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Not all Inequalities are Created Equal: Inequality Frames and Threat among Advantaged Groups

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Author

Dover, Tessa L.

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Not all Inequalities are Created Equal: Inequality Frames and Threat among Advantaged

Groups

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Psychological and Brain Sciences

by

Tessa L. Dover

Committee in charge:

Professor Brenda Major, Chair

Professor James Blascovich

Professor Diane Mackie

Professor David Sherman

June 2017

The dissertation of Tessa L. Dover is approved.

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James Blascovich

_____

Diane Mackie

_____

David Sherman

_____

Brenda Major, Committee Chair

May 2017

EDUCATION

2017   **Ph.D.**   **University of California at Santa Barbara,** Santa Barbara, CA
Social Psychology (Department of Psychological and Brain Sciences)
Advisor: Dr. Brenda Major
Dissertation: *"Not all Inequalities are Created Equal: Inequality Frames and Threat among Advantaged Groups"*

2011   **B.A.**   **Claremont McKenna College**, Claremont, CA
Psychology and Legal Studies with Gender/Women's Studies Sequence, with honors
Valedictorian, Summa Cum Laude, Phi Beta Kappa
Honors Thesis: *"Confirming the Stereotype: How Stereotype Threat, Performance Feedback, and Academic Identification affect Identity and Future Performance"*
(Advisor: Dr. Shana Levin)

FELLOWSHIPS and OTHER FUNDING

2016   **Special Fellowship in the STEM Disciplines,** University of California, Santa Barbara Graduate Division (1 year of graduate school funding)

2014   **Doctoral Student Travel Grant,** University of California, Santa Barbara Academic Senate

2011   **Graduate Research Fellowship,** National Science Foundation (3 years of graduate school support)

2011   **Graduate Study Award,** Phi Beta Kappa Alpha Association
*Awarded to 1 graduating senior each year per PBK chapter to fund graduate study

2011   **Post-Graduate Award,** Southern California Sports Broadcaster's Association
*Awarded to 1 scholar-athlete from the Southern California area each year to fund graduate study

2010   **Fletcher-Jones Undergraduate Research Fellowship, Psychology**,
Claremont McKenna College
*Awarded to 1 psychology student each year to fund undergraduate research

OTHER AWARDS and HONORS

2017   **McClintock Award for service, research, and teaching**, UCSB
Department of Psychological and Brain Sciences

2014	**Gordon Allport Intergroup Relations Prize**, Society for the Psychological Study of Social Issues
	for Kaiser et al. (2013) in *Journal of Personality and Social Psychology*
2011	**Best Psychology Thesis**, Claremont McKenna College
2011	**Best Psychology Student**, Claremont McKenna College
2011	**Phi Beta Kappa**
2010,11	**Elite-88 Scholar Athlete Award,** National Collegiate Athletic Association (link)
2010	**Psi Chi Psychology Honors Society**
2009	**McKenna International Scholarship**, Claremont McKenna College

PUBLICATIONS

Dover, T.L., Hunger, J.M.**,** & Major, B. (in press). Consequences of prejudice and discrimination on health and well-being. In K. Sweeny & M. Robbins (Eds.), *Wiley Encyclopedia of Health Psychology*. New Jersey: Wiley-Blackwell.

Dover, T.L., Major, B., & Kaiser, C.R. (2016). Members of high-status groups are threatened by organizational diversity messages. *Journal of Experimental Social Psychology, 62*(1), 58-67.

Major, B., & **Dover, T.L.** (2016). Attributions to discrimination: Antecedents and consequences. In T. Nelson (Ed.) *Handbook of prejudice, stereotyping, and discrimination (2nd Edition)*, pp.213-239. New York: Psychology Press.

Dover, T.L., Major, B., Kunstman, J.W., & Sawyer, P.J. (2015). Does unfairness feel different if it can be linked to group membership? Cognitive, affective, behavioral and physiological implications of discrimination and unfairness. *Journal of Experimental Social Psychology, 56* (1), 96-103.

Dover, T.L., Major, B., & Kaiser, C.R. (2014). Diversity initiatives, status, and system-justifying beliefs: When and how diversity efforts de-legitimize discrimination claims. *Group Processes and Intergroup Relations, 17*(4), 485-493

[†]Kaiser, C.R., Major, B., Jurcevic, I., **Dover, T.L.**, Brady, L.M., & Shapiro, J.R. (2013). Presumed fair: Ironic effects of organizational diversity structures. *Journal of Personality and Social Psychology, 104* (3), 504-519.
[†]*Winner of Gordon Allport Intergroup Relations Prize (Society for the Psychological Study of Social Issues)*

Levin, S., Matthews, M., Guimond, S., Sidanius, J., Pratto, F., Kteily, N., Pitpitan, E. V., & **Dover, T.L.** (2012). Assimilation, multiculturalism, and colorblindness: Mediated and moderated relationships between social dominance orientation and prejudice. *Journal of Experimental Social Psychology, 48*(1), 207-212.

Dover, T.L., Matthews, M., Krauss, D.A., & Levin, S. (2012). Just world beliefs, expert psychological testimony, and verdicts: A mediational model. *Analyses of Social Issues and Public Policy, 12*(1), 340-363.

MANUSCRIPTS UNDER REVIEW and IN PREPARATION

Dover, T.L., Quintanilla, V., Kaiser, C.R., & Major, B. (in preparation). Do diversity policies protect organizations from discrimination suits? (Preparing manuscript for submission to *Law and Human Behavior*).

Dover, T.L., Major, B., & Kaiser, C.R. (in preparation). It cuts both ways: The short- vs. long-term consequences of diversity messages for Latinos applying for jobs. (Preparing manuscript for submission to *Psychological Science*).

Dover, T.L. (in preparation). Stereotype threat and performance feedback: Effects on persistence, subsequent performance, self-esteem, and identity. (Preparing manuscript for submission to *Journal of Personality and Social Psychology*).

GENERAL AUDIENCE (NON–PEER REVIEWED) PUBLICATIONS

Dover, T.L., Major, B., & Kaiser, C.R. (2016). Diversity policies rarely make companies fairer, and they are threatening to white men. *Harvard Business Review* (online). https://hbr.org/2016/01/diversity-policies-dont-help-women-or-minorities-and-they-make-white-men-feel-threatened

CONFERENCE PRESENTATIONS

Dover, T.L. Major, B., & Kaiser, C.R. (2016). Psychological barriers to diversity programs in library science. Presented at the 6th National Diversity in Libraries Conference, Los Angeles, August 2016 (talk & round-table).

Dover, T.L., Major, B., Kaiser, C.R., & Quintanilla, V. (2016). Diversity Policies and discrimination claims: Evidence from social psychology. Presented at the Annual Meeting for the Law and Society Association, New Orleans LA, June 2016 (talk).

Dover, T.L., Duong, L., & Major, B. (2015). When performing well is worse than performing poorly: Stereotype disconfirmation and hostility among men. Presented at 16th Annual Meeting for the Society for Personality and Social Psychology, Long Beach CA, February 2015 (poster).

Dover, T.L., Major, B., & Kaiser, C.R.(2014). Diversity messages as identity threat cues for Whites. Presented at the European Association of Social Psychology, Amsterdam, Netherlands, July 2014 (talk)

Major, B., & **Dover, T.L.** (2014). Pro-Diversity Messages in Organizations Create Identity Threat Among Whites. Presented at the annual meeting for the Society for Personality and Social Psychology, Austin TX, January 2014 (talk)

Dover, T.L., & Major, B. (2014). Stereotype (dis)confirmation: Gender identification moderates the effect of stereotype (dis)confirming feedback on identity and future performance. Presented at 15th Annual Meeting for the Society for Personality and Social Psychology, Austin TX, January, 2014 (poster).

Dover, T.L., & Major, B. (2013). Pro-diversity messages and discrimination concerns for majority and minority group members. Poster presentation at 14th Annual Meeting for the Society for Personality and Social Psychology, New Orleans LA, January, 2013 (poster).

Major, B. & **Dover, T.L.** (20I2). Is it fair for us now? How system justifying beliefs influence illusion of fairness effects among low status groups. Presented at the annual meeting of the Society of Experimental Social Psychology, Austin, TX, October, 2012 (talk).

Dover, T.L., Matthews, M., Krauss, D., & Levin, S. (2011). *Just world beliefs and jury decision making: The role of expert psychological testimony*. Poster presentation at Western Psychological Association Conference, Los Angeles (April, 2011).

Dover, T.L., Armstrong, M., McCabe, J., & Krauss, D. (2011). Perceptions of expert psychological testimony: factors that make the difference. Poster presentation at 4th International Congress on Psychology and Law, Miami (March, 2011).

Levin, S., Matthews, M., Guimond, S., Sidanius, J., Pratto, F., Kteily, N., Pitpitan, E. V., & **Dover, T.L.** (2010, July). Assimilation, multiculturalism, and colorblindness: Mediated and moderated relationships between social dominance orientation and prejudice. Paper presented at the Annual Scientific Meeting of the International Society of Political Psychology, San Francisco.

TEACHING EXPERIENCE

Summer 2016	**Instructor of Record**
	Social Stigma
	UC Santa Barbara
Spring 2016	**Teaching Assistant**
	Lab in Social Behavior
	Instructor: Professor Heejung Kim
	UC Santa Barbara
Summer 2015	**Instructor of Record**
	Health Psychology
	UC Santa Barbara
Summer 2014	**Instructor of Record**
	Health Psychology
	UC Santa Barbara

Spring 2012	**Teaching Assistant** Introduction to Statistics Instructor: Professor Barry Giesbrecht *UC Santa Barbara*
Winter 2012	**Teaching Assistant** The Psychology of Stigma Instructor: Professor Brenda Major *UC Santa Barbara*

SERVICE & PROFESSIONAL MEMBERSHIPS

Ad-hoc Reviewer (2012 – Present)

Journal of Personality and Social Psychology

Journal of Experimental Social Psychology

Group Processes and Intergroup Relations

International Journal of Psychology

Social Psychological and Personality Science

Translational Issues in Psychological Science

Social Justice Research

Professional Memberships

American Psychological Association, Divisions 8 & 9

Society for Personality and Social Psychology

Mentorship Roles

Summer 2013 - Graduate Student Mentor, *Sally Casanova Summer Research Program*, University of California at Santa Barbara ([link](#))

Summer 2012 – Graduate Student Mentor, *Academic Research Consortium Summer Program*, University of California at Santa Barbara ([link](#))

CURRENT POSITION

Aug. '11 – Present	**Graduate Researcher** *Self and Identity Lab (*Principle Investigator: Dr. Brenda Major) Department of Psychological and Brain Sciences *UC Santa Barbara*, Santa Barbara, CA

PAST RESEARCH POSITIONS

Sept. '10 – Sept. '11	**Fletcher-Jones Psychology Fellow**

Under Drs. Daniel Krauss and Shana Levin (Psychology)
Claremont McKenna College, Claremont, CA

Summer 2010	**Research Assistant, Intern**
	Under Dr. Brenda Major (Psychological and Brain Sciences)
	UC Santa Barbara, Santa Barbara, CA
Jan. '10 – May '11	**Research Assistant**
	Under Dr. Daniel Krauss (Psychology)
	Claremont McKenna College, Claremont, CA
Jan. '09 - Dec. '09	**Research Assistant**
	Under Dr. Shana Levin (Psychology)
	Claremont McKenna College, Claremont, CA

PAST EMPLOYMENT

Sept. '09 – May '11	**Head Writing Consultant**
	Claremont McKenna Writing Center, Claremont, CA
Feb. '09 – May '10	**Statistics Tutor**
	Pomona and *Claremont McKenna Colleges*, Claremont, CA

RELEVANT SKILLS

Statistical Software Packages: SPSS, mPlus, Hierarchical Linear Modeling (HLM)
Statistical Analysis: [M]AN[C]OVA; Correlation; Linear Regression; Multiple & Moderated Linear Regression; Mediation & Conditional Process Analysis; Multi-Level Modeling; Growth-Modeling; Factor Analysis; Structural Equation Modeling; Latent Class Analysis
Methodological Tools: Psychophysiology (including EKG, Impedance Cardiography, Blood Pressure, Galvanic Skin Response); Biomarker collection & assay (including saliva & dried blood spot collection; including assays for C-Reactive Protein & Cortisol); In-lab & online experimental design (including real & imagined social interactions); Large-scale survey work

ABSTRACT

Not all Inequalities are Created Equal: Inequality Frames and Threat among Advantaged

Groups

by

Tessa L. Dover

The way we understand an inequality can depend on small differences in how the

inequality is described. This research focuses on one subtle but potentially powerful

difference in how inequalities are described: advantage vs. disadvantage framing. When an

inequality is described using an advantage frame (e.g., "men have higher wages than

women"), it puts the focus on the advantages held by the advantaged group. In contrast, when

an inequality is described using a disadvantage frame (e.g., "women have lower wages than

men"), it puts the focus on the disadvantages faced by the disadvantaged group. This

dissertation investigates the hypothesis that when advantaged by an illegitimate inequality,

individuals will avoid using advantage frames. I hypothesize that this will occur because

focusing on one's unfair advantages is more threatening that focusing on another's unfair

disadvantages. In four pilot studies and seven experiments ($N = 2,669$), I found tentative

support for these hypotheses: In Studies 1-3, I found evidence that when advantaged by an

inequality (but not when disadvantaged by an inequality), individuals were less likely to use

advantage frames when the inequality they were describing was illegitimate (vs. legitimate).

This suggests that individuals may avoid using advantage frames when their group is illegitimately favored in order to avoid focusing on their unfair advantages. Studies 4-7 investigated the role of threat in how individuals advantaged by illegitimate inequalities use and respond to inequality frames. I found that advantage frames prompted more cardiovascular threat than disadvantage frames among Whites preparing to discuss illegitimate racial inequality. However, I did not find concrete evidence for the two theorized mechanisms behind this threat, nor did I find direct evidence that threat influences which inequality frames individuals choose to use when describing the illegitimate inequalities. This research helps illuminate the potentially large effects of small linguistic differences in our descriptions of inequality. It also highlights the subtle ways that those who are advantaged by inequality may shift their descriptions of inequality to avoid challenges to their position.

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Introduction

"Women make 78 cents on a man's dollar."
"Black Americans are much more likely to be unemployed that White Americans."
"Male scientists are treated with more respect than female scientists."
"Whites are promoted more frequently than Latinos."

The above statements all summarize existing *group-based inequalities*: unequal treatment, experiences, or outcomes based on group membership (see Loury, 2002; Shapiro, 2004; Smeeding, 2006). Group-based inequalities surround us, though we may not often pay attention to how these inequalities are described. However, subtle linguistic differences in the description of group-based inequalities can affect the way we perceive and understand these inequalities (e.g., Chow & Galack, 2012). This dissertation investigates one of these linguistic differences: inequality framing. *Inequality framing* refers to the description of group-based inequality in a way that focuses either on how (1) the group on the bottom is worse off than the group at the top, or how (2) the group at the top has better outcomes than the group at the bottom (see Chow & Galack, 2012; Lowery, Chow, & Crosby, 2009; Lowery, Chow, Knowles, & Unzueta, 2012; Lowery & Wout, 2010).

For example, the inequality "Black Americans are much more likely to be unemployed that White Americans" mentions that the group at the bottom (the disadvantaged group, Black Americans) is worse off than the group at the top (the advantage group, White Americans). This type of inequality frame is called a *disadvantage frame* because it focuses on the disadvantages of the disadvantaged group relative to the advantaged group. This same inequality could also be phrased "White Americans are much less likely to be unemployed that Black Americans." Here, the description mentions that the advantaged group (White Americans) is better off than disadvantaged group (Black Americans). This type of inequality frame is called an *advantage frame* because if focuses on the advantages of the advantaged

group relative to the disadvantaged group. All group-based inequalities can be effectively described with a disadvantage frame or an advantage frame. And rationally, an objective, statistically-based inequality does not become more or less true, consequential, or important depending on the frame used to describe them.

However, inequality framing does shape the way individuals perceive and conceptualize a given inequality (see Chow & Galuck, 2012). Specifically, disadvantage frames tend to focus our attention on the disadvantaged group, whereas advantage frames tend to focus our attention on the advantaged group. In this dissertation, I will investigate the role of inequality framing in shaping how those advantaged by inequality describe, understand, and respond to group-based inequalities. I specifically suggest that because advantage frames focus attention onto the advantaged group, they make inequality feel self-relevant for the advantaged group. That is, more so than disadvantage frames, advantage frames focus the advantaged group on their own privileges. When that group-based inequality is illegitimate, I suggest that advantage frames will be threatening for those advantaged by inequality. Thus, I predict that individuals may seek to avoid using advantage frames in order to avoid experiencing the threat of focusing on their own illegitimate advantages. This research tests these hypotheses by investigating two main questions: (1) whether advantaged groups avoid using advantage frames in order to avoid the threat that accompanies focusing on their group's illegitimate advantages, and (2) whether advantage frames are more threatening than disadvantage frames when advantaged by illegitimate inequality. These two main questions are depicted graphically in Figure 1.
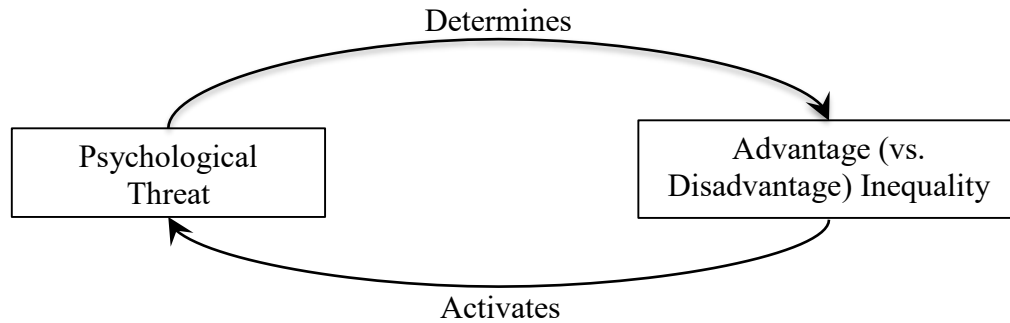

Determines

Psychological Threat   →   Advantage (vs. Disadvantage) Inequality

Activates

Figure 1. Simplified representation of the two major goals of the current research: first, on the top, assessing whether, when advantaged by inequality, the use of inequality frames (advantage vs. disadvantage) is partially determined by the psychological threat of focusing on one's illegitimate group-based advantages. Second, on the bottom, assessing whether when advantaged by inequality groups, advantage framing activates this threat more so than disadvantage framing.

Dealing with Illegitimate Group-Based Inequality

In American society, some level of inequality is expected and even desired (e.g., Norton & Ariely, 2011). And many group-based inequalities are considered legitimate and fair. For example, many agree that it is fair and legitimate that pregnant women and those with disabilities have preferred seating on public transit. Most also agree that members of Native American tribes should have special privileges for how to use their land because of the history of European settlers forcibly acquiring the land. For other group-based inequalities, many agree that the inequality is unfair, or illegitimate. For example, most now agree that certain races should not have preferential access to public services or employment, and many believe that it is illegitimate to pay men and women differently for equivalent work. For other group-based inequalities, though, individuals will differ substantially in how legitimate they perceive the inequality to be. For example, some maintain that the gender gap in median incomes is illegitimate because it is the result of bias and discrimination. However, others maintain that the gender wage gap is legitimate because men and women make

different choices and differ in their willingness to negotiate salaries (compare Lips, 2016 to Carnvale & Smith, 2014).

Regardless of whether your group as advantaged or disadvantaged by an inequality, an inequality becomes more aversive when it is perceived to be illegitimate—based on factors besides merit or deservingness (Adams, 1963; 1965 Folger & Skarlicki, 2008; Homans, 1961; Messick & Schell, 1992; Tricomi, Rangel, Camerer & O'Doherty, 2010). Although illegitimate group-based inequality may be aversive for different reasons depending on whether you are advantaged or disadvantaged by the inequality, both advantaged and disadvantaged groups have been shown to engage in strategies to reduce the aversiveness of illegitimate inequalities. One strategy is *attempting to reduce* the illegitimate inequality itself. For example, members of disadvantaged groups may engage in collective action to gain status and equalize inequalities they consider illegitimate (Tajfel & Turner, 1986; van Zomeren, Postmes, & Spears, 2008). Even those who are benefitted by illegitimate inequality will in some cases endorse group-harming policies or change their behavior in order to reduce illegitimate inequality (Adams & Rosenbaum, 1962; Lowery, et al., 2012).

However, it is not always feasible to change illegitimate inequalities. In some cases, when presented with information that an inequality is illegitimate, individuals will *legitimize* or *justify* that inequality. That is, members of both advantaged and disadvantaged groups may construe inequality as legitimate and just in order to avoid the aversiveness of illegitimate inequality (see Jost & Major, 2001). For example, individuals can hold prejudiced views of disadvantaged groups, endorse or create stereotypes about groups, or employ system-legitimizing ideologies in order to justify otherwise-illegitimate inequalities between groups (e.g., Jost & Banaji, 1994; Smith & Spears, 1996; Turner & Brown, 1978).

If individuals do not change or justify illegitimate inequalities, they can also *distance* themselves from them by construing them as irrelevant to the self (e.g., Kluegel & Smith, 1982). For example, members of disadvantaged groups often perceive lower levels of discrimination against themselves than against other members of their group (see Crosby, 1984; Taylor, Wright, & Porter, 1994). This may occur because seeing illegitimate inequality is less aversive when its victims are more distant from oneself. Members of advantaged groups also distance themselves from illegitimate inequality. For example, Whites can construe the effects of illegitimate Black/White inequality as the result of a few prejudiced individuals as opposed to more systematic unfairness, thus distancing their own behavior from the illegitimate inequality (Kluegel & Smith, 1986). Advantaged groups may also physically distance themselves from reminders of illegitimate inequality (e.g., Goff, Steele, & Davies, 2008). In this way, they may be disentangling their own self from the illegitimate inequality, allowing them to feel less responsible for or implicated in the unfairness.

In the current work, I conceptualize inequality framing as potential opportunity for advantaged individuals to *distance* themselves from illegitimate inequality. Specifically, I hypothesize that disadvantage frames (relative to advantage frames) allow an individual who is advantaged by illegitimate inequality to construe the inequality as separate from themselves. This is because disadvantage frames focus attention on the disadvantaged group rather than one's own (advantaged) group. In contrast, advantage frames do not allow this distancing, but rather focus advantaged individuals on how the inequality benefits them. Advantaged groups, then, may avoid advantage frames when discussing illegitimate inequality.

An individual who is *disadvantaged* by an illegitimate inequality may also seek to distance themselves from illegitimate inequality through inequality frames. However, I suggest that distancing should be a more attractive strategy for advantaged groups than disadvantaged groups because advantaged individuals are less likely to want to change the inequality. Disadvantaged groups may not want to distance themselves from illegitimate inequality because they want to point out how the inequality harms them and their group. In this dissertation, I focus primarily on inequality frames among individuals advantaged by illegitimate inequality because my theory suggests that distancing should be a more promising strategy for advantaged groups than disadvantaged groups. However, I will also investigate how individuals disadvantaged by inequality may use inequality frames.

Below, I review the literature on inequality framing. This literature indicates that for advantaged individuals, advantage framing makes inequality more self-relevant than disadvantage framing. Then, I review work supporting that the hypothesis that making an illegitimate inequality self-relevant is aversive and threatening for advantaged individuals, and that strategically using disadvantage rather than advantage frames may be a way for advantaged individuals to resolve or avoid this threat.

Inequality Frames Help Determine the Self-Relevance of Inequality

A small but growing literature on inequality framing has begun to investigate the impact of inequality framing on perceptions of and responses to inequality. One important way in which inequality frames shape perceptions of inequality is by helping to determine which party—the advantaged or the disadvantaged—is receiving the "normal" or "standard" treatment (Lowery et al., 2009). In one set of studies, participants learned about an unequal distribution of bonuses between two individuals. When the discrepancy was described as

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person X receiving more than person Y (an advantage frame), participants reported that the appropriate bonus was similar to the disadvantaged person's bonus. In contrast, when the inequality was described as person Y receiving less than person X (a disadvantage frame), participants reported that the appropriate bonus was similar to the advantaged person's (Lowery et al., 2009). In other words, advantage frames imply that the disadvantaged party's earnings are "standard" or "normal" and that the advantaged party has been over-compensated. In contrast, disadvantage frames imply that the advantaged party's earnings are standard or normal and that the disadvantaged party has been under-compensated.

A similar set of studies replicated this basic effect, but looked at group-based rather than individual-level inequalities. Lowery and colleagues (2012) manipulated inequality framing with White American participants, describing inequality between Blacks and Whites as either Black disadvantage or White advantage. Specifically, White participants read information indicating that a company's hiring practices were biased against Blacks (disadvantage framing) or biased toward Whites (advantaged framing). Participants then learned that a "tie breaker" affirmative action policy was under consideration at the company. This policy was described as either harming White applicants or helping Black applicants. Consistent with the view that inequality frames help determine which party's treatment is the standard or norm, participants in the Black disadvantage condition were more favorable toward the Black helping policy than the White harming policy. That is, when the participants heard that Blacks applicants were being treated worse than Whites, they wanted to fix it by helping the Black applicants, *not* by hurting the White applicants. Conversely, participants in the White advantage condition were more favorable toward the White harming policy than the Black helping policy. That is, when participants heard that White applicants

were being treated better than Black applicants, they wanted to fix it by hurting the Whites, not by helping the Blacks. In other words, participants favored the equality-restoring strategy that matched the way in which that inequality was framed: participants wanted to harm Whites in order to bring them down to the 'Black norm' when Whites were described as unfairly advantaged. But participants wanted to help Blacks in order to bring them up to the "White norm" when Blacks were described as unfairly disadvantaged. This set of studies suggests that even when one's own group is implicated in an inequality, advantage frames imply that the advantaged group is being treated better than the 'standard' treatment received by the disadvantaged group. Disadvantage frames, on the other hand, imply that the disadvantaged group is being treated worse than the 'standard' treatment received by the advantaged group. These studies support the idea that inequality frames function to define either the advantaged or disadvantaged group as the 'normal' or 'standard' group to which others are compared.

Beyond demonstrating that inequality frames influence which group is being treated in the normal or standard way, this research indicates that inequality frames lead individuals to view an illegitimate inequality as being fair for one group and unfair to the other group (Lowery et al., 2009; 2012). Rationally, asserting that rewards or compensation are unfairly distributed among groups should imply *both* that the disadvantaged group is receiving unfair negative treatment *and* the advantaged group is receiving unfair positive treatment. However, the work on inequality frames supports the conclusion that individuals are quite adept at dissociating the effects of inequality on one group from the effects of inequality on the other group (Lowery et al., 2009; 2012). This suggests that members of advantaged groups are able to dissociate the effects of an inequality on their group from the effects of the

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same inequality on the other group. That is, individuals appear to be able to consider advantage and disadvantage as two distinct phenomena rather than opposite sides of the same "inequality" coin. In this way, with a disadvantage frame, advantaged groups may be able to see their own outcomes as fair even when they acknowledge that the inequality itself is unfair.

Although the idea has not been tested, the fact that inequality frames can shift the focus of an inequality onto either the advantaged group's advantages (advantage framing) or the disadvantaged group's disadvantages (disadvantage framing) suggests that inequality frames should influence how self-relevant a given inequality is for the groups involved in the inequality. Specifically, advantage frames should be self-relevant for advantaged groups because they focus on the how that group has more advantages than the 'standard' disadvantaged group. In contrast, disadvantage frames should be self-relevant for disadvantaged groups because they focus on how that group has fewer advantages than the 'standard' advantaged group. So, for men, learning that "men make more than women" will make the inequality more self-relevant than learning that "women make less than men." And for women, learning that "men make more than women" will make the inequality *less* self-relevant than learning that "women make less than men." This concept is represented in Figure 2a, which is part of a larger model that will presented in parts, and then as a whole (Figure 2).
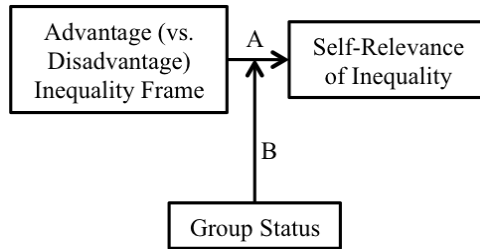

Figure 2a. Conceptual model depicting the effect of inequality framing on the self-relevance of a given inequality (Path A), depending on whether you are a member of the advantaged or disadvantaged group (Path B). Full model is presented in Figure 2.

Some indirect evidence supports the argument that inequality framing make inequalities more or less self-relevant depending on your group's relative status. In one set of studies, undergraduate participants either learned that Whites were advantaged on standardized tests (an advantage frame) or that Blacks were disadvantaged on standardized tests (a disadvantage frame; Lowery & Wout, 2008). Participants then reported their levels of perceived academic accomplishments and their self-esteem. For White participants in the disadvantage frame condition, academic achievement was positively related to self-esteem. In contrast, for White students in the advantage frame condition, academic achievement no longer predicted self-esteem.[1] This finding—that Whites disengaged their self-esteem from their academic performance when an inequality was described using advantage frames but not disadvantage frames—suggests that advantage frames make advantaged groups more aware of their advantages than disadvantage frames. That is, a disadvantage frame did not imply that their academic performance depended on their group membership, whereas an advantage frame did. As such, they disengaged their views of self-worth from the potentially "tainted" marker of success.

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[1] The opposite pattern was found with Black participants: academic achievement predicted self-esteem with a (non-self-relevant) advantage frame, but did not predict self-esteem with a (self-relevant) disadvantage frame

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In another study, White participants either received negative feedback or positive feedback on an intelligence test. The feedback that participants received did not influence how much participants acknowledged anti-Black discrimination. However, the White participants who received negative feedback acknowledged White privilege less than those who received positive treatment (Lowery, Knowles, & Unzueta, 2007). This finding—that a threat to one's self lead to less acknowledgment of in-group advantages but not out-group disadvantages—is consistent with the idea that advantage frames are more self-relevant than disadvantage frames for advantaged groups. In the condition in which self-concerns were most salient (i.e., following negative feedback), White participants differed from their non-threatened peers in their views about their own group's advantages but not the other group's disadvantages. This suggests a link between self-concerns and in-group advantage (but not out-group disadvantage) frames.

Together, this work suggests that for advantaged groups, advantage frames make inequality more self-relevant than do disadvantage frames. Below, I discuss why making illegitimate inequality self-relevant may be threatening for advantaged groups.

Self-Relevant, Illegitimate Group-based Inequality Threatens Advantaged Groups

Several research programs have demonstrated that thinking about unfair benefits your group receives can have detrimental psychological effects. For example, relative to Whites who thought about unfair disadvantages they receive, Whites who thought about the unfair advantages they receive reported lower levels of self- and group-esteem (Branscombe, 1998) and endorsed higher levels of modern racist attitudes (Branscombe, et al, 2007). Similarly, Whites induced to think about their group's advantages reported more guilt than Whites induced to think about other groups' disadvantages (Powell et al., 2005), and Whites who

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read about a company that favored White applicants reported less group-esteem than Whites who read about a company that disadvantaged Black applicants (Lowery et al., 2012). Together, this work suggests that thinking about one's illegitimate group-based advantages is uncomfortable, can lead to guilt, and may encourage legitimization of the inequality.

But is thinking about these illegitimate advantages threatening? I hypothesize that two types of threat underlie the aversive experience of considering one's illegitimate advantages: self vs. system threat, and self vs. group threat. And I hypothesize that advantage framing prompts these threats more so than disadvantage framing when advantaged by the illegitimate inequality. Importantly, these threats should not be similarly present when disadvantaged by illegitimate inequality, and they should not be present when the inequality is perceived as legitimate.

Threat 1: Self vs. system. Most theoretical perspectives on the primary motivations of our psychological "self" agree that we have a basic motivation to see ourselves as having some sort of value or worth (Baumeister & Leary, 1995; Greenberg, Solomon, & Pyszczynski, 1997; Leary, Tambor, Terdal, & Downs, 1995; Sedikides & Gregg, 2008; Steele, 1988). In many Western cultures (particularly mainstream American culture) value and worth are assessed with markers of achievement and status. This is reflected in the ideology of meritocracy: our merits are rewarded with status, and our status is determined by our merits (Kluegel & Smith, 1986). If we subscribe to the ideology of meritocracy, we are motivated to see ourselves as deserving of our accomplishments and status because these things reflect our self-worth. As such, when we see achievements and status being awarded based on factors like luck or nepotism rather than legitimate merits, we might question whether we really function in a meritocratic system. This 'worldview threat'—the realization

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that our beliefs about how the world works might be false—can have negative consequences ranging from hurt self-esteem (Major, Kaiser, O'Brien, & McCoy, 2007) to existential dread (Schimel, Hayes, Williams & Jahrig, 2007).

Illegitimate inequality may call one's worldview into question by suggesting that value, worth, and status are not distributed based on individual merits (as a meritocratic society would dictate), but are rather distributed based on arbitrary group memberships. However, only when the inequality is perceived as self-relevant should this challenge to one's worldview actually result in psychological threat (see Lerner, 1980). For example, an individual can learn about an illegitimate inequality in a foreign country, see it as unfair, and feel troubled that individuals are not being afforded value in a way consistent with a meritocratic ideal. Yet this would not likely result in threat because it is unlikely that the individual would feel a strong need to resolve the conflict (see Steele, 1988). In fact, many people acknowledge that illegitimate inequality exists and that resources are not equitably distributed in their own social system (e.g., see Hartmann, Gerteis, & Croll, 2009). Yet they do not likely exist in a constant state of threat.

When the illegitimate inequality is made self-relevant (e.g., through the use of advantage frames), however, I suggest that advantaged individuals will experience threat because it creates a conflict between (1) the motive to see yourself as having merit and (2) the recognition that the system may be unfairly awarding markers of merit. In other words, if our accomplishments and status are the product of our merit (as it should in a meritocracy), our accomplishments and high status are deserved. We can feel proud of them. If accomplishments and status are the product of our group membership and not just merit, however, our accomplishments and high status may be illegitimate. We are unsure whether

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we have merit, so we do not know if we can be proud of our accomplishments and status. This conflict between the self (that has high status) and the system (that awards status illegitimately), I suggest, is a primary cause of threat that advantaged groups should experience when considering their own illegitimate group-based advantages (See Knowles, et al., 2014) . As such, advantage frames should lead to more self vs. system threat than disadvantage frames. This hypothesis is depicted in Path C of Figure 2b.
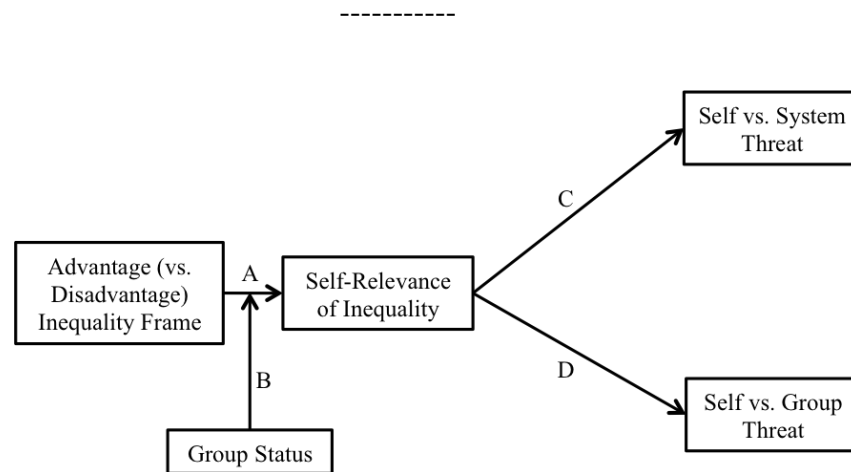

Figure 2b. Conceptual model depicting the effect of making an inequality self-relevant on two forms of threat: Self vs. system threat (Path C) and Self vs. group threat (Path D). The full model is presented in Figure 2.

Threat 2: Self vs. group. Several researchers have suggested that thinking about one's own group-based advantages induces members of advantaged groups to recall and think about their group's negative history and experience collective guilt (Powell et al., 2005; Schmitt, Behner, Montada, Muller, & Muller-Fohrbrodt, 2000; Leach, Iyer, & Pederson, 2006; Iyer, Leach, & Crosby, 2003). For example, Knowles and colleagues (2014) theorized that inducing members of advantaged groups (specifically Whites) to think about their own advantages threatens them by reminding them that their group has an immoral history of oppression. Powell and colleagues (2005) found that reflecting on group-based privileges

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resulted in collective guilt, or a sense that the group has acted wrongly (see Branscombe &

Doosje, 2004). And Iyer and colleagues (2003) found that learning about past acts of

injustice by in-group members led to feelings of guilt on behalf of the group as a whole.

Together, this evidence suggests that being advantaged by illegitimate inequality may lead to

negative feelings toward one's group. Social identity theorists hypothesized and

demonstrated that feelings about one's social groups have important implications for

personal wellbeing (Tajfel & Turner, 1986). As such, advantage framing may be

uncomfortable for members of advantaged groups because it indicates that one's social group

is not as positive as previously imagined.

Yet while research supports the hypothesis that group members may be

uncomfortable with suggestions that their group has negative qualities, other motives besides

maintaining the reputation of one's group may be at play when discussing or thinking about

inequality. For example, many Whites in the US are motivated to avoid appearing racist or

insensitive about racial inequalities (Goff, Davies, & Steele, 2008), are intrinsically

motivated to act in egalitarian ways (Plant & Devine, 1998), and dedicate time and money to

helping those "less fortunate" than themselves. As such, inequality may not just bring up

concerns about maintaining our group's image, but also concerns about seeing ourselves as

moral and egalitarian.

I hypothesize that for individuals thinking about their illegitimate advantages, these

conflicting motives—the motive to maintain a positive image of our group and the motive to

see ourselves as moral and egalitarian—result in self vs. group threat. This type of threat can

be conceptualized as a categorization threat, in which an individual is lumped into a category

to which they do not want to belong (Ellemers, Spears, & Doosje, 2002). In the case of

illegitimate inequality, this categorization threat takes the form of advantaged group

members not wanting to be lumped into the category of people that benefit from the

illegitimate inequality. For example, men may not want to be grouped together with sexist

men, and Whites may not want to be grouped together with racist Whites. Importantly, this

self vs. group threat should only occur among individuals that are motivated to see

themselves as egalitarian and moral. However, as mentioned above, several lines of research

suggest that at least among White Americans, many have a strong desire to appear egalitarian

and morally opposed to racial inequality (Goff et al., 2008; Plant & Devine, 1998).

Several findings suggest that advantaged groups experience self vs. group threat when

confronted with illegitimate group-based inequalities. White Americans have lower levels of

implicit and explicit identification with the group 'White' than other racial and ethnic groups

have with their own racial/ethnic groups (Knowles & Peng, 2005), suggesting that most

Whites do not have a strong desire to be classified into this advantaged group. Similarly,

White Americans in situations where their White group membership is salient often attempt

to demonstrate to others that they do not fit the stereotype of Whites as racist or intolerant

(e.g., Goff, Steele, & Davies, 2008; Richeson & Shelton, 2003; Shelton, Richeson, Salvatore,

& Trawalter, 2005) and want to act in ways that communicate non-prejudiced attitudes (both

for political correctness concerns and for intrinsic reasons; Plant & Devine, 1998). Indeed,

Goff and colleagues (2008) suggested that much of the discomfort experienced by Whites in

interracial interactions stems from concerns about being perceived as a prejudiced or

insensitive White person rather than racial animus *per se*. This suggests that at least for

Whites in the US, being categorized as an advantaged group member may be aversive

because it attaches negative qualities of the group to the self. Little research exists on how

members of other advantaged groups (e.g., men or heterosexuals) feel about being categorized as members of advantaged groups. Some research demonstrates that masculine and heterosexual identities are quite important and defended strongly (e.g., Glick, Gangl, Gibb, Klumpner, & Weinberg, 2007; Vandello & Bosson, 2013). This suggests that these groups may not be as averse to categorization as Whites are. Nevertheless, it may be reasonable to expect that most advantaged groups want to avoid categorization when those groups are construed negatively (Lemyre & Smith, 1985; Ellemers, Spears, & Doosje, 1997; Tajfel & Turner, 1986).

Much like how individuals can see that the system is illegitimate without it necessarily being threatening (see section above), I suggest that advantaged groups can think about the negative aspects of their group without it necessarily being threatening. Consistent with this idea, Kluegel and Smith (1986) suggested that Whites often construe racial inequality as the result of individual prejudiced Whites as opposed to more systematic inequality. In this way, members of advantaged groups seem able to separate their own morality and egalitarianism from those of more stereotypically prejudiced group members. As such, when thinking about illegitimate inequality, advantaged groups may be able to construe out-group disadvantages as the product of the actions or attitudes of *other* members of their in-group and not themselves personally. However, when individuals think about their illegitimate advantages (i.e., when advantage frames are used), they may be induced to recognize that all members of their group—not just the stereotypically prejudiced ones—are implicated in the inequality. As such, I would expect that advantaged groups will experience more self vs. group threat following advantage frames than disadvantage frames. This hypothesis is depicted as Path D in Figure 2b (above).

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The Role of Legitimacy

As mentioned above, not all group-based inequalities are illegitimate. Although I expect that advantage (vs. disadvantage) framing increases the self-relevance of group-based inequality for advantaged groups regardless of whether the inequality is perceived as legitimate, this self-relevance should only induce self vs. system and self vs. group threat when the inequality is illegitimate. When a group-based inequality is legitimate—based on differences in merit, motivation, ability, or deservingness—we should not expect self-relevance to be threatening. Rather, when the inequality is legitimate, we should expect increases in self-relevance to prompt pride in justly-earned accomplishments and positive feelings toward the group (see Leach, Snider, & Iyer, 2002). For example, if members of my soccer team are given a better prize than the other team because my team won a fair game, being reminded of my bigger prize should bring pride, not threat. In contrast, if my team won but the referee was biased, the other team was short a player, and my team-mate cheated, a reminder of my better prize might be threatening. In this way, I suggest that legitimacy will play an important role in whether advantage (vs. disadvantage) frames prompt threat. Only when an inequality is described or perceived to be illegitimate should advantage frames be more threatening than disadvantage frames. This moderating role of legitimacy is pictured in Figure 2c.
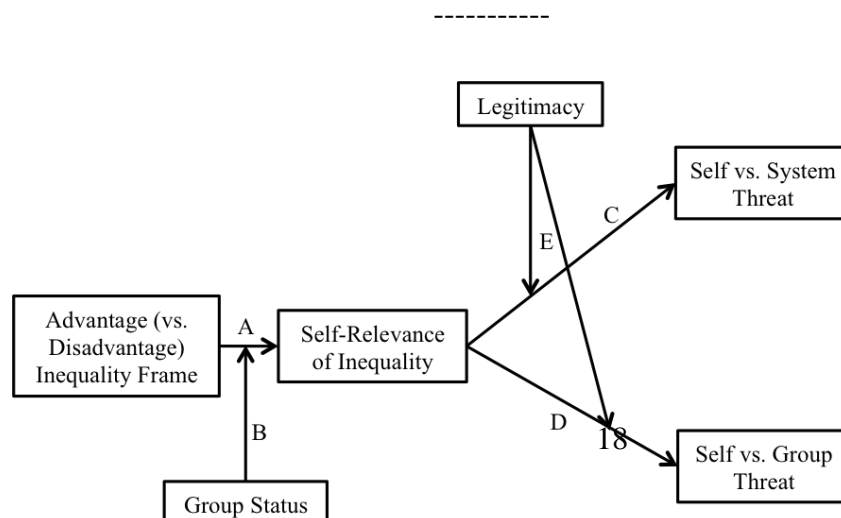

Figure 2c. Conceptual model depicting the moderating role of legitimacy on the self-relevance's effect on the two forms of threat (Path E). The full model is presented in Figure 2.

Psychological Strategies to Resolve Self vs. System and Self vs. Group Threat

I hypothesized that two forms of threat result from framing illegitimate group-based inequality as advantaging the in-group—self vs. system threat and self vs. group threat. Both of these threats naturally suggest two mechanisms for resolving the threats. For self vs. system threat, advantaged groups can resolve this threat by changing (perceptions of) how meritorious the self is, or by changing (perceptions of) how fair the system is. For self vs. group threat, advantaged groups can resolve this threat by changing (perceptions of) how much the self belongs to the group, or by changing (perceptions of) how moral and good the group is. The specific psychological strategies that I suggest advantaged groups will engage in to resolve these threats are depicted in Paths F-I in Figure 2, and are reviewed below. Figure 2 is the full conceptual model that will be referred to throughout the dissertation.
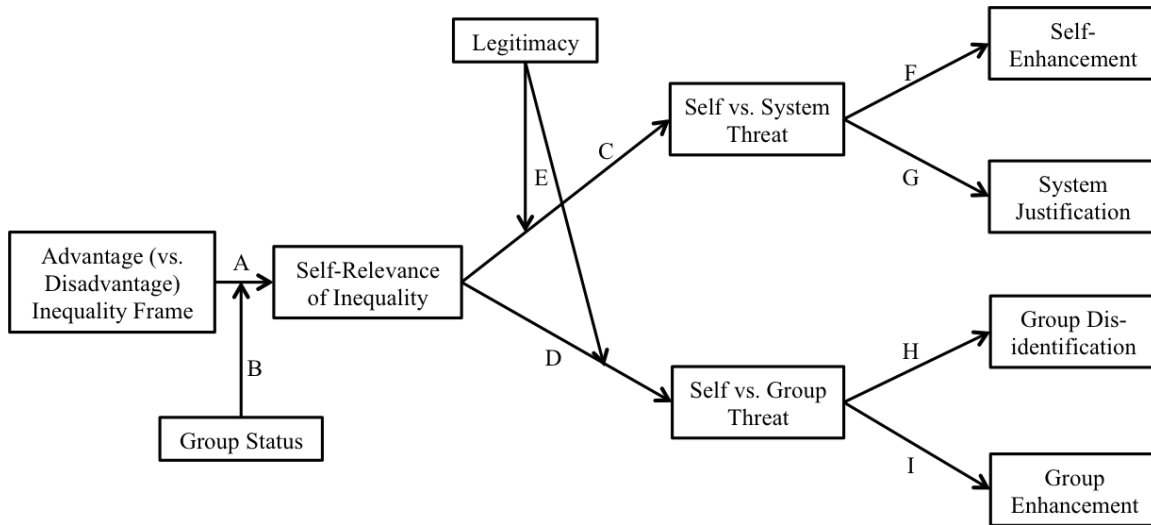

Figure 2. Full conceptual model depicting the way in which inequality frames influence the self-relevance, threat, and threat-resolving strategies among advantaged groups considering illegitimate group-based inequality.

Strategies to resolve self vs. system threat. Perhaps the most straightforward way to resolve self vs. system threat is to directly change how meritorious the self is or how fair the system is (see Knowles et al., 2014). There is some evidence that advantaged individuals will engage in behavior that concretely changes the self or the system to resolve threat. For example, over-compensated individuals in a work task changed their work habits to match their higher levels of compensation (Adams & Rosenbaum, 1962), suggesting that advantaged individuals will change their own behavior to "make up for" their perceived over-compensation. White participants will also endorse systematic changes that harm the in-group when an inequality is presented as unfair advantaging their group (Lowery et al., 2012), suggesting that it is possible to get members of advantaged groups to endorse policies that make the system less beneficial to them (see also Son Hing & Bobocel, 2002).[2] However, in the case of many group-based inequalities, it may not be feasible or plausible to make these changes. For example, neither members of advantaged or disadvantaged groups have much power to change the way their group is treated by society, and there may be few concrete paths to take in order for an individual to "make-up for" the positive treatment that they receive as a result of their group membership. Moreover, advantaged groups generally want to avoid systemic changes that involve giving up status (Tajfel & Turner, 1986). As such, I suggest that the most likely methods of resolving self vs. system threat will take the

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[2] It should be noted, however, that the inequality used in this study was specific to a hypothetical company and thus participants were merely third-party observers (rather than members of the advantaged group).

form of (1) engaging in self-enhancement strategies in order to re-assert one's worth and value, and (2) justifying the system. These strategies are described below.

Self-enhancement. Engaging in self-enhancement can be conceptualized as an attempt to assure yourself that even if your group's accomplishments are somewhat inflated, you are nevertheless *personally* meritorious enough to have earned your position. In other words, self-enhancement—by inflating one's perceived worth and value—may allow members of advantaged groups to believe that they would have experienced positive outcomes *even if* they did not have group-based advantages. In the analogy of the soccer game, this might look like telling yourself that even if the team won illegitimately, you personally are talented enough that you still could have won in a fair game. This strategy is depicted as Path F in the conceptual model (Figure 2, above).

System justification. Justifying an unequal system is a well-documented strategy for explaining and tolerating widespread group-based inequality (see Jost & Banaji, 1994; Jost & Hunyady, 2005; Jost & Major, 2001). Justification, also called legitimization, is the process of construing inequality as the result of fair procedures and treatment. As such, inequalities between groups are seen as the result of the groups having different abilities or motivations, *not* bias, prejudice, or other unfair treatment. By reasserting the legitimacy of the system— even when there is evidence that the system is unfair—an advantaged individual can see a group-based inequality as the result of fair processes as opposed to illegitimate ones. As such, they can maintain the belief that their accomplishments and positive outcomes are due to their own merits. In the analogy of the soccer game, this might look like convincing yourself that the referee was not actually biased, or that the other team's lack of a player was

because that team had earned a penalty. This strategy is depicted as Path G in the conceptual model (Figure 2).

Strategies to resolve self vs. group threat. As with self vs. system threat, the most straightforward way to reduce self vs. group threat may be to change one's group membership or change the morality of the group. However, many groups have relatively stable boundaries and a long history of anti-egalitarian and even immoral behavior. As such, actually changing group memberships or the morality of the group as a whole is not likely feasible in many cases. As such, I suggest that the most likely methods of resolving self vs. group threat will take the form of (1) psychologically dis-identifying with the group, and (2) engaging in creative group-enhancement to assert the morality of the in-group. These strategies are describe below.

Group dis-identification. Psychologically dis-identifying from one's group can be conceptualized as an attempt to reject the categorization of one's self in the in-group. This strategy has been identified as a coping mechanism with other forms of categorization threat, such as stereotype threat (Steele & Aronson, 1995): by denying similarity to or identification with the in-group, you can avoid applying the negative qualities of one's group to the self. In the soccer game analogy, this might look attempting to leave the team, or throwing away all of your team gear so that you could not be identified as a member of the team. This strategy is depicted as Path H in the conceptual model (Figure 2).

Creative group-enhancement. Creative group-enhancement can be conceptualized as an attempt to re-define one's group as moral so that it is less threatening to be categorized as a member. Because the immoral history of slavery and patriarchy is so apparent and acknowledged in mainstream US culture, we might not expect group-enhancement to take

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the form of defending the morality of stereotypical group members. Rather, I suggest that group-enhancement might be done creatively. Specifically, I suggest that it might take the form of downplaying the advantaged group's oppressive nature and instead pointing out ways in which the group is itself disadvantaged or treated poorly. For example, members of advantaged groups may creatively enhance the morality of the group by pointing out the ways their own group is victimized or unfairly stereotyped (e.g., Norton & Sommers, 2011). In the soccer game analogy, this might look like reflecting back on past times your team has been treated unfairly. This strategy is depicted as Path I in Figure 2.

Current Research

As mentioned above, this dissertation investigates two questions: (1) whether advantaged groups avoid using advantage frames in order to avoid the threat that accompanies focusing on their illegitimate advantages (top arrow in Figure 1), and (2) whether advantage frames are more threatening to advantaged groups than disadvantage frames (bottom arrow in Figure 1). Past work suggests that using disadvantage frames rather than advantage frames may be an effective way of distancing the self from an inequality (Lowery et al., 2007; Lowery & Wout, 2008). And advantaged groups may be motivated to distance themselves from inequality when it is illegitimate because illegitimate inequality prompts self vs. system threat and self vs. group threat. In contrast to the predicted effect of legitimacy on advantaged groups (less advantage frame use under conditions of illegitimacy than legitimacy), I do not expect the same pattern for disadvantaged groups. Although I do not have strong predictions for how disadvantaged individuals might use inequality frames because this dissertation focuses primarily on the threat of thinking about one's advantages, I do not expect to see the same pattern among advantaged and disadvantaged groups. This is

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because disadvantaged groups likely have a different goal when thinking about inequality:

they may want to change the inequality more than distance themselves from it. As such, I

predict that:

> H1: *When advantaged, but not when disadvantaged, individuals will use fewer advantage frames when the inequality is perceived to be illegitimate than when the inequality is perceived to be legitimate.*

This hypothesis addresses the first question of the dissertation: determining whether

advantaged groups avoid using advantage frames in order to avoid the threat of illegitimate

inequality. These hypotheses were tested in pilot studies, as well as Studies 1-3. In the pilot

studies, I simply presented advantaged and disadvantaged participants with an illegitimate

inequality and then measured how likely they were to use advantage vs. disadvantage frames

when describing that inequality. In Studies 1-3, I manipulated and measured whether the

participant was advantaged or disadvantaged (Studies 1 & 2), and manipulated and measured

the legitimacy of the inequality (Studies 1, 2, and 3). I then measured how likely participants

were to use advantage vs. disadvantage frames when describing the inequality. No published

work that I know of has previously measured inequality frame use. In these studies, I

predicted that members of advantaged groups, and not members of disadvantaged groups,

would use fewer advantage when the inequality was illegitimate than when the inequality

was legitimate.

    As reviewed above, I expect that the threat of focusing on one's unfair advantages is a

primary driver of why advantaged groups use fewer advantage frames when describing

illegitimate (vs. legitimate) group-based inequality. As such, when advantaged group

members are under threat (vs. not under threat), they should be more likely to avoid

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advantage frames because they should be particularly motivated to avoid additional threats.

Accordingly, I predict that:

> H2: *When asked to describe an illegitimate group-based inequality, advantaged individuals will use fewer advantage frames when they are under conditions of threat than when they are not under conditions of threat.*

This hypothesis also addresses the first goal of the dissertation: determining whether advantaged groups avoid using advantage frames in order to avoid the threat of illegitimate inequality. I tested Hypothesis 2 in Study 4 by manipulating whether advantaged participants were under threat, then measuring their use of advantage and disadvantage frames when describing an illegitimate inequality. I manipulated threat by providing negative (vs. positive) feedback on an intelligence exam.

The second question of the current research is whether advantage frames prompt self vs. system threat and self vs. group threat. Past work suggests that thinking about one's illegitimate group-based advantages is more aversive than thinking about others' illegitimate group-based disadvantages. I proposed that two specific forms of threat result from thinking about illegitimate group-based advantages: self vs. system threat (in which our desire to see the self as having value conflicts with the recognition that the system affords value unfairly), and self vs. group threat (in which our desire to see the self as moral and egalitarian conflicts with the recognition that our group is somewhat immoral and non-egalitarian). Moreover, I proposed that four distinct strategies may be employed by advantaged groups in order to resolve the threats that result from advantage frames: self-enhancement, system justification, group dis-identification, and creative group-enhancement. Consistent with this I predict that:

> H3: *Advantaged individuals will be more likely to engage in self-enhancement, system justification, group dis-identification, and creative group-enhancement after being exposed to an illegitimate inequality described with advantage frames than the same inequality described with disadvantage frames.*

H4: *Advantaged individuals will be more likely to show behavioral and physiological markers of threat after being exposed to an illegitimate inequality described with an advantage frame than the same inequality described with a disadvantage frame*

Both of these hypotheses address the second question of the current research: whether advantage frames (more so than disadvantage frames) prompt threat when there is evidence that you are illegitimately advantaged. These hypotheses were tested in Studies 5-7. In Studies 5 and 6, participants read about an illegitimate group-based inequality that was described with either in-group advantage or out-group disadvantage frames. I then measured the four hypothesized threat-resolving strategies using self-reported scales. In Study 7, participants read about then discussed an illegitimate group-based inequality that was described with either in-group advantage or out-group disadvantage frames. As they read about and discussed the inequality, I measured indices of cardiovascular reactivity derived from the Biopsychosocial Model of Challenge and Threat (Blascovich, 2008; Blascovich & Mendes, 2010) in order to measure threat.

Pilot Studies

I first conducted four pilot studies to assess (1) whether there was variability in inequality frame use for two of the inequalities I planned to most often use: Black/White inequality and Male/Female inequality; (2) whether the stimulus materials were understood by participants; (3) whether disadvantage and advantage frame use was reliably code-able when participants summarized inequalities; and (4) whether there was initial support for the hypothesis that advantaged groups used fewer advantage frames when describing illegitimate (vs. ambiguously-legitimate) inequality.

Method

In all pilot studies, participants read about or saw information about an inequality that did not contain any advantage or disadvantage frames. Participants then summarized the information in their own words (open-ended responses), and these responses were later coded for advantage and disadvantage frame use. Participants then completed a comprehension check that forced them to use either an advantage or disadvantage frame to describe the inequality (forced-choice responses). Pilot Studies 1 and 2 examined how White Americans described Black/White racial disparities in unemployment. Pilot Studies 3 and 4 examined how men and women describe gender disparities in wages. Pilot Studies 1 and 3 contained no information conveying that the disparities were illegitimate, whereas Pilot Studies 2 and 4 implied that disparities were illegitimate.

Pilot study 1. The first pilot study asked 168 self-identified White American mTurk workers (100 men and 68 women, aged 20-73, $M = 34.38$, $SD = 10.58$) to describe a graph displaying Black/White disparities in unemployment over time (graph presented in Appendix A). There was no information about the legitimacy of the inequality, leaving the legitimacy of the inequality ambiguous. Additionally, no advantage or disadvantage frames were used.

Pilot study 2. The second pilot study asked 157 self-identified White American mTurk workers (79 men and 78 women; aged 20-74, $M = 36.80$, $SD = 11.84$) to describe a passage about Black/White disparities in unemployment. The passage (printed in full in Appendix A) did not contain any inequality frames. It also contained information that some reasons for the racial disparity were illegitimate (i.e., due to differences in opportunity; e.g., "*Economists and social scientists have uncovered several reasons for this discrepancy, including difference in job training opportunities, different treatment by potential employers, difference in quality of education, and differences in the rate of incarceration.*").

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Pilot study 3. The third pilot study asked male ($n = 88$, 48.6%) and female ($n = 93$, 51.4%) mTurk workers ($N = 181$; aged 20-83, $M = 35.37$, $SD = 11.57$) to describe a graph displaying Male/Female pay disparities over time (graph presented in Appendix A). There was no information about the legitimacy of the inequality, leaving the legitimacy of the inequality ambiguous. Additionally, no advantage or disadvantage frames were used.

Pilot study 4. The fourth pilot study asked male ($n = 116$, 58.6%) and female ($n = 82$, 41.4%) mTurk workers ($N = 198$; aged 18-65, $M = 33.27$, $SD = 9.99$) to summarize a passage about the Male/Female pay disparities (see full passage in Appendix A). The passage contained no inequality frames, but it did imply that the inequality was illegitimate (e.g., due not to different choices, but different treatment by employers; e.g., "*Economists and social scientists have uncovered much of this income disparity can be explained by differences in the way women and men are treated in the workplace.*").

Measures.

Open-ended responses. In all pilot studies, after seeing or reading the inequality stimulus participants briefly summarized, in their own words, the major points made in the passage. These open-ended responses were coded by two undergraduates (blind to hypotheses) who were trained to identify advantage and disadvantage frames. For each participant's passage, the coders counted the number of advantage frames and disadvantage frames used. Coders agreed on 96.8% of codes, and I reconciled inconsistencies. Examples of open-ended responses and corresponding codes are presented in Table 1.

Response (all *sic*)	#Adv. Frame	#Dis. Frame

"There is a 28% difference in pay between men and women in america. Studies show that are are many different factors for this.."	0	0
"The graph shows unemployment rates for white and blacks throughout the decades. White unemployment has always been lower then black, but the trends in the graphs are very similar.	1	0
"Although men and women in America may do the same job, women make on average 28% less than mine. Women have many more obstacles to face as well."	0	2

Table 1. Sample open-ended responses and corresponding codes (Pilot Studies)

Forced choice responses. After their open-ended response, participants completed a forced-choice measure of inequality frame use in which they were asked to summarize the information from the passage by filling-in a sentence that was missing words. From the word choices given, there were only two correct ways to complete the sentence: one being an advantage frame and the other being a disadvantage frame. In pilot studies 1 and 2, the sentence read: *"In the United States, _____ Americans have a _____ unemployment rate than _____ Americans."* The participant could drag any of the following words into the blank spaces: *male, higher, equivalent, White, Asian, lower, Black, Hispanic, female*. The order of words in the word bank was randomized between participants. Participants who completed the sentence saying, "**Black** Americans have a **higher** unemployment rate than **White** Americans" were coded as using a disadvantage frame. Those who completed the sentence saying, "**White** Americans have a **lower** unemployment rate than **Black** Americans" were coded as using an advantage frame.

In pilot studies 3 and 4, the sentence read: *"In the United States, _____ tend to be paid _____ than _____."* The word bank (again, with order randomized between participants) contained the words: *men, women, Whites, Hispanics, Asians, immigrants, fewer, higher, more, less*. Participants who completed the sentence saying, "**women** tend to

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be paid **less** than **men**" were coded as using a disadvantage frame. Those who completed the sentence saying, "**men** tend to be paid **more** than **women**" were coded as using an advantage frame.

Results

Frequencies for both forced-choice and open-ended responses for all pilot studies are presented in Table 2.

Pilot Study	Open-Ended				Forced Choice		
	No Frame (%)	#Adv. Frame (%)	#Dis. Frame (%)	$\chi^2(1)$	#Adv. Frame (%)	#Dis. Frame (%)	$\chi^2(1)$
1 (Black/White Graph)	100 (59.5)	27 (30.7)	61 (69.3)	13.14***	92 (59.4)	63 (40.6)	5.43*
2 (Black/White Passage)	32 (20.4)	29 (18.4)	129 (81.6)	63.29***	48 (32.7)	99 (67.3)	17.69***
3 (Male/Female Graph)	58 (32.0)	69 (55.2)	56 (44.8)	1.35 (*ns*)	123 (75.5)	40 (24.5)	42.26***
Men (advantaged)	32 (36.4)	30 (53.6)	26 (46.4)	0.29 (*ns*)	61 (80.3)	15 (19.7)	27.84***
Women (disadvantaged)	26 (28.0)	39 (56.5)	30 (43.5)	1.17 (*ns*)	62 (71.3)	25 (28.7)	15.74***
4 (Male/Female Passage)	25 (12.6)	10 (5.5)	173 (94.5)	145.19***	31 (16.6)	156 (83.4)	83.56***
Men (advantaged)	15 (12.9)	7 (6.6)	99 (93.4)	79.85***	20 (17.9)	92 (82.1)	46.29***
Women (disadvantaged)	10 (12.2)	3 (3.9)	74 (96.1)	65.47***	11 (14.7)	64 (85.3)	37.45***

Table 2. Frequencies (open-ended and forced choice) from Pilot Studies 1-4.

Pilot Study 1 (Black/White graph).

Open-ended. 59.5% of participants did not use any inequality frames when summarizing the information in the graph about Black/White unemployment inequality. 88 inequality frames were used by 68 participants (some used more than one inequality frame). There were more disadvantage frames (69.3%) than advantage frames (30.7%) used, $\chi^2(1) = 13.14$, $p < .001$.

Forced-choice. Thirteen participants (7.7%) did not provide a correct response. Among the correct responses, significantly more participants chose the advantage frame (59.4%) than the disadvantage frame (40.6%) to describe the racial inequality in

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unemployment, $\chi^2(1) = 5.43$, $p = .024$. This differed from the pattern of results seen in the open-ended responses.

Pilot Study 2 (Black/White Passage).

Open-ended. 20.4% of participants did not use any inequality frames when summarizing the passage about illegitimate Black/White unemployment inequality. 158 inequality frames were used by 125 participants (some used more than one inequality frame). Mirroring the findings from the first pilot study, there were more disadvantage frames (86.0%) than advantaged frames (14.0%) used, $\chi^2(1) = 63.29$, $p < .001$.

Forced-choice. Ten participants (6.4%) did not provide a correct response. Consistent with the pattern seen with open-ended responses, and inconsistent with the forced-choice responses seen in Pilot Study 1, among the correct responses significantly more participants chose the disadvantage frame (67.3%) than the advantage frame (32.7%) to describe the illegitimate racial inequality in unemployment, $\chi^2(1) = 17.69$, $p < .001$. The finding that advantaged participants were less likely to use advantage frames in this study than in Pilot Study 1 is consistent with my prediction that advantaged groups are particularly unlikely to use advantage frames when the inequality is illegitimate (vs. ambiguously legitimate). In this pilot study, the inequality was portrayed as illegitimate, whereas there was no information about legitimacy in Pilot Study 1.

Pilot Study 3 (male/female graph).

Open-ended. 32.0% of participants did not use any inequality frames when summarizing the information in the graph about Male/Female wage inequality. 125 inequality frames were used by 123 participants (some used more than one inequality frame). There was not a significant difference in the number of disadvantage frames (55.2%) versus

advantage frames (44.8%) used, $\chi^2(1) = 1.35$, $p = .245$. Additionally, the disadvantaged group (women) did not significantly differ from the advantaged group (men) in their likelihood of using an advantage frame, $\chi^2(1) = 0.88$, $p = .347$.

Forced-choice. Eighteen participants (9.9%) did not provide a correct response. Consistent with Pilot Study 1, in which the legitimacy of the inequality was ambiguous, among the correct responses, significantly more participants chose the advantage frame (75.5%) than the disadvantage frame (24.5%) to describe the gender wage disparity, $\chi^2(1) = 42.26$, $p < .001$. Again, the advantaged and disadvantaged group did not differ in their likelihood of choosing advantage vs. disadvantage frames, $\chi^2(1) = 1.77$, $p = .183$.

Pilot Study 4 (male/female passage).

Open-ended. 25 (12.6%) participants did not use any inequality frames when summarizing the passage about illegitimate Male/Female wage inequality. 183 inequalities were used by 173 participants (some participants used more than one inequality frame). Consistent with Pilot Study 2, in which the inequality was described as illegitimate, there were significantly more disadvantage frames (94.5%) than advantage frames (5.5%) used, $\chi^2(1) = 145.19$, $p < .001$. However, as in Pilot Study 3, participants' group status (i.e., participants' gender) did not affect likelihood of using an advantage frame, $\chi^2(1) = 0.57$, $p = .452$.

Forced-choice. Eleven participants (5.6%) did not provide a correct response. Consistent with predictions, among the correct responses, significantly more participants chose the disadvantage frame (83.4%) than advantage frame (16.6%), to describe illegitimate gender inequality in wages, $\chi^2(1) = 83.56$, $p < .001$. However, as with the open-ended responses, men and women did not differ in their likelihood of choosing advantage vs.

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disadvantage frames, $\chi^2(1) = 0.33$, $p = .565$.

Discussion

In the four pilot studies, it appears (though is not directly tested) that participants were more likely to display the predicted pattern (using fewer advantage frames than disadvantage frames) when summarizing the passages than when summarizing the graphs. This may be a simple artifact of the stimulus, but it is also possible that those differences were partially due to the fact that the passages (and not the graphs) contained information implying that the inequality was illegitimate. This would support the Hypothesis 1, which predicts that advantaged groups will use fewer advantage frames when the inequality is illegitimate than when it is legitimate. However, this hypothesis needs to be directly tested, which I did in Studies 1-3.

Although there was some support for Hypotheses 1, the pilot studies did not indicate support for the part of the hypothesis predicting that advantaged groups would be more likely to avoid advantage frames than disadvantaged groups in the context of illegitimate inequality. In the two pilot studies that had participants from both the advantaged and disadvantaged groups (Pilot Studies 3 & 4), there were no differences in frame use depending on group status. However, because I did not manipulate the legitimacy of the inequality, I could not formally test Hypothesis 1. I tested the role of group status more fully in Studies 1 and 2.

The pilot studies also provided some methodological insights. Participants seemed quite able to correctly complete the forced-choice style of response (<8% answered incorrectly). Coders also agreed on most of the codes for the open-ended responses (agreement on > 96% of codes), indicating that it is feasible to accurately measure frame use

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in responses from mTurk workers. Additionally, there seemed to be substantial variation between methods of measuring frame use: the likelihood of using an advantage frame in the forced-choice response often differed from the likelihood of using an advantage frame in the open-ended response.

There was also substantial between-study variation in how often participants chose the advantage vs. disadvantage frames. For example, even though they were describing the same inequality (male/female wage disparities), participants chose advantage frames only 16.6% of the time in Pilot Study 4, but 75.5% of the time in Pilot Study 3. For this reason, it seems feasible that inequality frames can be used flexibly and do not simply adhere to linguistic norms for describing inequalities.

In Studies 1-3, I directly tested Hypothesis 1: that when advantaged, but not disadvantaged, individuals will use fewer advantage frames when describing illegitimate inequality than when describing legitimate inequality. Study 1 assesses this hypothesis in the context of gender inequality.

Study 1

The goal of Study 1 was to fully test Hypothesis 1: that when advantaged but not when disadvantaged, individuals would use fewer advantage frames when describing illegitimate inequality than when describing legitimate inequality. My model predicts that making group-based inequality self-relevant is more threatening to advantaged groups when it is illegitimate than when it is legitimate (Path E in the conceptual model, Figure 2). Accordingly, advantaged groups should be more likely to distance themselves from the inequality by avoiding advantage frames when the inequality is illegitimate than when it is legitimate. For disadvantaged groups, however, I would not predict that individuals would

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attempt to distance themselves more under conditions of illegitimacy (vs. legitimacy) because they are not at risk for the same types of threat as advantaged groups.

In this study, I manipulated the legitimacy of gender inequality by manipulating expert opinions on why gender inequality persists within a passage about gender inequality. Members of both the advantaged and disadvantaged groups (men and women) participated, allowing me to test whether the advantaged group is more likely than the disadvantaged group to avoid advantage frames under conditions of illegitimacy. I predicted that for men and not women, reading about illegitimate gender inequality would lead to less use of advantage frames than reading about legitimate gender inequality. This is because men should only seek to avoid describing inequality in a self-relevant way when it is illegitimate and thus potentially threatening. I did not have specific predictions for how women would describe inequality, although I did not expect to see the same pattern hypothesized for men.

Method

Participants. Amazon mTurk workers ($N = 409$) participated in the study, though 7 were excluded for failing attention checks and 5 additional participants were excluded because they did not report their gender. This left a final sample of 397 participants: 186 women (46.9%), and 211 men (53.1%). Of these, 313 (78.8%) were White, 36 (9.1%) Asian-American, 11 (2.8%) Latinx, 25 (6.3%) African-American, 10 (2.5%) biracial or multiracial, and 2 (.5%) unreported. Ages ranged from 18-74 years old ($M = 33.54$, $SD = 11.03$).

Design. This study had a 2 (Status: advantaged vs. disadvantaged) x 2 (Legitimacy: legitimate vs. illegitimate) between-subjects design. Status was determined by whether the participant identified as a woman (disadvantaged) or a man (advantaged). Legitimacy was manipulated by describing workplace gender inequality as either due to choices made by

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women and men (legitimate condition) or as due to bias in the workplace (illegitimate condition).

Procedures & measures. The study was described to participants as an investigation of how individuals summarize social issues. Participants first read a brief passage describing workplace inequalities between women and men. The content of the passage varied by legitimacy condition. Those in the *legitimate* condition read that experts mostly agreed that gender inequality persisted because of the different choices made by men and women (e.g.,

> "*Economists and social scientists have uncovered that many of these differences can be explained by differences in choices made by the men and women. For example, men and women have different priorities when it comes to working out of the house versus working in the house. Women and men also differ in how often they leave the workforce to take care of children.*"

Those in the *illegitimate* condition read that experts mostly agreed that the inequality persisted because of bias and prejudice in the workplace (e.g.,

> "*Economists and social scientists have uncovered that many of these differences can be explained by biases in the way men and women are treated in the workplace. For example, women and men with equivalent job titles and skills often receive different bonuses, have different chances of being promoted despite equivalent job performance, and face different pressures at home.*"

Both of these passages are presented in Appendix A. Regardless of condition, no inequality frames were used in the passage. Moreover, the order in which men and women were mentioned varied throughout the passage and was counterbalanced between participants.

Open-ended responses. After reading the passage, participants were asked to summarize the passage in their own words. The same two undergraduate coders as in the pilot studies counted the number of advantage and disadvantage frames in each response. Coders were blind to condition, participant gender, and hypotheses. Coders agreed on 91% of

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the codes, and I resolved inconsistencies (blind to condition and participant gender). Sample

responses and corresponding codes are presented in Table 3.

Response (all *sic*)	#Adv. Frame	#Dis. Frame
"there is inequality between sexes. I think it will get better."	0	0
"Men and women are not treated fairly. Men make more money and get promoted more despite the equality in their performance."	2	0
"The differences between male and female success and pay rates is based more on choices made, then by any form of bias against women."	0	1

Table 3. Sample open-ended responses and corresponding codes (Study 1)

Forced-choice responses. As in the pilot studies, participants next completed a

sentence by filling-in-the-blanks with words that created either an advantage or disadvantage

frame.   Participants who completed the sentence saying, "**women** tend to be paid **less** than

men" were coded as using a disadvantage frame. Those who completed the sentence saying,

"**men** tend to be paid **more** than **women**" were coded as using an advantage frame.

Perceived legitimacy. In order to assess whether the legitimacy manipulation was

successful in affecting the perceived legitimacy of male/female inequality, I also assessed the

perceived legitimacy of gender inequality using a three-item scale adapted from Miron and

colleagues (2006) (e.g., "American society has reached the point where women and men

have equal opportunities for achievement", $\alpha = .864$). Responses ranged from 1 ('*Strongly

Disagree'*) to 7 ('*Strongly Agree*'), $M = 3.56$, $SD = 1.50$). This scale is presented in Appendix

B.

Results

Inequality frame descriptives.

Open-ended responses. Few participants used inequality frames at all in their open-ended responses: 296 (74.6%) participants used no inequality frames. A non-systematic read of these open-ended responses suggests that this may be because participants tended to summarize the *reason* for the inequality more than just the *content* of the inequality. For example, many participants might say "Experts say that bias plays a big role in gender inequality" rather than "women tend to have worse outcomes in the workplace than men." 137 inequality frames were used by 101 participants (some used more than one inequality frame), and there were more advantage frames ($n = 90$, 65.7%) than disadvantage frames ($n = 47$, 34.3%) used, $\chi^2(1) = 13.50$, p < .001. Some participants, though not many, used multiple inequality frames in their open-ended responses. As such, it did not seem prudent to use a difference score (total number of advantage frames – total number of disadvantage frames) as a continuous dependent variable because there would be a very limited range with a large number of zeros. Because my theory predicts that advantaged groups will be driven to *avoid* advantage frames more so than they will be driven to *use* disadvantage frames, I decided to assess open-ended responses with a dichotomous variable: whether or not participants used an advantage frame *at all* in their open-ended responses. This dichotomous variable will be the primary dependent variable used for assessing frame use in the open-ended response for all future studies.

Forced choice responses. Thirty-two (8.1%) forced-choice responses were incorrect or irrelevant. Mirroring the open-ended responses, among those who answered correctly, more participants chose the advantage frame ($n = 244$, 66.8%) than the disadvantage frame ($n = 121$, 33.2%), $\chi^2(1) = 41.45$, *p* < .001.

Effect of status and legitimacy.

Perceived legitimacy of gender inequality. A 2x2 ANOVA with status (men vs. women) and legitimacy condition (legitimate vs. illegitimate) as between-subject factors revealed two main effects on perceived legitimacy of gender inequality. Men saw gender inequality as more legitimate ($M = 4.05$, $SD = 1.37$) than women ($M = 3.00$, $SD = 1.45$), $F(1,393) = 54.14$, $p < .001$. And consistent with the intent of the manipulation, participants in the legitimate condition viewed gender inequality as more legitimate ($M = 3.93$, $SD = 1.44$) than participants in the illegitimate condition ($M = 3.19$, $SD = 1.47$), $F(1,393) = 25.43$, $p < .001$. Status and legitimacy condition did not interact ($p = .430$), indicating that the legitimacy manipulation was similarly effective for men and women.

Forced-choice. I predicted that for men but not for women, legitimacy condition would affect frame choice, such that men in the illegitimate condition would use the advantage frame less often than men in the legitimate condition (Hypotheses 1). I did not have specific predictions about women, though I did not expect that women would show the same pattern as men because they would not be similarly motivated to avoid the threat of illegitimate inequalities.

A moderated logistic regression predicting likelihood of choosing the advantage (vs. disadvantage) frame revealed no main effects of status or legitimacy condition (ps > .32). There was, however, a significant status x legitimacy condition interaction, $B = 1.04$, $SE = .45$, $p = .021$, OR = 2.822, 95%CI [1.169, 6.811]. Follow-up simple slopes analyses were consistent with predictions: among women, legitimacy condition did not affect frame choice ($p = .312$). Among men, however, legitimacy condition *did* affect frame choice, $B = -.708$, $SE = .310$, $p = .022$, OR = .493, 95%CI [.268, .904]. Consistent with Hypothesis 1, among

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men the predicted probability of using an advantage frame was higher in the legitimate condition (.735) than in the illegitimate condition (.578). In other words, men were more likely to use advantage frames when the inequality was described as legitimate (vs. illegitimate). Looking at this interaction differently, within the illegitimate condition, the likelihood of choosing the advantage frame was marginally lower among men (predicted probability = .578) than among women (predicted probability = .710), $B = .580$, $SE = .313$, $p = .063$, OR = 1.79, 95%CI [.968, 3.297]. There was not a significant difference between men and women in the legitimate condition ($p = .157$). This interaction is graphed in Figure 3.
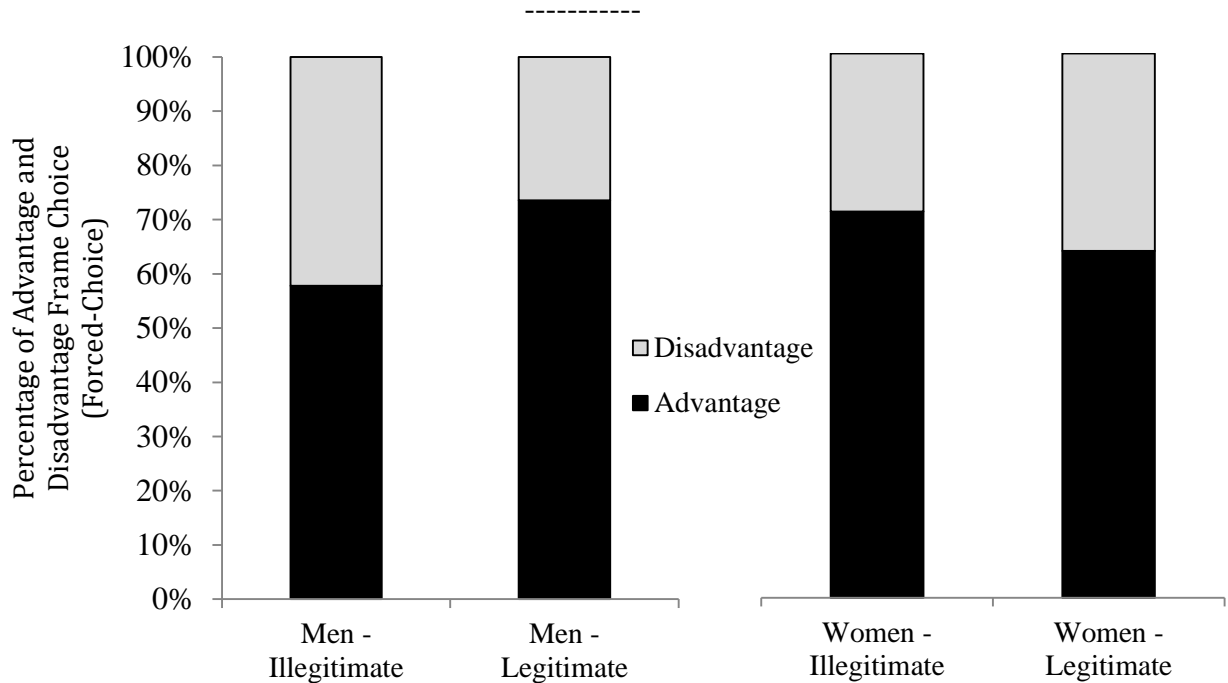

Figure 3. Percentages of frame choice (forced-choice response) among men (left panel) and women (right panel) in both legitimate and illegitimate conditions. Study 1.

I next conducted a similar analysis substituting in self-reported perceived legitimacy rather than legitimacy condition as a predictor interacting with group status. This logistic regression revealed a similar pattern: there were no main effects of status or perceived legitimacy (ps > .290), but there was a marginal status x perceived legitimacy interaction, B

= -.300, *SE* = .163, *p* = .065, OR = .741, 95%CI [.538, 1.019]. Though this interaction did not

reach conventional criteria for statistical significance, I followed-up the interaction with

simple slopes analyses to assess whether the pattern of results mirrored those found with the

legitimacy manipulation. As with the prior analysis, perceived legitimacy did not affect

women's likelihood of choosing the advantage frame (*p* =.565). For men, perceived

legitimacy positively predicted likelihood of choosing the advantage frame, *B* = .235, *SE* =

.116, *p* = .043, OR = 1.264, 95%CI [1.008, 1.587]. The predicted probability of choosing the

advantage frame increased from .559 among men low (-1*SD*) in perceived legitimacy to .719

among men high (+1*SD*) in perceived legitimacy. Put another way, men who perceived

gender inequality as illegitimate were less likely to choose advantage frames compared to

men who perceived gender inequality as legitimate. Looking at this interaction in a different

way, among participants who perceived gender inequality be illegitimate (-1 *SD*), men were

marginally less likely (predicted probability =.559) than women (predicted probability =

.690) to choose the advantage frame, *B* = -.562, *SE* = .326, *p* = .085, OR = 0.410, 95%CI

[.112, 1.031]. There was not a significant difference between men and women at high levels

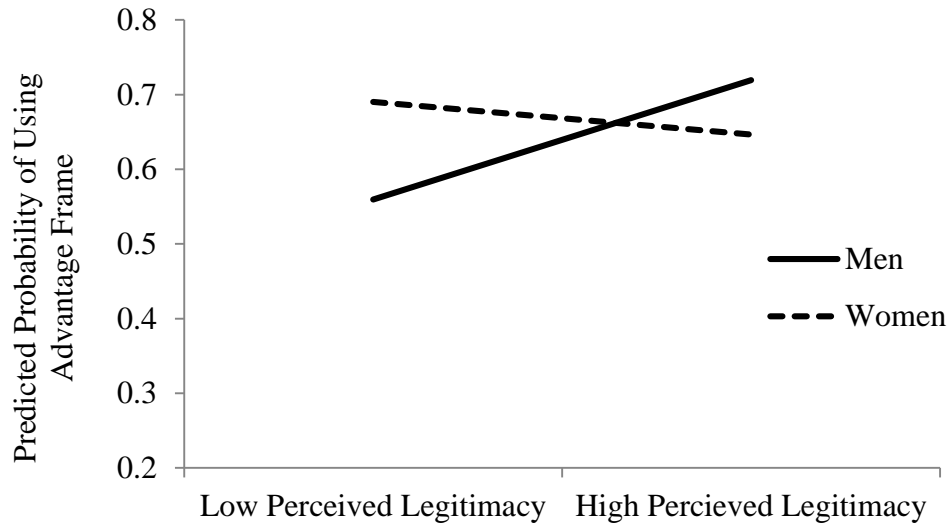of perceived legitimacy (*p* = .355). This interaction is graphed in Figure 4.

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Figure 4. Perceived Legitimacy by Gender interaction on likelihood of using an advantage frame in the forced-choice. Study 1.

In order to assess whether perceived legitimacy mediated the relationship between legitimacy condition and frame choice among men (and not women), I tested a moderated mediation model using Hayes' PROCESS macro (Model 15, see Figure 5). In this model, legitimacy condition predicted the likelihood of choosing the advantage frame directly, and also indirectly through perceived legitimacy. Participant gender moderated the direct path between legitimacy condition and frame choice, as well as the path between perceived legitimacy and frame choice. I used 10,000 bootstrap samples to estimate the indirect effects. This analysis revealed no evidence of an indirect effect among women, $B = -.030$, 95%CI[-0.216, 0.201], and weak evidence of an indirect among men $B = .148$, 95%CI[-0.044, 0.406]. Specifically, for men, the 95% confidence interval for the indirect effect (using 10,000 bootstrapped samples) contained 0, as did the 90% confidence interval. An 89% confidence interval, however, did not contain 0, suggesting a non-significant but correct-direction indirect effect of legitimacy condition on frame use via perceived legitimacy (for men). Coefficients and significance levels for this model are presented in Figure 5.
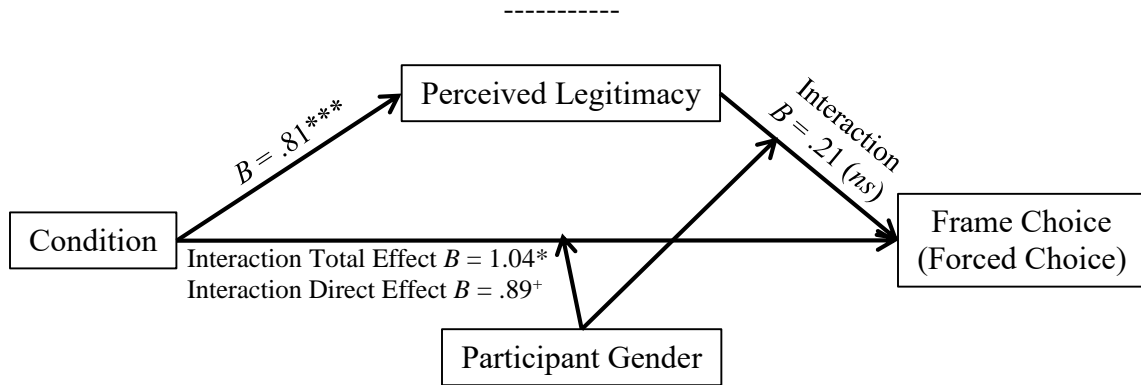

Perceived Legitimacy

$B = .81^{***}$

Interaction $B = .21$ (ns)

Condition

Interaction Total Effect $B = 1.04^*$
Interaction Direct Effect $B = .89^+$

Frame Choice
(Forced Choice)

Participant Gender

Figure 5. Moderated mediation model tested in Study 1 (PROCESS Model 15).

Open-ended. Few participants (25.4%) used inequality frames in their open-ended

responses, and only 37 participants (9.3%) used an advantage frame; as such it may not be

prudent to test a model predicting the likelihood of such a rare event. Nevertheless, a logistic

regression predicting whether participants used advantage frame (or not) in their open-ended

responses revealed no main effect of status ($p = .146$), but a main effect of legitimacy

condition, $B = 1.38$, $SE = .41$, $p = .001$, OR $= 3.980$, 95%CI [1.768, 8.958], that was

qualified by a significant status x legitimacy condition interaction, $B = 1.87$, $SE = .93$, $p=$

.045, OR $= 6.502$, 95%CI [1.042, 40.574]. Unlike with the forced-choice responses, there

was not a significant effect of legitimacy condition on likelihood of using an advantage frame

for men ($p = .334$). Keep in mind, however, that the likelihood of men using *any* advantage

frames was below 10%. There was a significant effect of legitimacy condition among

women, $B = 2.40$, $SE = .76$, $p = .002$, OR $= 11.026$, 95%CI [2.496, 48.702]. This effect was

in the opposite direction as the predicted pattern for men: women were less likely to use an

advantage frame when they were in the legitimate condition (predicted probability $= .023$)

than when they were in the illegitimate condition (predicted probability $= .204$). Again,

extreme caution should be used in interpreting these results because of the rarity of advantage frame usage overall, and particularly among men.

A similar pattern was found when substituting the (centered) perceived legitimacy variable for the experimental manipulation of legitimacy. Because of the issues outlined above regarding the rarity of advantage frame usage, I will not go further into this analysis, nor test a moderated mediation model.

Discussion

Study 1 tested Hypotheses 1 – that advantaged individuals (and not disadvantaged individuals) would use fewer advantage frames when describing illegitimate inequality than when describing legitimate inequality. As predicted, among those advantaged by the inequality (men in this study), illegitimacy was associated with less use of advantage frames in the forced-choice paradigm. Importantly, legitimacy (both manipulated and measured) affected frame choice in the predicted direction for men, but not for women. This is consistent with my prediction that the desire to avoid advantage frames when describing illegitimate inequality may be unique to advantaged groups.

Although there was evidence for the predicted pattern with the forced-choice response, I did not find the exact same pattern when predicting the extremely rare use of advantage frames in open-ended responses. I also failed to find strong evidence that the perceived legitimacy of gender inequality mediated the relationship between legitimacy condition and frame choice among men. This is somewhat surprising because of the very similar patterns seen when predicting frame choice using either manipulated legitimacy condition or self-reported perceived legitimacy. However, this weak evidence may be

partially due to the fact that the effect of perceived legitimacy on men's frame choice was only marginal.

In Study 2, I attempted to replicate the findings of Study 1. But rather than using group membership as a proxy for status, I manipulated group status. Additionally, rather than using well-known and longstanding inequalities, I used a relatively novel inequality in order to assess whether less-entrenched inequalities can still prompt advantaged groups to avoid advantage frames when their advantages are illegitimate.

<div align="center">**Study 2**</div>

In Study 2, I manipulated status by having UCSB students compare themselves to either a more advantaged UC campus (UCLA) or a less advantaged UC campus (UC Merced). Specifically, UCSB students learned that they had received more library funding than UC Merced, or that they had received less library funding than UCLA. I manipulated the legitimacy of the inequality by having the UC President describe the inequality between campuses as either fair or unfair. I then measured frame use with open-ended and forced-choice responses. As in Study 1, and consistent with Hypothesis 1, I predicted that when UCSB students were in the advantaged position (but not in the disadvantaged position), they would use fewer advantage frames when the inequality was described as illegitimate than when it was described as legitimate. This is because UCSB students should only find their advantaged threatening when it is illegitimate, so they should only be motivated to avoid advantage frames when the inequality is perceived as illegitimate.

Method

Participants. UCSB students ($N = 372$) participated in the study in exchange for course credit. The sample was majority women: 262 (70.4%) women, 107 (28.8%) men, 1

(.3%) non-binary individual, and two unreported. The sample was relatively ethnically diverse: 109 (29.3%) White, 75 (20.2%) Asian or Asian-American, 116 (31.2%) Latinx, 13 (3.5%) Black, 11 (3.0%) Middle-Eastern, 45 (12.1%) multi-racial, 3 (.8%) unreported or unclear. Ages ranged from 18-31 years old ($M = 18.88$, $SD = 1.26$).

Design. This study employed a 2 (legitimacy condition: legitimate vs. illegitimate) x 2 (status: advantaged vs. disadvantaged) between-subjects factorial design. Legitimacy was manipulated within the inequality stimulus by indicating whether the inequality was considered fair or unfair by the UC President. Status was manipulated by comparing UCSB to either UCLA (UCSB is disadvantaged) or comparing UCSB to UC Merced (UCSB is advantaged).

Procedures & measures. The study was described as an investigation of how students understand issues facing the UC system. Participants first read an article ostensibly published in the UC Berkeley's Newspaper *The Daily Californian*. This article described inequality in library funding within the UC system. Participants in the *advantage* condition read that UCSB received $40/student in library funding, whereas UC Merced received $20/student. Participants in the *disadvantage* condition read that UCSB received $20/student whereas UCLA received $40/student. No inequality frames were used in the article, and the order in which the school names were presented was counterbalanced.

Participants in the legitimate condition read that UC president Janet Napolitano believed the inequalities were fair (e.g., "President Napolitano maintains that the discrepancies are fair. '*The gap in funding is reasonable. Students at all of our universities have sufficient ccess to important research and learning materials*," says Napolitano"). Participants in the illegitimate condition read that President Napolitano believed the

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inequalities were unfair and needed to be addressed (e.g., "President Napolitano agrees that

the discrepancies are unfair. '*The gap in funding is inexcusable. Students at all of our*

universities should have equivalent access to important research and learning materials,"

says Napolitano") See Appendix A for full articles.

Open-ended responses. As in the previous studies, participants were asked to

summarize the information in the article. Later, the same two undergraduate coders as in the

previous studies counted the number of advantage and disadvantage frames in each

summary. Coders were blind to condition and hypotheses. Coders agreed on 93% of the

codes, and I resolved inconsistencies (blind to condition). Sample responses and

corresponding codes are presented in Table 4.

Response (all *sic*)	#Adv. Frame	#Dis. Frame
"The president of the UC's does not see the need for all of the UC's to be funded equally. She thinks that the funds should reflect the needs of the faculty and students of that school."	0	0
"UCs are experiencing a distribution of unequal funds. For example, UCSB students would recieve $20 in library resource funds while UCLA students recieved double the amount.."	1	0
"The article states that according to the UC system, there are unfair treatments between the different schools in the UC system. Some schools (like Santa Barbara) are receiving more funds than other schools (like Merced). Some contradict this idea and thin it's a fair distribute."	1	0

Table 4. Sample open-ended responses and corresponding codes (Study 2)

Forced-choice responses. As in the previous studies, participants completed a

sentence in a way that created either an advantage or disadvantage frame. They completed

the sentence "According to the UC president, students at _____ received _____ library

resources than students at _____" with words from the following word bank (relevant words

in bold): **UCSB**, **UC Merced, UCLA**, **fewer**, **more**, equivalent, similar, heavier, lighter, UC

Davis. The order in which the words were presented was randomized for each participant.

Perceived legitimacy. A five-item scale was created to assess perceived legitimacy of

the inequality described in the article (e.g., "The inequalities described in the article seem

fair," "The inequalities described in the article need to be addressed and corrected" – reverse

scored; α = .833). Responses ranged from 1 (*Strongly Disagree*) to 7 *(Strongly Agree)*, *M* =

2.92, *SD* = 1.14. The full scale is presented in Appendix B.

Results

Inequality frame descriptives.

Open-ended responses. All open-ended responses were correct and relevant, though

about half (*n* = 208, 55.9%) did not contain any inequality frames. 199 inequality frames

were used by 164 participants (some used more than one inequality frame), and as in Study 1,

there were more advantage frames (*n* = 155, 77.9%) than disadvantage frames (*n* = 44,

22.1%) used, $\chi^2(1) = 61.92$, *p* < .001.

Forced choice responses. A surprisingly high number of participants had incorrect or

irrelevant forced-choice responses (*n* = 62; 14.0%). Of the 310 correct and relevant

responses, more participants chose advantage frame (*n* = 209, 67.4%) than the disadvantage

frame (*n* = 101, 32.6%), $\chi^2 (1) = 37.63$, *p* < .001.

Effect of status and legitimacy.

Perceived legitimacy of inequality. A 2x2 between-subjects ANOVA indicated that

participants viewed the inequality as more legitimate when they were the advantaged campus

(*M* = 3.25, *SE* = .075, *SD* = 1.17) than when they were the disadvantaged campus (*M* = 2.58,

SE = .078, *SD* = 0.99), *F*(1,366) = 38.69, *p* < .001. Additionally, as designed, participants

viewed the inequality as more legitimate in the legitimate condition ($M = 3.25$, $SE = .078$, $SD = 1.16$) than in the illegitimate condition ($M = 2.58$, $SE = .075$, $SD = 1.02$), $F(1,366) = 37.51$, $p < .001$. Status and legitimacy condition did not interact to predict perceived legitimacy ($p = .297$), indicating that the effect of the legitimacy manipulation was similar in both the advantaged and the disadvantaged condition.

Forced choice responses. Contrary to Study 1 and to Hypothesis 1, a moderated logistic regression revealed that status and legitimacy conditions did not interact to predict choice of advantage (vs. disadvantage) frame for the forced-choice response ($p > .500$). There was a marginal main effect of status condition, such that those in the advantaged condition were marginally more likely to use advantage frames (predicted probability = .721) than those the disadvantaged condition (predicted probability = .621), $B = .455$, $SE = .249$, $p = .067$, OR = 1.576, 95%CI [.968, 2.567]. This may have been an artifact of participants choosing the frame that focused on their home campus, regardless of legitimacy condition. There was no effect of legitimacy condition and no interaction ($ps > .108$).

As in Study 1, I conducted a parallel analysis with perceived legitimacy rather than legitimacy condition predicting, together with status condition, forced-choice responses (controlling for legitimacy condition). This analysis revealed the same significant main effect of status condition, $B = .533$, $SE = .261$, $p = .042$, OR = 1.703, 95%CI [1.021, 2.843] but no main effect of perceived legitimacy ($p = .892$). The status x perceived legitimacy interaction was not significant ($p = .162$) though the pattern of results was similar to Study 1: there was no effect of perceived legitimacy for those in the disadvantage condition, but there was a marginal effect of perceived legitimacy for those in the advantage condition, $B = .252$, $SE = .151$, $p = .095$, OR = 1.286, 95%CI [.957, 1.728]. Consistent with the pattern seen in Study 1,

advantaged participants were marginally less likely to use advantage frames when low in perceived legitimacy (-1*SD*; predicted probability = .545) than when high in perceived legitimacy (+1*SD*; predicted probability = .677). Also consistent with the pattern seen in Study 1, among participants who perceived the inequality be illegitimate (-1 *SD*), the advantaged group was marginally less likely to choose the advantage frame (predicted probability = .545) than the disadvantaged group (predicted probability = .746). This interaction is presented in Figure 6.
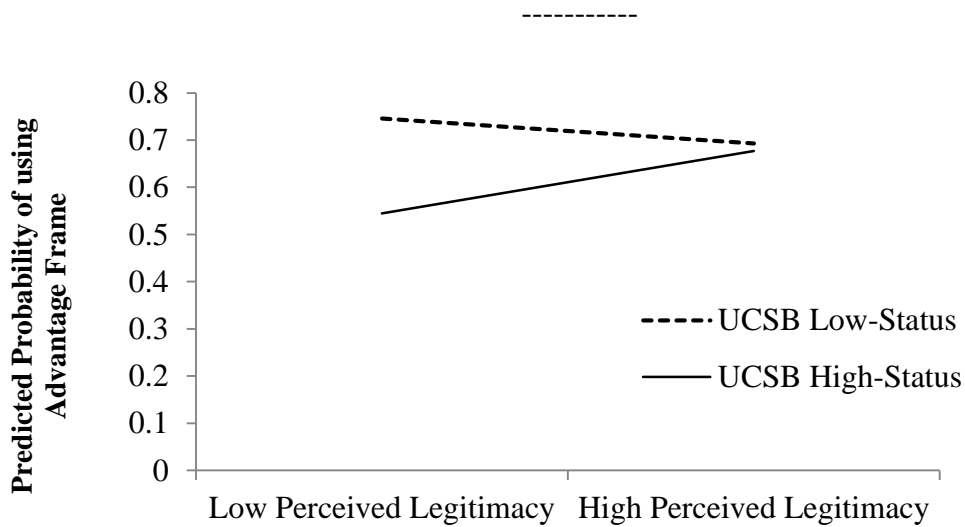

Figure 6. Perceived legitimacy-by-status condition interaction for likelihood of choosing the advantage frame in the forced-choice response. Study 2.

Open-ended responses. A moderated logistic regression predicting whether participants used an advantage frame (or not) revealed a main effect of status condition, *B* = .49, *SE* = .22, *p* = .026, OR = 1.625, 95%CI [1.059,2.494], and a main effect of legitimacy condition, *B* = .51, *SE* = .22, *p* = .020, OR = 1.670, 95%CI [1.085,2.570], but no interaction (*p* = .512). Those in the advantage condition were more likely to use an advantage frame (predicted probability = .419) than those in the disadvantage condition (predicted probability = .307), and those in the legitimate condition were more likely to use an advantage frame

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(predicted probability = .427) than those in the illegitimate condition (predicted probability = .309).

Although there was no interaction between status condition and legitimacy condition when predicting the likelihood of using an advantage frame in the open-ended response, there was an interaction between status condition and *perceived* legitimacy of the inequality (controlling for legitimacy condition), $B = .73$, $SE = .22$, $p = .001$, $OR = .481$, 95%CI [.310,.744]. However, as in the analysis of open-ended responses in Study 1, the effect of perceived legitimacy was unique to those in the disadvantaged condition. Among disadvantaged participants, higher perceived legitimacy was associated with a lower likelihood of using an advantage frame, $B = -.59$, $SE = .18$, $p = .001$. That is, the more disadvantaged participants perceived the inequality as illegitimate, the more likely they were to use advantage frames to describe the inequality. As in Study 1, this pattern among the disadvantaged group is opposite of the hypothesized pattern for the advantaged group. Perceived legitimacy did not predict frame use among advantaged participants ($p = .308$).

Discussion

This study did not provide clear evidence that the effects seen in Study 1 were replicable in a context where group status was experimentally manipulated and the inequality at issue was novel to participants. Although none of the findings went in the opposite direction of predictions, only one effect—the effect of perceived legitimacy on frame choice in the forced-choice response—was consistent with the patterns seen previously. That is, for participants in the advantaged condition (but not the disadvantaged condition), higher perceived legitimacy was marginally associated with higher likelihood of choosing the advantage frame.

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In the open-ended responses, there was an effect of perceived legitimacy, but only for the disadvantaged group. Specifically, for the disadvantaged group, using an advantage frame was more likely when the inequality was perceived as illegitimate than when it was perceived as legitimate. This pattern, the opposite of what we expect and have seen with advantaged groups, mirrors the pattern seen in Study 1. It may suggest that disadvantaged groups may want to put the focus on the advantaged group when the inequality is illegitimate. Regardless, these findings do suggest that disadvantaged groups do not respond the same way to illegitimate inequality as advantaged groups, and that the pattern expected from Hypothesis 1 is not seen in the disadvantaged group. As such, I will focus the rest of the studies only on the advantaged group.

The weaker evidence for the hypothesized pattern among the advantaged group in this study (versus the first study) may reflect the fact that the inequality participants were considering was relatively ad-hoc and unfamiliar. Another potential artifact of this particular manipulation of inequality involves the fact that during the time of data collection for this study, UCSB had just finished construction of a new library. In the next study, I focused only on the advantaged group and attempted to use an inequality that more participants would be aware of and potentially threatened by. In addition, I sought to manipulate the legitimacy of inequality without manipulating any information given in the inequality stimulus. I did this by using a priming manipulation that activates legitimizing beliefs, which was presented separately from the inequality stimulus.

Study 3

The first goal of Study 3 was to replicate the findings from Study 1 (and, to a lesser extent, Study 2) on the role of legitimacy in determining the inequality frames used among

advantaged groups. A second goal was to manipulate the legitimacy of inequality without changing any information in the inequality stimulus, as was the case in Studies 1 and 2. In this study, White participants were asked to describe Black/White inequality in unemployment rates after being primed with legitimizing beliefs or not. Legitimacy beliefs were primed with a task that affects the accessibility of legitimizing beliefs. This task, in which participants unscramble sentences that reinforce the belief that hard work leads to success, has been previously shown to change how much discrimination individuals perceive, and how fair they think unequal treatment is (McCoy & Major, 2007; Wellman, Liu, & Wilkins, 2015). As such, participants primed with legitimizing beliefs should find inequality more legitimate than participants not primed with legitimizing beliefs. I used this manipulation in this investigation in order to cleanly separate the legitimacy manipulation from the inequality stimulus. All participants saw the exact same inequality stimulus, but half were manipulated to have legitimizing beliefs more accessible and thus perceive the inequality as more legitimate. Consistent with Hypothesis 1, I predicted that White participants would be more likely to use advantage frames when primed with legitimacy beliefs than when not primed with legitimacy beliefs. I hypothesized this pattern because participants should will be less motivated to avoid self-relevant inequalities when they perceive them as legitimate (vs. illegitimate).

Method

  Participants. White Americans ($N = 241$) participated in the study via Amazon's Mechanical Turk (mTurk) feature. Of these, five participants failed attention checks, leaving a final analyzable sample of 236 (117 men, 117 women, 1 non-binary, and 1 unreported). Participants ranged from 19-68 years old ($M = 34.56$, $SD = 11.01$).

Design. This study was a two-cell between-subjects design, with participants randomly assigned to one of two conditions: legitimizing beliefs primed, or no prime control.

Procedures & measures. The study was again described as an investigation of how individuals summarize social issues. Participants first completed a sentence-unscrambling task that differed depending on condition: in the *legitimizing beliefs primed* condition, 15 of the 20 sentences had to do with the ideology of meritocracy (e.g., "ambition moves you forward"). In the *no prime* control condition, none of the sentences primed meritocracy (e.g., "sunsets can be beautiful"). This manipulation of legitimizing beliefs was taken from McCoy and Major (2007) and has been shown to activate beliefs about the legitimacy of inequalities (see also Wellman et al., 2015).

Inequality stimulus. Following the experimental manipulation, participants were told that they would see information about a social issue and then summarize the information. All participants then saw a figure that graphed US unemployment rates by race (Black vs. White) over time (identical to Pilot Study 1; see Appendix A). Because the stimulus was a graph, there were no inequality frames used.

Open-ended responses. After viewing the graph, participants were asked to summarize the information. The same two research assistants from past studies, naïve to the hypotheses of the study and blind to condition, counted the number of advantage and disadvantage frames used in these responses. Coders agreed on 96% of codes, and I resolved all inconsistencies (blind to condition). Sample responses and corresponding codes are presented in Table 5.

Response (all *sic*)	#Adv.	#Dis.

	Frame	Frame
"The graph show unemployment rates over time with respect to ethnicity."	0	0
"It was about blacks vs Whites and unemployments rates. Whites have lower rates."	1	0
"The graph shows that African Americans have a higher unemployment rate. Although they both peak at the same times, African Americans still rank higher in unemployment rate."	0	2

Table 5. Sample open-ended responses and corresponding codes (Study 3)

Forced-choice responses. Next, participants completed the forced-choice response measure. Participants who completed the sentence saying, "…**Black** Americans have a **higher** unemployment rate than **White** Americans" were coded as using a disadvantage frame. Those who completed the sentence saying, "…**White** Americans have a **lower** unemployment rate than **Black** Americans" were coded as using an advantage frame.

Perceived legitimacy of inequality. As in Studies 1 and 2, I assessed how legitimate participants perceived Black/White inequality in the US to be. I used three items adapted from Miron, Branscombe, and Schmitt (2006), e.g., "The existing inequalities between Whites and Blacks are justified" ($\alpha = .867$). Participants responded to these items on a Likert scale ranging from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), $M = 3.07$, $SD = 1.57$. The full scale is presented in Appendix B.

Results

Inequality frame descriptives.

Open-ended responses. In the open-ended responses, 35 participants used no inequality frames and 6 wrote irrelevant or un-code-able responses (e.g., "racism sucks!"). 279 inequality frames were used by 195 participants (some used more than one), and far

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more disadvantage frames ($n = 265$, 95.0%) than advantage frames ($n = 14$, 5.0%) were used, $\chi^2(1) = 225.81$, $p < .001$.

Forced-choice responses. Eleven forced-choice responses were incorrect or irrelevant (4.6%). Among the 225 correct responses, more participants chose the disadvantage frame ($n = 190$, 84.4%) than the advantage frame ($n = 35$, 15.6%), $\chi^2(1) = 106.78$, $p < .001$.

Effect of prime condition. Contrary to predictions, the priming manipulation did not affect the perceived legitimacy of Black/White inequality (legitimizing beliefs primed: $M = 3.05$, $SE = 0.14$; no prime: $M = 3.09$, $SE = 0.15$), $F = 0.04$, $p = .841$.

Perhaps unsurprisingly given that the priming manipulation did not affect perceived legitimacy, logistic regressions revealed no condition effects on frame use in either the open-ended responses or forced-choice responses, ps $> .120$.

Effect of perceived legitimacy. Although the manipulation failed to affect the perceived legitimacy of Black/White inequality, it was still possible to assess whether perceived legitimacy influenced inequality framing by using participants' own perceptions of legitimacy as a predictor. A logistic regression predicting forced-choice frame use with perceived legitimaccy revealed a significant positive association between the perceived legitimacy of inequality and the likelihood of choosing the advantage frame, $B = .363$, $p = .002$, $OR = 1.44$, 95%CI [1.143, 1.808]. That is, the less legitimate participants perceived racial inequality to be, the less likely they were to use advantage frames. The probability of choosing the advantage frame was quite low overall (.164), but was higher when high in perceived legitimacy (+1 *SD* predicted probability = .226) than when low in perceived legitimacy (-1 *SD* predicted probability = .096).

A logistic regression predicting the likelihood of using an advantage frame in the open-ended response revealed no effect perceived legitimacy of racial inequality, $B = .194$, $p = .287$, OR = 1.21, 95% CI[0.850, 1.734]. However, only 12 (5.1%) participants used an advantage frame in their open-ended responses, so it is perhaps unsurprising that perceived legitimacy could not adequately predict such a rare occurrence.

Discussion

Study 3 indicated that although the manipulation of legitimizing beliefs did not successfully affect the perceived legitimacy of inequality or the likelihood of using advantage vs. disadvantage frames, individual differences in the perceived legitimacy of racial inequality *did* predict frame use in the predicted direction: the less legitimate participants perceived Black/White inequality to be, the less likely they were to use advantage frames when describing it. This replicates the effects seen among men in Study 1, and the pattern seen among advantaged students in Study 2. However, as in Studies 1 and 2, this effect only emerged with the forced-choice response, not the open-ended response. Again, this may be because so few participants used an advantage frame in the open-ended response (5.1%), whereas a more substantial proportion of participants chose the advantage frame in the forced-choice response (15.6%).

I do not have a clear explanation for why the legitimacy priming manipulation was unsuccessful at manipulating perceived legitimacy of inequality. One possibility is that the prime was too subtle to be successfully used in an online study, where participants may have been distracted by other stimuli. Although this prime has been successfully used in online studies previously (Wellman et al., 2015), participants in that study responded to measures directly after the prime, not after seeing experimental stimuli as well. Another possibility is

that perceptions of this particular inequality may be relatively stable, and such a subtle priming manipulation was not sufficient to affect the perceived legitimacy of this well-known and long-standing inequality.

As a whole, the first set of studies lends some support to the prediction that advantaged groups are less likely to use advantage frames when group-based inequality is perceived as illegitimate than when it is perceived as legitimate. The first two studies also indicated that this pattern was not the same for disadvantaged groups. These findings are in line with Hypotheses 1 – that avoiding advantage frames should be more likely for advantaged groups when the inequality is illegitimate (vs. legitimate), and that this effect should be more pronounced among advantaged (vs. disadvantaged) groups.

These studies still lack, however, a clear mechanism for why advantaged individuals are using fewer advantage frames when describing illegitimate inequality. In my model, I predict that frame use is driven partially by a motivation to avoid the threat that accompanies thinking about your group's illegitimate advantages (self vs. system threat, Path C in the conceptual model; and self vs. group threat, Path D in the conceptual model). However, the first set of studies did not directly assess the role of threat in frame use. As such, in Study 4, I manipulated threat in order to put advantaged participants in a psychological state where they are particularly motivated to avoid additional threats. I then measured inequality frames used when describing an illegitimate inequality. If advantaged individuals avoid advantage frames in order to avoid feeling threatened, then participants under threat should use fewer advantage frames than participants not under threat.

Study 4

In Study 4, I directly investigated whether threat avoidance is one factor that drives members of advantaged groups to avoid advantage frames when describing illegitimate group-based inequalities. To do this, I manipulated threat by providing either positive (not threatening) or negative (threating) feedback on an ostensible test of intelligence. White participants then read about illegitimate racial inequality and were asked to summarize the information. As outlined in Hypothesis 2, I predicted that the participants under threat would be more likely than the participants not under threat to avoid advantage frames when describing the illegitimate inequality.

Method

Participants. White American Amazon mTurk workers ($N = 259$) participated in the study[3], 14 of whom were excluded for failing attention checks. This left 245 White participants for analysis (50.2% female, ages 18-67, Mage = 34.96, SD = 10.61).

Design. This study was a two-cell between-subjects design, with participants randomly assigned to receive either positive or negative feedback on an ostensible intelligence test. Those in the threat condition received negative feedback, and those in the no threat condition received positive feedback.

Procedures & measures. The study was described as an investigation into the properties of a new intelligence test that contained two parts: a math & logic section, and a reading comprehension & writing section. The first portion of the test (math & logic) functioned as an opportunity to provide threatening or non-threatening intelligence feedback, and the second portion of the test (reading comprehension & writing) functioned as the inequality stimulus and dependent variables.

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[33] Additionally, 95 non-White participants and four participants who did not report their race/ethnicity participated and were excluded because the question only concerned White participants.

The math & logic section consisted of a single timed math problem in which one's score was ostensibly calculated as a function of (1) time to correct answer and (2) penalties for incorrect responses. Participants were randomly assigned to answer a relatively easy question (in the *no threat* condition) or a relatively difficult question (in the *threat* condition). The math problems presented in each condition are printed in Appendix B. Participants in the no threat condition were told they answered the question correctly on their first try (regardless of their actual answer) and were told that they scored in the 89th percentile for people of a similar age and education level. Participants in the threat condition were told that they answered the question correctly if they indeed answered it correctly. If they did not answer it correctly on their first try, however, participants were told they answered incorrectly and given a second chance to answer the question correctly. Regardless of their answer on the second try, these participants were told they answered correctly after their second try. All participants in the threat condition then received feedback that they performed at the 13th percentile among people with a similar age and education level. These values were chosen based on Lowery, Knowles, and Unzueta (2007; Experiment 1).

After receiving their feedback, participants immediately moved on to the second portion of the exam (reading comprehension & writing). Participants were asked to choose a number between 1-100, each of which corresponded to a passage. This was done to reduce suspicion that participants were specifically intended to read and write about racial inequality. Regardless of the number participants chose, they were assigned to read a passage titled "Racial Disparities in Unemployment in the United States." This passage was identical to the passage used in Pilot Study 2 (see Appendix A), and it implied that the unemployment gap was due to bias and differences in opportunity. As such, all participants were exposed to

an illegitimate group-based inequality. The passage contained no inequality frames, and was counterbalanced regarding whether Black Americans or White Americans were mentioned first.

Open-ended responses. As in the previous studies, participants then summarized the passage. Because the study was framed as an ostensible intelligence test, participants were told that their summary would be used to assess reading comprehension. Later, two undergraduate coders (one the same as in the previous studies and another new to the task) counted the number of advantage and disadvantage frames used in each summary. Coders were blind to condition and hypotheses. Coders agreed on 95% of the codes, and I resolved inconsistencies (blind to condition). Sample responses and corresponding codes are presented in Table 6.

Response (all *sic*)	#Adv. Frame	#Dis. Frame
"Whites have an unemployment rate of 5.3%.Black Americans have the rate of 11.7%.The Bureau of Labor showed the unemployment rates by race.The gap between the two racial groups is the evident."	0	0
"Black americans have a higher unemployment rate than white americans and have for the last 5 plus decades."	0	1
"White people have a lower rate of unemployment than black people."	1	0

Table 6. Sample open-ended responses and corresponding codes (Study 4)

Forced-choice responses. Participants then completed the fill-in-the-blank style question that forced them to choose either an advantage or a disadvantage frame. Participants were told they were doing this in order to confirm that they read and understood the content of the passage.

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Participants then provided demographic information, and reported how pleased they were with their performance on the two portions of the intelligence test (as a manipulation check). Finally, participants were debriefed.

Results

Manipulation check. As expected, participants were happier with their math & logic test score in the no threat (positive feedback) condition ($M = 5.81$, $SD = 1.33$) compared to the threat (negative feedback) condition ($M = 3.32$, $SD = 1.70$), $F(1,243) = 160.073$, $p < .001$, $\eta_p^2 = .397$. Perhaps as a spill-over effect from their performance on the math & logic portion of the exam, participants in the no threat condition believed they did better on the reading comprehension & writing portion of the exam ($M = 5.57$, $SD = 1.07$) compared to participants in the threat condition ($M = 5.25$, $SD = 1.10$), $F(1,243) = 5.046$, $p = .026$, $\eta_p^2 = .020$.

Inequality frame descriptives.

Open-ended responses. 75 participants (30.6%) did not use an inequality frame in their open-ended response. 214 inequality frames were used by 170 participants (some used more than one inequality frame), and there were more disadvantage frames ($n = 178$, 83.2%) than advantage frames ($n = 36$, 16.8%) used, $\chi2$ (1) $= 94.22$, $p < .001$.

Forced choice responses. Participants were more also likely to choose the disadvantage frame ($n = 153$, 62.4%) than the advantage frame ($n = 92$, 37.6%) in the forced-choice response, $\chi^2(1) = 15.19$, $p < .001$.

Effect of threat manipulation.

Forced choice responses. Inconsistent with my prediction that participants under threat would use fewer advantage frames than participants not under threat (Hypothesis 2),

threat condition did not affect frame choice in the forced-choice response, B = -.01, SE = .26, p = .961, OR = .987, 95%CI [0.588,1.658]. The probability of choosing an advantage frame was similar for participants in the threat condition (.374) as in the no threat condition (.377).

Open-ended responses. Mirroring the finding above, threat condition also did not predict likelihood of using an advantage frame in the open-ended response, B = -.15, SE = .38, p = .698, OR = .862, 95%CI [.408, 1.823]. The probability of using an advantage frame was similar in the threat condition (.121) as in the no threat condition (.139).

Discussion

In this study, there was no evidence that threatening feedback influences inequality framing for advantaged groups summarizing an illegitimate group-based inequality. This is contrary to Hypothesis 2, which predicts that advantaged groups should be more motivated to avoid advantage frames when they are under threat (vs. not under threat). As such, I have not found direct evidence that threat-avoidance (specifically the avoidance of self vs. system threat and self vs. group threat; Paths C and D, respectively, in the conceptual model) is a primary motivator of inequality framing for advantaged groups.

One possibility for the lack of this effect is that the intelligence feedback manipulation did not actually threaten participants. Although participants in the threat condition reported being less happy with their performance than those in the no threat condition, it is possible that the negative feedback was not important or even believed by these mTurk participants who knew that the results of the exam would not have any true consequences. Another possibility is that even though half of the participants received positive feedback intended to be non-threatening, all participants felt somewhat vulnerable to threat while completing the study because their intelligence was being assessed. If this was

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the case, then all participants—regardless of threat condition—may have been somewhat motivated to avoid advantage frames. Another related possibility is that because participants believed that their responses were part of an intelligence test, they may have been more concerned about providing a complete or impressive response, and their spontaneous or gut-level responses were over-ridden.

Nevertheless, the most parsimonious explanation for the lack of support for Hypothesis 2 is that my theory is not correct and that inequality framing is not actually motivated by threat avoidance. As such, in the next set of experiments, I directly assessed whether advantage framing is more threatening than disadvantage framing for advantaged groups learning about illegitimate inequality. I did this by manipulating whether an illegitimate inequality was presented with an advantage frame or with a disadvantage frame, and then measuring threat. Although this approach cannot definitively show that threat influences the inequality frames advantaged groups use to describe inequality, it can directly assess whether advantage frames are more threatening than disadvantage frames for advantaged groups (Paths C and D in the conceptual model). In studies 5-7, I evaluate Hypotheses 3 and 4 – that advantaged groups will display more behavioral and physiological indicators of threat, and will engage in more threat-resolving strategies, after exposure to advantage (vs. disadvantage) frames.

In Studies 5 and 6, I manipulated inequality frames and measured the four threat-resolving strategies hypothesized to follow from self vs. system and self vs. group threat (Paths F-I in the conceptual model). I only investigated responses to illegitimate inequalities and I only investigated responses of advantaged groups. As a review, my theory suggests that advantage frames will make inequalities more self-relevant to advantaged groups than

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disadvantage frames (Path A in the conceptual model). When the inequality is illegitimate (Path E in the conceptual model), this self-relevance in turn activates two forms of threat: (1) Self vs. system threat results because our desire to see ourselves as having value conflicts with our recognition that the system affords value unfairly (Path C in the conceptual model). (2) Self vs. group threat results because our desire to see ourselves as moral and egalitarian conflicts with our recognition that our group is somewhat immoral and non-egalitarian (Path D in the conceptual model).

Following from these hypothesized threats, four strategies are predicted to resolve self vs. system and self vs. group threat: (1) self-enhancement (Path F in the conceptual model) and (2) system justification (Path G in the conceptual model) are hypothesized to resolve self vs. system threat by re-establishing one's own value and merit, and by re-asserting the fairness of the system, respectively.

(3) Group dis-identification (Path H in the conceptual model) and (4) creative group enhancement (Path I in the conceptual model) are hypothesized to resolve self vs. group threat by distancing oneself from other, less-moral members of the in-group, and by re-construing the in-group as a victim rather than a perpetrator of illegitimate inequality, respectively. Higher levels of these threat-resolving strategies (self-enhancement, system justification, creative group-enhancement, and group disidentification) following advantage versus disadvantage frames would indicate that advantage frames induce more threat, which the participant must contend with by utilizing a threat-resolving strategy. These responses can be conceptualized as "defensive" or "dissonance-reducing" responses, and should be particularly pronounced when an individual is experiencing conflict between important views of the self and information that challenges those views (Festinger, 1957).

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In Study 7, in addition to measuring the four hypothesized threat-resolving strategies, I indexed threat with cardiovascular responses during a discussion of inequality using the Biopsychosocial Model of Challenge and Threat as a framework (Blascovich, 2008; Blascovich & Mendes, 2010; Blascovich & Tomaka, 1996). The Biopsychosocial Model of Challenge and Threat holds that the psychological experience of threat can be indexed in the periphery by measuring cardiovascular responses during an engaging task. A cardiovascular threat pattern is theorized to result when the demands of a situation are perceived to outweigh the resources we have to deal with those demands. A cardiovascular challenge pattern, in contrast, is theorized to result when our resources meet or exceed the perceived demands of a situation. In the context of inequality framing, a cardiovascular threat response would be consistent with the idea that a participant thinking about illegitimate inequality is unable to effectively resolve the conflicts that arise when considering their in-group's advantages. As such, I predicted that advantaged participants considering illegitimate inequalities would exhibit more cardiovascular threat when the inequality was framed in terms of in-group advantage rather than out-group disadvantage. It is important to note, however, that cardiovascular threat indices cannot differentiate between the two hypothesized forms of threat (self vs. system threat and self vs. group threat).

Study 5

In Study 5, I manipulated whether illegitimate racial inequality (Black vs. White) was described using advantage or disadvantage frames. I then measured the extent to which White participants (advantaged) engaged in my hypothesized threat-resolving strategies. In this study, I measured one strategy hypothesized to resolve self vs. system threat (system justification, Path G in the conceptual model), and one strategy hypothesized to resolve self

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vs. group threat (group dis-identification, Path H in the conceptual model). I only measured one threat-resolving strategy for each type of hypothesized threat for two reasons: First, I wanted to avoid participant burden and reduce the potential for earlier measures interfering with responses to later measures. Second, one threat-resolving strategy may be sufficient for alleviating the hypothesized threat. If multiple strategies for reducing the same type of threat were measured, engaging in one strategy might make participants less likely to engage in the other. Null effects, then, could indicate either that participants successfully alleviated with their threat with another strategy, or that participants were not threatened at all. The other two hypothesized threat-resolving strategies were measured in Study 6.

If my hypothesis is correct that advantage frames are more threatening to advantaged groups than disadvantage frames in the context of illegitimate inequality, then White participants considering illegitimate racial inequality should engage in more system justification and more dis-identification with the White racial group when the inequality is framed in terms of in-group advantage than when it is framed in terms of out-group disadvantage (Hypothesis 3). For this study, all participants were members of the advantaged group (White), and all participants read about illegitimate Black/White inequality.

Method

Participants. 314 self-identified White mTurk workers participated in the study in exchange for a small fee. Ages ranged from 20-71 ($M = 37.77$, $SD = 11.54$, 7 not reported). 51.9% were women, 47.5% were men, and 0.6% ($n = 2$) were transgender or non-binary.

Design. This study had a between-subjects design with two conditions: White advantage vs. Black disadvantage. Half of the participants read a brief passage describing racial inequality in a way that consistently used advantage frames (White advantage

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condition), whereas the other half read the same information, but in a way that consistently used disadvantage frames (Black disadvantage condition).

Procedures. After providing consent to participate in a study of how individuals understand current events and social issues, participants reported their demographic information. This was done in order to make sure participants were thinking about their White identity as they read about illegitimate racial inequality. Participants were then instructed to select a number from an array of numbers that corresponded to a passage about a current event or social issue (similar to Study 4). Regardless of the number they chose, all participants read about racial inequality in the United States. Half of the participants read about racial inequality in a way that consistently framed the inequality in terms of Black disadvantage (Black disadvantage condition), e.g.,

> *"For example, Black citizens earn less than their White counterparts when doing the same type of work with the same educational background. Studies have also shown that Black job applicants are less likely than White job applicants to be called back for job interviews, even when their resumes are identical."*

The other half read the same information, but in a way that consistently framed inequality in terms of White advantage (White advantage condition), e.g.,

> *"For example, White citizens earn more than their Black counterparts when doing the same type of work with the same educational background. Studies have also shown that White job applicants are more likely than Black job applicants to be called back for job interviews, even when their resumes are identical."*

These passages are presented in full in Appendix A.

After reading the passage, participants responded to a multiple-choice comprehension check in which they chose the statement that most accurately summarized the information in the passage. The correct choice was phrased using the inequality frame that corresponded to the participant's condition ("Black/White Americans are [dis]advantaged relative to White/Black Americans"). Participants who answered incorrectly were re-presented with the

passage and answered the question until they responded correctly. Across both conditions, five participants answered incorrectly on their first try.

Participants then responded to the measures of threat-resolving strategies (system justification and ethnic dis-identification) in a counter-balanced order.

Measures. System justification was operationalized with a scale measuring system-justifying beliefs (SJBs). SJBs are a cluster of ideologies that all support the belief that the social system is fair. Endorsing these beliefs should help to resolve self vs. system threat by reassuring members of advantaged groups that their achievements were earned fairly. I used an SJB scale used extensively in previous research that has three 4-item subscales (O'Brien & Major, 2005). The subscales include the *Protestant Work Ethic* (the belief that hard work pays off; e.g., "If people work hard they almost always get what they want"), belief in the *Permeability* of the social system (e.g., "Advancement in our society is possible for all individuals"), and the perceived *Legitimacy* of the social system (e.g., "Differences in status between groups in society are fair"), α = .94. Responses ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), *M* = 3.52, *SD* = 1.23. This scale is presented in Appendix B.

Group dis-identification was operationalized with two indices: ethnic identification (the extent to which individuals feel that their ethnic group is an important part of their identity) and self-stereotyping (the extent to which individuals feel that they are similar to other members of their ethnic group). Rating oneself as low in ethnic identification and self-stereotyping should help resolve self vs. group threat by allowing advantaged group members to separate their own sense of morality from the morality of the larger group. I measured ethnic identification with the 4-item identity subscale of the Collective Self-Esteem scale from Luhtanen & Crocker (1992; e.g., "Being White is an important reflection of who I

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am."), α = .88. Responses ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), *M* = 3.35, *SD* = 1.55. I measured self-stereotyping with two items from Leach et al. (2008; e.g., "I have a lot in common with the average White person."), α= .93, *r* = .88. Responses ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), *M* = 4.63, *SD* = 1.33. The full scales are presented in Appendix B.

Participants next responded the same 3-item scale measuring perceived legitimacy of Black/White inequality from Study 3, *M* = 3.11, *SD* = 1.57, α = .85. Participants were then debriefed.

Results

System-justifying beliefs. Contrary to hypotheses (Path G in the conceptual model), participant did not endorse SJBs more after reading a passage about illegitimate racial inequality then it was described with advantage frames rather than disadvantage frames, $F(1,312) = 0.23$, $p = .633$, $\eta_p^2 = .001$. This null effect was mirrored when looking at the subscales of the SJB measure individually ($ps > .472$).

Group dis-identification. Also contrary to hypotheses (Path H in the conceptual model), there was also no effect of condition on ethnic identification, $F(1,311) = 1.55$, $p = .215$, $\eta_p^2 = .005$, or self-stereotyping, $F(1,311) = 0.14$, $p = .706$, $\eta_p^2 < .001$.

Perceived legitimacy. There were also no condition differences in the perceived legitimacy of Black/White inequality, $F(1,311) = 0.52$, $p = .471$, $\eta_p^2 = .002$.

Exploratory analyses. The order in which the dependent variables were presented did not affect the effect of condition on system justification or group dis-identification. None of the above effects were moderated by gender ($ps > .213$). In addition, perceived legitimacy

of the inequality did not moderate the effect of condition on system-justifying beliefs or group dis-identification ($ps > .355$).

Discussion

Study 5 provided no support for the hypothesis that reading about illegitimate racial inequality in a way that focused on White advantage was more threatening for White participants than reading about illegitimate racial inequality in a way that focused on Black disadvantage. Participants were not more or less likely to engage in the hypothesized threat-resolving strategies: justifying the system (Path G), or dis-identifying with their racial group (Path H). One possible explanation for the failure to find support for my hypotheses is that both system-justifying ideologies and group identification are relatively stable individual difference variables. As such, it is possible that even if participants *were* experiencing threat, this threat it would not be sufficient to over-ride these relatively stable individual characteristics. As such, in Study 7, I examined *changes* in identification and system-justifying beliefs in order to more sensitively assess the impact of inequality framing on these constructs. First, though, I conducted an almost identical experiment as Study 5 to assess whether inequality framing affected the other two hypothesized threat-resolving strategies: self-enhancement (Path F) and creative group-enhancement (Path I).

Study 6

Study 6 was identical to Study 5 in every way except for the dependent measures. Again, I manipulated whether illegitimate Black/White inequality was described using advantage vs. disadvantage frames, and again I measured how much White participants engaged in two hypothesized threat-resolving strategies. In this study, I measured self-enhancement as a potential strategy for resolving self vs. system threat (Path F), and I

measured creative group enhancement as a potential strategy for resolving self vs. group threat (Path I). Self-enhancement is hypothesized to help resolve self vs. system threat because it re-affirms the self's value and worth. Creative group-enhancement is hypothesized to help resolve self vs. group threat by re-asserting the morality of the in-group. As I suggested above, it is unlikely that advantaged groups reading about illegitimate inequality will be able to group-enhance by simply asserting that the in-group is generally moral and egalitarian. This is because, especially for White Americans, it is difficult to deny that some members of the in-group are prejudiced and that the in-group has a history of immoral and anti-egalitarian behavior. As such, I predicted that group-enhancement would be done creatively in order to regain some of the group's morality without completely denying past wrongdoings. Specifically, I proposed that advantaged groups would creatively group-enhance by construing the in-group as victims of illegitimate inequalities (i.e., "reverse" anti-White discrimination) in order to re-assert the in-group's morality. If my hypothesis is correct that advantage frames are more threatening than disadvantage frames for advantaged groups reading about illegitimate inequality, then participants would be expected to show more self-enhancement and higher perceptions of anti-White discrimination in the White advantage vs. Black disadvantage condition.

Method

Participants. 301 self-identified White mTurk workers participated in the study in exchange for a small fee. Six participants did not finish the study and were removed from the analysis, leaving a final sample of 295 participants, aged 18-72 ($M = 36.88$, $SD = 12.17$), 47.5% of whom were women.

Design & procedures. The study was identical to Study 5, except that the dependent measures differed. Rather than measuring system justification and group dis-identification, this study measured the hypothesized threat-resolving strategies of self-enhancement (Path F in the conceptual model) by having participants rate themselves on 40 positive and negative traits. Creative group-enhancement (Path I in the conceptual model) was measured with perceptions of anti-White discrimination. As in Study 5, the order of these measures was counter-balanced.

Finally, participants responded to the same items assessing the perceived legitimacy of White/Black inequality and were debriefed.

Measures. Self-enhancement was operationalized by having participants give themselves a percentile rank against "the average American" for 40 traits (20 positive and 20 negative). Percentile ranks ranged from 0-100, and negative traits were reverse scored. All items were then averaged to create a measure of self-enhancement where higher values indicate more self-enhancement, $\alpha = .96$. $M = 70.95$, $SD = 13.37$. Consistent with Hypothesis 3, I predicted that participants in the White advantage condition would score higher on this measure of self-enhancement than participants in the Black disadvantage condition because re-affirming the self's value should help resolve self vs. system threat (Path F in the conceptual model). These traits are presented in Appendix B.

I operationalized creative group-enhancement with a scale measuring anti-White (or "reverse") discrimination (e.g., "Whites are victims of racial bias;" $\alpha = .90$. Responses ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), $M = 4.13$, $SD = 1.51$. I predicted that participants would have higher perceptions of anti-White discrimination in the White advantage (vs. Black disadvantage) condition, because perceiving the in-group as victims of

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illegitimate inequality re-affirms the morality of the in-group and thus helps to resolve self

vs. group threat (Path I in the conceptual model). The full scale is presented in Appendix B.

As in Study 5, I also measured perceived legitimacy of Black/White inequality with

the same three items (α = .86), which ranged from 1 (*Strongly Disagree*) to 7 (*Strongly*

Agree), M = 3.09, SD = 1.59.

Results

Self-enhancement. Contrary to Hypothesis 3 (Path F in the conceptual model,

specifically), participants in the White advantage frame condition self-enhanced significantly

less (M = 68.88, SD = 13.50) than participants in the Black disadvantage condition (M =

73.09, SD = 12.93), $F(1,291)$ = 7.43, p = .007, η_p^2 = .025. In other words, participants rated

themselves less positively after reading about illegitimate White advantage than after reading

about illegitimate Black disadvantage. The effect of condition on self-enhancement was

similar for those completed the self-enhancement items first (p = .083) and those who

completed them second (p = .042).

Creative group-enhancement. I next assessed whether condition affected

perceptions of anti-White discrimination. Contrary to Hypothesis 3 (Path I in the conceptual

model, specifically) participants reported similar levels of perceived anti-White

discrimination regardless of condition (p > .279). However, there was a marginal effect of

condition in the predicted direction among the participants who answered these items before

the self-enhancement items, $F(1,150)$ = 3.106, p = .080, η_p^2 = .020. In contrast, there was no

effect of condition for participants who answered self-enhancement questions first (p = .827).

Among participants who answered the creative group-enhancement questions first, perceived

anti-White discrimination was higher in the White advantage condition (M = 4.31, SD =

1.40) than in the Black disadvantage condition (*M* = 3.88, *SD* = 1.59). In other words, consistent with the pattern predicted by Hypothesis 3, participants perceived marginally more anti-White discrimination when the passage used advantage (vs. disadvantage) frames.

Perceived legitimacy. As in Study 5, there was no significant effect of condition on how legitimate participants considered Black/White inequality, $F(1,192) = 2.07$, $p = .152$, $\eta_p^2 = .007$.

Exploratory analyses. Gender and perceived legitimacy of Black/White inequality did not moderate the effect of condition on any of the dependent variables (ps > .174).

Discussion

This study provided very limited support for the hypothesis that racial inequality is more threatening for Whites when it is framed in terms of in-group advantage rather than out-group disadvantage. Overall, frame condition may be affecting the likelihood of engaging in creative group-enhancement, in that participants who answered these questions directly after reading about the inequality perceived marginally more anti-White discrimination when the inequality was framed as White advantage (vs. Black disadvantage). The fact that this finding was only seen among participants who had not previously answered self-enhancement items might suggest that the opportunity to self-enhance may have alleviated any threat that might have otherwise prompted participants to engage in creative group-enhancement as a threat-resolvign strategy. This interpretation is consistent with Tesser's concept of the "self zoo," in which individuals are able to resolve a threat to the self in one domain through affirmation in another domain (see, e.g., Tesser, 2000; Tesser, 2001). That is, perhaps participants experiencing self vs. group threat following exposure to advantage frames were able to affirm themselves via self-enhancement so that they no longer

needed to resolve the threat via creative group-enhancement. When participants did not have the opportunity to affirm themselves via self-enhancement, however, they then engaged in the predicted threat-resolving strategy of creative group-enhancement. Although this is a possible explanation, additional investigations would be needed to assess whether it is replicable.

Turning now to the effect of inequality frames on self-enhancement: this study found evidence that inequality frames affect self-enhancement in the *opposite* direction than predicted (Hypothesis 3, Path F in the conceptual model). White participants self-enhanced *less* following advantage framing than disadvantage framing. There are several potential interpretations of this finding. The first interpretation is that participants were more threatened by the Black disadvantage framing than the White advantage framing, and they thus self-enhanced more in the Black disadvantage condition. This interpretation is contrary to my hypotheses, as well as other findings suggesting that illegitimate in-group advantages are more aversive than illegitimate out-group disadvantages (e.g., Powell et al., 2005). However, it is nevertheless plausible.

Another interpretation is that higher levels of self-enhancement did not index a threat-resolving strategy as I predicted, but rather simply indexed self-esteem. That is, it is possible that participants in the advantage frame condition *were* experiencing self vs. system threat, but that they were not responding defensively to this threat (as I hypothesized in Hypothesis 3). Rather, the lower levels of self-enhancement seen after reading about in-group advantage (vs. out-group disadvantage) may have reflected lower confidence in one's abilities and worth. This interpretation would be consistent with my theory that reflecting on in-group advantages brings up doubts about whether one's achievements and worth were fairly earned

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(i.e., self vs. system threat; Path C in the conceptual model). However, it would be

inconsistent with my predictions that advantaged groups would attempt to resolve this threat

through increased self-enhancement (Path F in the conceptual model). Past work has

interpreted reductions in self-reported self-esteem as an index of threat (e.g., Crocker,

Voelkl, Testa, Crocker, & Major, 1991), and other work has shown that reflecting on in-

group advantages can lead to self-reported guilt and other forms of negative affect rather than

only threat-resolving responses (e.g., Powell et al., 2005). As such, it seems possible that the

lower levels of self-enhancement seen in the in-group advantage (vs. out-group disadvantage)

condition reflect lower levels of positive self-feelings rather than lower levels of defensive

responding. Threat is very challenging to measure using self-report scales because one

defining feature of threat is that it motivates people to resolve the threat. As such, by the time

participants respond to the scales intended to measure threat-resolving strategies, they may

have already resolved the threat. As such, in the next and final study (Study 7), I directly

measured threat using cardiovascular reactivity. This allowed me to measure immediate

responses to inequality framing that were largely unfiltered through conscious processing or

attempts at resolving the threat.

Study 7

The goal of Study 7 was to directly assess whether advantaged groups find

illegitimate inequality more threatening when it is presented using advantage frames rather

than disadvantage frames (Hypothesis 4). To more directly assess threat, I turned to the

Biopsychosocial Model of Challenge and Threat (Blascovich, 2008; Blascovich & Mendes,

2010; Blascovich & Tomaka, 1996). This model uses peripheral markers of cardiovascular

reactivity in order to differentiate states of challenge from states of threat. Within this model,

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challenge is conceptualized as a motivational state in which perceived resources equal or exceed the perceived demands of a situation. It is marked by increases in output from the heart and increased vasodilation that promotes the efficient movement of blood to the periphery. In contrast, threat is conceptualized as a motivational state in which the perceived demands of a situation exceed perceived resources. It is marked by little change or a decrease in output from the heart, and increased vasoconstriction that functions to shunt blood away from the periphery and to the vital organs. Using peripheral markers of cardiovascular reactivity to index threat has several benefits: first, cardiovascular reactivity is largely controlled by the autonomic nervous system, which is involuntary and less susceptible to conscious control than other measures of threat. Second, because cardiovascular reactivity can assessed as participants engage in a task, we can assess threat simultaneously—rather than after the task or manipulation. One drawback to the use of cardiovascular indices of threat, however, is its lack of specificity. That is, we can assess whether participants are experiencing threat, but we cannot glean the type of threat experienced from cardiovascular reactivity. As such, we cannot differentiate between self vs. system threat and self vs. group threat when looking at the cardiovascular data. Accordingly, I also measured the same four threat-resolving strategies I investigated in Studies 5 and 6 (self-enhancement, system justification, group dis-identification, and creative group-enhancement).

In this study, White participants again read about illegitimate Black/White inequality that either used advantage frames or disadvantage frames. Participants were then asked to speak about this inequality. Consistent with Hypothesis 4, I hypothesized that White students induced to discuss White advantage would experience more cardiovascular threat than White students induced to discuss Black disadvantage. I also assessed whether White participants'

performance on a cognitively demanding task would be affected by the way the inequality was framed. I predicted that the greater threat experienced when discussing in-group advantage (vs. out-group disadvantage) might motivate participants to try harder on the task. This could be conceptualized as an attempt to re-affirm one's merit in response to self vs. system threat. However, I also predicted that participants' performance on the cognitively demanding task might be hindered by threat, and as such performance may be lower in the advantage frame condition than in the disadvantage frame condition.

As in Studies 5 and 6, I measured the four hypothesized threat-resolving strategies (self-enhancement, system justification, group dis-identification, and creative group-enhancement). In order to gain more sensitivity in detecting whether participants engaged in system justification and group dis-identification in response to threat, in this study I assessed changes in these variables rather than just post-manipulation levels.

Overall, I predicted that White participants reading about and discussing illegitimate racial inequality would experience more cardiovascular threat, persist longer on a cognitive task, perform more poorly on a cognitive task, and engage in more threat-resolving strategies when the inequality was framed as White advantage than when was framed as Black disadvantage. The only exception to this is with the hypothesized threat-reducing strategy of self-enhancement. Given the findings from Study 6 that self-enhancement was lower following White advantage (vs. Black disadvantage) framing, I was agnostic about how framing condition would affect self-enhancement.

Method

Participants. Students at UC Santa Barbara who had self-identified as White in departmental prescreening ($N = 106$) were invited to sign up for the study in exchange for

partial course credit. Of these, one participant later identified as Latina at the end of the study so her data were discarded. Four participants chose "other/prefer not to say" or did not report their ethnicity, but were retained because they appeared phenotypically White and had chosen White as their ethnicity on the departmental pre-screen. As such, the final sample included 105 White students, aged 18-24, of whom 63.8% were women.

Design. This study was a two-cell between-subjects design, with participants randomly assigned to read about and discuss racial inequality in a way utilized advantage frames (White advantage condition) or disadvantage frames (Black disadvantage condition).

Procedures. Participants signed up for a study called "Discussing Current Events," which was described as study of how individuals understand and discuss current events and social issues. After arriving and providing consent, participants were attached to the cardiovascular equipment (see more below). Participants then sat for a five-minute baseline cardiovascular recording, and then were given more information about the study. Participants were told that the goal of the study was to see how the body responds when discussing various social issues and current events. Participants would blindly choose two out of ten pre-selected topics, would read a brief passage about that topic, and then would answer several questions about each topic. We would record their cardiovascular responses as well as their audio/video in order to assess responses.

Participants then chose a number from an array to "select" their first topic. All participants then read about a neutral topic: university exit exams. For two minutes, we recorded cardiovascular responses as participants read the passage about arguments for and against university exit exams, and then prepared for their discussion. They then answered three questions about exams aloud while we recorded audio/video and cardiovascular

responses. Questions were read aloud by a recorded voice and printed on a computer screen in front of the participant. A question was asked once every minute and participants were instructed to respond for the entire minute until they were interrupted. Participants discussed this neutral topic first so that (1) they would be less suspicious about the true question under investigation, so that (2) they would understand the process of the recording so any issues or misunderstandings would be worked out before discussing the critical topic (racial inequality), and so that (3) they would be less nervous about speaking in this paradigm generally, so responses to the critical topic would have less noise.

Following their discussion of university exit exams, participants "selected" another topic to discuss. All participants then read about illegitimate racial inequality in the United States, but were randomly assigned to read a passage framing it in terms of White advantage or Black disadvantage (identical to Studies 5 and 6). Again, they read and reflected on the passage for two minutes while their cardiovascular responses were recorded, and then they began answering questions aloud. Participants answered five questions about the passage. The first four differed slightly between condition, and the last was identical for all participants:

(1) "Based on the passage, how does being [White/Black] affect one's life in the United States?"
(2) "Please discuss any other examples from your own experiences or knowledge that demonstrate how being [white/black] can be [dis]advantageous in the United States."
(3) "What factors do you think might contribute to the average [white/black] person having [better/worse] outcomes than the average [black/white] person in the United States?"
(4) "Please discuss why the [dis]advantages [white/black] Americans have are fair or not fair."
(5) "Overall, do you agree with the conclusions reached in the passage? Why or why not?"

Immediately following these questions, participants were told they would be completing a task assessing verbal and spatial abilities. The instructions were designed to make the task feel self-relevant and diagnostic so that participants would be engaged and motivated to

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perform well. Participants then completed this task, which took the form of solving anagrams (word un-scrambling). Cardiovascular responses were measured for three minutes at the beginning of the anagram task. After the task, participants were unhooked from the cardiovascular recording equipment and answered dependent measures. Participants were then debriefed, probed for suspicion, and excused.

Measures.

Cardiovascular reactivity. Cardiovascular measures were assessed continuously during the five-minute baseline period, during each reading/preparation phase, during each discussion, and during the anagram task. Continuous blood pressure (BioPac monitor and amplifier Model NIBP100D), electrocardiography (Biopac amplifier Model ECG100C), and impedance cardiography (Biopac amplifier Model NICO100C) were collected in AcqKnowledge. I scored all indices except heart rate in the scoring program Moving Ensemble Analysis Pipeline (MEAP; Cieslak & Ryan, *in preparation*; see Cieslak et al., 2015 for description). I scored heart rate in the program Mindware. The relevant indices (Heart Rate, Stroke Volume, Mean Arterial Pressure, Pre-Ejection Period) for each minute were then cleaned and combined to derive four indices used to measure cardiovascular challenge versus threat (according to the Biopsychosocial Model of Challenge and Threat; Blascovich & Tomaka, 1996): heart rate (HR), pre-ejection period (PEP), total peripheral resistance (TPR), and cardiac output (CO).[4] I then computed reactivity scores by subtracting baseline values of each index from task values.

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[4] We followed four steps to clean the cardiovascular data. First, for each minute, I removed physiologically implausible values (HR between 40 and 300 beats per minute, Stroke Volume between 20 and 1000 mL, PEP greater than 0ms, Mean Arterial Pressure greater than 40 mmhg). Second, within each participant, I removed values from minutes that were more than ±3.00 SDs from the participant's own mean. Third, with these cleaned data, I computed CO (CO = SV*HR), and TPR (TPR = ([MAP/CO]*80). Finally, I computed means for each task for each index by averaging the values for all the minutes in the given task.

Anagram task performance. Participants had up to two minutes to solve each of eight anagrams, which were presented on a screen one at a time. For each anagram, participants submitted their solution once they solved the anagram. However, participants could submit incorrect answers and could move on without solving the anagram. Three scores were calculated from this task: raw number of correct answers (out of eight; $M = 5.19$, $SD = 1.51$), time per correct answer (calculated by dividing total time taken to complete all eight anagrams by the number of correct answers; $M = 46.87$s, $SD = 35.37$s), and time per incorrect answer (calculated by dividing total time spent on incorrect/unanswered solutions by total number of incorrect/unanswered solutions). Participants who answered all anagrams correctly were assigned a score of 0; $M = 95.80$s, $SD = 66.47$s). Total score indexes overall performance on the task. Time per correct answer indexes efficient performance. Time per incorrect answer indexes inefficient perseverance.[5]

Perceptions of social issues. Participants then answered several questions about the passages they read and discussed. This was done in order to see whether the way the inequality was framed affected how participants perceived the inequality. All responses ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). Participants indicated (1) how well they understood the issue/argument presented in each passage, $M_{topic1} = 6.12$, $SD_{topic1} = 1.07$; $M_{topic2} = 6.29$, $SD_{topic2} = 0.94$; (2) how informative each passage was, $M_{topic1} = 5.21$, $SD_{topic1} = 1.32$; $M_{topic2} = 5.44$, $SD_{topic2} = 1.30$; and (3) how biased the passage was (2 items: "The second passage I read [Racial Inequality in the United States] was written in a non-biased way;" "The author of the second passage [Racial Inequality in the United States] was biased in their presentation of the information"), $M_{topic1} = 2.52$, $SD_{topic1} = 2.00$, $\alpha_{topic1} = .76$, $r_{topic1} =$

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[5]A coding error resulted in the loss of data from 15 participants on the anagram task.

.62; $M_{topic2} = 4.26$, $SD_{topic2} = 1.69$, $\alpha_{topic2} = .84$, $r_{topic2} = .73$. They also indicated (4) whether each topic was an important social issue (2 items: "The information in the second passage [Racial Inequality in the United States] is important for people to know about;" "The topic discussed in the second passage [Racial Inequality in the United States] is socially important"), $M_{topic1} = 4.02$, $SD_{topic1} = 1.43$, $\alpha_{topic1} = .75$, $r_{topic1} = .59$; $M_{topic2} = 6.52$, $SD_{topic2} = 0,85$, $\alpha_{topic2} = .84$, $r_{topic2} = .75$; (5) the extent to which they enjoyed discussing each passage, $M_{topic1} = 4.24$, $SD_{topic1} = 1.50$; $M_{topic2} = 4.91$, $SD_{topic2} = 1.33$; and (6) whether they would be interested in learning more about the topics discussed in each passage $M_{topic1} = 4.07$, $SD_{topic1} = 1.91$; $M_{topic2} = 5.79$, $SD_{topic2} = 1.40$.

Before completing additional dependent variables, participants then provided demographic information. This included their gender, age, ethnicity, perceived socio-economic status, yearly family income, and political orientation. We asked demographic information at this point in order to make sure participants' White identity was salient, and also so that I could ask questions related to their White identity without raising too much suspicion.

Self-enhancement. As in Study 6, participants rated themselves against "the average American" on 40 traits (20 positive and 20 negative). Negative traits were reverse scored and all items were averaged to create a measure of self-enhancement where higher values indicate more self-enhancement, $M = 72.94$, $SD = 9.22$, $\alpha = .92$.

System justification. Next, participants completed the same 12-item measure of system-justifying ideologies as in Study 5, $M = 3.26$, $SD = 0.92$, $\alpha = .86$.

Group dis-identification. Participants then responded to the same two items from Study 5 measuring self-stereotyping. The only difference was that we specified the ethnic

group in the stem (e.g., "I am similar to the average white person"). They also answered the 4-item ethnic identification measure, again with the questions specified to relate to the white identity (e.g., "Being White is an important reflection of who I am"), $M = 4.91$, $SD = 1.15$, $α = .92$, $r = .86$.

Creative group-enhancement. Next, participants responded to the same seven items measuring perceived anti-white discrimination, $M = 3.52$, $SD = 1.26$, $α = .87$. These items were identical to Study 6.

Perceived legitimacy of inequality. Finally, participants indicated the extent to which they believe the inequalities between White and Black Americans are legitimate. This 3-item scale was identical to the one used in Studies 3, 5, and 6, $α = .86$. All responses ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*), $M = 2.20$, $SD = 1.20$.

Pre-Study Measures. During departmental pre-screening participants completed several individual difference measures. Of interest, they completed the same four-item ethnic identification scale that they completed during the laboratory session, $M = 3.421$, $SD = 1.34$, $α = .84$. The only difference was that in the departmental pre-screening, the items used the general term "a member of my racial/ethnic group" rather than "White." Additionally, participants completed the same 12-item measure of system justification used in the laboratory session, $M = 3.50$, $SD = 0.99$, $α = .89$.

Results

Self-report.

Perceptions of social issues. Means, standard deviations, and test statistics for all analyses or perceptions of the social issues are presented in Table 7. Participants reported that the passage about racial inequality was more biased and more enjoyable to discuss than

the passage about university exit exams, and participants also reported wanting to learn more about the racial inequality topic than the exit exam topic ($ps < .001$). However, these effects did not differ depending on whether the racial inequality topic was framed in terms of advantage vs. disadvantage. Participants also found the racial inequality topic more socially important than the exit exam topic, though this main effect was qualified by a marginal topic-by-condition interaction, $F(1,101) = 3.88$, $p = .052$, $\eta_p^2 = .037$). Racial inequality was perceived as more socially important than exit exams in both conditions, but this difference was larger in the disadvantage frame condition than the advantage frame condition. Interestingly, the movement was seen with perceptions of the importance of exit exams, not racial inequality. Participants agreed that racial inequality was quite important in both the advantage frame (M = 6.49, SD = 0.95) and disadvantage frame condition (M = 6.55, SD = 0.73), $F(1,101) = 0.13$, $p = .722$, $\eta_p^2 = .001$, but exit exams were perceived as marginally more important in the advantage frame condition (M = 4.26, SD = 1.41) than disadvantage frame condition (M = 3.77, SD = 1.41), $F(1,101) = 3.14$, $p = 0.079$, $\eta_p^2 = .030$. This interaction is presented graphically in Figure 8.

Measure	Disadvantage Frame M (SD)	Advantage Frame M (SD)	Effect of Condition F	Effect of Topic F	Interaction F
Understood					
Exit Exams	6.14 (1.04)	6.09 (1.10)	0.01 (*ns*)	3.59[+]	0.11 (*ns*)
Racial Inequality	6.29 (0.91)	6.30 (0.96)			
Informative					
Exit Exams	5.08 (1.46)	5.40 (1.10)	0.44 (*ns*)	2.76[+]	1.83 (*ns*)
Racial Inequality	5.45 (1.34)	5.43 (1.28)			
Biased					
Exit Exams	2.35 (1.15)	2.69 (1.41)	2.34 (*ns*)	81.16[***]	< .01 (*ns*)
Racial Inequality	4.07 (1.74)	4.43 (1.65)			
Important					
Exit Exams	3.77 (1.41)	4.26 (1.41)	1.41 (*ns*)	318.04[***]	3.88[+]
Racial Inequality	6.55 (0.73)	6.49 (0.95)			
Enjoyed					
Exit Exams	4.23 (1.51)	4.24 (1.52)	0.06 (*ns*)	21.42[***]	0.22 (*ns*)

Racial Inequality	4.98 (1.31)	4.85 (1.35)			
Learn More					
Exit Exams	3.80 (1.86)	4.31 (1.93)	1.84 (*ns*)	69.73***	0.69 (*ns*)
Racial Inequality	5.69 (1.56)	5.87 (1.25)			

Table 7. Descriptive statistics and tests of main effect of condition, main effect of topic (exit exams vs. racial inequality), and their interaction. $^+p < .10$, $^{***}p < .001$.
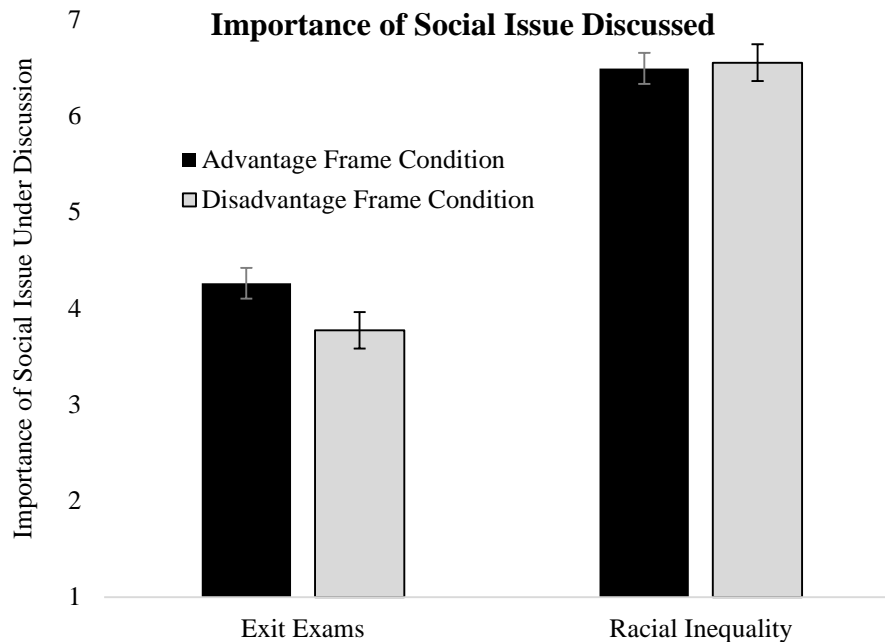

Figure 8. Condition-by-topic interaction for perceived importance of the social issue presented in the passage.

Threat-resolving strategies. Contrary to predictions, but largely consistent with Studies 5 and 6, there were no main effects of condition on any of the measures of threat-reducing strategies (self-enhancement, system justification, group dis-identification, anti-White discrimination). All means, standard deviations, and test statistics are presented in Table 8. Because participants had all previously provided measures of ethnic identification and SJBs in the departmental pre-screen, I also investigated whether results for these dependent measures changed when (1) controlling for prescreen levels of the measure, and (2) analyzing the difference between prescreen and post-manipulation values of the measure. None of these analyses yielded a significant effect of condition (*ps* > .100).

Measure	Disadvantage Frame M (SD)	Advantage Frame M (SD)	F(1,101)	p	η_p^2
Self-Enhancement	73.33 (9.74)	72.58 (8.80)	0.17	.682	.002
System-Justifying Ideologies	3.36 (0.97)	3.16 (0.88)	1.21	.275	.012
White Identification	2.94 (1.13)	2.86 (1.08)	0.13	.722	.001
Self-Stereotyping	4.99 (1.16)	4.84 (1.15)	0.42	.519	.004
Reverse discrimination	3.52 (1.38)	3.51 (1.15)	< 0.01	.955	.000
Perceived legitimacy	2.35 (1.33)	2.06 (1.06)	1.46	.230	.014

Table 8. Means, standard deviations, and test statistics for self-reported DVs by condition. Study 7.

Anagram task performance. Participants did not differ by condition in the number of anagrams solved on the anagram task ($p > .114$). Participants also did not differ by condition in time per correct response, $F(1,86) = 1.43$, $p = .236$, $\eta_p^2 = .016$, indicating that participants were not more or less efficient at solving anagrams in the disadvantage vs. advantage condition. There was, however, a significant main effect of condition on time per incorrect answer, $F(1,86) = 4.38$, $p = .039$, $\eta_p^2 = .048$. Participants spent more time before giving up or submitting an incorrect answer in the advantage frame condition ($M = 109.68$, $SD = 67.14$) than in the disadvantage frame condition ($M = 80.58$, $SD = 63.04$). In other words, participants demonstrated more persistence (though ineffective persistence) after discussing White advantage vs. Black disadvantage, perhaps indicating an unsuccessful attempt to compensate for perceived threat in the advantage (vs. disadvantage) condition.

Cardiovascular reactivity.

Task engagement. The biopsychosocial model of challenge and threat specifies that participants must be engaged in the task at hand in order to accurately differentiate between cardiovascular threat and cardiovascular challenge. Task engagement is determined by assessing whether heart rate (HR) increases and pre-ejection period (PEP) decreases from baseline during the task under analysis. To test whether participants were engaged during

each task, I performed a series of MANOVAs testing PEP and HR reactivity against zero. Results indicated that participants were significantly engaged during both reading & preparation periods, both discussions, and the anagram task, Fs(2,101) > 6015.00, ps < .001.

Threat/Challenge Index. Following prior research (see Blascovich et al., 2004), I calculated a Threat/Challenge Index for each task by standardizing both CO and TPR reactivity during each task, and then subtracting the standardized CO reactivity score from the standardized TPR reactivity score. With this measure, higher values indicate more threat relative to challenge. The formula for this index is as follows (where n represents the number of minutes in the task):

$$\text{Threat/Challenge Score} = \sum_{i=1}^{n}[z(TPR_i - TPR_{BL}) - z(CO_i - CO_{BL})] \ / \ n$$

I winsorized Threat/Challenge scores that were greater than ±3 *SD*s from the sample mean. The least extreme of the extreme values for each winsorization was pulled in to the score equivalent to ±3.0 *SD*s from the sample mean. Then, ± .01 was added to the value for each successively more extreme value in order to maintain rank order. In all analyses of the threat/challenge index, baseline values of TPR and CO were entered as covariates to adjust for the effect that initial values of these indices can have on reactivity scores.

As expected, participants did not differ in their levels of cardiovascular threat/challenge depending on condition during their reading & preparation period or discussion of university exit exams (ps > .161).

Frame condition did influence cardiovascular challenge/threat during the reading and preparation portion for the racial inequality topic, $F(1,98) = 4.61$, $p = .034$, $\eta_p^2 = .045$. Specifically, as predicted, participants were more threatened in the advantage frame

condition ($M = .322$, $SD = 1.67$) than in the disadvantage frame condition ($M = -.348$, $SD = 1.74$).

Frame condition did not significantly influence cardiovascular challenge/threat during the discussion of racial inequality, $F(1,100) = 1.29$, $p = .259$, $\eta_p^2 = .013$. However, a MANOVA looking at each minute of the speech as a repeated measure indicated a significant between-subject effect of condition, $F(1,87) = 4.44$, $p = .038$, $\eta_p^2 = .049$, as well as significant or marginal effects of condition for every minute except the second. The multivariate analysis is presented in Table 9.

Minute	Disadvantage Frame M (SD)	Advantage Frame M (SD)	$F(1,87)$	p	η_p^2
1	-.396 (1.818)	.334 (1.472)	4.56	.035	.050
2	-.179 (1.866)	.196 (1.554)	1.54	.218	.017
3	-.347 (1.742)	.318 (1.740)	4.67	.033	.051
4	-.397 (1.876)	.318 (1.716)	4.70	.033	.051
5	-.360 (1.763)	.245 (1.774)	3.40	.069	.038

Table 9. Means, standard deviations, and test statistics for MANOVA of the TCI index for the racial inequality discussion's 5 minutes. Study 7.

Condition did not affect cardiovascular reactivity during the anagram task, $F(1,96) = 0.73$, $p = .394$, $\eta_p^2 = .008$. No multivariate effects were found on this task either.

Discussion

Study 7 indicated that at a cardiovascular and behavioral level, inequality frames have an effect on White participants. White participants reading about and preparing to speak about White advantage experienced more cardiovascular threat than White participants reading about and preparing to speak about Black disadvantage. This finding was mirrored, though not completely, while speaking about inequality. Participants speaking about White advantage (vs. Black disadvantage) were also more persistent in a subsequent task, though

this persistence was inefficient. The fact that I found the predicted cardiovascular effect during reading/preparation portion provides a more conservative test of my hypothesis that advantage frames are more threatening that disadvantage frames. This is because the only condition differences were in the framing of the inequality, not in the content of the questions participants were asked to reflect on. One potential interpretation for why there was a stronger effect during the reading/preparation period than the discussion period is that participants were able to legitimize inequality, and thus reduce threat, in the process of actively discussing it. Another possibility is that racial discrimination is threatening to discuss regardless of how it is framed, and that there was somewhat of a ceiling effect during the discussion. In general, cardiovascular recordings have more variability and noise when speaking than when not. As such, it is also possible that cardiovascular artifacts during the discussion portion made it more difficult to detect the signal through the noise.

Although performance on the cognitively challenging anagram task was a secondary dependent variable, I found tentative evidence that being induced to consider in-group advantages leads to more inefficient persistence than being induced to consider out-group disadvantages. That is, participants spent longer before giving up when they had just discussed White advantage than when they had just discussed Black disadvantage. I interpreted this finding as evidence suggesting that advantage frames may make advantaged groups try harder to perform well on merit-based tasks, but that this additional effort is not necessarily successful because they are under threat.

As in Studies 5 and 6, however, this study found little support for the hypothesis that inequality frame influenced the proposed threat-resolving strategies (self-enhancement, creative group-enhancement, group dis-identification, system legitimation; Hypothesis 3).

With these self-reported variables, there was no evidence that being presented with an inequality stimulus that focused on White advantage induced more threat-reducing strategies than a similar stimulus that focused on Black disadvantage. There are several possible reasons for these null effects. One interpretation is that advantage frames do not prompt threat that participants need to resolve. However, given the evidence that advantage frames do indeed prompt threat at a cardiovascular level, it is not likely that the lack of effects on the self-report variables is due to a lack of threat. Another interpretation is that even if participants are experiencing threat, the threat is not the result of the hypothesized mechanisms (self vs. system threat, self vs. group threat). Or, even if the threat is the result of those mechanisms, it is possible that these measures do not adequately capture attempts at resolving this threat. Finally, it is possible that the threat experienced is more fleeting than expected, and that threat was successfully resolved before answering these items. This would be consistent with the finding from Study 6 that inequality frame condition affected creative group-enhancement, but only when those questions were asked directly after exposure to the inequality stimulus. More studies will have to be undertaken in order to assess the mechanisms behind this threat, and whether individuals engage in any specific strategies to alleviate this threat.

General Discussion

This dissertation assessed two major questions: (1) whether advantaged groups avoid using advantage frames in order to avoid the threat that accompanies focusing on one's group's illegitimate advantages, and (2) whether advantage frames are more threatening to advantaged groups than disadvantage frames.

In a series of seven studies, I found some evidence that advantaged groups do indeed use fewer advantage frames when discussing illegitimate inequalities than when discussing legitimate inequalities (Goal 1). I also found evidence that advantage frames are more threatening than disadvantage frames for advantaged groups (Goal 2). However, I failed to connect frame use to specific forms of threat: there was no direct support for my theory that advantaged groups avoid. Advantage frames partially *because* they want to avoid threat (Hypothesis 2), and there was no consistent support for my theory that advantage frames prompt self vs. system threat and self vs. group threat. A summary of the evidence for and against my theory is presented below.

Studies 1-3 provided some evidence that individuals from advantaged groups are less likely to use advantage frames when the inequality is perceived or manipulated to be illegitimate versus legitimate. This is consistent with—though not direct evidence for—the hypothesis that avoiding advantage frames is a strategy for avoiding the threat associated with illegitimate inequality. However, evidence for this effect found only tentative support in Study 2, in which group status was manipulated. More investigations will be needed to assess whether this lack of replication reflects just an artifact of the particular study, or whether it reflects a more general effect in which manipulated, ad-hoc group inequalities are less potent than pre-existing group inequalities and thus promote less avoidance of advantage frames.

Study 7 provided evidence that for advantaged groups (Whites in this case), advantage frames are more cardiovascularly threatening than disadvantage frames. This is consistent with my hypothesis that advantage frames (more so than disadvantage frames) make inequality more threatening for advantaged groups (Hypotheses 3 and 4). However, Studies 5 and 6, which attempted to investigate the role of self vs. system threat and self vs.

group threat as mechanisms behind this threat, did not yield substantial insights into the forms of threat responsible for the cardiovascular reactivity pattern found in Study 7. One potential reason for finding the hypothesized effect of advantage vs. disadvantage framing with the cardiovascular measures but not the self-report measures is that the self-report measures did not adequately capture the threat that participants were feeling. Because the self-report measures were intended to measure threat-resolving strategies and not threat itself, it is possible that the threat experienced was resolved before participants responded to the measures, or that the two types of threat I attempted to measure were not the forms of threat responsible for the effects on cardiovascular measures seen in Study 7. Another possibility is that even if advantage frames are more threatening than disadvantage frames, this threat does not lead advantaged individuals to respond defensively. Rather, it is possible that these individuals experienced threat but did not feel threatened enough to necessitate defensive responses. A third possibility is that the self-report measures were not sensitive enough to detect the threat resulting from advantage vs. disadvantage frames. Whereas cardiovascular responses can change from second to second, most of the measures I used to assess threat-resolving strategies are commonly used to measure more stable beliefs and traits. As such, these self-reported variables might not change as readily as the more flexible cardiovascular system. Perhaps another implicit measure that is less dependent on cognitive control might reveal similar patterns to the cardiovascular responses.

I also failed to find evidence that threat (or threat avoidance) drives frame choice for advantaged groups. Contrary to Hypothesis 2, participants were not more or less likely to use advantage (vs. disadvantage) frames when put under threat (Study 4). In the future, investigations should attempt to manipulate threat in a more direct or reliable way. I chose

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the intelligence feedback manipulation because it previously had been shown to affect perceptions of White privilege among White participants (Lowery et al., 2012). Interestingly, the only self-reported dependent variable that was affected by inequality frames in a hypothesis-consistent way was perceptions of anti-White discrimination. Combined with the past evidence that threat manipulations affect perceptions of White privilege, this suggests that concern about one's own privilege may be a promising avenue for future attempts to identify the type of threat that accompanies advantage frames. One potential threat manipulation might be more directly threatening one's position in society or the legitimacy of the system.

Future Research

Several questions still remain about the role of inequality frames in shaping conceptions of and responses to inequality. First, because these studies did not successfully capture the specific mechanisms behind the threatening nature of advantage frames, a priority will be developing methods and measures to better assess self vs. system threat and self vs. group threat as potential mechanisms. Capturing threat is a challenging undertaking regardless of the domain under study because it is somewhat fleeting: individuals resolve threat at different speeds, and it may become resolved before researchers are able to capture its effects with self-report measures. As such, perhaps a better strategy will be to induce several different types of threat and measure frame use (similar to Study 4). Additionally, the laboratory might be a better setting than online studies to capture these more fleeting effects because of their delicate nature.

Another important avenue for future research is to investigate whether the threat resulting from advantage (vs. disadvantage) frames has implications for intergroup behavior.

For example, it would be interesting to assess whether exposure to advantage (vs. disadvantage) frames leads to more distancing from members of disadvantaged groups (e.g., Goff et al., 2008), or whether inequality frames affect the likelihood that advantaged groups will take measures to reduce inequality. If the threat resulting from advantage frames can be "harnessed" for inequality-reducing behaviors rather than inequality-justifying behaviors, this would be beneficial for activists seeking to reduce inequalities.

Another area for future research is whether the type of groups involved in the inequality moderates the effects of inequality frames. I found evidence for the hypothesized effects among men and Whites, but not among UCSB students manipulated to be advantaged. This suggests that the effects may be limited to groups with a pre-existing history of inequality. That would be reasonable considering members of advantaged groups are more likely to feel threatened by their own illegitimate advantages if they have lived with and legitimized those advantages for their whole lives. However, more research is needed to assess whether these effects extend beyond racial and gender inequality, and whether these effects can be found with more ad-hoc forms of inequality.

An obvious next step would also be an investigation of whether members of disadvantaged groups strategically use inequality frames. Studies 1 and 2 provide tentative evidence that disadvantaged groups may avoid disadvantage frames (i.e., frames that focus on their group's disadvantages) when an inequality is illegitimate. This would suggest that, like the advantaged groups, disadvantaged groups may avoid frames that put focus on their own group when inequality is illegitimate. However, a more thorough consideration of the motivations of disadvantaged groups for employing or avoiding certain inequality frames is warranted.

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Finally, future research should investigate whether it matters whether members of advantaged groups consider themselves to be advantaged. Growing evidence suggests that members of traditionally high-status groups (Whites, men) feel that their status is declining and even beneath the status of traditionally low-status groups (people of color, women; see Norton & Sommers, 2011). In these studies, I categorized individuals as advantaged or disadvantaged based on group memberships, rather than allowing individuals to categorize themselves as advantaged or disadvantaged. It is an open question whether an individual's perceptions of their group's status makes a difference in their motivation to avoid certain types of inequality frames.

Implications and Conclusions

A substantial body of literature has investigated the discomfort associated with acknowledging group-based privileges (e.g., Branscombe, 1998; Branscombe et al., 2007; Powell et al., 2005). And more recently, a complementary literature has begun to assess the ways in which inequality frames influence the relevance of a given inequality to the groups benefitted or disadvantaged by that inequality (e.g., Chow & Galuck, 2012; Lowery et al., 2009; 2012; Lowery & Wout, 2010). Whereas the research on privilege awareness has demonstrated several aversive emotional and attitudinal responses to reflecting on inequalities that are self-relevant, this dissertation is the first time an investigation has conceptualized and measured these aversive responses with a focus on self-relevance and threat. Moreover, many of the prior manipulations of privilege awareness tend to be heavy handed and induce individuals to think about the ways they *personally* have been benefitted by their group membership (e.g. Powell et al., 2005, Study 2). The current studies assessed whether more subtle manipulations of framing lead to threat. The evidence that simply

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tweaking the way inequalities are worded induces cardiovascular threat has important implications for individuals consuming news and other media about inequality. Subtle changes in wording of inequalities may have cardiovascular impacts for members of advantaged groups.

On the inequality framing side, previous work has demonstrated that inequality frames can influence which group is perceived to be more affected by the inequality, and that framing inequality in specific ways can allow individuals to downplay the effect inequality has on specific groups. This ability of inequality frames to decouple the effects of inequality on one group from the effects of the *same* inequality on the other group has important implications for how individuals choose and respond to inequality frames. However, those findings had not previously been brought together with the literature on privilege awareness to directly test whether advantaged groups avoid advantage frames in order to avoid the threat of acknowledging group-based advantages. Although the current studies did not provide conclusive evidence that threat or threat-avoidance is the motivator behind inequality framing, they nevertheless suggest that advantaged groups *do* indeed use inequality frames strategically, and that advantage frames are more threatening to advantaged groups than disadvantage frames.

Beyond theoretical implications, this research also provides insights into the assumptions and arguments that researchers and activists in other disciplines have made about advantaged group members and the acknowledgment of in-group advantages. For example, many sociologists and social justice activists have suggested that advantaged groups avoid thinking about their own advantages and that this tendency functions to uphold inequalities (McIntosh, 1988; Pratto & Stewart, 2012). As such, many activists and scholars

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support a strategy of educating advantaged individuals about their group-based advantages in order to induce them to take inequality more seriously and work to reduce it (McIntosh, 1988). However, there is little evidence that pointing out advantages motivates advantaged group members to seek to reduce inequality. In fact, some attempts at increasing acknowledgment of group-based advantages through education have not been successful: a semester-long course on White privilege offered to White students who voluntarily enrolled in the course resulted in higher awareness of White privilege at the end (vs. beginning) of the semester, but no changes or even *increased* prejudice against racial minority groups; Case, 2012). The current studies suggest that one potential barrier to motivating inequality reduction may be the heightened threat experienced when thinking about inequality in a way that focuses on the in-group's advantages rather than the out-group's disadvantages.

This work also adds to a growing literature highlighting the potency of advantaged group identities and the ease with which these identities can be threatened (e.g., Craig & Richeson, 2014; Dover et al., 2016; Wilkins & Kaiser, 2014). Although much work has investigated the ways in which disadvantaged groups experience identity threats, only more recently have scholars begun considering the substantial intergroup implications of threat for advantaged groups. These studies contribute to this body of work by pointing to how subtle linguistic changes in descriptions of inequality can threaten advantaged groups, and by suggesting that advantaged groups may strategically avoid or employ these linguistic choices to protect themselves from threat.

References

Adams, J. S. (1963). Towards an understanding of inequity. *The Journal of Abnormal and Social Psychology*, *67*(5), 422.

Adams, J. S. (1965). Inequity in social exchange. *Advances in experimental social psychology*, *2*(267-299).

Adams, J. S., & Rosenbaum, W. B. (1962). The relationship of worker productivity to cognitive dissonance about wage inequities. *Journal of Applied Psychology*, *46*(3), 161.

Alicke, M. D., & Govorun, O. (2005). The better-than-average effect. *The self in social judgment*, *1*, 85-106.

Alicke, M. D., Klotz, M. L., Breitenbecher, D. L., Yurak, T. J., & Vredenburg, D. S. (1995). Personal contact, individuation, and the better-than-average effect. *Journal of personality and social psychology*, *68*(5), 804.

American Association of University Women (2015). The simple truth about the gender pay gap (Spring 2015). Retrieved May 2015 from < http://www.aauw.org/resource/the-simple-truth-about-the-gender-pay-gap/>

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin*, *117*(3), 497.

Blascovich, J., Seery, M. D., Mugridge, C. A., Norris, R. K., & Weisbuch, M. (2004). Predicting athletic performance from cardiovascular indexes of challenge and threat. *Journal of Experimental Social Psychology*, *40*(5), 683-688. doi: 10.1016/j.jesp.2003.10.007

Branscombe, N. R. (1998). Thinking about one's gender group's privileges or disadvantages: Consequences for well-being in women and men. British Journal of Social Psychology, 37,167-84.

Branscombe, N. R., & Doosje, B. (Eds.). (2004). *Collective guilt: International perspectives*. Cambridge University Press.

Branscombe, N. R., Schmitt, M. T., & Schiffhauer, K. (2007). Racial attitudes in response to thoughts of White privilege. *European Journal of Social Psychology*, *37*(2), 203-215.

Carnevale, A.P., & Smith, N. (2014). Gender discrimination is at the heart of the wage gap. *Time*. Retrieved June 2017 from <http://time.com/105292/gender-wage-gap/>

Chow, R. M., & Galak, J. (2012). The effect of inequality frames on support for redistributive tax policies. *Psychological science*, *23*(12), 1467-1469.

Crosby, F. (1984). The denial of personal discrimination. *American Behavioral Scientist*, *27*(3), 371-386.

Ellemers, N., Spears, R., & Doosje, B. (1997). Sticking together or falling apart: In-group identification as a psychological determinant of group commitment versus individual mobility. *Journal of Personality and Social Psychology*, *72*(3), 617.

Ellemers, N., Spears, R., & Doosje, B. (2002). Self and social identity. *Annual review of psychology*, *53*(1), 161-186.

Folger, R., & Skarlicki, D. P. (2008). The evolutionary bases of deontic justice. In S. W. Gilliland,

Glick, P., Gangl, C., Gibb, S., Klumpner, S., & Weinberg, E. (2007). Defensive reactions to masculinity threat: More negative affect toward effeminate (but not masculine) gay men. *Sex Roles*, *57*(1-2), 55-59.

Goff, P. A., Steele, C. M., & Davies, P. G. (2008). The space between us: stereotype threat and distance in interracial contexts. *Journal of personality and social psychology*, *94*(1), 91.

Greenberg, J., Solomon, S., & Pyszczynski, T. (1997). Terror management theory of self-esteem and cultural worldviews: Empirical assessments and conceptual refinements. *Advances in experimental social psychology*, *29*, 61-139.

Guimond, S., & Dambrun, M. (2002). When prosperity breeds intergroup hostility: The effects of relative deprivation and relative gratification on prejudice. *Personality and social psychology bulletin*, *28*(7), 900-912.

Hartmann, D., Gerteis, J., & Croll, P. R. (2009). An empirical assessment of whiteness theory: Hidden from how many?. *Social Problems*, *56*(3), 403-424.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.

Homans, G.C. (1961). *Social behavior: Its elementary forms.* New York: Harcourt, Brace & World.

Institute for Women's Policy Research (2015). The status of women in the States: 2015 – Employment and Earnings. Retrieved May 2015 from < www.iwpr.org/publications/pubs/the-status-of-women-in-the-states-2015-2014-employment-and-earnings/at_download/file>

Iyer, A., Leach, C. W., & Crosby, F. J. (2003). White guilt and racial compensation: The benefits and limits of self-focus. *Personality and Social Psychology Bulletin*, *29*(1), 117-129.

Jost, J. T., & Banaji, M. R. (1994). The role of stereotyping in system-justification and the

    production of false consciousness. *British Journal of Social Psychology*, *33*(1), 1-27.

Jost, J. T., & Hunyady, O. (2005). Antecedents and consequences of system-justifying

    ideologies. *Current Directions in Psychological Science*, *14*(5), 260-265.

Jost, J. T., & Major, B. (Eds.). (2001). *The psychology of legitimacy: Emerging perspectives*

    on ideology, justice, and intergroup relations. Cambridge University Press.

Kluegel, J. R., & Smith, E. R. (1982). Whites' beliefs about blacks' opportunity. *American*

    Sociological Review, 518-532.

Kluegel, J. R., & Smith, E. R. (1986). *Beliefs about inequality: Americans' views of what is*

    and what ought to be. Transaction Publishers.

Knowles, E. D., Lowery, B. S., Chow, R. M., & Unzueta, M. M. (2014). Deny, Distance, or

    Dismantle? How White Americans Manage a Privileged Identity. *Perspectives on*

    Psychological Science, *9*(6), 594-609.

Knowles, E. D., & Peng, K. (2005). White selves: conceptualizing and measuring a

    dominant-group identity. *Journal of Personality and Social Psychology*, *89*(2), 223.

Leach, C. W., Iyer, A., & Pedersen, A. (2006). Anger and guilt about ingroup advantage

    explain the willingness for political action. *Personality and Social Psychology*

    Bulletin, *32*(9), 1232-1245.

Leach, C. W., Snider, N., & Iyer, A. (2002). "Poisoning the consciences of the fortunate":

    The experience of relative advantage and support for social equality. In I. Walker &

    H. J. Smith (Eds.), Relative deprivation: Specification, development, and integration

    (pp. 136-163). New York: Cambridge Univ

Leach, C. W., van Zomeren, M., Zebel, S., Vliek, M. L., Pennekamp, S. F., Doosje, B., ... & Spears, R. (2008). Group-level self-definition and self-investment: a hierarchical (multicomponent) model of in-group identification. *Journal of personality and social psychology*, *95*(1), 144.

Leary, M. R., Tambor, E. S., Terdal, S. K., & Downs, D. L. (1995). Self-esteem as an interpersonal monitor: The sociometer hypothesis. *Journal of personality and social psychology*, *68*(3), 518.

Lemyre, L., & Smith, P. M. (1985). Intergroup discrimination and self-esteem in the minimal group paradigm. *Journal of Personality and Social Psychology*, *49*(3), 660.

Lerner, M. J. (1980). *The belief in a just world: A fundamental delusion*. New York: Plenum Press.

Levin, S., Sidanius, J., Rabinowitz, J. L., & Federico, C. (1998). Ethnic identity, legitimizing ideologies, and social status: A matter of ideological asymmetry. *Political Psychology*, *19*(2), 373-404.

Lips, K.A. (2016). Don't buy into the gender pay gap myth. *Forbes.* Retrieved June 2017 from <https://www.forbes.com/sites/karinagness/2016/04/12/dont-buy-into-the-gender-pay-gap-myth/#21f8beab2596).>

Loury, G.C. (2002). *The anatomy of racial inequality*. Cambridge, MA: Harvard University Press.

Lowery, B. S., Chow, R. M., & Crosby, J. R. (2009). Taking from those that have more and giving to those that have less: How inequity frames affect corrections for inequity. *Journal of Experimental Social Psychology*, *45*(2), 375-378.

Lowery, B. S., Chow, R. M., Knowles, E. D., & Unzueta, M. M. (2012). Paying for positive

    group esteem: how inequity frames affect whites' responses to redistributive policies.

    Journal of personality and social psychology, *102*(2), 323.

Lowery, B. S., Knowles, E. D., & Unzueta, M. M. (2007). Framing inequity safely: Whites'

    motivated perceptions of racial privilege. *Personality and Social Psychology Bulletin*,

    33(9), 1237-1250.

Lowery, B. S., & Wout, D. A. (2010). When inequality matters: the effect of inequality

    frames on academic engagement. *Journal of personality and social psychology*,

    98(6), 956.

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's

    social identity. *Personality and social psychology bulletin*, *18*(3), 302-318.

Major, B., Kaiser, C. R., O'Brien, L. T., & McCoy, S. K. (2007). Perceived discrimination as

    worldview threat or worldview confirmation: implications for self-esteem. *Journal of*

    personality and social psychology, *92*(6), 1068.

Major, B., Quinton, W. J., & McCoy, S. K. (2002). Antecedents and consequences of

    attributions to discrimination: Theoretical and empirical advances. *Advances in*

    experimental social psychology, *34*, 251-330.

McCoy, S. K., & Major, B. (2007). Priming meritocracy and the psychological justification

    of inequality. *Journal of Experimental Social Psychology*, *43*(3), 341-351.

McIntosh, P. (1988). White privilege: Unpacking the invisible knapsack. University Press.

Messick, D. M., & Schell, T. (1992). Evidence for an equality heuristic in social decision

    making. *Acta Psychologica*, *80*(1), 311-323.

Miller, D. T., Taylor, B., & Buck, M. L. (1991). Gender gaps: Who needs to be explained?

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for

interpersonal attachments as a fundamental human motivation. *Psychological*

bulletin, *117*(3), 497.

Miron, A. M., Branscombe, N. R., & Schmitt, M. T. (2006). Collective guilt as distress over

illegitimate intergroup inequality. *Group Processes & Intergroup Relations*, *9*(2),

163-180.

New York Civil Liberties Union. Stop-and-frisk data. Retrieved May 2015 from

<nyclu.org/content/stop-and-frisk-data>

O'Brien, L. T., & Major, B. (2005). System-justifying beliefs and psychological well-being:

The roles of group status and identity. *Personality and Social Psychology Bulletin*,

31(12), 1718-1729.

Plant, E. A., & Devine, P. G. (1998). Internal and external motivation to respond without

prejudice. *Journal of Personality and Social Psychology*, *75*(3), 811.

Powell, A. A., Branscombe, N. R., & Schmitt, M. T. (2005). Inequality as ingroup privilege

or outgroup disadvantage: The impact of group focus on collective guilt and

interracial attitudes. *Personality and Social Psychology Bulletin*, *31*(4), 508-521.

Richeson, J. A., & Shelton, J. N. (2003). When prejudice does not pay effects of interracial

contact on executive function. *Psychological Science*, *14*(3), 287-290.

Rhodewalt, F., Morf, C., Hazlett, S., & Fairfield, M. (1991). Self-handicapping: The role of

discounting and augmentation in the preservation of self-esteem. *Journal of*

Personality and Social Psychology, *61*(1), 122.

Schimel, J., Hayes, J., Williams, T., & Jahrig, J. (2007). Is death really the worm at the core? Converging evidence that worldview threat increases death-thought accessibility. *Journal of Personality and Social Psychology*, *92*(5), 789.

Schmitt, M., Behner, R., Montada, L., Müller, L., & Müller-Fohrbrodt, G. (2000). Gender, ethnicity, and education as privileges: Exploring the generalizability of the existential guilt reaction. *Social Justice Research*, *13*(4), 313-337.

Sedikides, C., & Gregg, A. P. (2008). Self-enhancement: Food for thought. *Perspectives on Psychological Science*, *3*(2), 102-116.

Shapiro, T. M. (2004). *The hidden cost of being African American: How wealth perpetuates inequality*. Oxford University Press.

Shelton, J. N., Richeson, J. A., Salvatore, J., & Trawalter, S. (2005). Ironic effects of racial bias during interracial interactions. *Psychological Science*, *16*(5), 397-402.

Smeeding, T. (2006). Poor people in rich nations: The United States in comparative perspective. *The Journal of Economic Perspectives*, *20*(1), 69-90.

Smith, H. J., & Spears, R. (1996). Ability and outcome evaluations as a function of personal and collective (dis) advantage: A group escape from individual bias. *Personality and Social Psychology Bulletin*, *22*(7), 690-704.

Son Hing, L. S., Bobocel, D. R., & Zanna, M. P. (2002). Meritocracy and opposition to affirmative action: making concessions in the face of discrimination. *Journal of personality and social psychology*, *83*(3), 493.

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. *Advances in experimental social psychology*, *21*, 261-302.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of

    African Americans. *Journal of personality and social psychology*, *69*(5), 797.

Tajfel H. & Turner, J.C. (1986). The social identity theory of ingergroup behavior. In S.

    Worchel & W. Austin (Eds.), *Psychology of intergroup relations.* Chicago: Nelson-

    Hall.

Taylor, D. M., Wright, S. C., & Porter, L. E. (1994). Dimensions of perceived discrimination:

    The personal/group discrimination discrepancy. In *The psychology of prejudice: The*

    Ontario symposium (Vol. 7, pp. 233-255).

Tricomi, E., Rangel, A., Camerer, C. F., & O'Doherty, J. P. (2010). Neural evidence for

    inequality-averse social preferences. *Nature*, *463*(7284), 1089-1091.

Turner, J. C., & Brown, R. (1978). Social status, cognitive alternatives, and intergroup

    relations. In H. Tajfel (Ed.), Differentiation between social groups: Studies in the

    social psychology of inter- group relations (pp. 201-234). London: Academic Press.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987).

    Rediscovering the social group: A self-categorization theory. *Contemporary*

    Sociology.

Van Zomeren, M., Postmes, T., & Spears, R. (2008). Toward an integrative social identity

    model of collective action: a quantitative research synthesis of three socio-

    psychological perspectives. *Psychological bulletin*, *134*(4), 504.

Vandello, J. A., & Bosson, J. K. (2013). Hard won and easily lost: A review and synthesis of

    theory and research on precarious manhood. *Psychology of Men & Masculinity*,
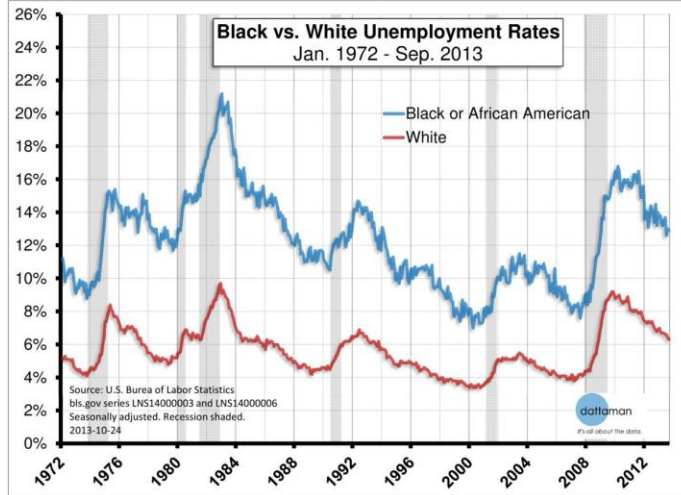
    14(2), 101.

Wilkins, C. L., & Kaiser, C. R. (2014). Racial Progress as Threat to the Status Hierarchy Implications for Perceptions of Anti-White Bias. *Psychological science*, *25*(2), 439-446.

Zimmerman, J. (2014). Not all men: A brief history of every dude's favorite argument. *Time*. Retrieved May 2015 from <http://time.com/79357/not-all-men-a-brief-history-of-every-dudes-favorite-argument/>.

Appendix A – Inequality Stimuli

Pilot Studies

Pilot Study 1 (Black/White graph)

Black vs. White Unemployment Rates
Jan. 1972 - Sep. 2013

Source: U.S. Bureau of Labor Statistics
bls.gov series LNS14000003 and LNS14000006
Seasonally adjusted. Recession shaded.
2013-10-24

[Title of graph was counterbalanced – half saw "Black vs. White" and half saw "White vs. Black"]

Pilot Study 2 (Black/White passage)

"In the United States, Whites have an unemployment rate of 5.3%. That is, 5.3% of White Americans are looking for a job but unable to find one. Black Americans have an unemployment rate of 11.7%. So 11.7% of Black Americans are looking for a job but unable to find one. Economists and social scientists have uncovered several reasons for this discrepancy, including difference in job training opportunities, different treatment by potential employers, difference in quality of education, and differences in the rate of incarceration. This gap between the two racial groups has been evident since the Bureau of Labor began measuring unemployment rates by race in 1947."

Pilot Study 3 (Male/Female graph)

Entry-level wages of male and female college graduates, 1973–2011

Real hourly wage (2011 dollars)

Men, age 23-29
1979: $20.61
1995: $19.51
2000: $23.47
2011: $21.68

Women, age 23-29
1979: $16.30
1995: $17.95
2000: $20.00
2011: $18.80

Source: Forthcoming Mishel, Bivens, Gould, and Shierholz, *State of Working America 2012–2013*; Economic Policy Institute

[Title of graph was counterbalanced – half saw "male and female" and half saw "female and male"]

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Pilot Study 4 (Male/Female passage)

"In the United States, men and women differ in their median income by approximately 28%. Economists and social scientists have uncovered much of this income disparity can be explained by differences in the way women and men are treated in the workplace. For example, women and men with equivalent job titles and skills often receive different bonuses, have different chances of being promoted despite similar job performance, and face different pressures at home. Although some argue that the income gap between men and women is the result of different choices, data from researchers paints a different picture: men and women face different obstacles and different treatment when it comes to their careers."

Study 1

Legitimate Condition:

"In the United States, outcomes for men and women differ in several ways. For example, men and women are not equally represented in politics, business, or many other high-profile professions. Annual incomes also tend to be different for men and women. Economists and social scientists have uncovered that many of these differences can be explained by differences in choices made by the men and women. For example, men and women have different priorities when it comes to working out of the house versus working in the house. Women and men also differ in how often they leave the workforce to take care of children. Although some argue that the income gap between men and women is the result of bias, data from researchers paints a different picture: men and women simply make different choices when it comes to career pursuits." [order of men & women throughout passage was counterbalanced]

Illegitimate Condition:

"In the United States, outcomes for men and women differ in several ways. For example, men and women are not equally represented in politics, business, or many other high-profile professions. Annual incomes also tend to be different for men and women. Economists and social scientists have uncovered that many of these differences can be explained by biases in the way men and women are treated in the workplace. For example, women and men with equivalent job titles and skills often receive different bonuses, have different chances of being promoted despite equivalent job performance, and face different pressures at home. Although some argue that the income gap between men and women is the result of different choices, data from researchers paints a different picture: men and women face different obstacles and different treatment when it comes to their careers." [order of men & women throughout passage was counterbalanced]

Study 2

[In all articles, the order in which the campuses were mentioned throughout the article was counterbalanced]

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In a recent report from the UC president's office, Janet Napolitano reports that there are unfair discrepancies in allocation of funds to the various University of California campuses.

For example, whereas UCSB received approximately $40 per student for library resources this past academic year, UC Merced only received $20 per student.

Even after controlling for the number of students at the universities, the needs of the faculty, and the overall productivity and performance of the two institutions, this gap in library funding remains.

Many argue that this and other similar discrepancies are a result of bias on the part of university administrators. President Napolitano agrees that the discrepancies are unfair.

"This gap in funding is inexcusable. Students at all of our universities should have equivalent access to important research and learning materials," says Napolitano.

Contact Danwei Ma at dma@dailycal.org.

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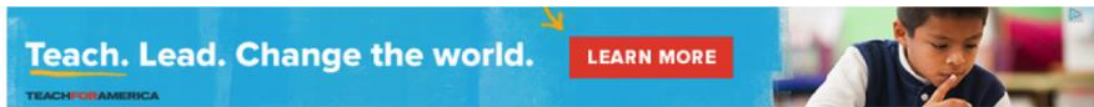
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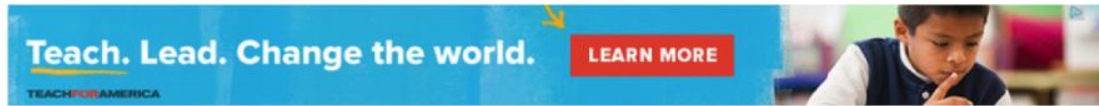I got some saltwater in my house

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Studies 5, 6, & 7

Advantage frame condition

"In the United States, economic outcomes for White Americans are consistently more positive than economic outcomes for Black Americans. For example, White citizens earn more than their Black counterparts when doing the same type of work with the same educational background. Studies have also shown that White job applicants are more likely than Black job applicants to be called back for job interviews, even when their resumes are identical. This pro-White bias also appears in other areas: compared to their Black counterparts, White Americans are over-represented in politics, in business, in mainstream TV and film, and at most colleges and universities. Being White gives you some other distinct advantages: being stopped by the police, being incarcerated, and being unemployed are all much less likely if you are White. Experts point to several reasons why this racial inequality persists in America. These include the country's long history of slave ownership and segregation, as well as the more positive stereotypes about White people (vs. Black people) held by most Americans still today."

Disadvantage frame condition

"In the United States, economic outcomes for Black Americans are consistently more negative than economic outcomes for White Americans. For example, Black citizens earn less than their White counterparts when doing the same type of work with the same educational background. Studies have also shown that Black job applicants are less likely than White job applicants to be called back for job interviews, even when their resumes are identical. This anti-Black bias also appears in other areas: compared to their White counterparts, Black Americans are under-represented in politics, in business, in mainstream TV and film, and at most colleges and universities. Being Black gives you some other distinct disadvantages: being stopped by the police, being incarcerated, and being unemployed are all much more likely if you are Black. Experts point to several reasons why this racial inequality persists in America. These include the country's long history of slavery and segregation, as well as the more negative stereotypes about Black people (vs. White people) held by most Americans still today."

Appendix B – Dependent Measures & Other Stimuli

Manipulation of Legitimacy Beliefs (Study 3)

Legitimacy Prime (from McCoy & Major, 2007)
Instructions: Each item below contains 5 words. Your task is to create a grammatically correct sentence using 4 of the 5 words. Please do them as quickly as you can and skip any that are too difficult. You should not spend more than 5 minutes on this task.
1. well independent do people class
2. goals grow is accomplishing satisfying
4. hat always seatbelt wear your
1. usually diligence alone rewarded is
2. fair close usually is life

3. people are merit judge on

4. a computer time calculator saves

5. living opportunity earn good a

6. agreeable moves ambition you forward

7. effort positive prosperity leads to

8. healthy crowd very competition is
9. people responsible carry get ahead
10. fun exercise can hard be

11. to try persistence success leads

12. encourage children dream to people
13. effective had working independently is

14. lots water of conserve drink
15. you makes self-reliance strong causes

16. hands keep clean nose your
17. deserve people rich house it

No Prime Control
Instructions: Each item below contains 5 words. Your task is to create a grammatically correct sentence using 4 of the 5 words. Please do them as quickly as you can and skip any that are too difficult. You should not spend more than 5 minutes on this task.
1. cakes she fluffy likes cats
2. warm are coats winter shiny
3. hat always seatbelt wear your
4. movies sad entertaining are action

5. gift is life a sound

6. fun gatherings coffee are social

7. a computer time calculator saves

8. world around to sail the

9. by college goes quickly time
10. priceless friends are short good

11. experience travels is an learning

12. sunsets can beautiful short be
13. fun exercise can hard be

14. books open worlds count new
15. on stay where sidewalk the
16. classes offer development intellectual promote

17. lots water of conserve drink
18. football game is a sport

19. hands keep clean nose your
20. train romantic rides carriage are

Math & Logic Question used as part of Threat Manipulation (Study 4)

Easy (no threat condition):

Question:

If the cost of a long-distance phone call is x cents for the first minute and 1/3 x cents for each additional minute, what is the cost of a 10-minute call of this type?

○ (A) 5/3 x

○ (B) 6 x

○ (C) 20/3 x

○ (D) 4 x

Difficult (threat condition):

[Press >> to submit answer]
Question:

If the cost of a long-distance phone call is x cents for the first 2 minutes and 2/3 x cents for each additional minute, what is the cost of a 17-minute call of this type?

○ (A) 5/3 x   ○ (F) 22/3 x

○ (B) 6 x   ○ (G) 9 x

○ (C) 7 x   ○ (H) 10/3 x

○ (D) 12 x   ○ (I) 12/3 x

○ (E) 23/3 x   ○ (J) 10 x

Measures of Perceived Legitimacy of Inequality

Perceived Legitimacy of Gender Inequality (adapted from Miron et al., 2006)

Please indicate your agreement with the following items (1 'Strongly Disagree' – 7 'Strongly Agree')

1. American society has reached the point where women and men have equal opportunities for achievement.
2. In our society, men and women are treated equally.
3. The existing wage gap between men and women is justified because they are doing different jobs.

Perceived Legitimacy of Racial Inequality (adapted from Miron et al., 2006)

Please indicate your agreement with the following items (1 'Strongly Disagree' – 7 'Strongly Agree')

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1. American society has reached the point where Black Americans and White American have equal opportunities for achievement.
2. In our society, Whites and Blacks are treated equally.
3. The existing inequalities between Whites and Blacks are justified.

Perceived Legitimacy of UCSB Inequality (Study 2)
1. The inequalities described in the article seem fair
2. The inequalities described in the article need to be addressed and corrected
3. Fixing the inequalities described in the article should be a top priority for the UC Administration
4. The inequalities described in the passage do not need to be corrected
5. The way in which resources are distributed in the UC System is fair

Measures of Threat-Resolving Strategies

System-Justification Scale (Studies 5 & 7). Adapted from O'Brien & Major, 2005; Levin, et al., 1998)
> *Please indicate your agreement with the following items (1 'Strongly Disagree' – 7 'Strongly Agree')*
1. If people work hard they almost always get what they want.
2. If people work hard enough, they can be whatever they want to be in life.
3. Getting ahead in life doesn't always depend on hard work.
4. Even if people work hard, they don't always get ahead.
5. Our society is an open society where all individuals can achieve higher status.
6. Advancement in our society is possible for all individuals.
7. Individual members of certain groups have difficulty achieving higher status.
8. Individual members of certain groups are often unable to advance in our society.
9. Differences in status between groups in society are fair.
10. Certain members of certain groups complain too much about differences that exist in society.
11. Differences in status between groups in society are the result of injustice.
12. It is unfair that certain groups in society have less than other groups.
13. I feel that people get what they deserve.
14. I feel that people treat each other with the respect that they deserve.
15. I feel that people get what they are entitled to have.
16. I feel that people earn the punishments and rewards they get.

Self-Stereotyping Scale (Studies 5 & 7). Adapted from Leach et al., 2008
> *Please indicate your agreement with the following items (1 'Strongly Disagree' – 7 'Strongly Agree')*
1. I have a lot in common with the average White person.
2. I am similar to the average White person.

White Ethnic Centrality Scale (Studies 5 & 7). Adapted from Luhtanen & Crocker, 1992
> *Please indicate your agreement with the following items (1 'Strongly Disagree' – 7 'Strongly Agree')*
1. Overall, being White has very little to do with how I feel about myself.
2. Being White is an important reflection of who I am.
3. Being White is unimportant to my sense of what kind of person I am.
4. In general, being White is an important part of my self-image.

Self-Enhancement Measure (Studies 6 & 7). Adapted from Alicke, Klotz, Breitenbecher, Yurak, Vredenburg, et al., 1995)
> *Please rate yourself on the following dimensions, as you believe you compare to the average American Adult of your background (please move the slider to the position*

where you believe you fall). 0 'Much lower than average' 50 'About average' 100 'Much higher than average':

1. Dependable	14. Perceptive	28. Belligerent
2. Intelligent	15. Trustful	29. Disobedient
3. Considerate	16. Mature	30. Humorless
4. Observant		31. Uncivil
5. Polite	17. Friendly	
	18. Creative	32. Unpleasant
6. Clear-headed	19. Responsible	33. Snobbish
7. Respectful	20. Imaginative	34. Lazy
8. Level-headed	21. Meddlesome	
	22. Insecure	35. Unstudious
9. Resourceful	23. Spiteful	36. Liar
10. Bright	24. Vain	37. Disrespectful
		38. Mean
11. Cooperative	25. Complaining	
12. Honorable	26. Gullible	39. Unforgiving
13. Reliable	27. Deceptive	40. Maladjusted

Anti-White Discrimination Scale (Studies 6 & 7). Adapted from Wilkins & Kaiser, 2014

Please indicate your agreement with the following items (1 'Strongly Disagree' – 7 'Strongly Agree')

1. Prejudice and discrimination against Whites are on the rise
2. Whites are victims of racial bias
3. Whites do not experience racism (reverse-scored)
4. Whites experience discrimination
5. Blacks and other racial groups benefit from preferential treatment that disadvantages Whites
6. Reverse racism (where racial minorities are favored over Whites) is pervasive
7. Only racial minorities experience negative out- comes based on their race (reverse-scored)