random order. Separate warmth, competence, and threat stereotype indices were computed for Azerbaijan and Mauritania, representing endorsement of warmth-relevant, competence-relevant, and threat-relevant traits for each group.

Behavioral response tendencies. Behavioral response tendencies were assessed last. Participants indicated their anticipated behavioral responses, after being asked to consider how they might react if they were to meet immigrants from the countries Azerbaijan and Mauritania face to face. I adapted a measure of behavioral response tendencies from Lalljee, Tam, Hewstone, Laham, and Lee (2009). Three items ($\alpha = .41$) assessed approach tendencies (“Find out more about them,” “Spend time with them,” “Talk to them”), three items ($\alpha = .85$) assessed avoidant tendencies (“Keep them at a distance,” “Have nothing to do with them,” “Avoid them”), and three items ($\alpha = .55$) assessed aggressive tendencies (“Oppose them,” “Confront them,” “Argue with them”), on a 7-point scale (1 = *definitely would not react this way*, 7 = *definitely would react this way*). The order in which countries were rated (Azerbaijan first or Mauritania first) was randomized across participants. For ratings of each country, items were

intermixed across the three categories of behavioral response tendency and presented in random order.

Results and Discussion

Affective Ratings

Analyses on ratings of Azerbaijan and Mauritania revealed a trend for more negative feelings to be reported for the country paired with negative stimuli ($M = 53.01$, $SD = 22.69$) compared to the country paired with positive stimuli ($M = 56.38$, $SD = 21.76$), $F(1, 86) = 1.64$, $p = .20$, $\eta = .14$. The modest effect size is somewhat smaller than effects from previous experiments using a similar conditioning procedure ($\eta_s = .22, .27$). This may be due to the increased length of the dependent measures; the effects of this type of conditioning manipulation are known to fade quickly (Bargh & Chartrand, 2000). Because the manipulation significantly affected the dependent measures assessed immediately following the conditioning procedure, it is likely that the manipulation of affect was successful in creating new affective associations with the groups although the strength of this association had diminished by the end of the experimental session.

Behavioral Response Tendencies

A 2 X 3 X 2 mixed model ANOVA was conducted on behavioral response tendencies. The between-subjects factor was Country Paired with Negative Stimuli (Azerbaijan or Mauritania), which constituted the manipulation of affect. The within-subjects factors were Behavioral Response Tendency (approach, avoid, aggress) and Country Rated (Azerbaijan, Mauritania). There was a three-way interaction between the manipulation, Behavioral Response Tendency and Country Rated, $F(2, 172) = 5.88$, $p = .003$, $\eta = .25$.

Figure 2 reveals the nature of this interaction; means and correlations among the behavioral response tendencies are reported in Table 2. When a country was paired with negative stimuli participants were less likely to approach immigrants from that country, $F(1,86) = 8.86, p = .004, \eta = .30$, and more likely to anticipate behaving aggressively toward immigrants from that country, $F(1,86) = 6.48, p = .01, \eta = .26$. The manipulation had no effect on avoidance behaviors, $F(1,86) = 0.28, p = .60, \eta = .05$. These results show that newly created prejudice increased aggressive response tendencies and decreased approach-oriented response tendencies, providing new evidence that mere prejudice directs anticipated behavioral responses.

Stereotypes

A 2 X 3 X 2 mixed model ANOVA was conducted on the stereotype content indices. The between-subjects factor was Country Paired with Negative Stimuli (Azerbaijan or Mauritania), which constituted the manipulation of affect. The within-subjects factors were Stereotype Content Dimension (warmth, competence, threat) and Country Rated (Azerbaijan, Mauritania). There was a three-way interaction between the manipulation, Stereotype Content Dimension and Country Rated, $F(2, 172) = 4.94, p = .008, \eta = .23$.

Figure 3 reveals the nature of this interaction; means and correlations among the stereotype content dimensions are reported in Table 3. When a country was paired with negative stimuli, its inhabitants were stereotyped as lower in warmth, compared to the inhabitants of the country paired with the positive stimuli, $F(1, 86) = 5.54, p = .02; \eta = .25$. The effect on perceived competence was relatively smaller, $F(1, 86) = 3.57, p = .06, \eta = .20$. When a country was paired with negative stimuli its inhabitants were stereotyped as more threatening, compared to the inhabitants of the country paired with the positive stimuli, $F(1, 86) = 4.18, p = .04; \eta = .21$. The data from Experiment 3 replicated the pattern of findings from Experiments 1 and 2,

combining the effects for stereotypes and threat into a single measure of warmth-relevant, competence-relevant, and threat-relevant traits.

Meta-Analysis

Fixed-effects meta-analysis was used to compare the conditioning manipulation's effects on ratings of warmth, competence, and threat in Experiments 1-3. The type of effect size used was the standardized mean gain (ES_{sg}), the appropriate statistic for repeated measures designs (Lipsey & Wilson, 2001). The mean weighted effect size was significant for warmth ($ES_{sg} = .23$) and threat ($ES_{sg} = .23$), but not significant for competence ($ES_{sg} = .17$). Across three experiments ($N = 268$), stereotypes in the dimension of warmth but not competence, and threat perception (threat-relevant stereotypes) emerged after the creation of a mere affective association with an unfamiliar social group.

Mediational Analyses

I used Preacher and Hayes' (2008) bootstrapping macro to test the stereotype content dimensions of warmth, competence, and threat as potential mediators of the effect of the conditioning manipulation on behavioral response tendencies. I tested separate models for the three types of behavioral responses. Because stereotype trait ratings and behavioral response tendencies were assessed as repeated measures (i.e., participants rated both Azerbaijan and Mauritania), these models tested the effects of the manipulation on ratings of one country while controlling for the within-participant ratings of the other country.⁴

As shown in Figure 4a, the manipulation affected threat-relevant stereotype traits ($\beta = .57, p = .03$), warmth stereotypes ($\beta = -.44, p = .03$), competence stereotypes ($\beta = -.43, p = .02$), and decreased approach-oriented behaviors ($\beta = -.82, p = .002$). The manipulation's effect on approach-oriented behaviors was substantially reduced after controlling for stereotype traits ($\beta =$

-.51, $p = .03$). The results with 1000 bootstrap samples indicated that the indirect effect of the conditioning manipulation on approach-oriented behaviors through threat-relevant traits was significant, with a 95% confidence interval of -.57 to -.01. The conditioning manipulation increased endorsement of threat-relevant stereotypes, which in turn decreased approach-oriented response tendencies. The indirect effects of conditioning on approach behaviors through warmth and competence stereotypes were not significant.

As shown in Figure 4b, the manipulation was positively but nonsignificantly⁵ related to avoidance behaviors ($\beta = .31, p = .28$). The manipulation's effect on avoidance behaviors was substantially reduced after controlling for stereotype traits ($\beta = .02, p = .93$). The results with 1000 bootstrap samples indicated that the indirect effect of the conditioning manipulation on avoidance behaviors through warmth stereotypes was significant, with a 95% confidence interval of .06 to 1.00. The conditioning manipulation decreased endorsement of warmth stereotypes, which in turn increased avoidance-oriented response tendencies. The indirect effects of conditioning on avoidance behaviors through threat-relevant traits and competence stereotypes were not significant.

As shown in Figure 4c, the manipulation also had a significant effect on aggressive response tendencies ($\beta = .39, p < .05$). The manipulation's effect on aggressive response tendencies was only slightly reduced after controlling for stereotype traits ($\beta = .30, p = .14$). The results with 1000 bootstrap samples indicated that the indirect effects of conditioning on aggressive behaviors through stereotypes were not significant for any of the three stereotype content dimensions. The conditioning manipulation increased aggressive response tendencies, but this effect was not mediated by stereotype trait endorsement.

IET and the sociofunctional approach to prejudice assume that cognitive appraisal of threat is a necessary precursor to experiencing an affective reaction, suggesting that affect mediates the relationship between threat and behavior. I tested the reverse causal models suggested by these theories, using affective ratings rather than the experimental manipulation as the proposed mediator of the relationship between stereotypes and behavioral responses. I tested a series of models (nine in all) with stereotypes of warmth, competence or threat as the independent variable, affect as the proposed mediator, and approach, avoidance, or aggressive responses as the dependent variable (see Figure 5). Table 4 reports the results with 1000 bootstrap samples for the test of the indirect effect of affect hypothesized by IET and the sociofunctional approach. The indirect effect of affect was not significant for any of the nine models tested.

Findings from Experiment 3 show that prejudiced affect influenced behavioral response tendencies, in an experimental context in which stereotype endorsement and perception of threat were unlikely to have preceded the activation of negative affect. Furthermore, the results suggest that the effect of prejudice on anticipated social behavior can be explained by cognitive processes such as stereotyping and perception of threat. The effect of conditioned prejudice on approach-oriented behaviors was mediated by threat-relevant stereotype traits, and the effect of conditioned prejudice on avoidance behaviors was mediated by warmth stereotypes. By comparison, the effect of conditioned prejudiced on aggressive behaviors was not mediated by stereotype endorsement. The reverse causal models were not supported by the data.

Together, these results are consistent with the perspective that affective responses temporally precede and causally influence cognitive responses (Dijker, 1987; Jussim et al., 1995; Pryor et al., 1999; Zajonc, 1980). In intergroup situations, knowing how we feel about a group is

enough to influence how we behave toward the group. Stereotypes and perception of threat may emerge after the activation of negative affect, perhaps because they provide the perceiver an acceptable justification for prejudice.

Experiment 4

Experiment 4 focused on specific emotions involved in prejudice and tested the hypothesis that disgust and fear are associated with unique patterns of cognitive and behavioral responses. Intergroup emotions theory (IET; Mackie et al., 2000; E. R. Smith, 1993) and the sociofunctional approach to prejudice (Neuberg & Cottrell, 2002) both focus on how specific emotions in intergroup contexts are associated with specific kinds of threat and behavioral responses. Both theories propose a single causal pathway from threat appraisal to specific emotions involved in prejudice, which in turn direct behavior. By contrast, Experiment 4 tested a model in which specific emotional reactions to social groups temporally precede and causally influence threat perception and behavioral response tendencies.

Affective reactions in intergroup contexts encompass a whole range of specific emotions, such as disgust, anger, fear, contempt, guilt, envy, admiration, and pity. Many of these emotions have been studied from an IET or sociofunctional perspective, though neither theory makes any claims about this list being comprehensive. I selected disgust and fear as the targeted negative emotions in Experiment 4 for two main reasons. First, previous research suggests potentially different behavioral responses for disgust and fear. From an evolutionary perspective, fear promotes behavioral avoidance and thus facilitates escape from potential harm (e.g., Carver, 2001; Frijida, 1986; Ohman, 1993). Schaller and Duncan (2007) argue that disgust also motivates avoidance as part of the behavioral immune system's effort to avoid parasites and disease—a response that is immediate, impulsive, and probably not consciously considered.

They note that the more planful actions that are required to address long-term threats require the involvement of higher-order cognitive processes. Therefore, disgust may motivate other behavioral responses such as aggression, depending on intervening cognitions, which could include perception of threat.

The second reason disgust and fear were targeted is that previous research suggests the two emotions will be associated with different kinds of threat. *Realistic threats* reflect concern over the ingroup's safety and welfare, whereas *symbolic threats* reflect concern that cherished morals and values are being violated (Stephan et al., 1999). Disgust is more likely to signal symbolic threat, as disgust has been shown to increase moral judgment (Rozin, Haidt, & McCauley, 2008; Schnall, Haidt, Clore, & Jordan, 2008). By comparison, fear is more likely to signal realistic threat given that fear is usually triggered by the detection of potential harm (Ohman, 1993).

If disgust and fear prompt different kinds of threat perception, then they are likely to be associated with different behavioral responses. For example, symbolic threat has been shown to predict aggressive behaviors (Carlo, Mestre, Samper, Tur, & Armenta, 2010; Talley & Bettencourt, 2008). By contrast, perceived realistic threat to the majority group's status has been shown to increase same-race voting preference (Bohm, Funke, & Harth, 2010; c.f., Kinder & Sears, 1981), which could indicate either an approach-oriented response to the ingroup or an avoidant response to the outgroup.

Based on the research described above, Experiment 4 tested several predictions regarding the effects of disgust and fear on threat perception and behavioral response tendencies. Fear was predicted to increase realistic threat and avoidant response tendencies, and to decrease approach-oriented response tendencies. Disgust was predicted to increase symbolic threat and aggressive

response tendencies. Experiment 4 also tested the hypothesized meditational models in which the effects of fear and disgust on behavioral responses are mediated by perceived realistic and symbolic threat, respectively.

Method

Participants

Participants were 95 (56 women) individuals recruited from the University of Kansas and from the Lawrence, Kansas community. They each received ten dollars for participating in the study; participant payments were funded by a Grants-in-Aid dissertation award from the *Society for Psychological Study of Social Issues*.

Pre-testing of Stimuli

A separate sample of 74 participants rated pictures from the International Affective Picture System database (Lang et al., 2005) database selected to evoke the specific emotions of disgust or fear. Participants rated one of two sets of 33 pictures, indicating for each how much the image made them feel disgusted, angry, discouraged, fearful, interested, or happy (1 = *not at all*, 5 = *very much so*) using items from the differential emotions scale (Izard, Libero, Putnam, & Haynes, 1993; see Appendix D). From these results I selected ten disgust-provoking images and ten fear-provoking images (see Appendix A) for use in Experiment 4.

A second pre-test sample of 42 participants rated a set of 32 words, indicating for each how much the word made them feel disgusted, angry, discouraged, fearful, interested, or happy (1 = *not at all*, 5 = *very much so*). Selection of stimuli was based on the criteria that the image or word had high ratings (above the midpoint of the scale) on the targeted emotion and low ratings (below the midpoint of the scale) on the other five emotions assessed. From these results I selected ten disgust-provoking words and ten fear-provoking words (see Appendix B).

Evaluative Conditioning Procedure

The conditioning procedure and cover story were exactly the same as in Experiments 1 and 2, except that the disgust-provoking or fear-provoking stimuli selected in pre-testing were used instead of the negative-affect stimuli used previously. Eritrea and Mauritania were the target countries.

Experimental design. Two between-subjects factors were varied—Negative Emotion Targeted (disgust or fear) and Country Paired with Negative Stimuli (Eritrea or Mauritania)—resulting in four experimental conditions: (1) Eritrea paired with disgust-provoking stimuli and Mauritania paired with positive-affect stimuli, (2) Mauritania paired with disgust-provoking stimuli and Eritrea paired with positive-affect stimuli, (3) Eritrea paired with fear-provoking stimuli and Mauritania paired with positive-affect stimuli, and (4) Mauritania paired with fear-provoking stimuli and Eritrea paired with positive-affect stimuli. One could think of this experiment as two “mini” studies: Experiment 4A (disgust compared to positive-affect control) and Experiment 4B (fear compared to positive-affect control).

A second instantiation of conditioning was also added in Experiment 4 due to the extended length of the dependent measures. The second conditioning phase repeated the first two blocks of trials from the initial conditioning phase. Participants were told that the second (shorter) round of the video surveillance task was an opportunity to improve their score. Immediately following the second conditioning phase, all participants received the same (bogus) feedback that they had improved their score in the second round.

Dependent Measures

Affective ratings. Immediately following the first conditioning phase, participants completed the same affective rating scales used in Experiments 1-3. Participants next completed

items from the differential emotions scale (Izard et al., 1993) measuring how much Eritrean and Mauritanian immigrants made them feel disgust, fear, enjoyment, and anger (see Appendix D). The order in which countries were rated (Eritrea first or Mauritania first) was randomized across participants, and the order of presentation of the six emotion items was randomized within country.

Stereotype traits. Next participants completed the same measures of stereotype traits used in Experiment 3.

Realistic and symbolic threat scales. Immediately following the second conditioning phase, participants reported perceived threat posed by each of the groups with items adapted from the realistic and symbolic threat scales (Stephan et al., 1999). Four items ($\alpha = .84$) measured realistic threat; four items ($\alpha = .85$) measured symbolic threat (see Appendix D). Eritrea and Mauritania were rated within-participants using a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). The order in which countries were rated (Eritrea first or Mauritania first) was randomized across participants. For ratings of each country, realistic and symbolic threat items were intermixed and presented in random order.

Behavioral response tendencies. Behavioral response tendencies were assessed last, using the same measure as used in Experiment 3.

Results and Discussion

Affective Ratings

When *disgust* was the emotion targeted in the conditioning procedure, analyses on affective ratings of Eritrea and Mauritania revealed a significant effect for more negative feelings to be reported for the country paired with negative stimuli ($M = 53.58$, $SD = 19.86$) compared to the country paired with positive stimuli ($M = 58.71$, $SD = 18.28$), $F(1, 45) = 4.54$, $p = .039$, η

=.20. When *fear* was the emotion targeted ($F < 1$), affective ratings toward a country did not significantly differ for the country paired with negative stimuli ($M = 51.73, SD = 18.19$) and the country paired with positive stimuli ($M = 53.61, SD = 17.94$). These results indicate that the manipulation of disgust had a stronger effect on general affective evaluations of the groups than did the manipulation of fear.

Disgust manipulation. Analyses on emotion scales revealed a significant effect of the disgust manipulation such that participant ratings of *disgust* were higher when a country was paired with disgust-provoking stimuli ($M = 1.47, SD = 0.99$) compared to when a country was paired with positive-affect stimuli ($M = 1.17, SD = 0.49$), $F(1, 45) = 5.82, p = .02, \eta = .33$. The disgust manipulation had no significant effect on participant ratings of *fear*, $F(1, 45) = 1.66, p = .21, \eta = .19$. Participants experienced about the same amount of fear when a country was paired with disgust-provoking ($M = 1.47, SD = 0.84$) or positive-affect stimuli ($M = 1.32, SD = 0.68$). Anger ($F(1, 45) = 1.62, p = .21, \eta = .19$) and enjoyment ($F < 1$) were unaffected by the disgust manipulation. Pairing a country with disgust-provoking stimuli evoked about the same amount of anger ($M = 1.52, SD = 0.96$) and enjoyment ($M = 2.09, SD = 1.09$) as pairing a country with positive-affect stimuli ($M_s = 1.34, 2.18, SD_s = 0.88, 1.10$ for anger and enjoyment, respectively).

Fear manipulation. Analyses on emotion scales revealed the fear manipulation did not significantly affect participant ratings of *fear*. Participants experienced only slightly more fear associated with a country when it was paired with fear-provoking stimuli ($M = 1.42, SD = 0.89$) compared to when it was paired with positive-affect stimuli ($M = 1.23, SD = 0.58$), $F(1, 46) = 2.34, p = .13, \eta = .22$. In fact, the fear manipulation had a stronger effect on participant ratings of disgust than it had on participant ratings of fear. Participants experienced more disgust when a country was paired with fear-provoking ($M = 1.34, SD = 0.81$) compared to positive-affect

stimuli ($M = 1.17$, $SD = 0.38$), $F(1, 46) = 2.75$, $p = .10$, $\eta = .24$. The fear manipulation also significantly increased anger, $F(1, 46) = 4.83$, $p = .03$, $\eta = .31$. Participants experienced more anger when a country was paired with fear-provoking ($M = 1.42$, $SD = 0.83$) compared to positive-affect stimuli ($M = 1.21$, $SD = 0.46$). Enjoyment was unaffected by the fear manipulation ($F < 1$). Pairing a country with fear-provoking stimuli evoked about the same amount of enjoyment ($M = 2.02$, $SD = 1.07$) as pairing a country with positive-affect stimuli ($M = 2.15$, $SD = 1.13$).

Taken together, these findings indicate that only the manipulation of disgust was successful in influencing general affective evaluations and in uniquely priming only the emotion targeted. The manipulation of fear failed in both of these respects, and consequently the data from these conditions (Experiment 4B) will be excluded from the main analysis (Appendices D and E report the results for the fear manipulation). It could be that the disgust manipulation was more effective than the fear manipulation in creating new affective associations with Eritrean and Mauritanian immigrants because of a pre-existing association between disgust and foreign or unfamiliar people, which has been demonstrated in previous research (Navarrete & Fessler, 2006; Rozin, Haidt, McCauley, & Imada, 1997; Schiefenhovel, 1997). In any case, the manipulation of fear had a larger effect on disgust (and anger) than on fear, and the manipulation thus generates data that is essentially uninterpretable.

Perception of Threat

A 2 X 2 X 2 mixed model ANOVA was conducted on the perception of threat. The between-subjects factor was Country Paired with Disgust-provoking Stimuli (Eritrea or Mauritania). The within-subjects factors were Threat Type (realistic, symbolic) and Country Rated (Eritrea, Mauritania). The two-way interaction of the manipulation and country rated was

significant, indicating a main effect of disgust conditioning, $F(1, 44) = 7.53, p = .009, \eta = .38$. There were no other significant effects or interactions.

Figure 6 depicts these results; means and correlations among the types of threat perception are reported in Table 5. As predicted, when a country was paired with disgust-provoking stimuli, its inhabitants were perceived to pose more realistic threat compared to when it was paired with positive-affect stimuli, $t(46) = 2.94, p = .01$. In addition, when a country was paired with disgust-provoking stimuli, its inhabitants were perceived to pose more symbolic threat, $t(45) = 2.39, p = .02$. Disgust, or an affective association created from pairing disgust-provoking stimuli with an unfamiliar country name, heightened perception of realistic threat and symbolic threat posed by inhabitants of the targeted country.

Behavioral Response Tendencies

A 2 X 3 X 2 mixed model ANOVA was conducted on behavioral response tendencies. The between-subjects factor was Country Paired with Disgust-provoking Stimuli (Eritrea or Mauritania). The within-subjects factors were Behavioral Response Tendency (approach, avoid, aggress) and Country Rated (Eritrea, Mauritania). The three-way interaction of the disgust manipulation, behavioral response tendency, and country rated was marginally significant, $F(2, 88) = 2.84, p = .06, \eta = .25$. Follow-up tests revealed the simple effect of disgust conditioning was significant for aggressive responses ($F(1, 44) = 3.99, p = .05, \eta = .29$) but nonsignificant for approach-oriented ($F(1, 44) = 2.25, p = .14, \eta = .22$) and avoidant responses ($F(1, 44) = 1.02, p = .32, \eta = .15$).

Figure 7 depicts these results; means and correlations among the behavioral response tendencies are reported in Table 6. As predicted, when a country was paired with disgust-

provoking stimuli, participants reported being more likely to respond aggressively compared to when it was paired with positive-affect stimuli.

Stereotypes

A 2 X 3 X 2 mixed model ANOVA was conducted on the stereotypes content indices. The between-subjects factor was Country Paired with Disgust-provoking Stimuli (Eritrea or Mauritania). The within-subjects factors were Stereotype Content Dimension (warmth, competence, threat) and Country Rated (Eritrea, Mauritania). The predicted three-way interaction was not significant, $F(2, 90) = 2.07, p = .13, \eta = .21$.⁶ These results fail to replicate findings from Experiments 1-3; this is perhaps due to the failure of the fear manipulation and the consequent decision to exclude half of the data from analysis. Appendix E reports the stereotyping results using the full sample (including data from both the fear conditioning and disgust conditioning manipulations).

Mediational Analyses

I used Preacher and Hayes' (2008) bootstrapping macro to test realistic and symbolic threat as potential mediators of the effects of disgust on behavioral response tendencies. Because the pattern of effects was identical (though the direction of effects was opposite) for avoidance and approach behaviors, I used a composite variable calculated as avoidance minus approach to estimate these models. I tested separate models for the effect of disgust on aggressive behaviors and on avoidance-approach behaviors. I used the measured disgust scale as the independent variable in the models instead of the experimental manipulation. Because perceived threat and behavioral response tendencies were assessed as repeated measures (i.e., participants rated both Eritrea and Mauritania), these models tested the effects of negative emotion on ratings of one country while controlling for the within-participant ratings of the other country.⁷

As shown in Figure 8a, disgust had a significant effect on realistic ($\beta = .49, p = .0005$) and symbolic threat ($\beta = .66, p < .00005$). The more participants felt disgusted, the more threat they perceived; the effect was especially strong for symbolic threat. Disgust also had a significant effect on avoidance-approach behaviors ($\beta = .52, p = .009$). After controlling for realistic and symbolic threat, disgust was no longer related to avoidance-approach behaviors ($\beta = .01, p = .96$). The results with 1000 bootstrap samples indicated that the indirect effect of disgust on avoidance-approach response tendencies through realistic threat was significant, with a 95% confidence interval of .12 to 1.27. By contrast, the indirect effect of disgust on avoidance-approach behavior through symbolic threat was not significant (95% confidence interval -.26 to .47). The experience of disgust increased perceptions of realistic threat, which in turn increased anticipation of avoidance behaviors and decreased anticipation of approach-oriented behaviors.

As shown in Figure 8b, disgust was positively but nonsignificantly⁸ associated with aggressive behaviors ($\beta = .07, p = .42$). After controlling for realistic and symbolic threat, disgust was negatively associated with aggressive behaviors ($\beta = -.09, p = .29$). The results with 1000 bootstrap samples indicated that the indirect effect of disgust on aggressive response tendencies through symbolic threat was significant, with a 95% confidence interval of .08 to .50. By contrast, the indirect effect of disgust on aggressive response tendencies through realistic threat was not significant (95% confidence interval -.31 to .02). The experience of disgust increased perceptions of symbolic threat, which in turn increased anticipation of aggressive behaviors.

I also tested the reverse causal models (the models consistent with IET and the sociofunctional approach), with threat as the independent variable and disgust as the potential mediator of its effect on behavioral response tendencies.⁹ I tested separate models (four in all)

with realistic threat or symbolic threat as the independent variable, disgust as the mediator, and avoidance-approach or aggressive behaviors as the dependent variable.

As shown in Figure 9a, realistic threat increased disgust ($\beta = .43, p = .0008$). But the total effect of realistic threat on avoidance-approach behavior ($\beta = .91, p < .00005$) remained significant after controlling for disgust ($\beta = .79, p = .0002$). The indirect effect of realistic threat on avoidance-approach behavior was not significant (95% confidence interval $-.30$ to $.80$). The same pattern of results emerged for the model with symbolic threat as the independent variable. Symbolic threat increased disgust ($\beta = .49, p < .00005$), but the total effect of symbolic threat on avoidance-approach behavior ($\beta = .80, p < .00005$) remained significant after controlling for disgust ($\beta = .72, p = .0008$). The indirect effect of symbolic threat on avoidance-approach behavior was not significant (95% confidence interval $-.33$ to $.53$). The models suggested by IET and the sociofunctional approach were not supported by the data.

As shown in Figure 9b, symbolic threat increased disgust ($\beta = .50, p < .00005$). But the total effect of symbolic threat on aggressive behavior ($\beta = .35, p < .00005$) remained significant after controlling for disgust ($\beta = .39, p = .0001$). The indirect effect of symbolic threat on aggressive behavior was not significant (95% confidence interval $-.27$ to $.08$). The same pattern of results emerged for the model with realistic threat as the independent variable. Realistic threat increased disgust ($\beta = .44, p = .0007$), but the total effect of realistic threat on aggressive behavior ($\beta = .24, p = .01$) was only slightly reduced after controlling for disgust ($\beta = .18, p = .08$). The indirect effect of realistic threat on aggressive behavior was not significant (95% confidence interval $-.12$ to $.31$). Once again, the models suggested by IET and the sociofunctional approach were not supported by the data.

Findings from Experiment 4 support the hypothesized mediational framework for disgust. Disgust was associated with different behavioral responses depending on the specific type of threat being perceived. Disgust indirectly increased avoidant tendencies (and decreased approach tendencies) through heightened perception of *realistic threat*. By contrast, disgust indirectly increased aggressive responses through heightened perception of *symbolic threat*. The former result is consistent with research linking realistic threat to same-race voting preferences (Bohm et al., 2010). The latter result is consistent with previous research linking disgust to moral judgment and aggression (Schnall et al., 2008; Talley & Bettencourt, 2008).

Taken together, the results of Experiment 4 challenge the assumption made by IET and the sociofunctional approach that emotions are the mediators between threat appraisal and behavior. Instead, threat perception mediated the effects of disgust on behavioral response tendencies, whereas the reverse causal models were not supported by the data. These findings are consistent with the perspective that in intergroup situations, affective responses are primary. Newly created, affective associations specific to the emotion disgust caused heightened perception of threat, which in turn directed behavioral responses.

Experiment 4 was unable to support any causal predictions regarding the effect of fear on threat perception and behavioral response tendencies due to the failure of the fear conditioning manipulation. In fact, the fear manipulation evoked more disgust than fear. It could be that fear is often experienced in conjunction with other negative emotions in real social interactions. If this is true, experimental tests of the prediction that specific emotions cause specific threats may not be externally valid. Alternatively, it could be that associations between disgust and immigrants are formed more readily than associations between fear and immigrants, which would be consistent with previous work on the behavioral immune system and individual differences in

disgust sensitivity (Navarrete & Fessler, 2006; Schaller & Duncan, 2007). In this case, the experimental failure of the fear manipulation may reflect a methodological difficulty inherent to studying fear, rather than suggest that the specific emotions hypothesis is untenable or unimportant.

Other methods for experimentally manipulating fear should be investigated in order to determine whether the current study's predictions that fear causally influences realistic threat and behavioral avoidance can be supported. Investigating the effects of additional intergroup emotions on threat perception and behavioral responses also remains an important direction for future research. In particular, anger, unlike most negative emotions, is often associated with approach behaviors (Carver & Harmon-Jones, 2009). The hierarchical perspective of affect (Tellegen, Watson, & Clark, 1999) alternatively suggests that anger has both a specific and a non-specific component, with the former being linked to the appetitive/approach system and the latter being linked to the aversive/avoidance motivational system. Disentangling the effects of anger's dual structure in intergroup contexts could be an interesting and worthwhile empirical pursuit. Additionally, future studies should incorporate measures of actual behavioral responses in order to replicate and extend the results of the current experiment, which measured behavioral response tendencies.

General Discussion

Across four experiments I created new prejudices—content-free affective associations with unfamiliar social groups—and found that perception of threat emerged as a result of mere prejudice. The activation of negative affect heightened threat perception of all kinds, including realistic threat, symbolic threat, and threat-relevant stereotype traits. These experiments provide new evidence that prejudice causes perception of threat.

Conditioned prejudice caused stereotypes to emerge in the dimension of warmth but not competence—a pattern consistent with earlier findings (Crandall et al., 2011)—and affected behavioral response tendencies. In the absence of content-based information about the groups, groups associated with negative affect were perceived to be more dangerous, violent, and unfriendly, and were less likely to be approached and more likely to be aggressed against, compared to groups associated with positive affect.

All four experiments used affective conditioning to create new prejudices, but the exact procedures and dependent measures differed somewhat across experiments. Experiment 1 measured *stereotype traits* with a forced-choice measure based on ITT's treatment of negative stereotypes as a particular kind of threat (Stephan & Stephan, 2000). Experiment 2 measured *perceived threat* with a continuous measure incorporating both cognitive and behavioral aspects of threat. Experiment 3 introduced new target group names, a continuous measure of stereotype traits, and *behavioral response tendencies*. Experiment 4 created the emotionally specific affective association of disgust (and attempted to create a fear-specific affective association), and measured *realistic and symbolic threat*, behavioral response tendencies, and stereotype traits.

Despite these procedural differences, there was a consistent pattern of results across experiments: When a country was associated with negative affect its inhabitants were (a) stereotyped as relatively cold and threatening, (b) perceived to pose more realistic and symbolic threat, and (c) more likely to be targeted for aggression, and less likely to be targeted for approach-oriented responses relative to a country associated with positive affect.

Experiencing disgust in reference to a social group was associated with two possible behavioral outcomes: Disgust increased anticipated avoidance (and decreased approach) through heightened perception of realistic threat, whereas disgust increased anticipated aggression

through heightened perception of symbolic threat. These findings are consistent with the IET (Mackie et al., 2000; E. R. Smith, 1993) and sociofunctional approach (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2002) prediction that specific kinds of threat perception evoke different behavioral responses. However, the current work suggests that emotional reactions come *before* threat perception.

The hypothesized models in which the effect of affect on behavioral intentions is mediated by threat perception outperformed the reverse causal models suggested by IET and the sociofunctional approach in which the effect of threat on behavioral intentions is mediated by affect. The path from affect to threat was significant for both models, but the path from affect to behavior was not significant for the reverse causal models. Affect had a direct effect on behavior and a relatively weaker indirect effect. By contrast, threat perception had both a direct effect and an indirect effect on behavior. Affect directs behavior through perception of threat, but threat perception does not direct behavior through affect. This suggests that affective reactions are relatively more automatic and inflexible in comparison to threat perception. Threat perception can be constructed as justification for prejudiced affect, allowing the perceiver to legitimately act in accordance with her feelings. But threat's effect on behavior does not seem to be mediated by affect, perhaps because threat perception alone provides sufficient justification for behavioral discrimination. Taken together, these results demonstrate that affective reactions in intergroup contexts can (and typically do) temporally precede and causally influence perception of threat.

Why Warmth but not Competence?

The meta-analysis of stereotyping results from Experiments 1-3 determined that the pattern of findings was consistent across experiments: The conditioning manipulation significantly affected stereotype endorsement in the dimension of warmth but not in the

dimension of competence. What might account for the consistency of the stereotyping results? A feelings-as-information perspective (Schwarz, 1990) might argue that a negative affective association with a social group provides information about the likely characteristics of that group (e.g., negative traits). This sort of matching process implies that any and all negative stereotype traits should be endorsed following the activation of negative affect. However, stereotypes consistently emerged in the warmth domain and *not* in the competence domain. Thus it is highly unlikely that participants were merely matching negative affect to negative stereotype traits, as both warmth and competence are positive evaluative dimensions.

Both warmth and competence are fundamental dimensions of social perception. Evolutionary pressures dictate that in intergroup encounters, people must quickly determine a group's intent (warmth—friend or foe), and their ability to enact that intent (competence—able or unable). Yet several conceptual perspectives suggest perceivers place special priority on judgments of warmth (Cottrell, Neuberg, & Li, 2007; Fiske, Cuddy, & Glick, 2007; Schaller, 2008). When forming impressions, people seek out more information related to warmth than to competence, and warmth information contributes more to overall impressions than competence information (Wojciszke, Bazinska, & Jaworski, 1998). Trustworthiness (a central component of the warmth dimension) is a valued characteristic for all types of interdependent relationships, whereas other characteristics such as intelligence and competence are valued only when they are relevant to the specific context of interdependence (Cottrell et al., 2007). Furthermore, stereotypes connoting warmth versus coldness are relatively unambiguous in their implications for affect and interpersonal behavior: Perceptions of warmth encourage approach-oriented behaviors; perceptions of coldness encourage avoidance instead. By contrast, perceptions of

competence can have highly variable affective and behavioral implications, depending on additional contextual information.

From an evolutionary perspective, approach-avoidance motivation largely stems from a desire to avoid negative consequences and to escape harm (e.g., Schaller & Duncan, 2007). ITT suggests that the fear of negative consequences is the essence of threat; threat appraisal directly influences approach-avoidance motivation. Threat indicates potential harm and consequently signals behavioral avoidance (Carver, 2001; Mackie et al., 2000; Neuberg & Cottrell, 2002). The Stereotype Content Model (Fiske et al., 2002) proposes that perceived warmth derives from a group's competitive intent, whereas perceived competence derives from a group's status. Competition is arguably a more explicit indicator of threat than status as both high and low status groups could be an ally of one's own group, whereas only competitive (but not non-competitive) groups can be an enemy.

If warmth-relevant information carries behavioral implications related to approach-avoidance, it would serve as a marker of threat. Social groups perceived to be warm and friendly typically are perceived to pose low levels of threat whereas groups perceived to be cold and hostile often are perceived to pose high levels of threat. By contrast, groups perceived to be competent could just as easily be perceived to be threatening or non-threatening—depending on whether the group is also perceived to have friendly or hostile intent. Indeed, there was a strong correlation between judgments of threat and warmth ($r = -.84$; see Table 3); the correlation between threat and competence was comparatively moderate ($r = -.66$).

Threat as Justification for Prejudice

In the present research warmth-relevant and threat-relevant stereotypes emerged as correlated outcomes of prejudice, but competence-relevant stereotypes were relatively less

affected by the affective manipulation. Additionally, conditioned prejudice directed behavioral responses tendencies. This evidence is consistent with the argument that warmth stereotypes and perceptions of threat (relatively) unambiguously direct behavior, yet only mediational analysis can provide a direct test of the hypothesis. Indeed, the effect of the conditioning manipulation on behavioral response tendencies was mediated by heightened perception of threat. Conditioned prejudice caused threat-relevant stereotypes (Experiment 3) and heightened perception of realistic threat (Experiment 4), which in turn directed behavioral response tendencies by increasing avoidant tendencies and decreasing approach tendencies. These results provide initial empirical support for the idea that stereotypes that function in concert with threat detection—i.e., warmth-relevant and threat-relevant traits—may provide the most immediate and efficient justifications for prejudice.

I propose that perception of threat emerged as a consequence of negative affective associations because threat provides perceivers with a compelling justification for the experience of prejudice. A threat-as-justification perspective resonates with other psychological theories of cognitive consistency and balance (Festinger, 1957; Heider, 1958). Perception of threat may be especially effective in helping individuals maintain a subjective sense of consistency between felt affective associations with a target group and connotative beliefs about that group.

This kind of justification process is also consistent with the justification-suppression model of prejudice expression (Crandall & Eshleman, 2003). According to the JSM, social norms of equality dictate that intergroup prejudices are unacceptable, and consequently the experience of prejudice is unpleasant. The psychological discomfort aroused by the activation of negative affect associated with a social group can be reduced by the perceiver constructing an acceptable justification for the prejudice. Threat can emerge as justification for prejudice not

simply because of the general motive to maintain cognitive consistency, but because of the more specific goal of maintaining a self-image that is consistent with egalitarian ideals. To the extent that the implications of threat for affect and behavior are comparatively unambiguous (relative to competence, for example), threat perception can be an especially effective tool in maintaining the desired unprejudiced self-image.

I have emphasized the justification function of threat, although the relationship between prejudice and threat identified by the current research also fits within a broader set of psychological theories of threat. Realistic group conflict theory (RGCT; Sherif, 1966) conceptualizes prejudice as a justification of intergroup competition; the theory asserts that when groups compete for scarce resources, outgroup derogation serves to justify the goal of ingroup gain at the outgroup's expense. Social identity theory (SIT; Tajfel & Turner, 1986) maintains that individuals derive a sense of positive social identity (i.e., self-esteem) from their affiliation with the ingroup; outgroup derogation results when the positive value of the ingroup is somehow called into question (see Branscombe, Ellemers, Spears, & Doosje, 1999 for a discussion of different types of social identity threat). RGCT and SIT suggest that intergroup competition and social identity threat cause prejudice. A threat as justification perspective instead suggests that prejudice can come before and motivate perceived competition or perceived social identity threats as means of rationalizing felt negative affect.

Aversive racism theory (Gaertner & Dovidio, 1986) makes a very similar argument to the JSM in suggesting that people experience conflict between felt but unacknowledged prejudice and egalitarian values. When no justification for prejudice is available, aversive racists are motivated by their egalitarian values to suppress the unwanted negative affect and show no racial bias. When an external justification can be made, however, aversive racists will allow the

negative affect to bias their judgments and behavior. Aversive racism theory assumes that a mental representation of negative affect is preexisting, and therefore affect temporally precedes cognition in the model. The theory's predictions hinge on the availability of an external justification for prejudice, so that cognitive factors serve as releasers of prejudice. The current work demonstrates that threat perception is one such type of justification. Thus aversive racism theory is consistent with the idea that threat perception can be a justification for prejudice.

Theoretical Implications

The current research found support for the hypothesized model in which affective reactions to social groups temporally precede and causally influence threat perception and behavioral responses. These findings undermine the favored interpretation of the correlational basis of ITT, SDT, IET and the sociofunctional approach to prejudice. Each of these theories suggests that threat perception causes prejudice, though the theories differ in the extent to which specific causal predictions are made and in the empirical evidence available to support such causal claims.

ITT predicts that threat—including realistic threat, symbolic threat, negative stereotypes and intergroup anxiety—causes prejudice. The current research demonstrated just the opposite—prejudice causes heightened perception of threat; the finding was replicated across measures of realistic threat (Expt. 4), symbolic threat (Expt. 4), social distance (Expt. 2), and negative stereotypes in the dimensions of warmth-relevant and threat-relevant traits (Expt. 1-3). And while there is experimental evidence to support the ITT-preferred model that threat causes prejudice (Stephan et al., 2005), the current experiments provide new evidence for the reverse causal model. Therefore, an important theoretical contribution of the current research is that any correlational evidence cited in support of ITT (Stephan et al., 1999; Stephan et al., 1998) is

consistent with both directional paths—threat can cause prejudice, and prejudice can cause perception of threat—and thus do not uniquely support ITT.

SDT makes the similar but more specific prediction that threat to social hierarchy causes prejudice. Experimental evidence supports the theory's basic causal assumption (Esses, Jackson, & Armstrong, 1998; Nierman & Crandall, 2008, February; Pratto & Shih, 2000), though to my knowledge the reverse causal model has not been experimentally tested. The current research demonstrates that prejudice can cause perception of threat, although a more precise reversal of SDT would test the hypothesis that mere prejudice can cause perception of threat that is specific to a group's status in the social hierarchy. This remains an important direction for future research.

The sociofunctional approach to prejudice predicts that specific threats cause functionally specific emotional reactions, which in turn affect behavioral responses. The current research found that prejudiced affect causes stereotypes and perceptions of threat to emerge, which in turn can direct behavioral responses. Conditioned prejudice caused increased avoidance and decreased approach behaviors, and these effects were mediated by emergent stereotypes in the dimensions of warmth and threat, respectively (Expt. 3). Additionally, specific emotions were linked to differential behavioral responses through specific types of threat perception. The effect of disgust on avoidance-approach behavior was carried by realistic threat perception, whereas the effect of disgust on aggression was carried by symbolic threat perception (Expt. 4). The existing evidence in support of the sociofunctional approach (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2002) is correlational and thus does not uniquely support the theory's causal assumption that specific threats cause functionally specific emotional reactions. The current research supports the hypothesized model in which affective reactions causally influence threat

perception. By contrast, the causal direction suggested by the sociofunctional approach was not supported by the data. It should be noted, however, that the experimental method employed was not designed to provide the best test of this alternative hypothesis.

IET predicts that appraisals of potential harm to the ingroup cause specific intergroup emotions, which in turn affect behavioral responses. Thus IET makes very similar causal predictions to the sociofunctional approach, although IET emphasizes that both threat appraisal and emotional reactions reflect group-level concerns rather than personal concerns. The causal model suggested by IET has received experimental support (e.g., Mackie et al., 2000). The current research provides initial evidence in support of the reverse causal model, demonstrating that affective reactions can precede perception of threat, and that threat can in turn influence behavioral responses. However, a better test of the reversal of IET would ensure that all constructs are assessed at the group level. The current research did assess realistic and symbolic threat at the group level; participants rated the threat that they perceived Eritrean and Mauritanian immigrants to pose to American jobs and American values. Differential emotions and behavioral response tendencies, however, were assessed at the individual level. Participants reported their individual emotional reactions to the groups and their personal anticipated behavioral responses. Future research should manipulate intergroup emotions and measure perceived threat to the ingroup and behaviors enacted on behalf of the ingroup in order to more precisely test the causal assumptions of IET.

Bidirectionality of Prejudice and Threat

Recognizing both directional paths in the relationship between prejudice and threat can advance theory by helping to clarify when prejudice forms in relation to threat perception. There are at least two fundamental human motives paramount for understanding the relationship

between prejudice and threat—self- or group-preservation and epistemology (i.e., the desire for a coherent understanding of the social world). Each of these basic needs can be satisfied by the co-occurrence of prejudice and threat perception. First, accurate threat perception forms a rational basis for having negative feelings about a group; that threat causes prejudice is an adaptive response that helps people escape potential harm. Second, threat perception that emerges after the activation of prejudice provides an explanation for the negative affect; threat perception—irrespective of its basis in fact—can be constructed as a means of understanding the social world.

The current research found that mere prejudice temporally preceded and causally influenced threat perception in a controlled experimental context involving unfamiliar groups. The reverse causal model suggested by ITT and other theories of prejudice (threat causes prejudice) was not supported by this research, although the experimental method was not optimally designed to test this alternate hypothesis. Whether prejudice (the activation of negative affect) *necessarily* precedes threat perception cannot be determined based on the current data. Studies that show causal influence from threat to prejudice have typically used known social groups (e.g., Stephan et al., 2005), which makes it difficult to rule out the possibility that affect associated with those groups was activated prior to (or simultaneously with) the manipulation of threat. Future studies should manipulate threat posed by unfamiliar social groups and measure the affective reactions that result in order to compare the two causal pathways using the same experimental context.

Outside the experimental context, affective and cognitive components of prejudice are difficult to separate. The mental representation of affect associated with existing social groups is stored in memory alongside cognitive knowledge structures (Stephan & Stephan, 1993); the activation of affective nodes can activate associated cognitive nodes, or vice versa. This suggests

that causal pathways among the affective and cognitive processes involved in prejudice may work in both directions. Rather than searching for simple cause and effect relationships among variables, a bidirectional view considers affective and cognitive processes involved in prejudice to be part of a complex, interdependent system. Intergroup threat can be both a *cause* and a *consequence* of prejudice. Perhaps what is most important about the relationship between prejudice and threat perception is that they must be in concordance.

Reversing the direction of causality in a theory does not diminish its usefulness. It does, however, highlight the flexibility of interactive mental processes in resolving psychological tension and promoting balance. Bidirectionality among mental processes is at the heart of the cognitive consistency theories (Abelson, Aronson, McGuire, & Newcomb, 1968; Heider, 1958). Consistency theories focus on the motive to achieve a coherent understanding of the social world. Crandall, Silvia, N’Gbala, Tsang, and Dawson (2007) apply a Heiderian analysis to evaluate two conflicting perspectives on the relationship between political ideology and racial prejudice. Principled racism (Sniderman & Tetlock, 1986) suggests that ideological beliefs such as prioritizing individual responsibility can lead one to endorse policy attitudes that others might label as racist (e.g., negative attitudes toward affirmative action, welfare support), implying that ideology causes racism. By contrast, symbolic racism (Kinder & Sears, 1981) suggests that political ideology develops as a socially acceptable means of expressing otherwise unacceptable racial prejudice, implying that racism causes ideology. Crandall et al. argue that anti-government-interference policy preference and racial prejudice often coexist in the service of maintaining affective and cognitive consistency. Both causal directions are equally compelling explanations; “either one can lead to the other” (Crandall et al., 2007, p. 21).

The present research extends this view to prejudice and perception of threat. When a person perceives that the interests of her ingroup are threatened by another group, affective and cognitive consistency is maintained by subsequently disliking that group. Likewise, when a person recognizes she has negative feelings toward a group, affective and cognitive consistency is maintained by subsequently perceiving the group as threatening. Disliking a group, coupled with perceiving its members as threatening, allows one to construct a coherent story about how and why the group is “bad” that satisfies one’s epistemic needs. Both causal pathways are equally good routes to maintaining balance, and both pathways should be incorporated into theoretical models and empirically tested.

Implications for Reducing Prejudice and Intergroup Conflict

The primary contribution of this research is in demonstrating that prejudice causes perception of threat; where negative affect exists, a perception of threat is likely to follow. This finding is important because basic assumptions implicit in contemporary models of prejudice—such as the view that cognitive antecedents of prejudice are the core problem to be solved—may be hindering the field’s progress in improving intergroup relations. Understanding how and, more precisely, *when* perceptions of group threat emerge speaks directly to the goal of improving intergroup relations by using empirically sound research findings to inform strategies for prejudice reduction and conflict resolution.

Cognitively-oriented theories of prejudice such as ITT, SDT, ITT, and the sociofunctional approach imply—by identifying threat appraisal as a primary causal factor—that targeting individual beliefs and stereotypes will reduce prejudice. My research suggests that this strategy is unlikely to be effective for long-term change as it demonstrates how easy it is for new stereotypes and perceptions of threat to emerge following the activation of negative affect.

Instead, my research suggests that targeting feelings by associating groups with positive affect may be a better strategy of prejudice reduction. One possible strategy is to create positive media representations, perhaps by increasing the visibility of minority group members in positively valued social roles and occupations, or by featuring more positive interpersonal interactions between majority and minority group characters on popular television shows and in movies.

Since threat is a major barrier to effective intergroup communication and cooperation, understanding where threat can come from is critical knowledge that can assist advocates and policy makers in reducing intergroup conflict. The Contact Hypothesis (Allport, 1954) offers one of the most promising strategies for reducing intergroup conflict. Many empirical studies have demonstrated successful results, showing that when contact is pleasant, cooperative, and sanctioned by authorities it leads to more positive evaluations (for a review, see Pettigrew & Tropp, 2000). Yet in some cases, intergroup contact may actually increase prejudice (Dijker, 1987; Fiske & Ruscher, 1993; Stephan & Stephan, 1989). Since social interaction is inevitably shaped by the feelings aroused during an encounter, intergroup contact may more effectively reduce conflict through affective factors rather than through cognitive factors. If so, then interventions that encourage positive intergroup contact should focus primarily on affective reactions. One way to do this is by associating groups with positive images and encouraging feelings of empathy, which should diminish perceptions of threat and encourage effective intergroup communication. Public policy campaigns should target emotional reactions by featuring images of cute, innocent children or by associating the targeted social groups with positive, upbeat music, delicious smells, or picturesque landscapes. Other strategies such as exercise or humor might be effectively used to diffuse the negative emotions that are often activated in intergroup contexts.

Conclusions

Prejudice and threat are fundamental components of social interaction in intergroup contexts. The experience of prejudice is a relatively fast and automatic response that reflects the association of a social group with negative affect; by comparison, perception of threat and stereotyping are more controlled processes that require cognitive resources and attention. The major contribution of this work is in highlighting that affective reactions can come first in intergroup situations. The finding that threat perception can emerge in the absence of content-based information about a social group suggests that people are not rational, objective perceivers who evaluate the social world primarily through facts and information. Instead, people's evaluations of other social groups are greatly influenced by the feelings that are experienced in intergroup contexts. This knowledge should be used to advance theoretical understanding of how and when prejudice forms in relation to threat perception, as well as to inform prejudice reduction techniques.

That threat perception serves as justification for prejudice is one reason why prejudice often goes unnoticed—an acceptably justified prejudice may not be recognized as a prejudice at all. Therefore, in order for researchers to develop more effective means of prejudice reduction we must first advance our understanding of how prejudice is connected to the rest of the cognitive network. An affective primacy perspective suggests that in intergroup situations, people may know how they feel about a group before they understand why. Consequently, theory and research on prejudice should focus on how affective reactions in intergroup situations relate to cognitive justifications which serve as releasers of prejudice such as ideological beliefs, stereotypes, and perceptions of threat.

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Footnotes

1. Experiment 1 in the current paper is the same data reported as Experiment 2 in Crandall, Bahns, Warner, and Schaller (2011). The data from Experiment 3 in the current paper contribute to the sample reported as Experiment 3 in Crandall et al.

2. A funneled debriefing interview assessed participants' awareness of the contingencies between target countries and affective stimuli. Ten participants expressed some awareness of the contingencies, however awareness did not interact with the manipulation of affect or the stereotype measures and so these cases were not excluded from the analysis.

3. Descriptive statistics reported in the text indicate sums of traits ascribed to each of the groups, whereas the figures show proportions.

4. Estimates for the pathways from the IV to the mediators differ for the three behavioral responses because each of the models was estimated with a different set of covariates. For example, the model for approach behaviors directed toward Azerbaijanis was estimated with approach behaviors directed toward Mauritians as a covariate, while the model for avoidance of Azerbaijanis was estimated with avoidance of Mauritians as a covariate.

5. The estimation of indirect effects does not require that the total effect of X on Y be significant (Hayes, 2009, pp. 415-418). If two or more indirect paths carry the effect of X on Y and those paths operate in opposite directions, then the opposite signs cancel each other out and the total effect is not statistically different from zero. In the present example, the indirect effect of the manipulation on avoidance through warmth is positive and the indirect effect of the manipulation on avoidance through competence and threat is negative, thus producing a total effect of the manipulation on avoidance that is not significant.

6. There were three other statistically significant but conceptually uninteresting effects: a main effect for Country Rated such that stereotype endorsement was greater for Mauritania compared to Eritrea, a main effect for Stereotype Content Dimension such that warmth and competence were endorsed more than threat, and an interaction of Country Rated and Stereotype Content Dimension such that stereotype endorsement was greater for Mauritania on the dimensions of warmth and competence whereas stereotype endorsement was greater for Eritrea on the dimension of threat.

7. Models for disgust were estimated with data from the full sample, including participants in the failed fear manipulation conditions. Models testing the effects of fear on threat perception and behavioral responses are reported in Appendix F.

8. The indirect effect of disgust on aggression through symbolic threat is positive and the indirect effect of disgust on aggression through realistic threat is negative, thus producing a total effect of disgust on aggression that is not significant.

9. The pattern of results did not change when disgust and fear were both estimated as potential mediators of the effect of threat perception on behavioral response tendencies. The indirect effects of fear were not significant for the effects of realistic and symbolic threat on avoidance-approach and aggressive behaviors.

Table 1

Pre-test Ratings of Countries

<u>Country</u>	<u>Affect</u>		<u>Familiarity</u>	
	M	SD	M	SD
Eritrea	55.19	21.01	1.62	.90
Mauritania	53.57	19.85	1.43	.69
Azerbaijan	55.17	19.39	1.82	.72
Poland	72.00	20.24	2.88	.34
Vietnam	64.00	22.22	2.97	.18
Egypt	76.33	19.56	3.00	.00
Niger	62.67	19.11	2.77	.50
Latvia	62.00	19.37	2.07	.86
Singapore	73.67	18.47	2.63	.55
Oman	55.00	21.69	1.81	.83
Tajikistan	50.00	20.38	1.72	.84
Yoralia [made-up]	49.26	21.65	1.09	.28

Note. Higher numbers reflect more positive affect (0 = *very negative*, 100 = *very positive*) and greater familiarity (1 = *I've never heard of it*, 2 = *I've heard of it but don't know where it is*, 3 = *I've heard of it and know where it is*).

Table 2

Behavioral Response Tendency Means by Condition and Correlations, Experiment 3

	<u>Negative Affect</u>		<u>Positive Affect</u>		<u>Correlations</u>		
	M	SD	M	SD	1.	2.	3.
1. Approach	4.16	1.23	4.56	1.06	--	-.45	-.13
2. Avoid	2.92	1.60	2.84	1.36	-.40	--	.38
3. Aggress	2.84	1.19	2.58	1.04	-.08	.39	--

Note. Numbers below the diagonal represent correlations among the behavioral response tendencies for the country paired with negative affect, collapsing across the counterbalancing factor of Country Paired with Negative Stimuli; numbers above the diagonal represent correlations for the country paired with positive affect. All coefficients were significant at $p < .001$, except between 1 and 3.

Table 3

Stereotype Means by Condition and Correlations, Experiment 3

	<u>Negative Affect</u>		<u>Positive Affect</u>		<u>Correlations</u>		
	M	SD	M	SD	1.	2.	3.
1. Warmth	4.36	1.00	4.60	1.06	--	.77	-.83
2. Competence	4.56	0.94	4.78	0.96	.74	--	-.69
3. Threat	3.73	1.01	3.48	1.01	-.84	-.66	--

Note. Numbers below the diagonal represent correlations among the stereotype content dimensions for the country paired with negative affect, collapsing across the counterbalancing factor of Country Paired with Negative Stimuli; numbers above the diagonal represent correlations for the country paired with positive affect. All coefficients were significant at $p < .001$.

Table 4

Bootstrapping Results for Reverse Causal Models, Experiment 3

IV	Mediator	DV	a path	b path	c path	c' path	Lower CI	Upper CI	Significant Indirect Effect?
Warmth	Affect	Approach	9.75***	.01	.77***	.71***	-.04	.30	No
Competence	Affect	Approach	7.93***	.01	.44**	.32*	-.08	.37	No
Threat	Affect	Approach	-9.71***	.00	-.70***	-.67***	-.19	.08	No
Warmth	Affect	Avoid	10.05***	.01	-.88***	-1.00***	.00	.38	No
Competence	Affect	Avoid	7.45**	.00	-.49**	-.51**	-.08	.22	No
Threat	Affect	Avoid	-9.96***	.01	.54***	.64***	-.29	.05	No
Warmth	Affect	Aggress	10.34***	.01	-.23*	-.31**	-.01	.29	No
Competence	Affect	Aggress	8.48**	.00	-.16	-.19	-.03	.16	No
Threat	Affect	Aggress	-10.07***	.01	.19*	.27*	-.20	.03	No

Note. Models were estimated with 1000 bootstrap samples. Significant tests for the indirect effect of affect were estimated using the 95% confidence interval. Parameter estimates are reported for the path from the IV to the mediator (a path), from the mediator to the DV controlling for the IV (b path), the total effect of the IV on the DV (c path), and the direct effect of the IV on the DV (c' path).

Table 5

Perceived Threat Means by Condition and Correlations, Experiment 4

	<u>Negative Affect</u>		<u>Positive Affect</u>		<u>Correlations</u>	
	M	SD	M	SD	1.	2.
Realistic Threat	3.08	1.46	2.67	1.34	--	.87
Symbolic Threat	3.08	1.31	2.64	1.27	.83	--

Note. Numbers below the diagonal represent correlations among the threat perceptions for the country paired with negative affect, collapsing across the counterbalancing factor of Country Paired with Negative Stimuli; numbers above the diagonal represent correlations for the country paired with positive affect. All coefficients were significant at $p < .001$.

Table 6

Behavioral Response Tendency Means by Condition and Correlations, Experiment 4

	<u>Disgust</u>		<u>Positive Affect</u>		<u>Correlations</u>		
	M	SD	M	SD	1.	2.	3.
1. Approach	4.69	1.13	4.91	1.10	--	-.35	-.05
2. Avoid	2.73	1.19	2.61	1.31	-.41	--	.53
3. Aggress	2.25	1.18	2.08	1.10	-.35	.47	--

Note. Numbers below the diagonal represent correlations among the behavioral response tendencies for the country paired with negative affect, collapsing across the counterbalancing factor of Country Paired with Negative Stimuli; numbers above the diagonal represent correlations for the country paired with positive affect. All coefficients were significant at $p < .05$, except between 1 and 3 above the diagonal.

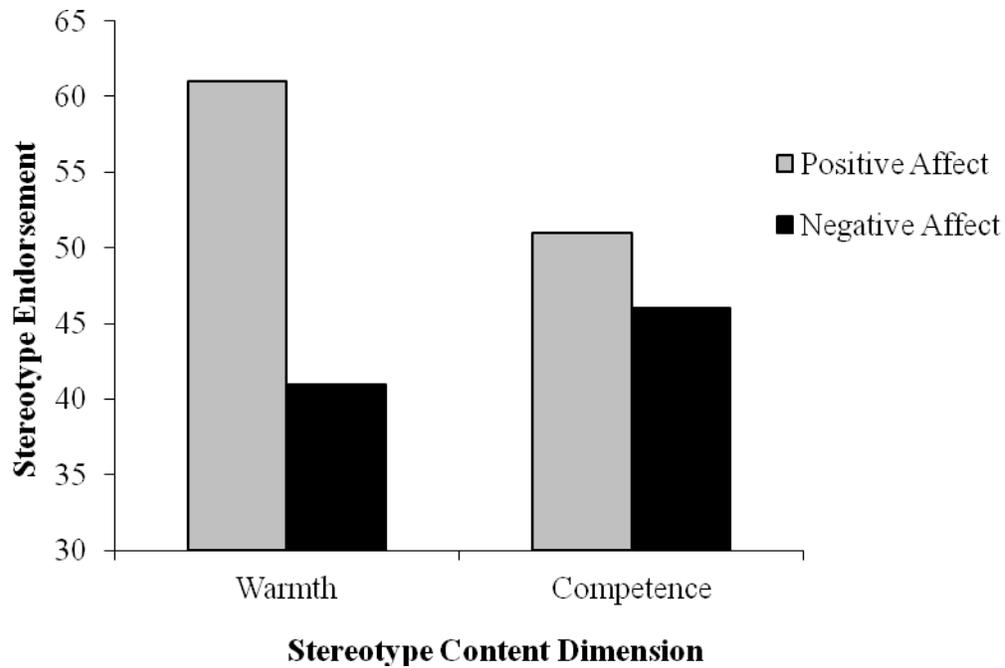


Figure 1. A conditioning procedure that creates novel prejudices (affective associations) results in the formation of new stereotypes along the Warmth dimension but not the Competence dimension, Experiment 1.

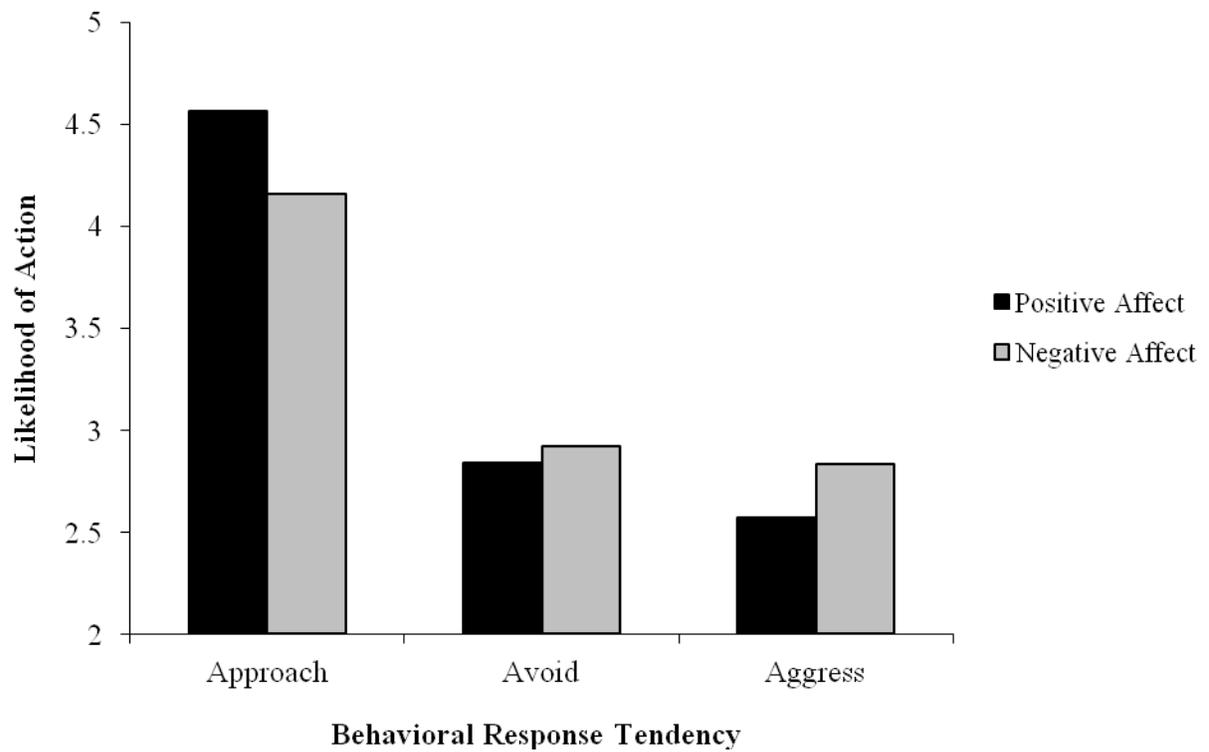


Figure 2. A conditioning procedure that creates novel prejudices (affective associations) results in increased aggressive response tendencies and decreased approach-oriented response tendencies, Experiment 3.

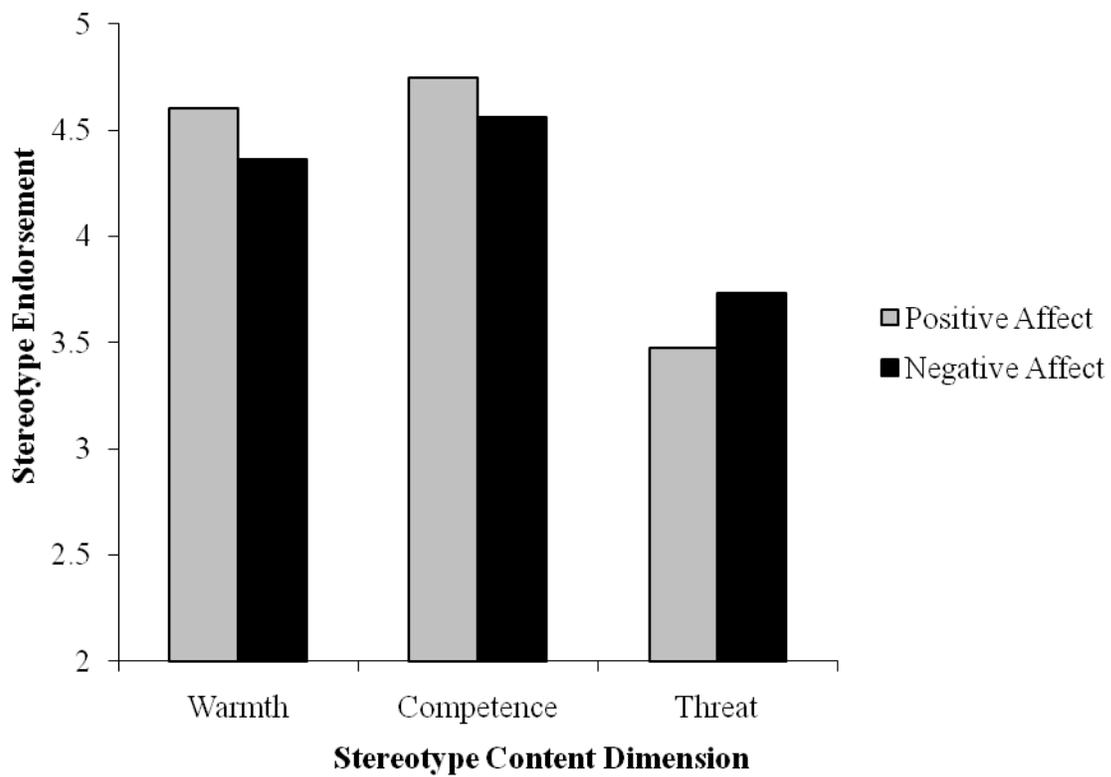


Figure 3. A conditioning procedure that creates novel prejudices (affective associations) results in the formation of new stereotypes along the Threat dimension and along the Warmth dimension but not the Competence dimension, Experiment 3.

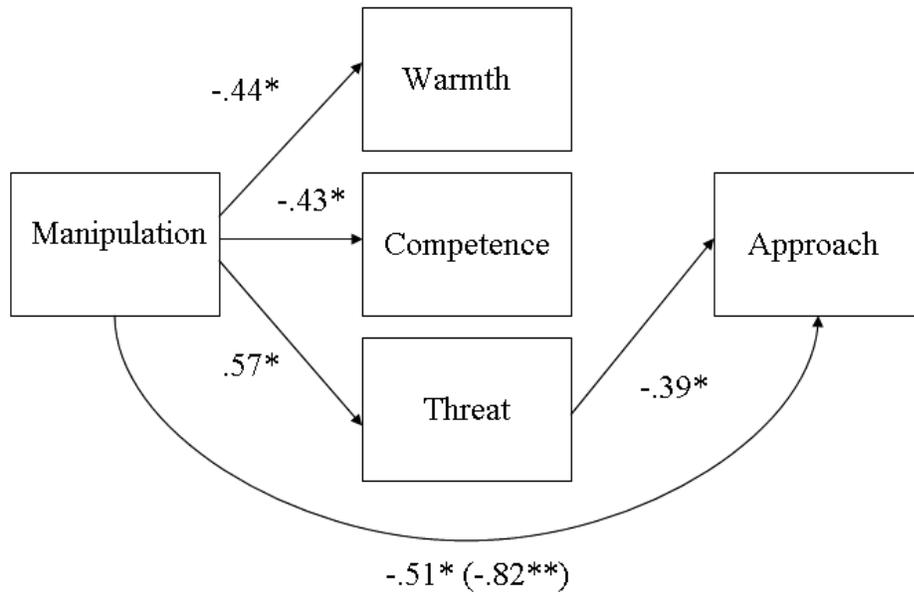


Figure 4a. The conditioning manipulation's effect on approach-oriented response tendencies is mediated by threat-relevant stereotypes, Experiment 3.

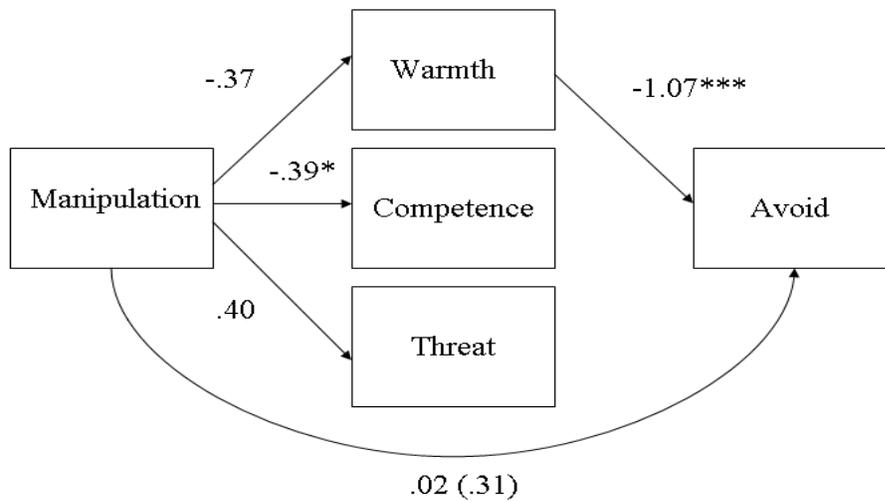


Figure 4b. The conditioning manipulation's effect on avoidance-oriented response tendencies is mediated by warmth stereotypes, Experiment 3.

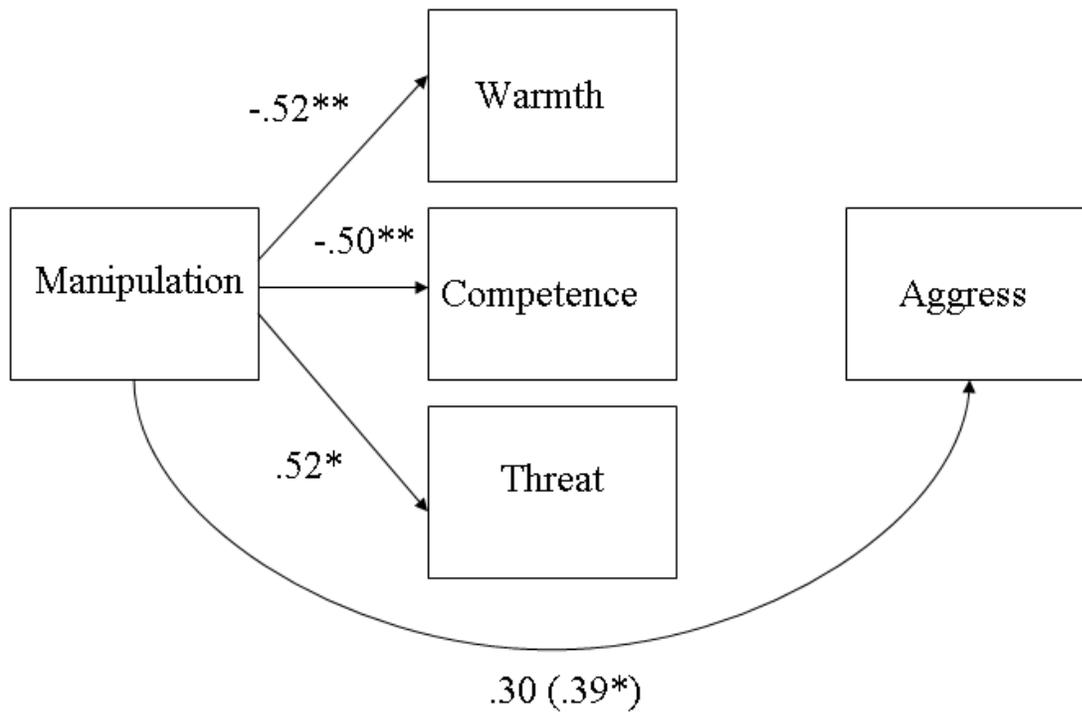


Figure 4c. The conditioning manipulation's effect on aggressive response tendencies is not mediated by stereotype endorsement, Experiment 3.

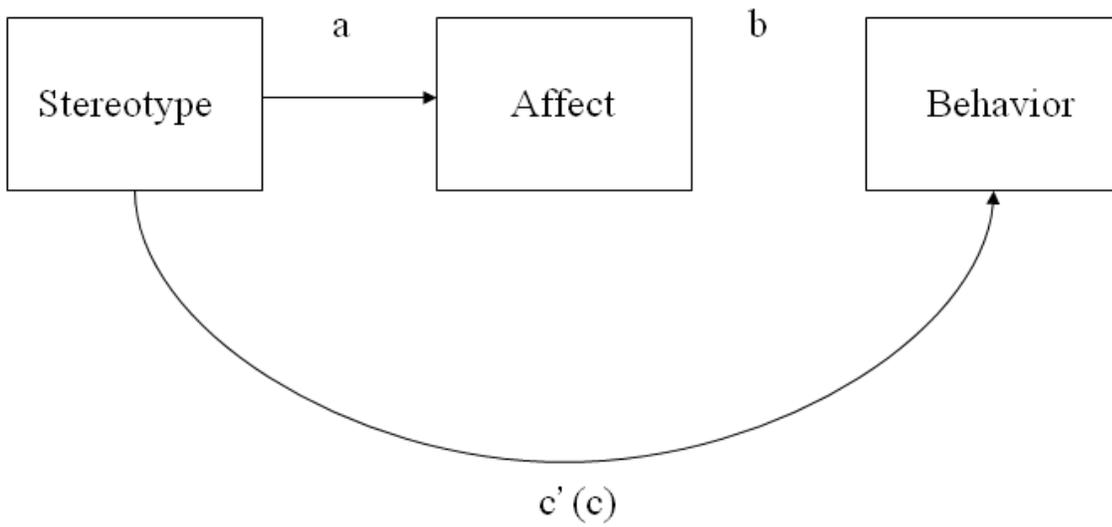


Figure 5. The reverse causal models suggested by IET and the sociofunctional approach, in which affect mediates the relationship between stereotypes and behaviors, Experiment 3.

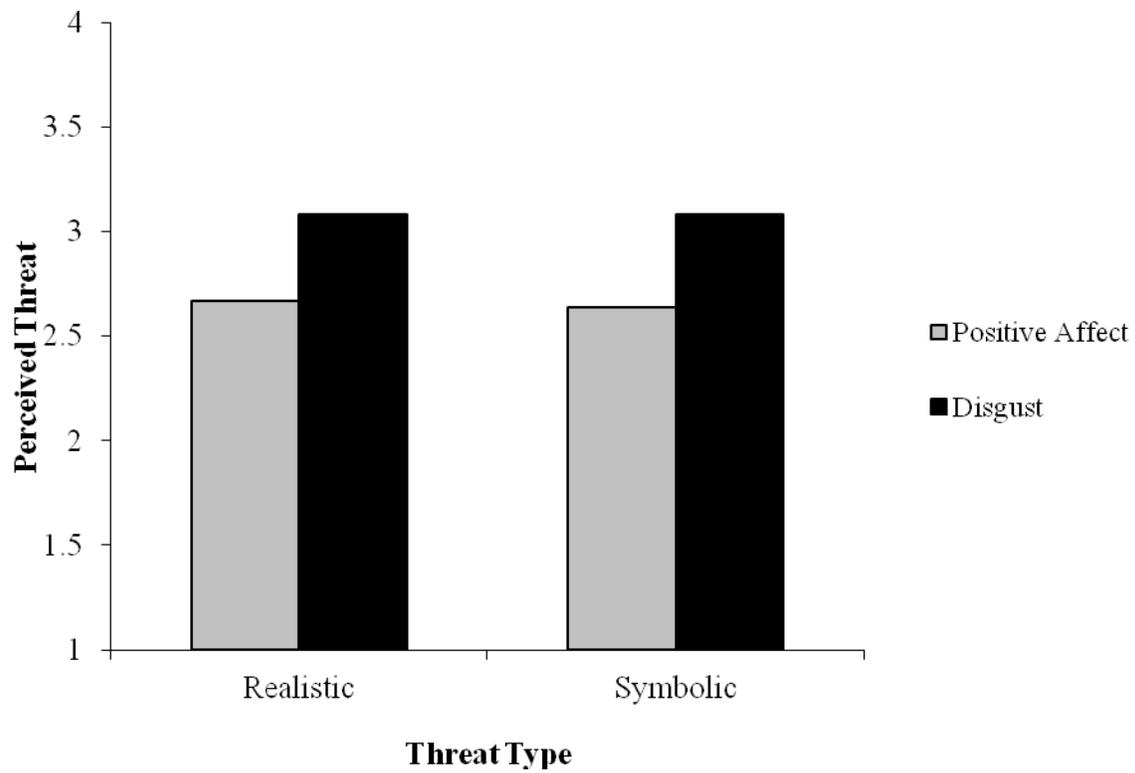


Figure 6. A conditioning procedure that creates affective associations specific to disgust results in heightened perception of realistic and symbolic threat, Experiment 4.

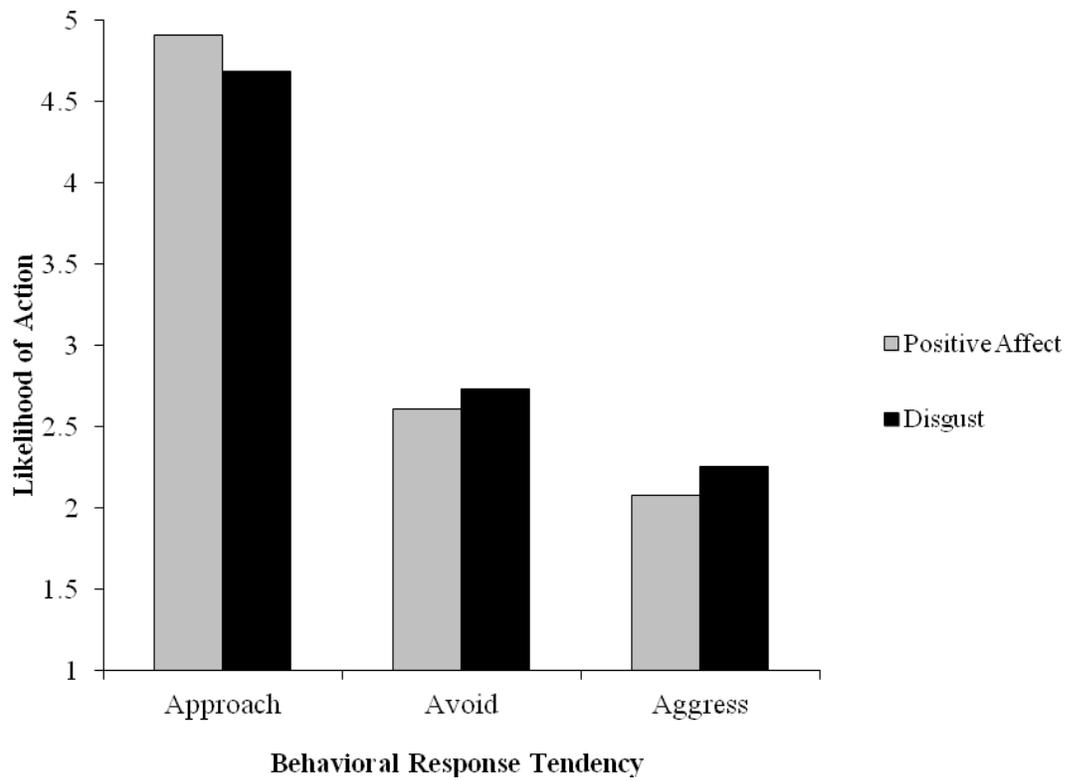


Figure 7. A conditioning procedure that creates affective associations specific to disgust results in increased aggressive response tendencies, Experiment 4.

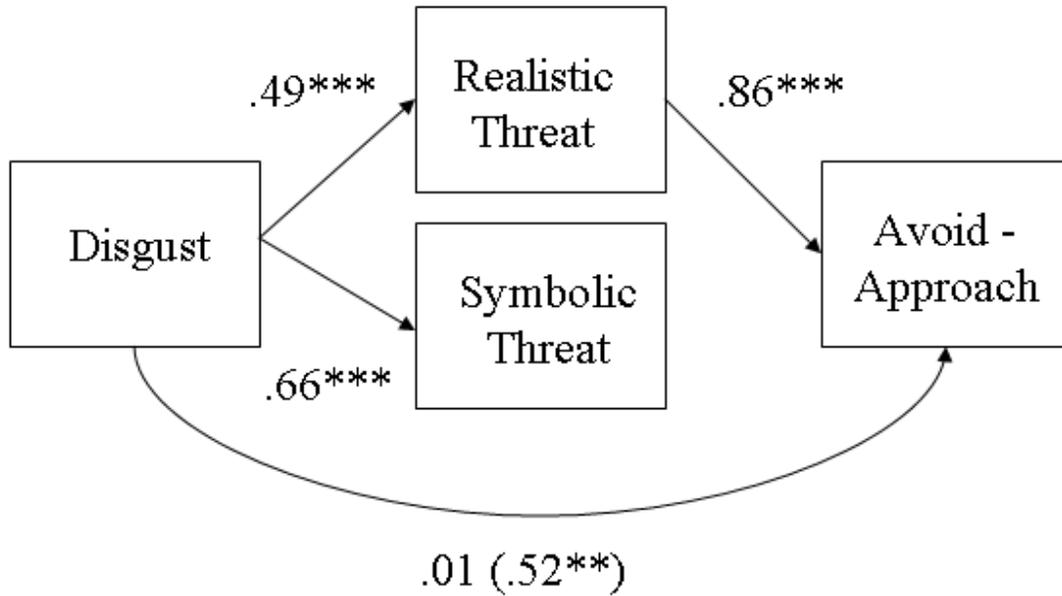


Figure 8a. Disgust indirectly increases avoidance-approach response tendencies through heightened perception of realistic threat, Experiment 4.

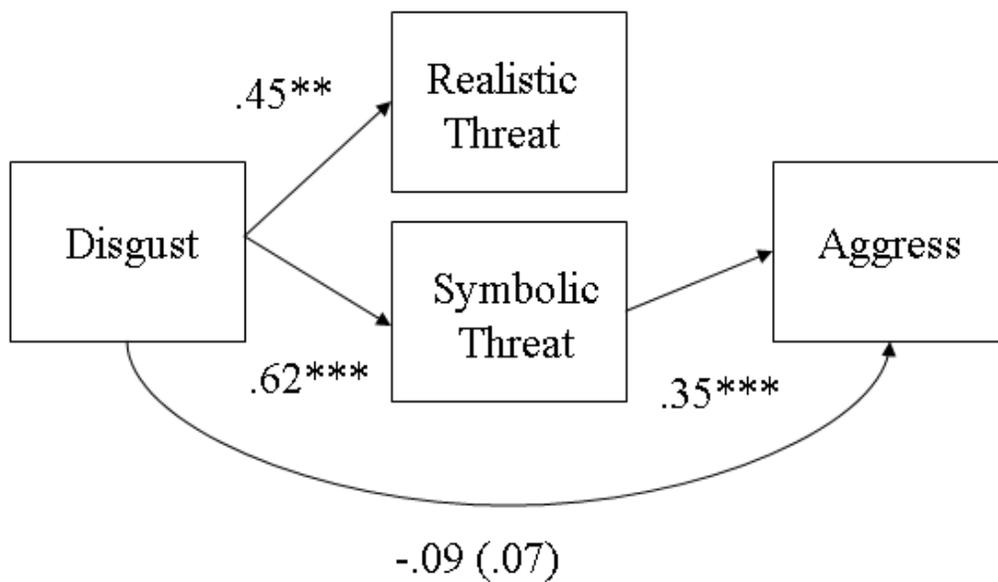


Figure 8b. Disgust indirectly increases aggressive response tendencies through heightened perception of symbolic threat, Experiment 4.

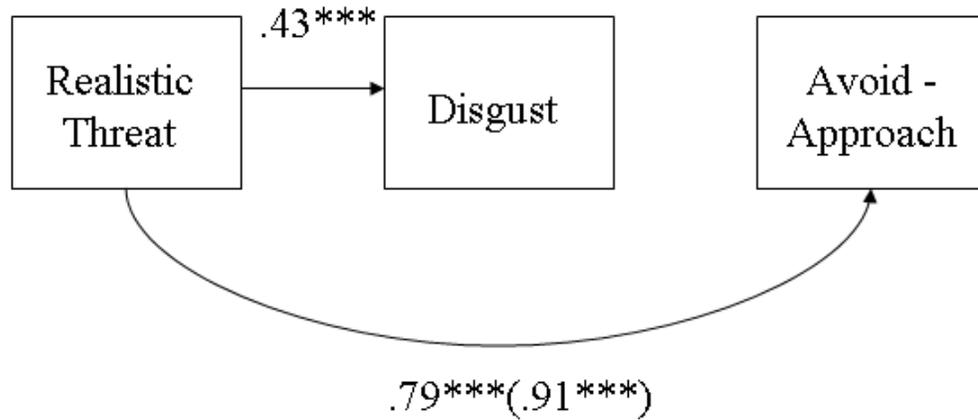


Figure 9a. The reverse causal model suggested by IET and the sociofunctional approach, in which disgust mediates the relationship between realistic threat and avoidance-approach behavior, Experiment 4.

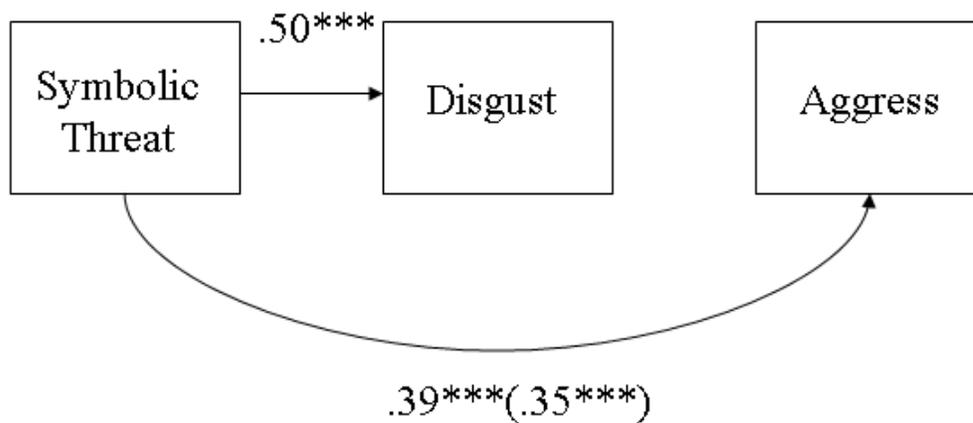


Figure 9b. The reverse causal model suggested by IET and the sociofunctional approach, in which disgust mediates the relationship between symbolic threat and aggressive behavior, Experiment 4.

Appendix A

Images Used in the Conditioning Procedure**Images for Experiments 1-3 from the International Affective Picture System database**

Negative Affect	Valence	Positive Affect	Valence
6260 gun	2.44 (1.54)	1440 baby seal	8.19 (1.53)
7359 pie with cockroaches	2.92 (1.70)	1441 mother and baby polar bears	7.97 (1.28)
7380 pizza with cockroaches	2.46 (1.42)	1463 kittens	7.45 (1.76)
9180 injured seals	2.99 (1.61)	1710 puppies	8.34 (1.12)
9280 smoke stacks	2.80 (1.54)	1750 bunnies	8.28 (1.07)
9301 toilet with feces	2.26 (1.56)	1811 laughing monkeys	7.62 (1.59)
9342 polluted river	2.85 (1.41)	1920 seals playing with ball	7.90 (1.48)
9560 duck covered in tar	2.12 (1.93)	5700 mountains	7.61 (1.46)
9561 injured kitty	2.68 (1.92)	5982 white clouds	7.61 (1.48)
9830 cigarette butts	2.54 (1.75)	7330 hot fudge sundae	7.69 (1.84)

Note. Valence ratings reported by Lang, Bradley and Cuthbart (2005) (1 = *low pleasure*, 9 = *high pleasure*). Tabled values are means; standard deviations are in parentheses.

Images for Experiment 4 from the International Affective Picture System database

Fear Manipulation	Disgust	Fear	Anger	Happiness	Interest	Sadness	General Affect
1050 snake	2.83 (1.52)	3.42 (1.25)	2.64 (1.51)	1.50 (0.88)	2.28 (1.21)	2.00 (1.29)	2.22 (0.96)
1114 snake	2.68 (1.28)	3.45 (1.29)	2.18 (1.14)	1.71 (1.01)	2.08 (1.19)	1.97 (1.05)	2.34 (1.05)
1120 snake	2.89 (1.39)	3.58 (1.36)	2.58 (1.42)	1.39 (0.73)	2.28 (1.14)	2.11 (1.28)	2.06 (0.79)
1300 dog baring teeth	2.89 (1.33)	3.24 (1.50)	2.71 (1.39)	1.39 (0.79)	1.95 (1.06)	2.13 (1.19)	1.92 (0.88)
1525 dog baring teeth	2.31 (1.28)	3.61 (1.27)	2.53 (1.23)	1.28 (0.57)	2.11 (1.06)	2.11 (1.21)	2.00 (0.93)
1726 tiger baring teeth	1.58 (0.87)	3.14 (1.53)	1.50 (0.77)	1.92 (1.05)	2.53 (1.38)	1.64 (1.02)	2.78 (0.87)
1931 shark	1.87 (1.07)	3.05 (1.39)	1.79 (1.09)	2.00 (1.07)	2.24 (1.36)	1.71 (1.09)	2.76 (1.02)
1932 shark baring teeth	2.94 (1.39)	3.67 (1.41)	2.81 (1.41)	1.58 (0.84)	2.56 (1.32)	2.39 (1.42)	2.17 (1.08)
5973 tornado	2.22 (1.12)	3.56 (1.27)	2.42 (1.25)	1.47 (0.77)	1.47 (0.77)	2.14 (1.25)	2.31 (1.01)
9630 atom bomb	2.50 (1.39)	3.11 (1.47)	2.68 (1.38)	1.50 (0.83)	1.50 (0.83)	2.45 (1.46)	2.08 (1.02)

Disgust Manipulation	Disgust	Fear	Anger	Happiness	Interest	Sadness	General Affect
1220 spider	3.61 (1.42)	3.00 (1.41)	2.71 (1.25)	1.39 (0.64)	2.05 (1.35)	2.03 (1.38)	2.11 (1.06)
1270 beetle	3.33 (1.37)	2.11 (1.19)	2.78 (1.46)	1.31 (0.62)	1.75 (0.91)	1.78 (0.99)	2.14 (1.05)
1274 cockroaches	3.71 (1.33)	2.29 (1.43)	2.76 (1.42)	1.24 (0.49)	1.39 (0.82)	2.08 (1.28)	1.89 (0.98)
1275 cockroaches	3.08 (1.34)	2.37 (1.38)	2.39 (1.37)	1.37 (0.63)	1.58 (0.92)	1.87 (1.17)	1.95 (0.80)
1280 rat	3.92 (1.18)	2.64 (1.44)	2.89 (1.39)	1.19 (0.47)	1.69 (0.86)	2.11 (1.30)	1.64 (0.72)
3068 severe burn victim	4.89 (0.32)	4.11 (1.14)	4.19 (1.31)	1.08 (0.50)	2.83 (1.54)	3.17 (1.63)	1.11 (0.40)
3250 open heart surgery	3.92 (1.36)	2.16 (1.31)	2.61 (1.28)	1.26 (0.50)	2.21 (1.36)	1.97 (1.20)	1.97 (1.03)
7360 pie with cockroaches	3.61 (1.38)	1.94 (1.12)	2.83 (1.44)	1.44 (0.94)	1.78 (0.99)	2.08 (1.30)	1.97 (0.97)
9008 feces	4.28 (1.06)	1.92 (1.25)	2.92 (1.48)	1.33 (0.99)	1.78 (1.12)	2.03 (1.18)	1.67 (0.99)
9373 smashed food	3.32 (1.42)	2.08 (1.15)	2.84 (1.35)	1.26 (0.50)	2.05 (1.23)	2.11 (1.20)	1.84 (0.72)

Note. Values are means from pre-testing ($N=74$); standard deviations are in parentheses. Emotions were measured with items from the differential emotions scale (Izard et al., 1993; see Appendix D) on a scale from 1 = *not at all* to 5 = *very much so*. General affect was rated from 0 = *very negative* to 100 = *very positive*.

Appendix B

Words Used in the Conditioning Procedure

Words for Experiments 1-3

Negative Affect	Experiments 1-2		Experiment 3				
	Valence	Positive Affect	Valence	Negative Affect	Valence	Positive Affect	Valence
danger	2.56 (1.37)	babies	5.06 (1.71)	abuse	1.80 (1.23)	acceptance	7.98 (1.42)
death	1.75 (1.27)	happiness	5.79 (1.24)	bomb	2.10 (1.19)	baby	8.22 (1.20)
fear	2.22 (1.31)	hug	6.09 (0.91)	cancer	1.50 (0.85)	cake	7.26 (1.27)
frown	2.31 (0.86)	kittens	5.24 (1.48)	death	1.61 (1.40)	delight	8.26 (1.04)
grave	2.16 (1.05)	love	6.73 (0.67)	failure	1.70 (1.07)	ecstasy	7.98 (1.52)
pain	1.94 (0.95)	party	5.73 (1.23)	gloom	1.88 (1.23)	fame	7.93 (1.29)
pollution	1.91 (0.96)	puppies	5.79 (1.32)	hatred	1.98 (1.92)	gift	7.77 (2.24)
sick	1.94 (0.91)	rainbow	5.48 (0.94)	infection	1.66 (1.34)	handsome	7.93 (1.47)
stench	2.06 (0.84)	smile	5.76 (0.97)	jail	1.95 (1.27)	joy	8.60 (0.71)
violence	1.87 (1.10)	sunshine	6.09 (0.88)	killer	1.89 (1.39)	kiss	8.26 (1.54)

Words for Experiment 4

Disgust Manipulation	Disgust	Fear	Anger	Happiness	Interest	Sadness
diseased	3.60 (1.26)	2.65 (1.50)	2.31 (1.23)	1.27 (0.72)	2.12 (1.18)	2.54 (1.33)
disgusted	3.77 (1.39)	1.65 (1.13)	2.69 (1.26)	1.23 (0.71)	1.73 (1.04)	2.12 (1.17)
filthy	3.65 (1.26)	1.92 (1.20)	2.38 (1.42)	1.27 (0.72)	1.65 (0.94)	2.15 (1.26)
foul	3.46 (1.30)	1.80 (1.22)	2.23 (1.27)	1.27 (0.60)	1.85 (1.32)	2.04 (1.22)
gross	3.73 (1.19)	2.17 (1.11)	2.33 (1.44)	1.33 (0.78)	1.83 (1.27)	2.08 (1.08)
infected	3.62 (1.30)	2.62 (1.36)	2.27 (1.34)	1.35 (0.80)	2.08 (1.44)	2.38 (1.27)
putrid	3.27 (1.46)	1.58 (0.86)	2.15 (1.19)	1.50 (1.03)	1.77 (1.07)	1.85 (1.01)
raunchy	3.46 (1.53)	1.73 (1.19)	2.27 (1.25)	1.81 (1.20)	2.00 (1.26)	1.69 (1.26)
rotten	3.92 (1.00)	1.75 (1.06)	2.58 (1.16)	1.17 (0.58)	1.42 (0.79)	1.92 (1.16)
vomit	4.04 (1.28)	1.96 (1.28)	2.35 (1.32)	1.60 (1.41)	1.69 (1.32)	2.23 (1.39)

Fear Manipulation	Disgust	Fear	Anger	Happiness	Interest	Sadness
attacker	2.24 (1.42)	3.32 (1.68)	2.96 (1.46)	1.35 (0.85)	2.50 (1.36)	2.65 (1.41)
bomb	2.67 (1.23)	3.58 (1.24)	2.92 (1.24)	1.67 (1.37)	2.33 (1.37)	3.00 (1.21)
earthquake	2.12 (1.34)	3.54 (1.45)	2.23 (1.39)	1.46 (1.10)	2.69 (1.26)	3.00 (1.26)
explosion	2.27 (1.51)	3.35 (1.44)	2.62 (1.58)	1.69 (1.32)	2.85 (1.54)	2.50 (1.45)
fear	1.83 (0.94)	3.42 (1.38)	2.00 (0.95)	1.25 (0.62)	2.50 (1.38)	2.92 (0.90)
gunman	2.73 (1.64)	3.58 (1.53)	3.00 (1.55)	1.44 (1.04)	2.46 (1.39)	2.77 (1.58)
horror	2.46 (1.50)	3.46 (1.48)	2.19 (1.39)	1.65 (1.32)	2.54 (1.45)	2.50 (1.45)
scared	1.67 (0.89)	4.08 (0.79)	1.67 (0.78)	1.08 (0.29)	1.33 (0.65)	2.83 (1.03)
terror	2.27 (1.31)	3.62 (1.47)	2.50 (1.42)	1.42 (0.99)	2.23 (1.31)	2.69 (1.32)
victim	2.62 (1.53)	3.19 (1.50)	3.12 (1.53)	1.44 (1.23)	2.42 (1.50)	2.81 (1.50)

Note. Tabled values are means; standard deviations are in parentheses. Valence ratings for Expts. 1-2 are from pre-testing ($N = 35$) (1 = *extremely negative*, 7 = *extremely positive*); valence ratings for Expt. 3 as reported by Bradley and Lang (1999) (1 = *low pleasure*, 9 = *high pleasure*). Emotion ratings for Expt. 4 are from pretesting ($N = 42$). Emotions were measured with items from the differential emotions scale (Izard et al., 1993; see Appendix D) on a scale from 1 = *not at all* to 5 = *very much so*.

Appendix C

Neutral Filler Images and Words Used in the Conditioning Procedure

<u>Experiments 1-4</u>		<u>Experiments 1-2</u>		<u>Experiments 3-4</u>	
Filler Image	Valence	Filler Word	Valence	Filler Word	Valence
1935 hermit crab	4.88 (1.44)	barn	4.19 (1.04)	butter	5.33 (1.20)
5510 mushroom	5.15 (1.43)	bird	3.94 (1.19)	column	5.17 (0.85)
5531 mushroom	5.15 (1.45)	blue	4.64 (1.44)	context	5.20 (1.38)
5532 mushrooms	5.19 (1.69)	boat	4.21 (0.95)	cord	5.10 (1.09)
5534 mushrooms	5.31 (1.17)	book	4.39 (0.99)	cork	5.22 (1.13)
5535 still life	4.81 (1.52)	bridge	3.94 (0.72)	cow	5.57 (1.53)
5740 plant	5.21 (1.38)	camera	4.25 (1.13)	detail	5.55 (1.58)
6150 outlet	5.08 (1.17)	car	4.14 (1.20)	door	5.13 (1.44)
7000 rolling pin	5.00 (0.84)	chair	3.97 (0.56)	egg	5.29 (1.82)
7002 towel	4.97 (0.97)	chicken	4.46 (1.12)	elbow	5.12 (0.92)
7020 fan	4.97 (1.04)	grass	4.66 (0.11)	elevator	5.44 (1.18)
7035 mug	4.98 (0.96)	green	4.64 (1.25)	engine	5.20 (1.18)
7036 shipyard	4.88 (1.08)	hay	3.75 (0.91)	fabric	5.30 (1.20)
7037 trains	4.81 (1.12)	horse	4.25 (1.27)	farm	5.53 (1.85)
7038 shoes	4.82 (1.20)	house	4.28 (0.85)	finger	5.29 (1.42)
7041 baskets	4.99 (1.12)	lamp	4.11 (0.71)	foot	5.02 (0.93)
7043 drill	5.17 (1.26)	marker	4.03 (0.74)	fork	5.29 (0.97)
7050 hair dryer	4.93 (0.81)	oil	3.50 (1.63)	glacier	5.50 (1.25)
7055 light bulb	4.90 (0.64)	oil	3.50 (1.63)	golfer	5.61 (1.93)
7056 tool	5.07 (1.02)	orange	4.50 (1.21)	hairpin	5.26 (1.45)
7059 key ring	4.93 (0.81)	paint	3.80 (1.11)	hat	5.46 (1.36)
7090 book	5.19 (1.46)	pen	3.94 (0.83)	hay	5.24 (1.24)
7160 fabric	5.02 (1.10)	pencil	3.97 (0.51)	headlight	5.24 (1.51)
7161 pole	4.98 (1.02)	plane	4.25 (1.27)	history	5.24 (2.01)
7170 light bulb	5.14 (1.28)	purple	4.42 (1.54)	industry	5.30 (1.61)
7175 lamp	4.87 (1.00)	red	4.39 (1.36)	jelly	5.66 (1.44)
7179 rug	5.06 (1.05)	right	4.31 (0.96)	journal	5.14 (1.49)
7182 checker board	5.16 (1.31)	straw	3.97 (0.91)	kerchief	5.11 (1.33)
7184 abstract art	4.84 (1.02)	street	3.97 (0.91)	ketchup	5.60 (1.35)
7185 abstract art	4.97 (0.87)	umbrella	3.83 (0.81)	kettle	5.22 (0.91)
7187 abstract art	5.07 (1.02)	wheel	4.08 (0.97)	lantern	5.57 (1.19)
7211 clock	4.81 (1.78)	Avarica	4.03 (1.08)	lawn	5.24 (0.86)
7217 clothes rack	4.82 (0.99)	Avernos	3.84 (1.24)	market	5.66 (1.02)
7233 plate	5.09 (1.46)	Dunwich	3.81 (1.30)	method	5.56 (1.76)
7235 chair	4.96 (1.18)	Gargona	3.71 (1.01)	museum	5.54 (1.86)
7247 abstract art	5.05 (1.00)	Hojah	3.70 (1.06)	name	5.55 (2.24)
7491 building	4.82 (1.03)	Mohesia	3.77 (1.02)	news	5.30 (1.67)
7547 bridge	5.21 (0.96)	Penwich	3.97 (1.43)	office	5.24 (1.59)
7950 tissue	4.94 (1.21)	Renardy	3.77 (1.06)	paint	5.62 (1.72)

Note. Tabled values are means; standard deviations are in parentheses. Valence ratings for filler images as reported in the International Affective Picture System Database by Lang, Bradley and Cuthbert (2005) (1 = *low pleasure*, 9 = *high pleasure*). Valence ratings for filler words used in Expts. 1-2 are from pre-testing ($N = 35$) (1 = *extremely negative*, 7 = *extremely positive*); valence ratings for filler words used in Expts. 3-4 as reported by Bradley and Lang (1999) (1 = *low pleasure*, 9 = *high pleasure*).

Appendix D

Differential Emotions Scale

1. Feel disgusted, like something is sickening.
2. Feel angry, irritated, annoyed.
3. Feel discouraged, like you can't make it, nothing is going right.
4. Feel so interested in what you're doing, caught up in it.
5. Feel fearful, like you're in danger, very tense.
6. Feel happy.

Realistic Threat Scale

1. Eritrean (Mauritanian) immigrants are taking jobs away from American citizens.
2. Eritrean (Mauritanian) immigrants are making our neighborhoods less safe.
3. Eritrean (Mauritanian) immigrants should be eligible for the same health-care benefits received by American citizens. [reversed]
4. Eritrean (Mauritanian) immigration has increased the tax burden on Americans.

Symbolic Threat Scale

1. Immigration from Eritrea (Mauritania) is undermining traditional American culture.
2. The values and beliefs of Eritrean (Mauritanian) immigrants are *not* compatible with the beliefs and values of most Americans.
3. Eritrean (Mauritanian) immigration is contaminating America's reputation as moral and good.
4. Eritrean (Mauritanian) immigrants share the same moral values as most Americans. [reversed]

Appendix E

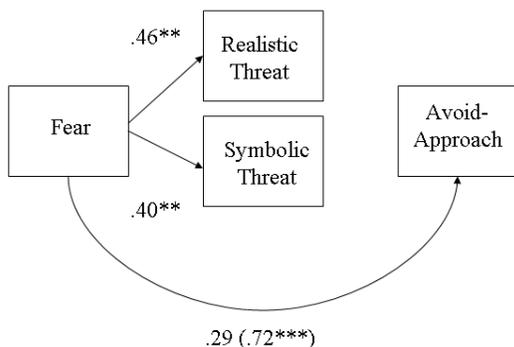
Stereotype Results for Full Sample, Experiment 4

	<u>Disgust/Fear</u>		<u>Positive Affect</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Warmth	4.37	0.94	4.58	0.92
Competence	4.54	0.80	4.62	0.78
Threat	3.59	1.16	3.51	1.01

Collapsing across Emotion Targeted, a 2 (Country Paired with Negative Stimuli: Eritrea or Mauritania) X 2 (Stereotype Content Dimension: Warmth, Competence) X 2 (Country Rated: Eritrea, Mauritania) mixed model ANOVA was conducted on stereotypes of warmth and competence. The three-way interaction was not significant, $F(1, 93) = 1.69, p = .20, \eta = .13$. When a country was paired with negative-affect stimuli (either disgust- or fear-provoking), its inhabitants were stereotyped as lower in warmth compared to the inhabitants of the country paired with the positive-affect stimuli, $F(1, 93) = 3.90, p = .05; \eta = .20$. The manipulation's effect on competence was relatively smaller, $F(1, 93) = 2.23, p = .14; \eta = .15$.

A separate 2 (Country Paired with Negative Stimuli) X 2 (Country Rated) repeated measures ANOVA was conducted on threat-relevant stereotype traits. The predicted interaction was not significant, $F < 1$. The manipulation of affect had no effect on endorsement of threat-relevant traits.

Appendix F

Mediational Analysis of Fear, Experiment 4

Fear was positively associated with realistic ($\beta = .46, p = .001$) and symbolic threat ($\beta = .40, p = .002$). The more participants felt afraid, the more threat they perceived; the effect was somewhat stronger for realistic threat. Fear also had a significant effect on avoidance-approach behaviors ($\beta = .72, p = .0003$). This effect was reduced but not eliminated by controlling for realistic and symbolic threat, ($\beta = .29, p = .06$). The results with 1000 bootstrap samples indicated that the indirect effects of fear on avoidance-approach behavior through realistic and symbolic threat were not significant. The more participants experienced fear associated with a social group, the more they anticipated avoiding the group (and the less they anticipated approaching the group). The effect of fear on avoidance-approach behaviors was not mediated by perception of threat.

The total effect of fear on aggressive responses was not significant ($\beta = -.12, p = .12$), and the indirect effects of fear on aggression through realistic and symbolic threat were not significant. The experience of fear associated with a social group increased perceptions of realistic and symbolic threat posed by that group, but fear was not related to anticipated aggressive behaviors.