

US AGAINST WHOM? HOW WE CATEGORIZE OUTGTOUP MEMBERS AS
THREATS

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ABSTRACT OF THE THESIS

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The current study was designed to test a reformulation of Allport's and Kramer's "vigilance hypothesis" by applying signal detection theory to social categorization. Specifically, the impact of prejudice and specific threat concerns (e.g. terrorism or illegal immigration) was investigated. Participants were asked to assume the role of either an airport security officer facing a potential terrorist attack or a border patrol officer facing possible illegal immigration. Forty photographs were presented and participants were asked to either detain or not detain the target presented. Ten of these targets were actual terrorists or illegal immigrants. Following this task, the same 40 photographs were presented and participants classified the targets as either "Arab" or "Not Arab" (in the airport security role), or "Hispanic" or "Not Hispanic" (in the border patrol security role). Measures of sensitivity and criterion were calculated and a signal detection analysis was conducted. Results did not confirm the reformulated vigilance hypothesis. Exploratory analyses revealed that political ideology would provide a better foundation for the

reformulation of the vigilance hypothesis. Political conservatives set a lower criterion to categorize a target as a threat. Additionally context interacted with political ideology to impact sensitivity to threat. Specifically political conservatives displayed greater sensitivity to illegal immigrants while liberals displayed greater sensitivity to terrorists. Political conservatives also displayed greater sensitivity except when the cost of a false alarm exceeded the cost of a miss. Implications and future directions are discussed.

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Dedicated to: Thomas W. Stevens

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Us Against Whom? How We Categorize Outgroup Members as Threats

In the aftermath of September 11th terrorist attacks, Arabs in the United States were the targets of discrimination, threats, and violent assaults. Hate crimes against people of Middle Eastern origin or descent dramatically increased (Panagopoulos, 2006; Oswald, 2005). Individuals of other ethnic groups, such as Hispanics, Sikhs, and South Asians were also targeted because they were mistakenly identified as Arab (Zogby, 2001). Regardless of actual ethnicity, such extremely hostile acts of outgroup derogation require that the target be categorized as a member of a particular social category. This must occur prior to the activation of negative stereotypes (i.e., that a group supports terrorism) and any decision to derogate based on category membership. Yet, negative stereotype content is widely considered to cause and perpetuate prejudice (Mackie & Smith, 1998; Park & Judd, 2005). The current study aims to shift this focus and investigates how concern over tangible threats and negative affect towards a group impact the process of categorization.

Categorization and Stereotypes

World War II and the Holocaust spawned extensive investigations of prejudice, discrimination, intergroup competition and conflict, and group affiliation and allegiance (Adorno, Frenkel-Brunswick, Levinson, Sanford, 1950; Allport, 1954; Sherif, Harvey, White, Wood, & Sherif, 1961; Sherif & Sherif, 1969). Early theoretical approaches focused on strong antipathy between groups as the driving force behind prejudice and intergroup conflict (Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950; Allport, 1954; Levine & Campbell, 1972). Categorization was considered normal and functional,

simplifying the environment by providing expectancies and predictions for planning behavior (Bruner, 1957). It was considered a necessary, but not sufficient, condition for prejudice and an essential process of human cognition. This is captured succinctly by Allport (1954):

“The human mind must think with the aid of categories. Once formed, categories are the basis for normal prejudgment. We cannot possibly avoid this process. Orderly living depends on it” (Allport, 1954, pp. 20).

Likewise, Allport defines a stereotype as a post-hoc rationalization for prejudice and discrimination:

“Whether favorable or unfavorable, a stereotype is an exaggerated belief associated with a category. Its function is to justify (rationalize) our conduct in relation to that category” (Allport, 1954, pp. 191).

Stereotypes are typically defined as characteristics associated with individuals and groups on the basis of membership in a particular social category. This definition is often expanded to include physical attributes, attitudes, beliefs, preferences, and social roles (Brewer, 1988, 2001; Dovidio, Brigham, Johnson, & Gaertner, 1996; Mackie & Smith, 1998). Later researchers have reversed the causal direction and now widely consider prejudice a result of negative stereotype content (Mackie & Smith, 1998; Park & Judd, 2005). This reversal occurred following the cognitive revolution and a shift in focus from negative affect to the negative consequences of categorization (Park & Judd, 2005).

The salience of egalitarian norms has forced prejudice to be masked, finding less overt ways of expression (Devine, Plant, & Blair, 2001; Judd, Park, Ryan, Brauer, & Kraus, 1995; Kinder & Sears, 1981; Sears & Henry, 2003). Prejudice is therefore

difficult to accurately measure with explicit measures and a number of implicit measures have been developed to assess whether nonconscious biases impact intergroup evaluations and beliefs. These methods have confirmed the presence of nonconscious biases towards a number of social groups (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Fazio, Jackson, Dunton, & Williams, 1995; Fazio & Dunton, 1997, Greenwald, McGhee, & Schwartz, 1998, Judd, et al, 1995). Both high- and low-prejudice individuals are equally knowledgeable of cultural stereotypes and upon categorization of a target, demonstrate automatic activation of them. Low-prejudice individuals are able to inhibit the application (though not the activation) of the stereotype, but only when they have sufficient motivation and cognitive resources to do so (Devine, 1989; Devine & Sherman, 1992). Even simply making use of pronouns such as “us” and “them” engenders bias. Nonsense syllables paired with words such as “we,” “us,” or “ours” are rated as more pleasant than those paired with words such as “they,” “them,” or “ours” (Perdue, Dovidio, Gurtman, & Tyler, 1990).

These findings are often taken to support the conjecture that categorization occurs automatically and leads to the automatic activation of stereotypes (Brewer, 1988; Devine, 1989; Fiske & Neuberg, 1990). Stereotypes predispose how targets previously uninfected by prejudice are perceived. Once activated, they must be carefully monitored so they do not contribute to bias in judgments and evaluations of others (Devine, 1989; Devine & Sherman, 1992). If allowed free reign, stereotypes lead to bias and error in person perception, perpetuating intergroup conflict (Howard & Rothbart, 1980; Perdue, et al, 1990; Pettigrew, 1979). This constitutes a reversal of Allport’s (1954) position.

Instead of functioning to justify/rationalize conduct towards a group, stereotypes cause prejudice and discrimination.

Categorization: Guilty as Charged or by Association?

Park and Judd (2005) have argued that “there slowly (has) evolved an implicit assumption that categorization, with its attendant negative consequences, would need to be addressed if intergroup hostility was to be reduced” (Park & Judd, 2005, pp. 108). Yet increasing boundaries does not significantly increase prejudice and stereotypes seem remarkably resistant to change (Park & Judd, 2005). When exceptions to a stereotype are provided they are often “subtyped” out of the category, having little effect on the underlying stereotype itself (Kunda & Oleson, 1995, 1997; Maurer, Park, & Rothbart, 1995; Oakes, Haslam, & Turner, 1994). Furthermore it seems that the automatic nature of the categorization process itself is severely limited to a few instances that rely on visual cues. A majority of studies make use of groups that are differentiated from each other with little effort (Whites and African-Americans or males and females). Such categories are “primary” – in the sense that they automatically differentiate people – and are easily detected (gender, race, and age; e.g., Brewer, 1988). Not all groups are so easily distinguished from each other; for instance how does one tell the difference between a Liberal and Conservative, a Jew and Christian, or an Arab and Muslim in the absence of such strong indicators?

Additionally, ingroup favoritism may depend more on positive affect towards the ingroup (Brewer & Miller, 1996; Brewer, 2001) and develop without negative evaluation of the outgroup (Pettigrew & Meertens, 1995; Pettigrew, 1997). This is not meant to

imply that categorization does not have negative consequences. Rather, it should be considered that categorization does not always lead to negative consequences.

Discrimination may be based on either ingroup favoritism in the absence of negativity towards a specific outgroup, or on derogation that entails a more harmful component.

The pressing question now becomes when do negative consequences of categorization arise and for what reasons?

Moderators of Intergroup Bias

A number of perspectives propose that derogation is unleashed when outgroups are perceived as threatening and/or associated with strong emotions (Brewer, 1999; Cottrell & Neuberg, 2005; Hewstone, Rubin, Willis, 2002; Mackie & Smith, 1998; Sears & Henry, 2003; Sherif & Sherif 1969; Stephan & Stephan, 1996, 2000). Perceived threat from an outgroup increases negative outgroup attitudes (Dunbar, Saiz, Stela, & Saez, 2000; Esses, Haddock, & Zanna, 1993; Langford & Pointing, 1992). It also results in greater aggression (Brown, Maras, Masser, Vivian, & Hewstone, 2001), negative stereotyping (Beaton & Tougas, 2001; Langford & Pointing, 1992; Zarate, Garcia, Garza, & Hitlan, 2004), and ingroup identification (Jetten, Branscombe, Schmitt, & Spears, 2001).

Additionally, threat triggers strong emotions such as anger (Hewstone, et al, 2002). While mild emotions trigger avoidance behaviors, strong emotions can result in active movement against an outgroup (Hewstone, et al, 2002; Smith, 1993). Anger increases the desire to harm (Mackie, Devos, & Smith, 2000; Yzerbyt, Dumont, Wigboldus, & Gordijn, 2003) and correct perceived wrongs (Maitner, Mackie, & Smith,

2007). It alters perceptions of risk (Fishhoff, Gonzalez, Lerner, & Small, 2005), distorts likelihood estimates (DeSteno, Petty, Rucker, Wegener, & Braverman, 2004), and increases stereotyping, hostility, and aggression (Berkowitz, 1993; Bodenhausen, Sheppard, & Kramer, 1994; Desteno, Dasgupta, Bartlett, & Cajdric, 2004; Green, 1995). Reduced levels of analytic processing (Forgas, 1995; Lerner, Goldeberg, & Tetlock, 1998; Tiedens & Linton, 2001) and a greater reliance on heuristic cues (Bodenhausen, et al, 1994; Moons & Mackie, 2007; Rydell, Mackie, Maitner, Claypool, Ryan, & Smith, 2008) have also been reported. Interestingly, Moons and Mackie (2007) reported that angry individuals engaged in analytic processing and also demonstrated a selective reliance on cues that were relevant and appropriate. This directly contradicts previous findings (Forgas, 1995; Lerner, et al, 1998; Tiedens & Linton, 2001) yet is consistent with Allport's (1954) "spot-the-enemy" hypothesis (henceforth the vigilance hypothesis), described below.

Formulated in response to findings that anti-Semites were more accurate at differentiating Jewish and non-Jewish targets (Allport & Kramer, 1946), the vigilance hypothesis argues that prejudiced individuals perceive outgroup members as threatening and develop heightened levels of vigilance. They learn to observe and interpret both facial features and expressive behaviors of the threatening outgroup, allowing for quick, accurate categorization of a target as an "enemy". This leads to two interesting possibilities. Does a heightened state of vigilance improve accuracy in identification of threatening outgroup members? Or does it lead to a response bias such that outgroup members are misclassified because vigilance leads to a zealous overidentification of the

“enemy”? If the latter is the case, why would a relationship between prejudice and accuracy exist (Allport & Kramer, 1946)?

Prejudice and Accuracy: Historical Overview

Allport’s vigilance hypothesis triggered a slew of follow-up studies (Carter, 1948; Dorfman, Keeve, & Saslow, 1971; Elliott & Wittenberg, 1955; Himmelfarb, 1966; Lindzey & Rogolsky, 1950; Pulos & Spilka, 1961; Quany, Keats, & Harkins, 1975). Broadly these studies fall into one of two camps, those endorsing the vigilance hypothesis (Allport & Kramer, 1946; Dorfman, Keeve, & Saslow, 1971; Lindzey & Rogolsky, 1950; Pulos & Spilka, 1961) or those supporting a “response-bias” interpretation (Carter, 1948; Elliott & Wittenberg, 1955; Himmelfarb, 1966, Quany, et al, 1975). The initial studies considered correct classification of Jewish and non-Jewish targets as “accurate” responses. However, incorrect classification of a non-Jewish target as “Jewish” (aka false alarms) were not considered (Allport & Kramer, 1946; Lindzey & Rogolsky, 1950). One could simply classify every photograph as “Jewish” and correctly classify all Jewish photographs; in other words, a response-bias was not controlled for. Those who adopted such a strategy would appear to possess superior accuracy. This should not be confused with accuracy. Accuracy should be considered a combination of maximizing hits while minimizing false alarms.

The “response-bias” interpretation argues that anti-Semites simply labeled more targets as “Jewish” because their prejudice influences them to “see their enemy everywhere” (Elliott & Wittenberg, 1955). This implies that prejudice can promote over-inclusive categorization. Higher levels of prejudice may lead to an overpropensity for

false alarms due to a relaxed criterion. Miscategorization of others as members of a threatening outgroup could result in the incorrect application of stereotypes and a number of negative consequences – such as those that occurred in the aftermath of September 11th (ADC, 2001; Panagopoulos, 2006; Oswald, 2005). Consistent with a “response-bias” interpretation, Elliott and Wittenberg (1955) reported a significant positive correlation between anti-Semitism and accuracy when the majority of targets were Jewish and a negative correlation when the majority of targets were not Jewish. Himmelfarb (1966) also found anti-Semites to be more accurate due to a response bias and reported no relationship between anti-Semitism and accuracy.

The research reviewed thus far on anti-Semitism and accuracy (Allport & Kramer, 1946; Carter, 1948; Elliott & Wittenberg, 1955; Himmelfarb, 1966; Lindzey & Rogolsky, 1950; Pulos & Spilka, 1961) is saddled with three problems. First, much of the effort has been directed at establishing whether or not a relationship between anti-Semitism and accuracy exists. Little attention has been given to why any such relationship should exist. Second, a resolution to the debate is not possible using the methods employed and a way to isolate accuracy from response bias is required. Lastly, the vigilance hypothesis is broadly applicable to all ingroup-outgroup identifications and is not solely concerned with anti-Semites and identification of Jews. By focusing solely on the latter, the vigilance hypothesis has not been fully tested.

Accuracy and Response Bias

Signal detection theory provides researchers with a way of measuring an individual’s decision criterion independently of sensitivity, a measure of accuracy

(standardized hit rate – standardized false alarm rate). Early threshold models were based on an all-or-none principle, assuming a fixed intensity, or absolute threshold (Macmillan & Creelman, 1990). Signal detection theory opposes this assumption and redefines sensory input as a signal distributed over a range of subjective experience instead of being something discrete (Martin & Rovira, 1981). One must decide whether an observation contains a signal or merely background interference, commonly referred to as noise (Swets, Tanner, & Birdsall, 1961). The judgment process consists of two stages: correctly classifying sensory input and the decision rule (or criterion) for making a given response. Separating the discrimination stage from the decision stage allows one to obtain measures of sensitivity and criterion.

When employing signal detection methods, discrimination of a signal is measured by the difference between a subject's hit rate (correct "yes" responses) and their false alarm rate (incorrect "yes" responses). Subjects that attempt to maximize hits by responding "yes" on each trial will not receive a high discrimination score, because they are not actually discriminating between signal and noise (Massaro, 1975). These people may successfully detect the signal a great deal of the time and in that sense, appear highly accurate. However this "accuracy" is due to a lax judgment criterion. Therefore, these individuals would score low on both sensitivity and criterion. That is, they would show evidence of response bias, rather than genuine accuracy. Essentially, these subjects require a weaker "signal" to report detection of a stimulus. Subjects who possess a higher criterion "set the bar higher" and require a stronger "signal" before reporting detection of a stimulus.

SDT and Social Categorization

Social categorization is often highly ambiguous. What differentiates a Jew from a Christian, a Muslim, or an atheist? An Arab from a Hispanic? As noted above, these distinctions are not so clear cut (unless clothing or other “markers” serve as cues), yet hostile and aggressive acts based on such categorizations often occur in the aftermath of events such as those of September 11th, 2001 (ADC, 2001; Bar-Tal & Labin, 2001; Huddy, et al, 2007; Panagopoulos, 2006; Oswald, 2005). Innocent individuals have been assaulted, beaten, and even murdered (ADC, 2001) on the basis of incorrect categorization. From a signal detection perspective such instances are false alarms, a decision has been made based on the subjective experience of a signal when only noise was present. By applying signal detection methods to the process of social categorization, we can investigate whether prejudice impacts how ambiguous targets are classified.

Two later studies of anti-Semitism and accuracy employed signal detection methods to distinguish response bias from sensitivity (Dorfman, et al, 1971; Quany, et al, 1975). Dorfman, Keeve, and Saslow (1971) reported a small but significant relationship between anti-Semitism and accuracy (sensitivity) and no relationship between anti-Semitism and number of photographs identified as “Jewish” (response bias). Anti-Semites were also found to be significantly more confident in their decisions than non-anti-Semites. This supports Allport’s (1946) vigilance hypothesis but the methodology employed differed greatly from previous research. Most importantly, participants rated the confidence of their judgments. Non-anti-Semites may have simply

been more willing to say “Jewish” because they could also report that they were not confident of their decision (Quany, et al, 1975).

Quany, et al (1975) closely followed the original methodology and introduced a point system, designed to induce a shift in criterion, that varied between subjects. In the no information condition, participants simply completed the task as they did in prior studies. In the Jewish bias condition, participants were informed they would receive more points for correctly identifying a face as “Jewish” than they would for identifying a face as “non-Jewish”; point values were reversed for the non-Jewish bias condition. The participant with the highest accuracy score was financially rewarded. Anti-Semites set a lower criterion for labeling photographs as “Jewish” and did not display increased sensitivity across the instruction sets. Non-anti-Semites set a higher criterion for responding “Jewish” in both the no information and the Non-Jewish Bias conditions but lowered their criterion in the Jewish Bias condition to a level similar to that of anti-Semites. Thus, it appears that highly prejudiced individuals prefer a strategy of minimizing misses during the process of social categorization even when it is in their own self-interest to adopt a strategy that minimized false alarms. In other words these individuals possessed a tendency to categorize an ambiguous target as “Jewish” and essentially “see their enemy everywhere.” This finding supports the response bias hypothesis and not the vigilance hypothesis.

A Newer Look: Reformulating the Vigilance Hypothesis

The original formulation of the vigilance hypothesis argued that prejudiced individuals perceive outgroup members as threats and develop heightened levels of

vigilance to both the facial features and expressive behaviors of outgroup members. As a result the prejudiced individual can quickly and accurately categorize a target as an “enemy” (Allport & Kramer, 1946). This hypothesis was originally intended to apply broadly to all outgroups. Subsequent research however focused singularly on anti-Semitism and whether or not anti-Semites were more accurate at identifying Jews. Quany, et al’s (1975) results indicated that anti-Semites were not more accurate at identifying Jews and instead simply “see their enemy everywhere”. This presumably resolved the debate although Quany, et al (1975) recommended a reformulation of the vigilance hypothesis. Specifically they suggested shifting the focus from the issue of accuracy to the factors influencing the decision criterion. This recommendation however fell on deaf ears as research on the topic abruptly ended.

The current study aims to reformulate the vigilance hypothesis by focusing on both how an unknown target is categorized as a threat (henceforth threat criterion) and on the ethnic categorization criterion. This was motivated by the implied causal sequence of the original vigilance hypothesis (Allport & Kramer, 1946) and the results of Quany, et al (1975). Those prejudiced towards a group perceive its members as threats (Allport & Kramer, 1946) and therefore possess a lower criterion for categorizing ambiguous targets as members of the disliked group (Quany, et al, 1975). In other words, because they feel threatened by certain groups, prejudiced individuals possess a “better safe than sorry” strategy when categorizing ambiguous targets. Prejudiced individuals appear to prefer incorrect categorization of an unknown target as a member of a disliked group (i.e. false alarm) over failure to categorize an unknown target as a member of a disliked group (i.e. miss). Essentially, the vigilance hypothesis (Allport & Kramer, 1946) assumes a priori

that prejudiced individuals perceive unknown/ambiguous targets as more threatening because they may be members of a disliked group. None of the studies investigating anti-Semitism and accuracy (see above) investigated whether or not prejudice impacted the threat criterion.

Cues indicative of threat tend to be probabilistic indicators of its presence, thus there is often a degree of uncertainty when deciding whether or not something is threatening (Nesse, 2005). Decisions made under uncertainty can result in two types of errors: false positives, also known as Type I errors or false alarms; and false negatives, also known as Type II errors or misses. Both errors have a cost associated with them and this cost is rarely symmetrical (Haselton & Buss, 2000; Haselton & Nettle, 2006; Nesse, 2005). A false alarm (i.e.: incorrect categorization of a target as a threat) triggers the expression of a defensive response, this constitutes a misuse of resources. A miss however results in exposure to the harm itself. Depending on what the threat is the cost of harm could be immense (e.g. terrorist attack that results in massive casualties). Therefore, a defensive response will only be expressed when the cost of expression is less than the cost of exposure to harm (Nesse, 2005). For instance, if someone steps on your foot in a crowd one potential defensive response is to hit them. However, given that this is likely an accident, the cost of expressing this response (getting into a physical fight, facing legal action, etc.) is much higher than the cost of the harm itself (a minor pain in your foot) and it is therefore unlikely to occur.

Nesse (2005) has argued for the use of signal detection methods when investigating decision making under uncertainty. The decision criterion determines the number of false alarms and the number of misses. Setting the decision criterion too low

(e.g.: requiring a weaker “signal” to report the presence of threat) leads to a greater number of false alarms, but setting it too high (e.g.: requiring a stronger “signal” to report the presence of threat) increases the number of misses. When the cost of errors are asymmetrical, decision making processes should be biased towards committing errors that are less costly. Likewise, if the cost of an error is the same but the benefits are asymmetrical, decision processes should be biased towards the more beneficial decision (see: Haselton & Buss, 2000; Haselton & Nettle, 2006; Nesse, 2005). An optimal decision criterion is considered the value of the decision criterion above which expressing a response produces a net gain. Essentially, our decision making processes are biased to make decisions that minimize cost and maximize benefit.

When the results of Quany, et al (1975) are considered from this perspective they suggest that, for prejudiced individuals, the cost of failing to correctly categorize an unknown target as a member of a disliked group is greater than the cost of incorrectly categorizing an unknown target as a member of a disliked group. It appears that prejudice is serving a defensive function, prejudiced individuals err on the side of caution. Additionally, different groups are associated with different types of threats (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2006; Stephan & Stephan, 1999, 2000). Research suggests that when the threat a group is associated with is salient, prejudice towards that group has a greater impact on intergroup behavior. In contrast, if the threat a group poses is not salient the impact of prejudice on behavior towards that group is reduced (Cottrell & Neuberg, 2005; Neuberg & Cottrell, 2006; Schaller, Park & Mueller, 2003). For example, Arabs are stereotypically associated with terrorists and support for terrorism (Huddy, et al, 2007; Johnson, 1992). If the threat of terrorism is salient

prejudice towards Arabs should have a greater influence on intergroup behavior. If in contrast the threat of disease and/or infection is salient Arab prejudice should not have as great an influence on intergroup behavior since Arabs are not stereotypically associated with disease and/or infection. Collectively, these findings indicate that a reformulation of the vigilance hypothesis should address whether or not prejudice impacts how an unknown target is categorized as a potential threat.

The above findings have all been taken into account when reformulating the vigilance hypothesis. The current reformulation of the vigilance hypothesis proposes that concern over the threat(s) a group is thought to pose will be associated with prejudice towards that group. When the threat a group is associated with is salient, prejudice towards a group will result in a lower threat criterion to categorize an unknown target as a threat. High prejudiced participants will also display lower sensitivity to individuals that pose a threat and are not expected to be influenced by a cost-benefit considerations (Quarty, et al, 1975). Low prejudiced individuals however are expected to shift their threat criterion as a function of the cost of a false alarm relative to the cost of a miss. Greater prejudice will also result in a lower ethnic categorization criterion to classify an unknown target as a member of a disliked group.

The Current Study

Concern over terrorism and illegal immigration has increased in the aftermath of the September 11th terrorists attacks (Bar-Tal & Labin, 2001; Hitlan, Carrilo, Zarate, & Aikman, 2007; Huddy, et al, 2007; Panagopoulos, 2006). Terrorism constitutes a physical threat to the safety of the ingroup. Illegal immigration constitutes a threat to the

material resources of the ingroup (as well as a challenge to extant laws). Arabs and Muslims are stereotypically associated with terrorists and support for terrorism (Huddy, et al, 2007; Johnson, 1992). Hispanics – largely Mexicans – are stereotypically associated with illegal immigration (Hitlan, et al, 2007; Stephan, et al, 1999, 2000). The current study was designed to test the reformulated vigilance hypothesis when either the threat of terrorism or the threat of illegal immigration was salient.

Participants completed a social attitudes questionnaire that included measures of Arab prejudice, Hispanic prejudice, terrorism concern, and illegal immigration concern. Participants were then randomly assigned to a security role condition (airport security or border patrol) and completed two tasks, a detain task and an ethnic categorization task. These tasks were modeled after the design of Quany, et al (1975). Participants were presented with photographs of unknown targets. An equal number of Arab, Black, Hispanic, and White targets were presented. In the detain task they were asked whether they would detain or not detain an individual on the basis of suspected terrorism (airport security role) or suspected illegal immigration (border patrol security role). Known terrorists and illegal immigrants made up a proportion of the photographs. Additionally, the cost of misses and false alarms were varied. Within each security role participants were randomly assigned to one of three different cost-benefit ratios: 1) cost of false alarm = cost of miss; 2) cost of false alarm > cost of miss; or 3) cost of false alarm < cost of miss.

Following the detain task participants the same photographs were presented and participants were asked to ethnically categorize each target. Participants assigned to the airport security role were asked to categorize each target as either “Arab” or “Not Arab”

while participants assigned to the border patrol security role were asked to categorize each target as “Hispanic” or “Not Hispanic”. The detain task provided a way to obtain measures of threat criterion (decision to detain) and threat sensitivity (successful detention of a terrorist or illegal immigrant) while the ethnic categorization task provided a way to obtain a measure of ethnic categorization criterion.

Hypotheses

Attitude Measures: A positive correlation between Arab prejudice and terrorism concern was expected because Arabs are stereotypically associated with terrorism (Huddy, et al, 2007; Johnson, 1992). Likewise a positive correlation between Hispanic prejudice and illegal immigration concern was expected because Hispanics are stereotypically associated with illegal immigration (Hitlan, et, al, 2007; Stephan, et al, 1999, 2000). Confirmation of these correlations would provide justification for testing the reformulated vigilance hypothesis.

Detain Task: In the detain task the reformulated vigilance hypothesis predicts a two-way interaction of Arab prejudice and security role. Higher levels of Arab prejudice were expected to result in a lower threat criterion and lower threat sensitivity when the threat of terrorism was salient. Essentially, Arab prejudice was expected to influence threat criterion and threat sensitivity in the airport security role condition but not in the border patrol security role condition. A two-way interaction of Hispanic prejudice and security role was also predicted. Higher levels of Hispanic prejudice were expected to result in a lower threat criterion and threat sensitivity when the threat of illegal immigration was salient. In other words, Hispanic prejudice was expected to influence

threat criterion and threat sensitivity in the border patrol security role condition but not in the airport security role condition.

The reformulated vigilance hypothesis also predicts a three-way interaction of Arab prejudice, security role, and cost-benefit ratio on detain criterion and detain sensitivity. In the airport security role, cost-benefit considerations were expected to influence the threat criterion and threat sensitivity of participants with lower levels of Arab prejudice. Participants with higher levels of Arab prejudice were not expected to be influenced by cost-benefit considerations. Likewise a three-way interaction of Hispanic prejudice, security role, and cost-benefit ratio on detain criterion and detain sensitivity is also predicted. In the border patrol security role, cost-benefit considerations were expected to influence the threat criterion and threat sensitivity of individuals with lower levels of Hispanic prejudice. Participants with higher levels of Hispanic prejudice were not expected to be influenced by cost-benefit considerations.

Ethnic Categorization Task. The reformulated vigilance hypothesis predicts main effects of Arab prejudice and Hispanic prejudice on the ethnic categorization criterion. Specifically, higher levels of Arab prejudice were expected to result in a lower ethnic categorization criterion. Higher levels of Hispanic prejudice were also expected to result in a lower ethnic categorization criterion. Lastly, it was also predicted that Arab and Hispanic targets would be more likely to be incorrectly categorized compared to Black and White targets because of the relative ambiguity of the stimuli.

Method

Participants

Participants were 199 undergraduates (70 male, 129 female; $M_{\text{age}} = 19.80$ years, $SD = 2.83$) at Rutgers University who participated for extra credit in a psychology course. Participants were randomly assigned to a 2 (security role: airport security or border patrol) X 3 (cost-benefit ratio: equal, detention, or non-detention) factorial design. 5 outliers were removed (3 male, 2 female) because they either detained all targets (1 male) or did not detain any targets (2 male, 2 female). Additionally 1 male participant did not complete the task and was also removed. This left a total of 193 undergraduates (66 male, 127 female; $M_{\text{age}} = 19.94$ years, $SD = 2.55$).

Attitude Measures: A series of social attitude measures that included a social beliefs scale, modified versions of the modern racism (MRS; McConahay, 1986) and modern sexism scales (MSS; Swim, Aikin, Hall, & Hunter, 1995), a prejudice towards Arabs scale, and a prejudice towards Hispanics scale (both adapted from Bushman & Bonacci, 2004) was completed prior to the categorization tasks. Attitudes towards terrorism and illegal immigration in general were also assessed (adapted from: Huddy, et al, 2007; Oswald, 2005). Appendix A contains the full set of measures. The social beliefs measure and the modified versions of the MRS and MSS were included as filler items to obscure the study's focus on Arabs and Hispanics.

Demographic Information: Following completion of both categorization tasks participants provided the following general demographic information: gender, age, ethnicity, religion, religiosity (1 = not at all religious, 10 = very religious), political

ideology (1 = very liberal, 9 = very conservative), and political affiliation (Democrat, Republican, or Neither).

Stimuli: Photographs for both conditions were obtained from available public pictures (e.g. internet, newspaper) using the same method as Andrzejewski, Hall, and Salib (2009). Photographs of known terrorists and illegal immigrants were obtained from the Federal Bureau of Investigation's official counterterrorism web site (<http://www.fbi.gov/terrorinfo/counterterrorism/waronterrorhome.htm>). Photographs were all pretested to ensure that they were not perceived as more threatening and/or suggestive than the average photograph and also for their ethnic ambiguity (with the exception of African-American and Caucasian).

Cost-Benefit Ratios: All participants were informed that accuracy was measured on a point-based system and that a gift card would be awarded at the end of the semester to the participant with the highest score. Detaining a terrorist/illegal immigrant was considered a hit while not detaining a terrorist/illegal immigrant was considered a miss. Detaining a non-terrorist/illegal immigrant was considered a false alarm, while not detaining a non-terrorist/illegal immigrant was considered a correct rejection. Participants were awarded points for hits and correct rejections while they lost points for misses and false alarms.

In the equal cost-benefit ratio, participants received 5 points for each terrorist/illegal immigrant detained and each non-terrorist/illegal immigrant not detained. They lost 3 points for each terrorist/illegal immigrant not detained and each non-terrorist/illegal immigrant detained. In the detention cost-benefit ratio, participants

received 8 points for each terrorist/illegal immigrant detained and each non-terrorist/illegal immigrant not detained. They lost 10 points for each terrorist/illegal immigrant not detained and 2 points for each non-terrorist/illegal immigrant detained. In the non-detention cost-benefit ratio, participants received 8 points for each terrorist/illegal immigrant detained and each non-terrorist/illegal immigrant not detained. They lost 10 points for each non-terrorist/illegal immigrant detained and 2 points for each terrorist/illegal immigrant not detained.

Procedure

All participants were run simultaneously in a large classroom setting. Survey packets were distributed that contained all attitude measures, security role condition assignment, cost-benefit ratio, tally sheets to record responses on the detain and ethnic categorizations tasks, and general demographics. Participants were given ten minutes to complete the attitude measures and upon completion were randomly assigned to a security role (airport security or border patrol) and cost-benefit ratio (equal, detain, non-detain).

In the airport security role, participants were asked to assume the role of an airport security officer who had received a credible report of an imminent terrorist threat. Following random assignment to security role, participants within each condition were randomly assigned to one of the three cost-benefit ratios (equal, detain, or not detain). Participants were informed that some of the individuals presented were actual terrorists and asked to detain or not detain an individual on the basis of suspected terrorism. All procedures were identical in the border patrol security role except that participants were

informed that some of the individuals presented were actual illegal immigrants and asked to detain or not detain an individual on the basis of suspected illegal immigration.

Both the detain task and the ethnic categorization were presented on the classroom projector using Microsoft Powerpoint. Forty photographs were presented: 10 Arab, 10 Caucasian, 10 African-American, and 10 Hispanic. In total, 10 photographs were of known terrorists (3 African, 4 Arab, and 3 Caucasian) and 10 of these photos were of illegal immigrants (3 African, 3 Arab, 4 Hispanic). Of the 10 terrorists only the 3 Caucasians were American citizens and therefore could not be suspected of illegal immigration. Additionally the 4 Hispanics presented as illegal immigrants were not suspected of terrorism. This allowed all participants to be run at the same time in both the detain task and the ethnic categorization task.

Each photograph was presented on a powerpoint slide. All photographs were centered, set to the same size (height = 4"; width =4"), and presented on an all black background. Each slide was presented for 7 seconds and then automatically advanced to a response prompt ("please record your response"). The prompt, was presented for 7 seconds and then automatically advanced to the next target photograph. In other words participants were given 7 seconds to view the photograph of each target and then given 7 seconds to decide whether they would detain or not detain a target. Responses were recorded on a tally sheet in the survey packet. Targets were labeled as "Passenger X" in the airport security role and as "Border Crosser X" in the border patrol security role (where X = the number of the target presented, 1-40).

Following the detain task, participants were presented with the same forty photographs and asked to classify them on the basis of ethnicity (Arab or Not Arab in airport security role condition; Hispanic or Not Hispanic in border patrol security role condition). The photographs were presented in the same order. The procedure was identical to the detain task except that participants assigned to the airport security role were asked to categorize targets as “Arab” or “Not Arab” while participants assigned to the border patrol security role were asked to categorize targets as “Hispanic” or “Not Hispanic.” Additionally, no cost-benefit ratios were employed. Following the ethnic categorization task participants completed the general demographics measure.

Results

Prior to data analysis an additional 23 participants were removed on the basis of ethnicity. Twelve “Latino/Hispanic” participants were removed from the border patrol condition. Additionally 11 “other” participants were removed due to the possibility that they were Arab or Hispanic. This left a total sample of 170 undergraduates (109 female, 72 non-white; $M_{age} = 19.98$, $SD = 2.68$). A total of 92 participants were in the airport security role condition while 78 were in the border patrol security role condition.

Preliminary Analysis

Attitude Measures: All measures of prejudice (Appendix A) attained adequate reliability (all $\alpha s > .73$). Arab prejudice was assessed with 7 items ($\alpha = .85$) while Hispanic prejudice was assessed with 6 items ($\alpha = .74$). Terrorism concern ($\alpha = .85$) and illegal immigration concern ($\alpha = .77$) were both assessed with 5 items and attained adequate reliability. Mean scores for both the prejudice and threat concern measures were calculated so that higher scores reflected greater amounts of prejudice/concern. Consistent with the reformulated vigilance hypothesis Arab prejudice was positively correlated with terrorism concern and Hispanic prejudice was positively correlated with illegal immigration concern (for means and standard deviations see Table 1; for all correlations see Table 2). Participants also reported greater terrorism concern ($M = 6.42$, $SD = 1.82$) than illegal immigration concern ($M = 5.20$, $SD = 1.70$), $t(164) = 8.72$, $p < .001$. Essentially, higher levels of Arab (Hispanic) prejudice were associated with higher levels of terrorism (illegal immigration) concern and participants were more concerned over the threat of terrorism than the threat of illegal immigration.

Additionally, political ideology was positively correlated with Arab prejudice, Hispanic prejudice, and illegal immigration concern (Table 2). Specifically, greater conservatism was associated with higher levels of prejudice and illegal immigration concern. The association of political ideology with Arab prejudice, Hispanic prejudice, and illegal immigration concern is not surprising given prior research indicating greater amounts of prejudice among political conservatives (Jost, Glaser, Kruglanski, & Sulloway, 2003; Wilson, 1973).

Signal Detection Analysis: To perform a signal detection analysis hit rates and false alarm rates were calculated for all participants in the detain task. 6 participants (1 in the airport security condition, 5 in the border patrol condition) obtained hit rates of 100% so a correction was applied (see: Macmillan & Creelman, 2004).¹ Additionally, one participant in the airport security condition obtained a false alarm rate of 0% so a correction was applied (Macmillan & Creelman, 1991).² Following all corrections, measures of detain sensitivity (d'_{detain}) and detain criterion (c_{detain}) were calculated³ (see Tables 3 and 4 for means and standard deviations). The same procedure was repeated for the ethnic categorization task.

¹ In cases where hit rate = 100% the following correction was applied: hit rate = $1 - (1/2N)$, where N = the number of targets. Thus, hit rate = $1 - (1/20)$, since N = 10 (either terrorists or illegal immigrants).

² In cases where false alarm rate = 0% the following correction was applied: false alarm rate = $1/2N$, where N = the number of targets. Thus, false alarm rate = $1/60$, since N = 30 (either non-terrorists or non-illegal immigrants).

³ $d' = (Z_{\text{hitrate}} - Z_{\text{falsealarmrate}})$; $c = -.5(Z_{\text{hitrate}} + Z_{\text{falsealarmrate}})$

Main Analyses: Detain Task

The Vigilance Hypothesis – Threat Criterion: The reformulated vigilance hypothesis predicts that higher levels of Arab prejudice were expected to result in a lower threat criterion in the airport security role. In contrast, higher levels of Hispanic prejudice are expected to result in a lower threat criterion in the border patrol security role. Two-way interactions of Arab prejudice x security role and Hispanic prejudice x security role on threat criterion would support this hypothesis. Additionally, in both security role conditions the cost-benefit ratios were expected to influence the threat criterion of low prejudice participants but not high prejudice participants (Arab prejudice in the airport security role and Hispanic prejudice in the border patrol security role). Three-way interactions of Arab prejudice x security role x cost-benefit ratio and of Hispanic prejudice x security role x cost-benefit ratio on threat criterion would support this hypothesis

To test for these interactions two separate ANCOVAs were run. In the first, security role and cost-benefit ratio were entered as categorical predictors while Arab prejudice was entered as a continuous predictor. All main effects, 2-way interactions, and the 3-way interaction involving security role, cost-benefit ratio, and Arab prejudice were assessed. The 3-way interaction of Arab prejudice x security role x cost-benefit ratio and all of the 2-way interactions were not significant (all $F_s < 1.20$, *ns*). A significant main effect of Arab prejudice was found, $F(1,155) = 6.87$, $p = .01$. Greater levels of Arab prejudice led to a lower threat criterion (see Table 2). No other significant main effects emerged (all $F_s < 2.62$, *ns*). Given that the 3-way interaction of Arab prejudice x security role x cost-benefit ratio and the 2-way interaction of Arab prejudice x

security role did not emerge, these results do not support the reformulated vigilance hypothesis.

In the second ANCOVA, Hispanic prejudice replaced Arab prejudice as the continuous predictor of threat criterion. All main effects, 2-way interactions, and the 3-way interaction involving security role, cost-benefit ratio, and Hispanic prejudice were assessed. The 3-way interaction of Hispanic prejudice x security role x cost-benefit ratio and all of the 2-way interactions were not significant (all F s < .66, ns). Both Hispanic prejudice, $F(1,155) = 3.76$, $p = .054$, and security role, $F(1,155) = 3.80$, $p = .053$, were found to be approaching significance. Specifically, greater levels of Hispanic prejudice led to a lower threat criterion (see Table 2). When controlling for this effect participants in the airport security role (Adjusted Mean = .31, $SE = .05$; $CI_{.95} = .22$ to .40) were found to have a higher threat criterion than participants in the border patrol security role (Adjusted Mean = .01, $SE = .05$; $CI_{.95} = -.10$ to .11). No main effect of cost-benefit ratio was found, $F(2,155) = .63$, $p = .54$. Given that the 3-way interaction of Hispanic prejudice x security role x cost-benefit ratio and the 2-way interaction of Hispanic prejudice x security role did not emerge, these results do not support the reformulated vigilance hypothesis.

The Vigilance Hypothesis – Threat Sensitivity: The reformulated vigilance hypothesis also predicts that higher levels of Arab prejudice would result in lower threat sensitivity in the airport security role. In contrast, higher levels of Hispanic prejudice were expected to result in lower threat sensitivity in the border patrol security role. Two-way interactions of Arab prejudice x security role and Hispanic prejudice x security role on threat sensitivity would support this hypothesis. Additionally, in both security role

conditions the threat sensitivity of low prejudice participants (Arab prejudice in the airport security role and Hispanic prejudice in the border patrol security role) was expected to be lower in the detain cost-benefit ratio compared to the equal and not detain cost-benefit ratios. High prejudice participants were not expected to be influenced by differences in cost-benefit ratios. Three-way interactions of Arab prejudice x security role x cost-benefit ratio and of Hispanic prejudice x security role x cost-benefit ratio on threat sensitivity would support this hypothesis.

To test for these interactions two separate ANCOVAs were run. In the first, security role condition and cost-benefit ratio were entered as categorical predictors while Arab prejudice was entered as a continuous predictor. All main effects, 2-way interactions, and the 3-way interaction involving security role, cost-benefit ratio, and Arab prejudice were tested. A significant interaction of Arab prejudice x security role emerged, $F(2,155) = 6.27, p = .01$. No other significant interactions or main effects emerged (all $F_s < 3.30, ns$). Given that the 3-way interaction of Arab prejudice x security role x cost-benefit ratio and the 2-way interaction of Arab prejudice x security role did not emerge, these results do not support the reformulated vigilance hypothesis.

To interpret the interaction of Arab prejudice x security role, Arab prejudice was correlated with threat sensitivity within each security role condition. Contrary to the reformulated vigilance hypothesis, Table 5 shows that Arab prejudice was not correlated with threat sensitivity in the airport security role. In contrast, Arab prejudice was positively correlated with threat sensitivity in the border patrol security role. Tests for the significance of difference between correlation coefficients were performed using a Fisher r to Z transformation. A significant difference of correlation coefficients was

found between the airport security role and the border patrol security role, $Z = 2.26$, $p = .01$. In other words, the impact of Arab prejudice on threat sensitivity differed between security role conditions. Participants with higher levels of Arab prejudice displayed greater sensitivity to illegal immigrants. Arab prejudice did not impact sensitivity to terrorists.

In the second ANCOVA, Hispanic prejudice replaced Arab prejudice as the continuous predictor of threat sensitivity. All main effects, 2-way interactions, and the 3-way interaction involving security role, cost-benefit ratio, and Hispanic prejudice were assessed. A significant interaction of Hispanic prejudice and cost-benefit ratio was found, $F(2,155) = 4.83$, $p = .009$. No other significant interactions emerged (all F s < 2.49, all p s > .09). Additionally, a main effect of Hispanic prejudice was found, $F(1,155) = 4.35$, $p = .04$. This main effect was qualified by the interaction. No other significant main effects were found (both F s < 2.53, all p s > .08). Given that the 3-way interaction of Hispanic prejudice x security role x cost-benefit ratio and the 2-way interaction of Hispanic prejudice x security role did not emerge, these results do not support the reformulated vigilance hypothesis.

To interpret the interaction of Hispanic prejudice x cost-benefit ratio, Hispanic prejudice was correlated with threat sensitivity within each cost-benefit ratio. Contrary to the reformulated vigilance hypothesis, Table 6 shows that Hispanic prejudice was positively correlated with threat sensitivity in the equal cost-benefit ratio. Hispanic prejudice had no relationship with threat sensitivity in the detain and not detain cost-benefit ratios. Tests for the significance of difference between correlation coefficients were performed using a Fisher r to Z transformation. The difference of correlation

coefficients was between the equal cost-benefit ratio and the detain cost-benefit ratio approached significance, $Z = 1.92, p = .054$. Tests for difference of correlation coefficients between the equal cost-benefit ratio and the not detain cost-benefit ratio, $Z = .44, p = .66$, and between the detain cost-benefit ratio and the not detain cost-benefit ratio, $Z = 1.45, p = .14$, were not significant. Hispanic prejudice led to greater threat sensitivity in the equal cost-benefit ratio compared to the detain cost-benefit ratio regardless of security role.

In sum, the results of the detain task do not support the reformulated vigilance hypothesis. Within each security role, cost-benefit considerations did not impact the threat criterion or threat sensitivity of low prejudiced participants. Likewise, security role did not interact with the “relevant” prejudice (Arab in airport security role, Hispanic in border patrol security role) to impact either threat criterion or threat sensitivity. Arab prejudice and security role did interact to impact threat sensitivity. Contrary to the reformulated vigilance hypothesis however Arab prejudice impacted threat sensitivity when illegal immigration, and not terrorism, was salient. Due to these results and the significant correlations of political ideology with Arab and Hispanic prejudice, threat criterion, and threat sensitivity, exploratory analyses were conducted to investigate the impact of political ideology on threat criterion and threat sensitivity.

Political Ideology

Political conservatism is associated with greater mistrust of and prejudice towards outgroups (Jost, et al, 2003; Wilson, 1973). Janoff-Bulman (2009) has proposed that political conservatism is rooted in avoidance motivation which manifests as a general

desire to protect the ingroup from threats and dangers. As a result conservatives are more sensitive to group boundaries (i.e.: ingroup-outgroup membership). Consistent with this perspective, conservatives take longer to decide if a target is trustworthy or not (Stevens & Jussim, in preparation). These findings suggest that in the current study greater levels of conservatism should result in a lower threat criterion. Additionally, due to their attunement to danger and threats (Janoff-Bulman, 2009) greater levels of conservatism should result in greater threat sensitivity.

Threat Criterion: To investigate if political ideology impacted threat criterion an ANCOVA was run. Security role condition and cost-benefit ratio were entered as categorical predictors while political ideology was entered as a continuous predictor. All 2-way interactions and the 3-way interaction between security role, cost-benefit ratio, and political ideology were tested. A significant main effect of political ideology was found, $F(1, 157) = 6.34, p = .01$. No other main effects or interactions emerged (all F s < 1.89, *ns*). Based on the significant correlation between political ideology and threat criterion (see Table 2) this result supports the hypothesis that greater levels of conservatism are associated with a lower threat criterion regardless of security role or cost-benefit ratio.

Threat Sensitivity: An ANCOVA was also employed to investigate the impact of political ideology on threat sensitivity. Security role and cost-benefit ratio were entered as categorical predictors while political ideology was entered as a continuous predictor. All 2-way interactions and the 3-way interaction between security role, cost-benefit ratio, and political ideology were tested. Significant interactions of political ideology x security role, $F(1, 157) = 20.25, p < .001$, and political ideology x cost-benefit ratio, $F(2, 157) = 3.45, p = .03$, were found. No other interactions emerged (all F s < .88, *ns*). A

main effect of political ideology, $F(1, 157) = 3.84, p = .05$, was found. Additionally, main effects of security role, $F(1, 158) = 36.27, p < .001$, and cost-benefit ratio, $F(2, 157) = 3.75, p = .03$, were found. These main effects were qualified by the interactions.

To interpret the interaction of ideology and security role, political ideology was correlated with threat sensitivity within each security role condition. Table 7 shows that political ideology was positively correlated with threat sensitivity in the border patrol security role and negatively correlated with threat sensitivity in the airport security role. Tests for the significance of difference between correlation coefficients were performed using a Fisher r to Z transformation. A significant difference of correlation coefficients was found between the airport security role and the border patrol security role, $Z = 4.62, p < .001$. Greater conservatism resulted in heightened sensitivity to illegal immigrants and decreased sensitivity to terrorists. Essentially, more conservative participants were better at identifying terrorists and illegal immigrants.

The interaction of political ideology and cost-benefit ratio was interpreted in the same fashion. Table 8 shows that political ideology was positively correlated with threat sensitivity in the equal cost-benefit ratio and the detain cost-benefit ratio. Political ideology had no relationship with threat sensitivity in the not detain cost-benefit ratio. Tests for the significance of difference between correlation coefficients were performed using a Fisher r to Z transformation. No significant differences between cost-benefit ratios were found (all Z s < 1.65 , all p s $> .08$). Essentially, greater levels of conservatism led to a higher threat sensitivity except when the cost of a false alarm exceeded the cost of a miss.

To further explore this interaction and since hits and false alarms determine threat sensitivity (Macmillan & Creelman, 1990) political ideology was correlated with hits and false within each cost-benefit ratio (Table 9). Greater levels of conservatism were associated with a greater number of hits in the equal and detain cost-benefit ratios. Political ideology had no relationship with number of hits in the not detain cost-benefit ratio. Political ideology also had no relationship with the number of false alarms regardless of cost-benefit ratio. Essentially, the relationship between political ideology and threat sensitivity in the equal and detain cost-benefit ratios is a result of more conservative participants attaining a greater number of hits. In the not detain cost-benefit ratio however more conservative participants did not attain a greater number of hits.

Ethnic Categorization Task

In the ethnic categorization task participants viewed the same 40 targets but were asked to make ethnic judgments. In the airport security role participants were asked to decide whether a target was “Arab” or “Not Arab.” In the border patrol security role participants were asked to decide whether a target was “Hispanic” or “Not Hispanic.” It was hypothesized that greater levels of Arab prejudice and Hispanic prejudice would result in a lower ethnic categorization criterion. Additionally it was hypothesized that Arab and Hispanic targets would be miscategorized more than White and Black targets. Lastly, although the ethnic categorization task did not include different cost-benefit ratios, cost-benefit ratio was included as a categorical predictor in these analyses to test for possible carry-over effects.

Ethnic Categorization Criterion: Two separate ANCOVAs were employed to test whether higher levels of prejudice would result in a lower ethnic categorization criterion. In the first ANCOVA, security role and cost-benefit ratio were entered as categorical predictors and Arab prejudice was entered as a continuous predictor. All main effects, 2-way interactions, and the 3-way interaction between security role, cost-benefit ratio, and Arab prejudice were tested. No significant interactions (all $F_s < .78$, all *ns*) or main effects (all $F_s < 1.51$, *ns*) emerged. In the second ANCOVA Hispanic prejudice replaced Arab prejudice as the continuous predictor. Security role and cost-benefit ratio were entered as categorical predictors. All main effects, 2-way interactions, and the 3-way interaction between security role, cost-benefit ratio, and Hispanic prejudice were tested. No significant interactions (all $F_s < 1.13$, *ns*) or main effects (all $F_s < 1.57$, *ns*) emerged. This does not support the hypothesis that greater levels of Arab prejudice and Hispanic prejudice would result in a lower ethnic categorization criterion.

Social Categorization: Lastly a comparison of ambiguous and non-ambiguous false alarms was conducted to determine if it was more difficult to categorize Arab and Hispanic targets. White and Black false alarms were computed and then summed to create a measure of non-ambiguous false alarms (Whites or Blacks incorrectly categorized as Arab – in the airport security condition – or Hispanic – in the border patrol condition). Incorrect categorization of Arabs (in the border patrol condition) or Hispanics (in the airport security condition) were considered ambiguous false alarms. A dependent t test revealed that participants made significantly more false alarms when categorizing ambiguous targets ($M = 7.82$, $SD = 3.71$) than non-ambiguous targets ($M = 3.87$, $SD = 2.09$), $t(192) = 20.80$, $p < .001$. This finding supports the hypothesis that

Arabs and Hispanics were more likely than Whites or Blacks to be incorrectly categorized in the ethnic categorization task.

General Discussion

The primary goal of the current study was to test a reformulation of Allport and Kramer's (1946) vigilance hypothesis. Consistent with the reformulated vigilance hypothesis Arab prejudice was associated with terrorism concern and Hispanic prejudice was associated with illegal immigration concern. Overall however the current results however do not support the proposed reformulation and they are inconsistent with Quilty, et al (1975). Specifically, the threat criterion and threat sensitivity of low prejudice participants were not influenced by changes in the cost of a false alarm relative to the cost of a miss. Additionally, the hypothesized 2-way interactions between (both Arab and Hispanic) prejudice and security role on threat criterion and threat sensitivity did not emerge. Finally the hypothesized main effects of Arab prejudice and Hispanic prejudice on ethnic categorization criterion were not found.

There are a number of possible explanations for these results. Social desirability concerns are known to distort responses on explicit measures of prejudice and research suggests that implicit measures of prejudice may be better predictors of intergroup behavior (Hewstone, et al, 2002). While a number of other attitude measures were also presented (MRS, MSS, social beliefs) and the targets in the categorization task were made up of an equal number of Arabs, Blacks, Hispanics, and Whites, some participants may have realized the purpose of the experiment and distorted their responses. Given that the attitude measures were completed prior to the categorization tasks, the potential for distortion as a result of social desirability would more likely have occurred in the categorization tasks.

Additionally, all participants were run at the same time in a large classroom setting. It is possible that a number of participants did not understand or carefully read the instructions pertaining to the cost-benefit ratios. It is also possible that the reward (a gift card at the end of the semester) was not strong enough to induce a shift in criterion. Finally, the two studies differed in methodology. Quany, et al (1975) assessed an ethnic categorization criterion and ethnic categorization sensitivity while the current study assessed a threat criterion and threat sensitivity. While an ethnic categorization criterion was assessed, the task did not feature any cost-benefit ratios. The different task demands in the current study could have negated any effects of the different cost-benefit ratios on threat criterion and threat sensitivity as well as any effects of (Arab or Hispanic) prejudice on the ethnic categorization criterion.

As a result of these findings, exploratory investigations of the effects of political ideology on threat criterion, threat sensitivity, and ethnic categorization criterion were conducted. These analyses revealed that political ideology consistently influenced threat criterion regardless of security role or cost-benefit ratio. Specifically, greater conservatism resulted in a lower threat criterion. Two-way interactions political ideology x security role and political ideology x cost-benefit ratio on threat sensitivity also emerged. Greater levels of conservatism resulted in greater sensitivity to illegal immigrants but decreased sensitivity to terrorists. Greater levels of conservatism also resulted in heightened threat sensitivity except when the cost of a false alarm exceed the cost of a miss. Lastly, like (Arab or Hispanic) prejudice, political ideology was found to have no relationship with ethnic categorization criterion. In the following discussion a

reformulation of the vigilance hypothesis incorporating political ideology is outlined and future research directions are discussed.

Janoff-Bulman (2009) has suggested that conservatives possess a broad motivation to protect the ingroup from threat and danger. One manifestation of this protection orientation is a particular interest and unease about intergroup relations. Conservatives are attuned to indices of group loyalty and are particularly interested in whether or not someone can be trusted. Consistent with this, conservatives take longer to decide whether a target is trustworthy or not than liberals (Stevens & Jussim, in preparation) and place a greater value on ingroup loyalty and respect for authority (Altemeyer, 1996; Haidt & Graham, 2009). Additionally conservatism is associated with stereotyping, prejudice, and hostility towards outgroups (Duckitt, Wagner, du Plessis, & Birum, 2002; Napier & Jost, 2008; Sidanius & Pratto, 1999; Whitley, 1999; Wilson, 1973), “perceptions of a dangerous world” (Altemeyer, 1996; Duckitt, 2001; Jost, et al; 2003; van Leeuwen & Park, 2009) and greater physiological reactions to perceived threat (Oxley, et al, 2008). Collectively these findings suggest that conservatives are more concerned about and more attuned to danger and threat, particularly in the intergroup realm.

In the exploratory analysis of political ideology, more conservative participants were expected to display a lower threat criterion and this is precisely what was found; more conservative participants were more likely to detain a target on the basis of suspected terrorism or illegal immigration. Essentially, this the equivalent of a “better safe than sorry” strategy. This is consistent with findings that indicate greater levels of conservatism are associated with “perceptions of a dangerous world” (Altemeyer, 1996;

Duckitt, 2001; Jost, et al; 2003; van Leeuwen & Park, 2009). Thus, in the current study, when asked to decide whether an unknown target represents a threat conservatives erred on the side of caution.

This result is also consistent with research on resource allocation in the domain of social welfare has found that conservatives set a higher criterion for targets to qualify (Christiansen & Levine, 1997; Jasper & Ansted, 2008; Skitka, 1999; Skitka, Mullen, Griffin, Hutchinson, & Chamberlin, 2002; Skitka & Tetlock, 1993). In the domain of social welfare setting a higher criterion for a target to qualify for allocation will result in fewer targets receiving aid. Essentially, the preference is to minimize the possibility that cheaters are allocated welfare. It is likely that in both cases political conservatives see each error (miss in the threat domain, false alarm in the social welfare domain) as the greater threat and given a motivation to protect the group from harm they adopt the strategy that minimizes risk in both situations. Thus in both domains conservatives adopt a risk-averse strategy that minimizes the group's exposure to threat.

While the above conclusion can explain why conservatives adopt different decision-making strategies in different domains, it makes no statement on their effectiveness. Adopting a risk-averse strategy may produce favorable results in some situations (e.g.: preventing a threat) yet lead to more unfavorable results in others (e.g.: discrimination). The interaction of political ideology and security role on threat sensitivity suggests that variations within a given decision domain can alter the effectiveness of a risk-averse strategy. More conservative participants displayed particularly heightened accuracy when asked to identify illegal immigrants while more liberal participants displayed greater accuracy when asked to identify terrorists.

Additionally cost-benefit considerations also impacted effectiveness. More conservative participants displayed greater sensitivity to both terrorists and illegal immigrants, except when the cost of a false alarm exceeded the cost of a miss.

Why would different types of threats (terrorism vs. illegal immigration) result in opposite effects of political ideology on threat sensitivity? Integrated threat theory suggests that threat is perceived in four fundamental ways: realistic threat, symbolic threat, negative stereotypes, and intergroup anxiety (Riek, et al, 2006; Stephan, Ybarra, & Bachman, 1999; Stephan, Ybarra, Martinez, Schwarzwald, & Tur-Kapsa, 1998). Realistic threats are defined as threats to a group's (or its individual members) existence or political and/or economic power (Stephan, et al, 1999). Symbolic threats in contrast constitute threats to a groups morals, values, norms, and beliefs (Riek, et al, 2006; Stephan, et al, 1999). Stereotypes serve as the basis for negative expectations about an outgroup (Stephan & Stephan, 2000). Intergroup anxiety arises because people may be overly concerned about being rejected, embarrassed, ridiculed, or exploited by outgroup members in intergroup situations (Stephan & Stephan, 1985).

When threat is considered in this fashion it is conceivable that terrorism and illegal immigration constitute different types of threat or a different combination of threats. The current results then suggest that liberals and conservatives differ in their sensitivity to these different types of threat. Unfortunately, the design of the current study precludes confirmation of this possibility. Furthermore, integrated threat theory is most often employed to measure attitudes towards immigrants or immigrant groups (including Arabs and Hispanics), not illegal immigrants or terrorists. No direct evidence

therefore exists on whether terrorism and illegal immigration are perceived as different types of threats in accordance with integrated threat theory.

Research employing integrated threat theory does indicate that Arabs and Muslims are more likely to be perceived as symbolic threats (Gonzalez, Verkuyten, Weesie, & Poppe, 2008; Hitlan, et al, 2007). Mexican immigrants in contrast are more likely to be perceived as realistic threats, compared to Arabs (Hitlan, et al, 2007). This latter finding (Hitlan, et al, 2007) however was obtained from a sample whose participants lived near the U.S. – Mexican border where illegal immigration is a salient concern. The sample in the current study is subject to similar criticism. The current sample came from a large northeastern university located within 50 miles of New York City where the threat of terrorism is a more salient concern than illegal immigration. Accordingly, participants reported significantly higher levels of terrorism concern compared to illegal immigration concern. Thus, it is likely that in the current sample terrorists and the threat of terrorism were seen as realistic threats.

In sum, unlike (Arab or Hispanic) prejudice, political ideology impacted threat criterion and threat sensitivity. Consistent with the hypothesis derived from a motivational perspective, more conservative participants set a lower threat criterion regardless of security role or cost-benefit ratio. In terms of the reformulated vigilance hypothesis this suggests that conservatives are more likely to categorize an ambiguous target as a threat, in other words they adopt a more risk-averse strategy. More conservative participants also displayed greater threat sensitivity however this main effect was qualified by the two-way interactions of political ideology with security role and

cost-benefit ratio. Essentially, the situation impacted the effectiveness of the risk-averse strategy adopted by political conservatives.

On the basis of these results it is reasonable to conclude that political ideology provides a better foundation for the reformulated vigilance hypothesis than prejudice (Allport & Kramer, 1946; Quanta, et al, 1975). Upon further reflection this is not surprising, as expressions of prejudice are impacted by social desirability concerns (Hewstone, et al, 2002). Furthermore political ideology broadly influences intergroup relations (Duckitt, et al, 2002; Janoff-Bulman, 2009; Jost, et al, 2003; Wilson, 1973) is associated with concerns over threat and danger (Altemeyer, 1996; Jost, et al, 2003; Oxley, et al, 2008; van Leeuwen & Park, 2009), and, unlike prejudice, is not subject to social desirability pressures (Jost, 2006).

Future Directions

The current study only investigated the threats of terrorism and illegal immigration and thus its generalizability is limited. Future research should investigate how political ideology impacts the classification of threats in other domains to further investigate ideological differences in threat criterion and threat sensitivity. Additionally the hypotheses suggested by synthesizing the current approach with ITT should be explored. Are the differences in threat sensitivity due to terrorism and illegal immigration constituting different types of threat or a different combination of threats? If so, do liberals and conservatives differ in their sensitivity the different types of threats? Or different combinations of threat? The answers to such questions could have broad societal implications, from impacts on voter decision making to societal support for

decisions to engage in conflict or revolt and thus deserve further attention. Attaining a more representative sample from the general population in addition to student sample would also strengthen the current findings.

Conclusions

While prejudices towards various ethnic groups are often correlated, they are by nature specific and focused. Political ideology however is a broader construct that influences the values and norms endorsed within a society and how a society should be structured (see: Lakoff, 2002; Haidt & Graham, 2009). A better understanding of ideological differences and how they impact inter- and intragroup relations in addition to their impact on attunement to danger and threat may further the development of more positive interpersonal interactions. Moral foundations theory argues that liberals and conservatives share a number of moral foundations. That liberals and conservatives share common ground is itself encouraging. It suggests possible avenues to reduce polarization and increase cooperation. Political ideology also clearly impacts social policy and those responsible for making it thus better understanding of our ideological differences may foster better cooperation within a political system, the effects of which may reach the highest levels of government.

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Table 1
Descriptive Statistics.

	Mean	Std. Deviation
Arab Prejudice	2.75	1.46
Hispanic Prejudice	3.58	1.42
Terrorism Concern	6.43	1.81
Illegal Immigration Concern	5.19	1.69
Political Ideology	3.83	1.71
Threat Sensitivity (d')	.90	.65
Threat Criterion (c)	.18	.45
Ethnic Categorization Criterion (c_{ethnic})	1.17	.56

Note: All prejudices and threat concerns were measured on a 1 (low) to 10 (high) scale. Political ideology was measured on a 1 (very liberal) to 9 (very conservative) scale.

Table 2
Correlations Among Variables.

	1	2	3	4	5	6	7
1. Political Ideology							
2. Arab Prejudice	.18**						
3. Hispanic Prejudice	.15*	.62***					
4. Terrorism Concern	.03	.20**	.08				
5. Illegal Immigration Concern	.18**	.28**	.26**	.48***			
6. Threat Criterion	-.22**	-.17*	-.15*	-.07	-.18*		
7. Threat Sensitivity	.21*	.07	.09	.10	.12	-.41***	
8. Ethnic Categorization Criterion	.02	.03	.08	.02	.06	-.18*	.20**

* $p < .05$ (2-tailed).

** $p < .01$ (2-tailed).

*** $p < .001$ (2-tailed).

Table 3
Detain Task – Means and Standard Deviations of Threat Sensitivity and Threat Criterion by Security Role and Cost-Benefit Ratio.

	Threat Sensitivity			Threat Criterion	
	N	Mean	SD	Mean	SD
<i>Security Role:</i>					
Airport Security	92	.66	.50	.29	.40
Border Patrol	78	1.18	.70	.03	.44
<i>Cost-Benefit Ratio:</i>					
Equal	58	.98	.67	.19	.47
Detain	58	.83	.66	.14	.44
Not Detain	54	.89	.63	.20	.43

Table 4
*Detain Task – Means and Standard Deviations of Threat Sensitivity and Threat Criterion
 for Security Role x Cost-Benefit Ratio.*

	Threat Sensitivity		Threat Criterion	
	Mean	SE	Mean	SE
Airport Security x Equal	.80	.11	.30	.08
Airport Security x Detain	.64	.11	.30	.08
Airport Security x Not Detain	.53	.11	.31	.08
Border Patrol x Equal	1.18	.12	.06	.08
Border Patrol x Detain	1.07	.12	-.04	.08
Border Patrol x Not Detain	1.30	.12	.06	.09

Table 5
Correlations of Prejudice with Threat Sensitivity and Threat Criterion by Security Role.

	Airport Security		Border Patrol	
	Threat Sensitivity	Threat Criterion	Threat Sensitivity	Threat Criterion
Arab Prejudice	-.07	-.20	.28*	-.21
Hispanic Prejudice	.03	-.21	.16	-.11

* $p \leq .01$.

Table 6
Correlations of Prejudice with Threat Sensitivity by Cost-Benefit Ratio.

	Equal	Detain	Not Detain
Arab Prejudice	.24	-.16	.14
Hispanic Prejudice	.26*	-.10	.18

* $p \leq .05$.

Table 7
Correlations of Political Ideology with Threat Sensitivity by Security Role.

	Airport Security	Border Patrol
Political Ideology	-.21*	.47**

* $p < .05$.

** $p < .001$.

Table 8
Correlations of Political Ideology with Threat Sensitivity by Cost-Benefit Ratio.

	Equal	Detain	Not Detain
Political Ideology	.33**	.26*	.02

* $p \leq .05$.

** $p \leq .01$.

Table 9
Correlations of Political Ideology with Threat Hits and False Alarms in the Detain Task by Cost-Benefit Ratio.

	Hits – Detain Task	False Alarms – Detain Task
Equal	.28*	-.002
Detain	.30*	.02
Not Detain	.13	.12

* $p < .05$.

