(IN)VISIBILITY OF BLACK WOMEN: DRAWING ATTENTION TO INDIVIDUALITY

BY

AMANDA K. SESKO

Submitted to the graduate degree program in Psychology and the Graduate Faculty of the
University of Kansas in partial fulfillment of
the requirements for the degree of Doctor of Philosophy.

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Chairperson Monica Biernat, Ph.D.

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Christian Crandall, Ph.D.

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Ludwin Molina, Ph.D.

_____
Mark Landau, Ph.D.

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Meagan Patterson, Ph.D.

Date defended: June 1, 2011

The Dissertation Committee for AMANDA K. SESKO
certifies that this is the approved version of the following dissertation:

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Chairperson Monica Biernat, Ph.D.

Date approved: 06/07/11

Abstract

Invisibility is defined as a *lack of individuation* of or *lack of differentiation* between group members, and is evident in poor recognition of individual faces. The current work tests the hypothesis that the non-prototypicality of Black women's race and gender results in their ''invisibility'' relative to White women and Black and White men. Studies 1 and 2 hypothesized that invisibility would be highest when Black women were depicted as non-prototypical of their race and/or gender groups, but reduced when *more* prototypical of the group "women" and/or "Black." To manipulate prototypicality, Study 1 varied the numerical representation of Black women within the group "women" to be low (10 out of 80 photos in an array) or equal relative to White women, and Study 2 varied the trait overlap of Black women to be low (25%) or high (75%) relative to White women and/or Black men. Invisibility was measured by a subsequent face recognition task. Rather than invisibility being reduced under conditions of equal numerical representation and high trait overlap, the direct opposite occurred: *Low numerical representation* and *low trait overlap* increased recognition of faces. Studies 3 and 4 tested alternative explanations. Study 3 addressed the possibility that the women in Study 1 looked powerful by manipulating perceived power of the women in the photo array (labeled as "secretaries" or "managers"). There was no evidence that power played a role. Study 4 tested the hypothesis that Studies 1 and 2 primed a focus on how Black women are *different* or *unique* compared to White women and Black men in the low numerical representation and trait overlap conditions. As predicted, participants who were procedurally primed to focus on similarities were worse at recognizing Black women in a subsequent face recognition task. This effect was attenuated among participants who were procedurally primed to focus on differences. Mirroring the results of Study 1 and 2, Study 4 suggested a difference focus can lead to a reduction in use of category

based information and an increased use of individuating information, reducing invisibility.

Implications for reduction of invisibility are discussed.

Acknowledgements

I would like to thank Monica Biernat for her mentorship, collaboration, and consistent involvement in my education throughout my graduate career. I am truly a better researcher and educator because of her mentorship and will forever be thankful for her support and guidance.

I would also like to thank Chris Crandall, Dan Batson, Glenn Adams, Jack Brehm, Larry Wrightsman, Ludwin Molina, Mark Landau, Nyla Branscombe, and Omri Gillath for their teaching and support. Each of these individuals has contributed to my training and research in important and influential ways.

Thank you all for always making me feel individuated, differentiated, and most importantly *visible.*

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(In)visibility of Black women: Drawing attention to individuality

Research on stereotyping and discrimination typically focuses on *White women* as the targets of sexism and *Black men* as the targets of racism. The current work examines *invisibility* as a form of discrimination that may characterize groups that do not fit these prototypes – e.g., Black women. Recently, social psychological researchers have suggested that the relative *non-prototypicality* of Black women's race and gender results in their "invisibility" relative to White women and to Black and White men (Purdie-Vaughns & Eibach, 2008; Sesko & Biernat, 2010). Psychologists have conceptualized invisibility as a lack of representation or misrepresentation of a social group (e.g., Fryberg & Townsend, 2008), and also as a *lack of individuation* of or *lack of differentiation* between group members (Sesko & Biernat, 2010). Invisibility as a form of discrimination is argued to be evident in perceivers' treatment of Black women as interchangeable and indistinguishable, such that their individual voices and faces go unnoticed and unheard (Sesko & Biernat, 2010).

While social psychologists have begun to discuss invisibility as a unique form of discrimination, there is a lack of clarity and consensus about what the term actually means and what its antecedents and consequences might be. The current work directly examines non-prototypicality as an antecedent of invisibility by investigating if increasing the prototypicality of Black women as "Women" and/or "Black" subsequently *increases* their visibility relative to White women, Black men, and White men for White perceivers. In addition, a second goal of this work is to examine methods to reduce invisibility; to increase the likelihood that Black women will be differentiated and individuated.

What is Invisibility?

Invisibility has been discussed in a variety of literatures. In the studies reported here, the focus is on perceivers' treatment of others as invisible. However, the bulk of the discourse on invisibility has been on *experiences* of invisibility. Below, I review literature related to experiences of invisibility before turning to perceptions of invisibility. While there is no single, concrete, accepted definition of invisibility, one thing many of these literatures have in common is an emphasis on *intersectionality* among different social categories as a contributor to the phenomenon.

Intersectionality and the History of Invisibility in Feminist Literature

Feminists and critical race theorists have argued for some time that it is essential that intersections among social group memberships—in particular gender, race/ethnicity, class, and sexuality—are taken into account when understanding the experiences and perceptions of members of social groups (see Cole, 2009 for a review). Proponents of intersectionality research argue that those who deviate from "traditional boundaries" (i.e., White, male, middle/upper class, heterosexual) of race, gender, class, and sexuality tend to not be represented within societal structures and politics, and this is particularly so for individuals with two or more subordinate statuses (e.g., Black women; Crenshaw, 1994; King, 1988). Because of this, resources that are readily available for dominant group members are not available for, or more importantly do not meet the specific needs of, individuals with subordinate statuses. In this sense they are marginalized or "invisible." In 1970, Beale discussed intersectionality in the form of "double jeopardy" or a "double hit" of racism and sexism in Black women's experiences. Thus the agenda for intersectionality theorists and researchers has been to bring the needs of individuals with intersecting subordinate statuses to the forefront of discourse on issues associated with discrimination, particularly (but not limited to) racism and sexism.

Most of this literature has concentrated on Black women in particular, and on the historical invisibility of Black women in the United States (e.g., Davis, 1983; Crenshaw, 1989/1993, 1994; hooks, 1981; Hammonds, 1986/1995; King, 1988). This is nicely illustrated in a classic collection of Black feminist thought assembled by Beverly Guy-Sheftall (1995). Within this collection a theme emerges in which Black women's experiences in groups addressing social problems (civil rights movements, feminist groups, violence against women, awareness of sexually transmitted diseases, etc.) are described with terms such as "non-existent," "non-participating," "missing persons," "ignored," "marginalized," and "invisible" (e.g., Combahee River Collection, 1977/1995; Hammonds, 1986/1995, King, 1988; Lorde, 1984/1995). In fact, King (1988) discusses the *theoretical* (or *conceptual*) *invisibility* of Black women, arguing that Black women have been left out of discourses on racism and sexism. One of the over-arching arguments in this collection as well as other prominent pieces within the feminist literature is that historically, discussions of racism have focused on Black men while discussions of sexism have focused on White women (e.g., Davis, 1983; Crenshaw, 1994; hooks, 1981; King, 1988). As a result, strategies to reduce racism and sexism have failed to acknowledge Black women's status within these groups, and Black women's dual subordinate status has been overlooked. Further, by lumping Black women under the categories of "Black" and "women" without acknowledging their unique status as Black women, discrimination reduction agendas have failed to adequately capture the experiences of Black women. In this sense they have been missing, or invisible, in these discourses (King, 1988).

Historically, this sort of invisibility is quite evident. For example, White 19th century feminists, including Elizabeth Cady Stanton and Susan B. Anthony, chose to promote the interests of White women over commitment to suffrage for all women (Davis, 1983; hooks,

1981). This is illustrated in Sojourner Truth's famous quote, "Ain't I a woman" at a woman's

rights convention in 1851. Further, while Black men gained political leverage in the suffrage and

civil rights movements, Black women were routinely left out (Davis, 1983; hooks, 1981). As bell

hooks (1981) notes:

> "No other group in America has so had their identity socialized out of existence as have
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> black women. We are rarely recognized as a group separate and distinct from black men,
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> or as a present part of the larger group "women" in this culture. When black people are
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> talked about, sexism militates against the acknowledgement of the interests of black
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> women; when women are talked about racism militates against a recognition of black
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> female interests. When black people are talked about the focus tends to be on black *men*;
>
> and when women are talked about the focus tends to be on *white* women" (p. 7).

Crenshaw (1994) argues that the lack of civil rights and feminist movements' acknowledgment

of intersections of race and gender has had the political consequence of denying women of color

leverage within these movements. Thus, as King (1988) states, "conceptual invisibility has led to

the actual strategic neglect and physical exclusion or nonparticipation of black women" (p. 58).

Invisibility in Psychological Research

While the significance of the invisibility of Black women is clear in the feminist and

critical race literature, psychologists have only recently begun to integrate this idea into

stereotyping and discrimination research. Interestingly however, one of the first mentions of

invisibility as a form of discrimination appears in clinical psychology as the *invisibility syndrome*

and the emphasis is on Black *males* rather than Black females.

The invisibility syndrome refers to the "struggle with inner feelings and beliefs that

personal talents, abilities, and character are not acknowledged or valued by others, nor by the

larger society, because of racial prejudice" (Franklin & Boyd-Franklin, 2000, p. 33, also see

Franklin, 1999). As African-Americans repeatedly face racial prejudice they begin to feel as if

their personal characteristics are not seen or valued. To overcome this invisibility, behaviors that

increase visibility such as anger, frustration focused on racial injustices, internalized rage,

depression, substance abuse, and violence are likely to occur. Franklin and Boyd-Franklin draw

on Ralph Ellison's (1947/1980) literary classic, *Invisible Man*, in which an African American

man struggles with being heard and seen in a racially prejudiced society. They argue that this

sort of psychological invisibility is particularly true for Black men rather than Black women.

Their rationale is that Black males are more likely to face persistent social marginalization, and

to experience social and health risk factors relative to Black women.

Likewise, Sidanius and Pratto's (1999) *subordinate-male target hypothesis* argues that

subordinate males, rather than subordinate females, are primary objects of discrimination. Thus,

Black females are expected to experience the same life outcomes as White females, but Black

men bear the brunt of racial bias. As evidence for this claim, Sidanius and Pratto (1999) analyzed

U.S. census data starting in 1949 and found that controlling for education, the income ratio

between Blacks and Whites has improved. But improvement has been greater for women than

men – that is, the difference in income between Black and White women has been smaller since

the 1940s than the difference between Black and White men. Franklin and Boyd-Franklin's

conceptualization of invisibility and the subordinate-male target hypothesis at first glance seem

at odds with the current conceptualization of invisibility. However, I argue that instead they are

quite compatible, but focus on different aspects of discrimination. Like Franklin and Boyd-

Franklin and the subordinate-male target hypothesis, I suggest that Black women are not subject

to the same discrimination as Black men, and in fact may be targets of less "typical"

discrimination. However, as I will explain in more detail, invisibility of Black women is a *qualitatively* different form of discrimination particular to Black women, not their Black male and White female counterparts.

Fryberg and Townsend (2008) recently expanded this discussion of the psychology of invisibility, focusing particularly on the experiences of American Indians (Fryberg & Townsend, 2008). These authors define invisibility as absence of or erroneous representations of oppressed groups and/or individuals. Invisible groups or individuals may be misrepresented or not represented at all (Fryberg & Townsend, 2008). In the case of misrepresentation, *relative invisibility* occurs such that the group representation is erroneous or outdated (e.g., sports mascots, cartoon characters such as Pocahontas). As a result, individuals must negotiate the fit of these representations to their self-concept and identity. Such representations have been shown to affect self-esteem, lower feelings of community worth, and limit perceptions of possible achievement-related identities (Fryberg, Markus, Oyserman, & Stone, 2008). The psychological outcomes of relative invisibility are in line with those suggested by Franklin & Boyd-Franklin's (2000) invisibility syndrome and are nicely represented in Ellison's famous quote from *Invisible Man* (1947/1980):

> "I am invisible, understand, simply because people refuse to see me. Like the bodiless heads you see sometimes in circus sideshows, it is as though I have been surrounded by mirrors of hard, distorting glass. When they approach me they see only my surroundings, themselves, or figments of their imagination – indeed, everything and anything except me" (p. 3).

In the case of *absolute invisibility*, Fryberg and Townsend (2008) argue that there are *no* representations of a particular group in the context being discussed. For example, some groups

are non-existent in history books, in media representations, or in a profession. Because there is no representation, individuals belonging to this group lack schemas on "ways to be" and "ways not to be." The lack of representation communicates where they *do not* belong but does not communicate where they *do* belong, rendering them invisible in that social context.

In a recent theoretical paper, social psychologists Purdie-Vaughns and Eibach (2008) bring the analysis of invisibility back to the context of intersectionality. They argue that the combination of androcentrism (the tendency to define men as the prototypical standard), ethnocentrism (the tendency to define the norms of one's social group as the prototypical standard [e.g., White as dominant; DeVos & Banaji, 2005]), and heterocentrism (heterosexuality as the prototypical standard) causes individuals with multiple-subordinate group identities to be defined as non-prototypical, and thus subject to what they term *intersectional invisibility.* Purdie-Vaughns and Eibach argue that due to androcentrism and heterocentrism, a prototypical ethnic minority is male and heterosexual; due to androcentrism and ethnocentrism a prototypical gay/bisexual individual is White and male; and due to androcentrism and ethnocentrism a prototypical female is White and heterosexual. Thus, members of multiple subordinate-group identities, such as Black women, diverge from these prototypes and are subject to *different* outcomes than their more prototypical counterparts. These differences can accrue in the form of advantages or disadvantages. Purdie-Vaughns and Eibach (2008) argue that one potential advantage is that less prototypical subordinate group members are less likely to be targets of discrimination than more prototypical members (e.g., Black men; see also Sidanius and Pratto, 1999). However, a disadvantage is that non-prototypical subordinate group members struggle to be visible and have their voices heard, and are thus more likely to be marginalized (also see King, 1988).

Perceiving others as invisible. These conceptualizations of invisibility have focused primarily on the *experiences* of individuals who find themselves marginalized. This literature highlights the importance of invisibility for individuals, and for researchers interested in understanding the phenomenon. However, embedded in this analysis is the assumption that individual belonging to multiple-subordinate group identities are *perceived* by others as non-prototypical group members and thus are subject to outcomes related to invisibility. Thus while the experiences of invisibility are certainly valid and important for psychologists to consider, understanding how perceptions by dominant group members (e.g., Whites) guide the treatment of group members belonging to multiple-subordinate groups is also important.

In recent work, Monica Biernat and I addressed whether Black women are perceived as invisible by Whites (Sesko & Biernat, 2010). We conceptualized invisibility as a *lack of individuation* of or *lack of differentiation* among group members (see Sesko & Biernat, 2010). Specifically, we argued that invisibility is evident in perceivers' treatment of non-prototypical group members as interchangeable and indistinguishable, relative to more prototypical members. We do *not* suggest that Black women are *literally invisible,* such that they are literally not seen and literally not heard. Much research suggests that gender, race, and age are quickly encoded and used in judgments upon encountering individuals (Allport, 1954; Brewer, 1988; Devine, 1989; Fiske & Neuberg, 1990; Talyor, Fiske, Etcoff, & Ruderman, 1978), and thus we assume that when a Black woman enters a room, perceivers can readily "see" her and encode her as Black and female. Instead, invisibility is evident if Black women's faces and voices are less readily distinguished from each other than are those of Black men, White women, and White men.

In two studies we addressed whether Black women go "unnoticed" and their voices "unheard," by examining memory for Black women's faces and speech contributions (Sesko & Biernat, 2010). In Study 1, we adapted Shepard's (1967) basic memory paradigm by exposing participants to a series of photos depicting Black/White women and men. In a second phase, participants were shown the same photos along with foils and were asked to indicate "old" if they had seen the photo before, or "new" if not. We hypothesized and found that participants were the least sensitive (in signal detection terms, correctly distinguishing between "new" and "old" faces) in identifying Black women compared to the other groups. This paradigm will be the primary means of measuring invisibility in the current work.

In a second study, we used a "who said what" paradigm (Talyor et al., 1978) to investigate memory for the speech contributions of Black women. Participants heard a conversation among eight targets (2 Black females, 2 Black males, 2 White females, 2 White males), and were later asked to match each statement with the person who said it. We predicted and found that Black women were treated as relatively indistinguishable and interchangeable such that participants were more likely to incorrectly attribute statements made by Black women to other targets than they were to misattribute White women's, Black men's, or White men's statements. Further, statements Black women did *not* say were more likely to be erroneously attributed to them relative to the other targets. These studies provide initial support for the invisibility hypothesis in that for White perceivers, Black women were seen as relatively interchangeable, and their contributions were misattributed to others and others' comments misattributed to them.

Along with other invisibility researchers (Fryberg & Townsend, 2008; Purdie-Vaughns & Eibach, 2008; King 1988), I argue that invisibility is a unique form of discrimination, and

suggest that Black women may experience, and be treated with, a *qualitatively different form of discrimination* than their Black male and White female counterparts (see also Hurtado, 1989). While the primary theorized antecedent of invisibility has been non-prototypicality (e.g., Purdie-Vaughns & Eibach, 2008; Sesko & Biernat, 2010), empirical research has not yet tested this assumption. Thus the current work builds on Sesko and Biernat (2010) and directly tests the link between *perceptions* of Black women as non-prototypical and subsequent treatment of them as invisible. While the focus is on Black women, I also consider invisibility as a more general phenomenon applicable to a variety of non-prototypical or similarly situated group members.

Prototypicality and invisibility

To understand what is meant by non-prototypicality, it is useful to turn to the extensive research literature on prototypes within cognitive psychology. A prototype has been defined as the "clearest case" or the "best example" of a category (Rosch, 1975). Specifically, categories have an *internal structure*, or a "general class of conceptions." Instead of being represented with clear-cut boundaries, "items within categories may be considered differentially representative of the meaning of the category term" (Rosch, 1975, p.193-194). This internal structure acts as a guide or a schema by which perceivers measure the fit of possible group members. As a common example, a robin is a more clear case of the category "bird" than a penguin, but they are both members of the category. Thus the internal structure defines what represents the prototype or best example of a category, and the more deviant a category member is (e.g., penguin) the less representative it is of that category (Rosch, 1975; Posner & Keele, 1968, 1970). Stereotypes are schemas with an internal structure of the sort described for non-social categories (Cantor & Mischel, 1979). Just as the category "bird" is more likely to be represented as a robin than a penguin, prototypical representations of "Black" tend to be Black men, not Black women, and

prototypical representations of "women" tend to be White women rather than Black women (e.g., Zárate & Smith, 1990).

The extent to which a group member or stimulus is prototypical has been shown to affect categorization and memory. For example, in free recall tasks, less prototypical stimuli are recalled later than prototypical stimuli (Silvera, Krull, & Sassler, 2002). They are also less likely to be recognized compared to prototypical stimuli (Cantor & Mischel, 1977; Posner & Keele, 1968, 1970) and are less quickly identified as part of that category (Ellis & Nelson, 1999). Posner and Keele (1970) have shown that prototypical stimuli are less subject to loss of memory after a time delay than less prototypical stimuli. Such effects resemble the current conceptualization of invisibility, such that Black women are less likely to be "heard" or "seen" in comparison to Black men and White women (Sesko & Biernat, 2010).

Perceptions of the prototypicality of Black women

Some research has directly demonstrated that Black women are perceived as non-prototypical of the groups "Black" and/or "women." Zárate and Smith (1990) found that White participants categorized Black targets more slowly than White targets (by race and gender), but especially when the targets were Black women (Study 2). Focusing on the prototypicality of gender as it intersects with race, Goff, Thomas, and Jackson (2008) found that participants (predominantly White) were less accurate in categorizing the gender of Black women relative to White women and Black men (using facial stimuli in Study 1, and silhouettes of people walking in Study 2). That is, participants experienced relative difficulty in categorizing Black women as women. These researchers also found that perceived "Blackness" was highly associated with "maleness" in both Black male and female targets, and as a consequence, Black women were rated as less attractive than White women. The association of "Black = male" had an impact on

perceptions of Black women as non-prototypical women (i.e., less likely to be categorized as women and as attractive).

Other research demonstrating the non-prototypicality of Black women relative to their Black male and White female counterparts has been descriptive in nature. For example, relative to White women, Black women tend to be viewed as more ''masculine'' (self-reliant, independent, assertive, strong) and also less ''feminine'' (emotional, passive, dependent; Binion, 1990; Goff et al., 2008; Landrine, 1985; Robinson, 1983; West, 1995). And while some stereotypes of Black women are consistent with those of Black men (e.g., lazy, hostile, uneducated), others are in opposition to these stereotypes (e. g., pleasant/friendly, sociable/sociably active; Niemann, Jennings, Rozelle, Baxter, & Sullivan, 1994; see also Maddox & Gray, 2002). Not surprisingly then, some researchers have noted that Black males tend to be "better" targets than Black females in racism studies investigating commonly used stereotypes of African Americans (e.g., Eberhardt, Dasqupta, Banaszynski, 2003; Goff, Eberhardt, Williams, & Jackson, 2000).

Manipulating prototypicality

Although non-prototypicality has been the primary theorized antecedent of invisibility (e.g., Purdie-Vaughns & Eibach, 2008; Sesko & Biernat, 2010), this assumption has not been empirically tested. Thus the current work directly tests this assumption by manipulating the perceived prototypicality of Black women relative to the group "women" and/or "Black."

Prototypicality has been manipulated and studied in a variety of ways, typically with stimuli such as shapes or dots (Posner & Keele, 1968, 1970), colors (Rosch, 1973), and other non-social objects (Medin, Altom, & Murphy, 1984). In most of this research, categories are composed of attributes, and some cases are designed to be more "typical" members of a category

than others. To the extent that a case has more of the attributes of the group, it is a more prototypical category member. Participants often go through a learning phase where they are trained to classify a variety of cases into their appropriate categories, followed by a recognition phase that includes the previously learned cases, new variants of these cases, and new cases that vary even more from the category (or are non-prototypical). As a general finding, the more similar or "typical" of the category the case is the better or faster it is remembered, recognized, and/or recalled (Cantor & Mischel, 1977, 1979; Ellis & Nelson, 1999 Posner & Keele, 1968, 1970; Silvera, et al., 2002).

The bulk of research involving manipulations of prototypicality has focused on non-social stimuli; research involving social stimuli has often presumed prototypicality or non-prototypicality of targets rather than empirically manipulating it (e.g., Goff et al., 2008; Sesko & Biernat, 2010). There are, however, a few notable exceptions (e.g., Cantor & Mischel, 1977, 1979; Mayer & Bower, 1986). Cantor and Mischel (1977, 1979) were interested in how preexisting expectations about what traits make up personality prototypes—in this case extraverts or introverts—influence memory and impression formation. They argue personality traits function as "conceptual prototypes" that help us organize information, which also lead to a memory bias for prototype information much in line with work done with non-social stimuli.

Cantor and Mischel (1979) manipulated prototypicality by varying the "goodness of fit" of characters to the personality categories of extraverts or introverts, and also "good Samaritans." Specifically, participants read about three "pure" characters (extraverts, introverts, good Samaritans), two "inconsistent" characters (extravert with some introverted characteristics, introvert with some extraverted characteristics), and two "mixed" characters (extravert-good Samaritan, introvert-good Samaritan). *Pure characters* were described using nine traits and

behaviors that were consistent with the prototype of extraversion or introversion and no traits or behaviors that fell within another personality prototype. *Inconsistent characters* were described using six traits and behaviors that were related to introversion/extraversion and three related to the converse, conflicting personality type. *Mixed characters* were described using six traits and behaviors that fell within the prototype of extraversion/introversion and three that characterized the non-conflicting prototype (good Samaritan).

In session 1, participants were given the seven character descriptions, along with photos and names, and were asked to form personality impressions about each person. They were then asked to write down as much about the characters as they could remember. Two days later, participants were given the photos of the characters and again asked recall information about the characters. Cantor and Mischel (1979) found that more information was correctly recalled about the pure characters, followed by the mixed, and then the inconsistent characters. Personality impressions were also the "richest" in content for pure characters. Thus the more prototypical or "pure" character are the more fully and correctly they are remembered. This logic forms the basis for Study 2 of this dissertation.

The theme of social prototypicality also appears in the stereotyping literature, in which researchers are often interested in how the degree of stereotypicality (i.e., prototypicality) of a target affects subsequent judgments and treatment. For example, an emerging literature considers *phenotype prototypicality*, the degree to which physical appearance is perceived to be prototypical of a category. Maddox and Gray (2002) asked Black and White participants to report their knowledge of stereotypes associated with light- and dark-skinned Blacks and found that participants described dark-skinned targets using more stereotypic attributes than they did for light-skinned targets. Dark skin is more prototypical of "Blacks" and thus stereotypes were

more readily assigned to dark versus light skinned targets. In addition, Wilkins, Kaiser, and Rieck (2010) asked participants to view photos of African American faces that were either rated as high or low in phenotypic prototypicality. They then saw a list of attributes and were asked rank the attributes in terms of importance for that person's identity. Within this list was the attribute, "African-American." Participants who viewed a face that was high in phenotypic prototypicality ranked the African-American attribute as more important to the target's identity than those who viewed a face low in phenotypic prototypicality. Thus the more prototypical an individual "looks" of the group, the more likely he or she is to be judged using stereotypical or prototypical attributes, and the more likely he or she is to be judged as closely aligned with that identity.

Not only does prototypicality affect perceiver judgments in the lab, but it has been shown to affect behavior in the "real world." For example, Blair, Judd, and Chapleau (2004) found that controlling for criminal histories, defendants who possessed the most stereotypically Black facial features (e.g., dark skin, large lips, broad nose) served up to 8 months longer in prison than those who possessed the least stereotypically Black features. Likewise, Eberhardt, Davies, Purdie-Vaughns, and Johnson (2005) found that the more "stereotypically Black" a defendant was perceived to be based on appearance, the more likely that person was to be sentenced to death. The more prototypical features individuals possess the more likely they are to be judged and treated in accordance with stereotypes of that group.

There is also an extensive literature on prototypicality in social groups that highlights the *experience* of feeling non-prototypical. For example, prototypicality or centrality within a group has been shown to be an important factor in inter- and intra- group relations research. Self-categorization theory (Oakes, 1987; Oakes, Turner, & Haslam, 1991; Turner, 1985) hypothesizes

that categorizing the self as part of a group is a function of accessibility of the category and "fit" with the prototypical norms and attributes of that group. Prototypicality is also related to self-stereotyping processes—or the extent to which one associates the self with group stereotypes (Hardie & McMurray, 1992; Simon & Hamilton, 1994). In fact, Spears, Doosje, and Ellemers (1997) *define* self-stereotyping as perceiving the self as a prototypical group member. When one self-stereotypes, there is a match in attributes between the self and the group. According to Turner, Hogg, Oakes, Reicher, and Wetherell (1987), self-stereotyping is the process "whereby people come to perceive themselves more as the interchangeable exemplars of a social category than as unique personalities defined by their individual differences from others" (p. 50).

To manipulate experienced prototypicality in these studies, often researchers simply tell participants, "you are [*not*] prototypical of group X" (e.g., Jetten, Branscombe, & Spears, 2002). When participants are led to believe they are peripheral member rather than prototypical, they report lower levels of collective self-esteem and group identity. Other studies simply manipulate salience of a category membership. For example Hogg and Turner (1987) manipulated salience of gender for male and female participants by setting up a discussion group in which males and females disagreed with one another (high gender salience) or in which members of the same gender disagreed with one another (low gender salience). They found that when gender was salient, participants' self-descriptions contained more stereotypical gender-consistent attributes than was the case when gender was not salient. In this sense participants self-stereotyped or thought of themselves as prototypical men or women simply when an important social category was made salient.

In short, an individual is prototypical to the extent that he or she is representative of, and possesses attributes consistent with, the "core" of a category. And prototypicality varies as a

function of how many attributes or features an individual shares with a category. The current research builds on these conceptualizations and manipulations of prototypicality.

Overview

Studies 1 and 2 involve manipulating the key feature deemed responsible for invisibility effects: Lack of prototypicality. Invisibility of Black women should be highest when Black women are explicitly depicted as non-prototypical of their race and/or gender groups. Additionally, invisibility should be reduced when Black women appear *more* prototypical of the group "women" and/or "Black." In these studies, invisibility is measured via the face recognition task used in Sesko and Biernat (2010). The extent to which recognition is lower for Black female than White female, Black male, and White male faces indicates degree of invisibility.

As suggested earlier, a stimulus is prototypical to the extent that it possesses attributes consistent with the "core" of a category. And prototypicality varies as a function of how many attributes a stimulus shares with a category. Thus to the manipulate prototypicality of Black women, Study 1 varies the extent to which Black women are numerically representative of the group "women," and Study 2 manipulates the extent to which Black women share attributes with White women and/or Black men.

Study 1 attempted to make Black women appear more prototypical of the group "women" by exposing participants to a photo array (described simply as a "group of women") in which Black and White women were equally represented, or in which there was low representation of Black women (only 10 out of 80 photos in the array). Participants then completed a separate photo recognition task—the same task used in Study 1 of Sesko and Biernat (2010). I hypothesize that invisibility of Black women, or lack of recognition of their faces, will be reduced when Black women are represented equally with White women, compared

to when Black women are in the minority. Indeed, Fryberg and Townsend (2008)'s conception of absolute invisibility refers to low numerical social representation (in fact no representation) of group members in a given context. Thus by increasing Black women's representation as group members, it should in turn increase perceptions of them as "typical" group members along with White women.

In Study 2, to manipulate prototypicality of Black women as "women" and/or "Black," participants were exposed to an array of traits and behaviors depicting high overlap (75% shared attributes) or low overlap (25% shared attributes) between Black women and White women, or between Black women and Black men, or between Black women and both White women and Black men. They then completed the photo recognition task designed to measure invisibility. I hypothesize that invisibility of Black women will be reduced when Black women share many attributes with White women and/or Black men compared to when shared attributes are low. By increasing how many attributes Black women share with their White female and Black male counterparts, perceptions of them as prototypical group members should increase and invisibility should decrease.

Studies 1 and 2 were designed to manipulate prototypicality in efforts to reduce invisibility. But as will become clear in the Results sections below, instead they produced findings in direct opposition to hypotheses. Invisibility was *reduced* when Black women were represented in *low* numbers relative to White women or as sharing *low* numbers of traits with White and/or Black men. Studies 3 and 4 test alternative hypotheses to better understand what processes may be underlying these puzzling, albeit interesting, findings. Study 3 addresses the possibility that the photos of women in Study 1 were particularity powerful looking and thus increased individuation of Black women when they were represented in low numbers (e.g.,

Fiske, 1993). Study 4 tests the hypothesis that Studies 1 and 2 did not effectively manipulate

perceived prototypicality but rather primed a focus on how Black women are *different* or unique

compared to White women and Black men in the low numerical status and trait overlap

conditions. Study 4 addresses how a *difference focus* when making judgments can lead to a

reduction of reliance on category-based information and an increased use of individuating

information, thus increasing visibility (e.g., Corcoran, Hundhammer, & Mussweiler, 2009).

Study 1

Method

      Participants and design. Participants were 91 White undergraduates enrolled in an

Introductory Psychology course who received course credit for their time (53 females; age *M* =

18.91, *SD* = 1.16). Participants were run alone or in groups up to five; each was seated at an

individual computer. Participants were exposed to a manipulation phase, and then to the task

designed to measure invisibility: Exposure to faces of Black and White women and men,

followed by a recognition memory test. The design produced a 2 (numerical status of Black

women, low versus high) × 2 (target race in the face recognition task: Black, White) × 2 (target

gender in the face recognition task: female, male) mixed factorial, with numerical status as the

only between-subjects factor. Participant gender was also examined a potential moderator but as

it produced no meaningful effects it will not be discussed further in any of the studies.

      Materials. Photos of Black and White women to be used in the manipulation of

numerical representation were selected from various public internet sites. All photos consisted of

head shots of women facing forward, smiling, with business casual attire (e.g., blouses, suit

jackets), and a non identifiable background (see Appendix A for examples). A total of 169 (64

Black women, 105 White women; fewer number of Black women due to limited availability that

fit the criteria compared to White women) photos were selected and pretested. Specifically, in order to avoid particularly distinctive faces (those that might stand out in crowd or be particularly memorable; Brandt, Macrae, Schloerscheidt, & Milne, 2003) and to equate faces on attractiveness, a separate sample of 16 participants rated each potential photo on distinctiveness (1 = *typical* to 7 = *distinctive*) and attractiveness (1 = *not all attractive* to 7 = *very attractive*). Manipulation slides were constructed by first creating the four slides for the equal numerical representation condition. Then to create the low numerical representation condition slides, photos of Black women were randomly selected to be taken out of the equal status slides and new photos of White women were switched in. This was done twice; position of photos was varied. Thus there was one set of four slides for the equal numerical representation, and two sets of four slides for the low numerical representation condition. Attractiveness and distinctiveness were roughly equated for Black and White women both within slides (ps < .05) and between slides (ps < .1). Means per slide for attractiveness of Black women ranged from 3.02 (SD = 1.17) to 3.56 (SD = .80); White women from 3.06 (SD = .89) to 3.61 (SD = .83). Means per slide for distinctiveness of Black women ranged from 3.38 (SD = 87) to 3.87 (SD = .99); White women from 3.04 (SD = .83) to 3.91 (SD = .97).

For the measurement of invisibility—the photo recognition task—I used the same photos and procedures that were used in Sesko and Biernat (2010) Study 1. Specifically, fifty-six photos (14 of each gender/race category) were selected from a bank of headshots created by Nosek and Banaji (2001). Each photo depicted a close up head shot of a person looking straight ahead smiling with a blue background. Again to avoid particularly distinctive faces and to equate faces on attractiveness, another separate sample of 10 participants rated each potential photo on distinctiveness (1 = *typical* to 7 = *distinctive*) and attractiveness (1 = *not all attractive* to 7 = *very*

attractive). Those selected for this study were judged roughly average on both dimensions (both *M*s = 3.68), and Target Race × Target Gender repeated measures ANOVAs showed that distinctiveness and attractiveness did not differ across the race and gender categories (all *F*s ns).

Procedure. Participants were told we were interested in how people learn information about others and groups and they then were placed through procedures using MediaLab programming (Jarvis, 2008). For the manipulation phase of the experiment, in which I varied the numerical representation of Black women in the group "women," participants were told they would be viewing an array of photos of "a group of women." Their job was simply to view the photos. Each of 4 slides of 20 women each were presented for 30 seconds each. The order of the slide presentation was random for each participant, and different arrays of 20 photos were created within each condition. In the high numerical representation condition, Black women and White women were represented equally in a collage-type arrangement on each slide (10:10), for a total of 40 Black and 40 White women. In the low numerical representation condition, only two or three Black women were on each slide and the remaining seventeen or eighteen women per slide were White women, for a total of 10 Black and 70 White women.

After viewing the photos, participants were told they would move on to an unrelated task designed to assess their memory for faces. In phase 1 of this memory task, participants viewed 32 photos (eight of each gender/race group); each presented for 2 seconds, followed by a red X in the center of the screen. Photos were presented in one of three random orders for each participant. After completing phase 1, participants completed a filler task in which they were asked to list as many cities as they could think of in 3 min. In phase 2, participants were shown the same 32 photos they had seen before along with 24 new foils (six of each gender/race group). Participants were asked to indicate if the photo was "new" or "old" (Shepard, 1967). Three

different fixed order conditions were created, each involving a randomized order of photos and

mixing of photos between the first and second (foil) phases. After completing the task

participants were orally debriefed and thanked for their time.

Results

Participants had a 78.52% accuracy rate overall (*M* errors = 12.03 out of 56

identifications, *SD* = 6.11). I first computed hits and false alarms for each category of targets

(Black and White women and men), then used signal detection analysis to calculate a sensitively

index or *d'* ($z_{hits} - z_{false\ alarms}$) which computes the extent to which participants distinguish between

new and old faces (higher values = more sensitive). [1] A signal detection analysis also provides a

bias index, β, which captures the willingness of a respondent to say that a target photo was

present in the original set (higher values means higher standards to make the judgment).

However, Sesko & Biernat (2010) did not predict or find race and gender effects on bias—the

invisibility hypothesis does not seem relevant to the question of standards for recognition. Thus,

here I also focus on *d'* as the main unit of analysis. I hypothesized that participants would be least

sensitive—showing lower *d'*—in response to photos of Black women compared to the other three

groups. Further, I hypothesized that this would be particularly true when Black women were

represented as low in numerical status relative to White women. When Black women were

represented as equal in numerical status to White women, sensitivity in recognition of Black

female faces should increase.

Sensitivity index. The sensitivity index, *d'*, was submitted to a Numerical Representation

× Target Race × Target Gender repeated measures ANOVA, with the between-subjects factor of

Numerical Representation. There was a significant effect of Target Race, $F(1, 89) = 5.40$, $p =$

.022, such participants were more sensitive in correctly recognizing White targets (*M* = 1.84, *SD*

= .92) compare to Black targets ($M = 1.65$, $SD = .93$). In addition the 3-way interaction was

significant, $F(1, 89) = 5.16$, $p = .026$. However, as can be seen in Figure 1, the pattern of results

in this 3-way interaction was in a direction opposite to my predictions, such that the Target Race

× Target Gender interaction was significant in the *equal* numerical representation condition, $F(1,$

$29) = 5.38$, $p = .028$, but not in the low numerical status condition, $F(1, 60) = .357$, $p = .553$.

Specifically, replicating the invisibility effect (Sesko & Biernat, 2010), participants who viewed

equal numbers of Black and White women in an initial photo array were *worse* at recognizing

Black women ($M = 1.34$, $SD = 1.11$) compared to White women ($M = 1.88$, $SD = 1.01$), Black

men ($M = 1.75$, $SD = 1.23$), and White men ($M = 1.70$, $SD = 1.05$) in a separate photo

recognition task (all $ps < .05$), while sensitivity was equal for all other groups (all $ps > .30$).

However, when participants viewed low numbers of Black women compared to White women,

this effect was attenuated such that there were no differences in sensitivity of recognition

between Black women ($M = 1.84$, $SD = .77$), White women ($M = 1.93$, $SD = .91$), Black men

($M = 1.67$, $SD = .79$), and White men ($M = 1.87$, $SD = .83$; all $ps > .17$). The 3-way interaction

was also driven by the fact that sensitivity was higher for Black female faces in the condition

where Black women were represented as low rather than equal in numerical status to White

women $F(1, 89) = 6.29$, $p = .014$. Recognition was equal across numerical representation

conditions for White women, Black men, and White men, all $ps > .40$.

For comparability with Sesko and Biernat (2010), a three versus one planned comparison

analysis was performed (comparing d' for Black women with d' for the average of the 3 other

groups), using the between-subjects factor of Numerical Representation. The Numerical

Representation × Target (Black women/other) interaction was significant, $F(1, 89) = 6.03$, $p =$

$.016$. The 3 vs. 1 contrast was larger in the equal representation condition ($Ms = 1.34$ for BW;

1.78 for other 3 groups), than in the low representation condition (Ms = 1.84 for BW; 1.80 for

other 3 groups).[2]

Summary. I predicted that participants' recognition for Black women would be increased

when they were represented equally in a photo array with White women. Instead participants'

recognition for Black women was best when they were represented in *low numbers* relative to

White women; indeed, the low representation condition eliminated the invisibility effect. I will

reserve discussion of this unexpected finding until after presentation of Study 2, which was

designed as a conceptual replication of Study 1.

Study 2

Study 1 attempted to reduce the invisibility of Black women by increasing their

numerical representation in the group "women." I expected that greater presence in the group

should make Black women more prototypical of the category "women." However, the pattern of

results was in direction opposition to this prediction, such that recognition was *worse* for Black

women when they were represented in equal numbers with White women in a photo array and

this effect was attenuated when Black women were represented in low numbers. Thus invisibility

was reduced in the low instead of equal numerical representation condition. It is possible that my

manipulation of prototypicality was at fault: Changing the numerical representation of Black

women in the group women may not have affected their perceived prototypicality. Thus in Study

2, I relied on a trait-based manipulation of prototypicality that is more consistent with prior

paradigms (e.g., Cantor & Mischel, 1977, 1979).

The goal of Study 2 was also to increase visibility of Black women by increasing their

prototypicality. In this case, however, prototypicality was manipulated by varying the degree to

which Black women's traits and behaviors overlapped with those of White women, Black men,

or both White women and Black men. I hypothesized that by increasing Black women's overlap with White women and/or Black men, the tendency for Black women to be "invisible" would decrease. Specifically, participants should be least sensitive in correctly recognizing Black women, relative to White women, Black men, and White men, when shared attributes are low. However, when Black women have high overlap with the traits and behaviors of White women, and/or Black men, recognition for Black women's faces should increase.

Method

Participants and design. Participants were 102 White undergraduates enrolled in an Introductory Psychology course who received course credit for their time (75 females; age $M = 19.23$, $SD = 1.40$). Participants were run alone or in groups up to five; each was seated at an individual computer. Participants viewed a manipulation phase and then were exposed to faces and later completed a recognition memory test. The study design was a 2 (trait overlap between Black women and other group: low or high) × 3 (comparison group: White women, Black men, both), × 2 (target race: Black, White) × 2 (target gender: female, male) × mixed design with two between-subjects factors, trait overlap and comparison group. The comparison group factor produced no effects. That is, whether Black women were compared to White women, Black men, or both did not matter. For ease of presentation, I collapsed across this variable and focus on the between-subjects factor of trait overlap.

Materials. Trait overlap conditions were created by presenting participants with a series of 4 slides that conveyed information about high (75%) or low (25%) overlap in the traits and behaviors of Black women compared to White women, Black men, or both Each slide had an array of 20 traits or 20 behaviors listed in a table (see Appendix B for examples). The labels for the traits and behaviors were content free and were simply listed as "Trait 1" to "Trait 40" and

"Behavior 1" to "Behavior 40." Within the table (depending on comparison condition) was a column for Black women and White women, Black women and Black men, or Black women, White women, and Black men. The order of which column came first was varied. In other words, Black women were not always listed in the first column. To indicate which traits and behaviors were characteristic of each group an X was placed in the cell corresponding to that trait/behavior and the group of interest. This was presented in one of three random fixed order conditions. Thus in the 25% overlap condition Black women shared an "X" with their comparison group on a random assortment of 20 traits/behaviors. In the 75% overlap condition, Black women shared an "X" with their comparison group on a random assortment of 60 traits/behaviors. As each slide progressed, the overlapped trait/behaviors were highlighted for 3 seconds.

To measure invisibility of Black women, the same photo recognition task used in Study 1 was also used in Study 2.

Procedures. Participants were told we were interested in studying how people learn information about others and groups. Next, participants were told the following:

> In phase 1, you will be presented with some new data looking at the traits and behaviors of different groups. We are particularly interested in the numerical overlap of attributes of certain groups but not necessarily the content, thus you will not see the specifics of the traits and behaviors. . . . Next to each trait for each group will be either a blank space or an X. The X indicates this group was found to possess this trait or behavior. We simply want you to take some time to get acquainted with the data. . .

In order to manipulate the believability and importance of the trait information, participants were led to believe that the information they were about to see was "new data." Further experimenter instructions were constructed to increase participants' attention to the numerical overlap of traits

and behaviors and also to increase believability by clearly explaining why they were just seeing

traits and behaviors without content (i.e., "Trait 1," Trait 2").

Participants were paced through procedures on computers using MediaLab (Jarvis, 2008).

In phase 1, or the manipulation phase, participants viewed the four trait and behavior array

slides. Each slide was presented for a total of 10 seconds—7 seconds, followed by 3 seconds

where the overlap between traits and behaviors of the groups presented were highlighted (see

Appendix B). In phase 2 they completed the same face recognition task as in Study 1.

Participants were then orally debriefed and thanked for their time.

Results

Participants had an 81.11% accuracy rate overall (*M* errors = 11.14 out of 56

identifications, *SD* = 4.18). As in Study 1, I first computed hits and false alarms, then calculated

a sensitively index or *d'* ($z_{hits} - z_{false\ alarms}$) for each of the four target groups (Black and White

women and men).[3] I hypothesized that participants would be least sensitive—reflected in lower

d'—in response to photos of Black women compared to the other three groups. Further, I

hypothesized that participants should be least sensitive in correctly recognizing Black women in

the low trait overlap condition, as this reflects low prototypicality of Black women. However, in

the high overlap condition, I expected that participants' recognition of Black women would

increase.

Sensitivity index. The sensitivity index, *d'*, was submitted to a Trait Overlap × Target

Race × Target Gender, repeated measures ANOVA, with the between-subjects factor of Trait

Overlap. The main effects of Target Race, $F(1, 100) = 11.65$, $p = .001$, and Target Gender, $F(1,$

$100) = 6.51$, $p = .012$, were significant. Participants were more sensitive in correctly recognizing

White (*M* = 1.98, *SD* = .80) compared to Black targets (*M* = 1.75, *SD* = .76), and more sensitive

in correctly recognizing female ($M = 1.95$, $SD = .79$) compared to male targets ($M = 1.77$, $SD = .77$). In addition the 3-way interaction was significant, $F(1, 100) = 4.87$, $p = .03$, but as depicted in Figure 2, the nature of the 3-way interaction was again opposite of my predictions: The Target Race × Target Gender interaction was significant in the *high* trait overlap condition, $F(1, 48) = 4.97$, $p = .031$, but not in the low trait overlap condition, $F(1, 52) = .52$, $p = .474$. Participants who viewed *high overlap* between the traits and behaviors of Black women and others were *worse* at recognizing Black women ($M = 1.66$, $SD = .79$) compared to White women ($M = 2.13$, $SD = .82$) in a separate photo recognition task, $t(48) = 3.49$, $p = .001$, though there were no significant differences in recognition between Black women and Black men ($M = 1.80$, $SD = .81$) or White men ($M = 1.82$, $SD = .76$; ps > .25). However, when participants viewed low overlap in the traits and behaviors of Black women compared to other groups, they were equally good at recognizing Black women ($M = 1.93$, $SD = .75$) as White women ($M = 2.09$, $SD = .80$), $t(52) = 1.28$, $p = .21$, and White men ($M = 2.09$, $SD = .80$), $t(52) = .34$, $p = .74$. Recognition for Black women in this condition was *better* than it was for Black men ($M = 1.59$, $SD = .64$), $t(52) = 2.70$, $p = .009$.[4]

Also driving the 3-way interaction, participants were marginally more sensitive in recognizing Black women in the low trait overlap condition than the high trait overlap condition, $F(1, 100) = 2.89$, $p = .092$. However there were no differences in recognition by the trait overlap conditions for the other three groups (all ps > .17).

Again for comparability with Sesko and Biernat (2010), a three versus one planned comparison analysis was preformed with the between-subjects factor of Trait Overlap. There was a Trait Overlap × Target interaction, $F(1, 100) = 4.38$, $p = .039$. The 3 vs. 1 contrast was larger in

the high trait overlap condition (*M*s = 1.66 for BW; 1.91 for the other three groups), than the low

trait overlap condition (*M*s = 1.95 for BW; 1.85 for the other three groups).[5]

Discussion of Studies 1 and 2

Studies 1 and 2 were designed to manipulate the prototypicality of Black women, with

the expectation that invisibility of Black women would be high when they were depicted as low

in prototypicality, but lessened when they were depicted as similar to White women and Black

men. Instead, I found the opposite patterns. Recognition of Black women was worse in Study 1

when Black women were represented as numerically equal to White women, compared to when

they were depicted in low numbers. And in Study 2, participants who were initially exposed to

an array of traits and behaviors depicting high overlap (75%) between Black women and White

women and/or Black men, were *worse* at recognizing Black women in a separate photo

recognition task compared to participants exposed to a low overlap (25% shared attributes).

These findings are at odds with a prototypicality account, but they cannot be ignored given the

two very different methods of Study 1 and Study 2 but comparable results. The surprising

findings raise at least two possibilities: 1) I may not have manipulated prototypicality but instead

manipulated something else, and 2) the prototypicality account may be incorrect. The next two

studies directly address point 1, and indirectly address point 2, by further investigating what

psychological process my manipulations may have induced.

Power/Social Status and Invisibility

An alternative explanation for the effects reported in Studies 1 and 2 relates to power. In

Study 1 (albeit not in Study 2) the women depicted in the manipulation phase looked particularly

"powerful." They were all wearing business attire and appeared to be middle to upper-middle

class. There is evidence to suggest that power is related to paying attention to individuating

information, and taken together with the numerical status findings of Study 1, may provide a possible explanation for the obtained results.

Fiske (1993) argues that attention to others is directed up the social hierarchy. Powerful people—those who hold control over the outcomes of others—are less likely to pay attention to individuating characteristics and attributes of subordinates and more likely to rely on category based judgments (Goodwin & Fiske, 1996; Goodwin, Gubin, Fiske, & Yzerbyt, 2000). In one demonstration, Goodwin et al. (2000) manipulated perceiver control (high power) or dependency (low power) relative to internship applicants. They found that powerful perceivers increased attention to stereotypic information about the applicants and decreased attention to counter-stereotypic information compared to low power perceivers. Thus powerful perceivers were less likely to use *individuating* information to form impressions of applicants than were perceivers who were low in power relative to the applicant.

This presumably occurs because power is not contingent on knowing individuating information about subordinates (Fiske, 1993; c.f., Overbeck & Park, 2001, and Vescio, Snyder, & Butz, 2003; also see Vescio, Gervais, Heiphetz, & Bloodhart, 2009, for a review), and relying on stereotypes may help to uphold and legitimize power positions (Fiske, 1993; Goodwin et al., 2000; Jost & Banaji, 1994). However, individuals with low power tend to pay attention to individuating characteristics of the powerful because it is beneficial to form an accurate impression of individuals who have control over their outcomes. In this sense, the lack of attention or *lack of individuation* that characterizes invisibility may be a consequence of the particularly low power of Black women due to their dual subordinate identity membership. These findings suggest that low power can be a direct antecedent to power holders' perception of others as invisible, and to the experience of invisibility by low status members.

It is also likely that low power in a group *affects* and/or is *affected by* non-prototypicality. Indeed, power holders or leaders are typically also prototypical of the group (Hogg, 2001). And non-prototypical leaders are less likely to exert influence and are less likely to be perceived as having important leadership qualities (e.g., charisma) than their more prototypical counterparts (Hogg, 2001; Platow, van Knippenberg, Haslam, van Kippenberg, & Spears, 2006). Thus, low power may be correlated with low prototypicality, which may affect both perceptions and experiences of invisibility. In Study 1, both Black and White women were depicted as having relatively *high power* in the manipulation phase, which may have increased the visibility of both groups. However, in one condition Black women were also represented in *low numbers* relative to White women, and in fact some research suggests that low numerical status increases salience or attention (e.g, Kanter, 1977). I briefly review some of this research below to highlight how coupled with high power, low numerical status may have increased the visibility of Black women.

Numerical minority status and invisibility

Fryberg and Townsend's (2008) conception of absolute invisibility refers to low numerical social representation (in fact no representation) of group members in a given context. Likewise, given their low social status within society, ethnic minorities (who are in fact numerically less present in the population) and women are often represented as solos or low in numbers relative to higher social status members (e.g., White men; Kanter, 1977; Niemann & Dovidio, 1998; Lord & Saenz, 1985; Sekaquaptewa & Thompson, 2002).

Interestingly, however, much theory and research on low numerical status suggests that this may actually *increase* visibility (e.g., Kanter, 1977). Specifically, as group size *decreases*, the salience of that group is theorized to *increase* (Mullen, 1991, 1989; Taylor et al, 1978; c.f.

Oakes, 1987). Work on solo status has likewise suggests that solos/tokens draw attention, thus *increasing* visibility (Kanter, 1977; Taylor & Fiske, 1978; Taylor et. al, 1978). Conversely, as group size increases, the salience of the group decreases (Mullen, 1991).

In other words, *low numbers of high powered* Black women in Study 1 could have produced increased individuation compared to when they were represented in high numbers along with high powered White women. The combination of high power and low numerical status may have led to the observed increased visibility of Black women in the "low numerical representation" condition relative to when Black women were represented in equal numbers with White women. Study 3 tests this assumption by adding a power/status manipulation to the Study 1 paradigm.

Study 3

Study 3 is a replication of Study 1, with an added manipulation of perceived power of the women depicted in the initial photo arrays. Participants were told that the photos of women presented in the manipulation phase were either "secretaries" or "upper level managers" at various companies. I also included another numerical representation condition in which White women were represented as low in numerical status relative to Black women (10 photos out of 80 in the array). Thus, there were 3 numerical status conditions (low Black women, low White women, and equal Black and White women) crossed with the secretary/manager power manipulation.

Following Fryberg and Townsend's (2008) conceptualization of invisibility, I hypothesized that when Black women are represented in low numerical status and low power they will be the least likely to be correctly recognized in a separate photo recognition relative to White women, Black men, and White men. But based on Study 1, when Black women are

represented as high in power but low in numerical status, recognition should increase compared to when they are represented in equal numbers with equivalently high powered White women. It is unclear how and if representing White women as low in power and numerical status will have an effect on recognition of Black women or of White women.

Method

Participants and design. Participants were 165 White undergraduates enrolled in an Introductory Psychology course who received course credit for their time (74 females; Age, $M = 19.22$, $SD = 1.85$)[6]. Participants were run alone or in groups up to five; each was seated at an individual computer. Participants viewed a manipulation phase and then were exposed to faces and later completed a recognition memory test. The task produced a 3 (numerical representation: low Black women, low White women, equal) × 2 (power: high, low) × 2 (target race: Black, White) × 2 (target gender: female, male) mixed design, with the between-subjects factors of numerical representation and power.

Procedure. Procedures were identical to Study 1, except participants were told that the photos of women in the manipulation phase represented either secretaries from various companies or that the women held upper level management positions in various companies. Specifically, before viewing the 4 slides of women, participants read on the computer screen the following (emphasis in original; low power condition in brackets):

INSTRUCTIONS: We are interested in studying how people learn information about others and groups. In this first phase you will see photos of individuals belonging to a particular group, in this case to the group WOMEN. All of these women hold upper level management jobs [are secretaries] from various companies. Your job will be simply to

spend some time viewing these photos of females who hold UPPER LEVEL

MANAGEMENT [SECRETARIAL] positions.

At the end of the recognition task, participants completed a manipulation check in which they

were asked to indicate how powerful they viewed the women to be in the first task on a scale

from 1—*not at all powerful* to 7—*very powerful.*[7]

Results

The manipulation check showed that while indeed participants rated women described as

upper level management as more powerful (M = 4.48, SD = 1.16) than women described as

secretaries (M = 4.16, SD = .87), this difference was not significant, $F(1, 58)$ = 1.45, p = .234.

This issue will be returned to in the Discussion.

Participants had a 76.95% accuracy rate overall (M errors = 12.91 out of 56

identifications, SD = 5.36). I first computed hits and false alarms, then calculate the sensitivity

index or d' ($z_{hits} - z_{false\ alarms}$) for Black and White women and men.[8] I hypothesized that when

Black women were represented in low numerical status and low power they would be the least

likely to be correctly recognized in a separate photo recognition task—evident in lower d'—

relative to White women, Black men, and White men. But when Black women were represented

as high in power but low in numerical status, recognition should increase compared to when they

were represented in equal numbers with White women and high in power. I had no clear

predictions regarding the effects of representing White women as low in power and numerical

status.

Sensitivity index. The sensitivity index, d', was submitted to a Numerical Representation

× Power × Target Race × Target Gender repeated measures ANOVA. The only significant effect

was a main effect of Target Race, $F(1, 159) = 7.71$, $p = .006$, such that White targets ($M = 1.88$, $SD = .81$) were recognized better than Black targets ($M = 1.72$, $SD = .82$).[9]

Discussion

There was no evidence that power in combination with numerical status explains the effects of Study 1. In fact there were no significant effects other than Target Race for d'. The complete lack of effects on d' was puzzling, as I did not replicate the findings of Study 1 in the high power condition. It is possible that the current power manipulation was simply not adequate. In fact the power manipulation check indicated this may have been the case. However, also interesting was the frequency of ratings on this scale. Most ratings of power clustered around 4 ($N = 29$) or 5 ($N = 19$) and no one rated the photos as a 7 on the powerful scale. Thus participants viewed the women to hold "average" power but not to be particularly powerful. This suggests that in fact power may not have driven the obtained effects in Study 1 as in general (at least in this study) participants were not inclined to see the women as powerful. It is therefore possible that this manipulation simple created noise rather than manipulated power or explained the effects of Study 1. Some evidence of noise is apparent in a close reading of the footnotes that accompany this Results section – there were more problematic data. A larger number of participants than expected had negative d's, and were excluded from the analyses. However, results analyzed with and without these participants were comparable. A negative d' indicates that participants were *insensitive* to the signal or in this case the faces, in a way that tends to result in incorrect responses (Macmillan & Creelman, 1991). Negative d' could also suggest that a participants were deliberately giving the incorrect answer or that there was a misunderstanding about which answer corresponds to the correct answer. So in this case, participants could have confused the responses "new" and "old." While it is unclear exactly what produced these

negative *d*'s, it does indicate participants' attention to the faces and the procedures were possibly diverted. Likewise, drawing attention to occupational status of the targets may also have distracted attention from race, resulting in a failure to replicate the invisibility effect in the equal representation condition. Of course, null effects are difficult to interpret, but the bottom line is that the consideration of power did not shed any additional light on the unexpected findings produced in Studies 1 and 2.

Much work suggests that power does affect perceptions of individuation, and the current study certainly does not suggest otherwise. However, what it does suggest is that power is not a good alternative explanation for puzzling, albeit interesting findings of Study 1 (or of Study 2). Study 4 tests a different alternative hypothesis—namely that drawing attention to the uniqueness or *differences* of Black women compared to White women and Black men *increased* their individuation.

Study 4

The low numerical representation condition of Study 1 and the low trait overlap condition of Study 2 both could be conceptualized as manipulating perceived *difference* or uniqueness of Black women relative to their White female and Black male counterparts. In fact, within the literature on comparative thinking, research suggests that focusing on *differences* compared to similarities leads to increased individuation and reduced reliance on stereotypes as guides for judgment (Corcoran, et al., 2009). Study 4 directly addresses the hypothesis that it was this focus on differences that lead to Black women's increased visibility in these conditions.

When comparative thinking increases individuation

When people judge themselves or others they rely on comparisons with accessible standards (Festinger, 1954). In his *selective accessibility model,* Mussweiler (2003) argues that

comparative thinking occurs in three stages. First a standard is selected, then a comparison occurs, and then knowledge from this comparison is used to make a judgment. For example, Mussweiler and Strack (2000) asked participants to compare their athletic ability with a high athletic standard (the German race car driver Nicki Lauda) or low athletic standard (former U.S. President Bill Clinton). They then completed a lexical decision task that included words associated with low and high athleticism. Participants who were given the high athletic standard were faster to associate the high athletic words with themselves than the low athletic words. But when they were given the low athletic standard they were more likely to associate the low athletic words with themselves than the high athletic words. In this sense the comparison standard rendered self knowledge that was consistent with that standard more accessible.

In the second stage individuals engage in hypothesis testing in which they assess either the similarity or dissimilarity of the target to the standard. As a default individuals typically begin by engaging in a holistic *similarity* testing, briefly using a small number of salient features, to assess if the target fits the standard of comparison. If so, the process becomes more fine tuned and the perceiver continues to selectively search for standard-consistent information—resulting in *assimilation* to the standard (as was the case in Mussweiler & Strack, 2000). In cases when target-standard fit is low, dissimilarity testing occurs and perceivers selectively search for standard-inconsistent information and the result is a *contrast* from the standard.

Much research suggests that perceivers readily engage in similarity testing as a default compared to dissimilarity testing (e.g., Bodenhausen & Macrae 1998; Brewer, 1988; Festinger, 1954; Fiske & Neuberg, 1990; Mussweiler, 2003; Mussweiler & Bodenhausen, 2002). One reason this occurs is because typically perceivers select standards of comparison that are similar to the target (Festinger, 1954). In addition perceivers typically use standards that are highly

accessible—such as category information or stereotypes. Stereotyping research suggests that stereotypes tend to be highly available standards and are often activated automatically (e.g., Devine, 1989) and spontaneously (Bargh, 1999). Likewise, Fiske and Neuberg's (1990) continuum model of impression formation and Brewer's (1988) dual-process model suggest that when encountering an individual they are quickly categorized into relevant social groups (e.g., by race or gender). Then a confirmatory categorization occurs in which the fit of the individual to the standard is assessed. Typically the fit is assessed as good since category standards are salient and activated and thus individual attributes are easily matched with category standards. This results in assimilation to stereotype-based knowledge. In cases when fit is not good, recategorization (Fiske & Neuberg, 1990) occurs or a person is individuated (Brewer, 1988). Or as Mussweiler's (2003) selective accessibility model suggests, judgments are contrasted away from the standard.

There are however, cases in which dissimilarity testing takes precedence. As one example, Mussweiler and Bodenhausen (2002) demonstrated that dissimilarity testing is more likely to occur if the target and standard belong to different categories. For example, in a series of studies they had male participants read about either female or male targets who possessed gender stereotypical female traits—for example "tidiness." They found that when men read about other male targets they were more likely to use individuating information to describe themselves that was similar to the target attributes—they assimilated to the target standard (e.g., described themselves as tidy). However, when they read about female targets they were more likely to use gender-consistent category information to describe themselves rather than attributes associated with the target—they contrasted away from the target (e.g., described themselves as messy). Thus, standard-consistent knowledge was more accessible when the target person was an

ingroup male, and standard-inconsistent knowledge was more accessible when the target person was outgroup female. Thus comparison of the self to an ingroup member yields assimilation to the standard, while comparison to an outgroup results in contrast. Also Mussweiler (2003) argues other features such as extremity or motivation can result in dissimilarity testing over similarity testing. Specifically, individuals are often unlikely to compare how they are similar to extreme standards (e.g., compare their athleticism to Michael Jordan). Likewise, individuals may be motivated to use dissimilarity testing for a variety of reasons. For example, doing so may be self-protective if similarity testing involves comparing yourself to a negative standard.

Demonstrating the assimilation-contrast effect in comparative hypothesis testing, Mussweiler and colleagues have used a procedural priming method to focus participants on differences versus similarities when making judgments. In the procedural priming task, participants view two scenes depicting 19th century town squares, and are asked either to write down all the similarities or all the differences between the two scenes. Focusing on differences using this procedure has been shown to increase perspective taking (Todd, Hanko, Galinsky, & Mussweiler, 2010), and *reduce* reliance on category-based information for judgments—or stereotyping—and thus *increase* individuation (Corcoran et al., 2009; Mussweiler & Darmisch, 2008). Most relevant to stereotyping outcomes, Corcoran et al. (2009) used the procedural priming of differences v. similarities and then in a supposedly separate part of the experiment, led participants to choose a seat in a room that appeared to be occupied by a "skinhead" (a bomber jacket and military boots, stereotypical skinhead items, were lying in front of one of the chairs in the room). They then measured how close the participants chose to sit next to the other participant as their behavioral measure of stereotyping. They found that when participants were

primed to focus on differences they sat *closer* to the "skinhead chair" than when they were focused on similarities, suggesting a lesser reliance on stereotypical knowledge.

Particularly relevant to Study 4 of this dissertation, Corcoran et al. (2009) conducted a second study in which they again used the difference/similarity priming method described above, and then assigned participants to the role of manager. In this role, participants were given information (e.g., resume, comments from coworkers) about an employee who was either female or male. Participants were then asked to judge the employee on a set of attributes that included both stereotypical female traits (sympathetic, compassionate) and stereotypical male traits (technically skilled, logically skilled). They found that when participants were procedurally primed to focus on similarities they ascribed more stereotypical female traits to female employees and stereotypical male traits to male employees. However, when they were primed to focus on differences this pattern of stereotyping did not occur; they were *less* likely to ascribe stereotypical traits to the target employees. Corcoran et al. (2009) argue that a difference focus allows perceivers to counteract the consequences of assimilation to group stereotypes and instead leads perceivers to use *individuating information* when making judgments.

Comparative thinking and invisibility

I suggest that the low numerical representation condition of Study 1 and the low trait overlap condition of Study 2 were in fact priming a focus on how Black women are *different* from their White female and Black male counterparts compared to the equal numerical representation and high trait overlap conditions. Specifically, in Study 1 the low representation condition could have highlighted how Black women are different than the group women— simply by showing them in lower numbers relative to White women. In Study 2, the low trait overlap condition explicitly indicated that Black women have different traits and behaviors than

White women and/or Black men. I suggest that this difference focus in turn increased visibility by reducing reliance on category information, much like it did in Corcoran et al. (2009).

Although increasing perceived prototypicality may still provide a viable method for increasing visibility, I would like to suggest that an alternative method is to *decrease* reliance on category information by engaging in dissimilarity testing rather than the default of similarity testing. Reducing the need for category information in person perception subsequently eliminates or reduces the non-prototypicality problem and thus increases *visibility* by increasing use of individuating information. I return to the issue of prototypicality and how it may fit within the framework of similarity-dissimilarity testing in the General Discussion.

Study 4 tests this assumption by procedurally priming participants to focus on differences or similarities using the same 19th century town square task used by Corcoran et al. (2009), and then using the same face recognition task reported in Studies 1-3 to measure invisibility. I hypothesize that when participants are primed to focus on similarities, the typical invisibility effect will occur, with recognition lowest for Black women compared to White women, Black men, and White men. However, when participants are primed to focus on differences, this effect will be attenuated/reduced.

Method

Participants and design. Participants were 94 White undergraduates enrolled in an Introductory Psychology course who received course credit for their time (46 females; age $M = 19.44$, $SD = 1.58$).[10] Participants were run alone or in groups up to five; each was seated at an individual computer. Participants were exposed to a prime designed to procedurally induce a general focus on differences or similarities, and then to the task designed to measure invisibility: Exposure to faces of Black and White women and men, followed by a recognition memory test.

The design produced a 2 (focus prime: differences, similarities) × 2 (target race in the face recognition task: Black, White) × 2 (target gender in the face recognition task: female, male) mixed factorial, with the focus prime as the only between-subjects factor.

Procedure. Participants were told they would be completing two unrelated studies. Following directly from procedures used by Corcoran et al. (2009; also see Mussweiler & Darmisch, 2008; Mussweiler, 2001), participants were led to believe that in the first study we were pretesting a series of pictures that we would later use in studies on event memory. In addition they were told that they would be completing a second study, unrelated to the first, in which we were interested in how people learn information about others and groups and that to do so they would be completing a memory of faces task.

Participants were then placed through procedures using MediaLab programming (Jarvis, 2008). In the priming phase participants saw two drawings placed side by side of 19th century town squares (see Appendix C). These directions and materials were taken directly from previous work (Corcoran et al., 2009; Mussweiler & Darmisch, 2008; Mussweiler, 2001) to procedurally prime a focus on differences or similarities. Below the photos they read the follow:

> The purpose of this brief study is to pretest a series of pictures that we will later use in studies on event memory. Please carefully examine the two pictures on the enclosed page. Please try to determine in which respects both pictures are *similar* [*different*] and write down as many *commonalities* [*differences*] as possible. In doing so it is important that you closely examine the two pictures and list as many commonalities [differences] as possible. Please allow yourself a few minutes to make this comparison. Which *commonalities* [*differences*] between the two pictures were you able to find?

Participants had a sheet of paper at their desk that they were instructed to use to write down the similarities or differences between the drawings. When they completed this task, the computer progressed to a screen that indicated study 2 was "loading." This lasted for 10 seconds. As a measure of invisibility, they then completed the same memory for faces task completed in Study 1 – 3. They were then orally debriefed and thanked for their time.

Results

Participants had a 79.05% accuracy rate overall (*M* errors = 11.73 out of 56 identifications, *SD* = 4.72). I first computed hits and false alarms for each category of targets (Black and White women and men), then used signal detection analysis to calculate a sensitively index or d' ($z_{hits} - z_{false\ alarms}$). [11] I hypothesized that participants would be least sensitive— showing lower d'—in response to photos of Black women compared to the other three groups. Further, I hypothesized that this would be particularly true when participants were primed with a similarity focus. When participants are primed with a difference focus recognition of Black female faces should increase.

Sensitivity index. The sensitivity index, d', results are depicted in Figure 3. These data were submitted to a Focus Prime × Target Race × Target Gender repeated measures ANOVA, with the between-subjects factor of Focus Prime. There was a significant effect of Target Race, $F(1, 92) = 6.35$, $p = .013$, such that recognition was best for White targets (*M* = 1.88, *SD* = .65) compared to Black targets (*M* = 1.66, *SD* = .64). In addition there was a marginal Focus Prime × Target Gender interaction, $F(1, 92) = 3.47$, $p < .07$, but the 3-way interaction was not significant, $F < 1$.

Nonetheless, an inspection of the means in Figure 3 does indicate a pattern of Black women invisibility in the similar focus condition: Participants were worse at recognizing Black

women ($M = 1.46$, $SD = .82$) compared to White women ($M = 1.82$, $SD = .94$; $p = .036$), Black

men ($M = 1.75$, $SD = .93$; $p = .08$), and White men ($M = 1.92$, $SD = .82$; $p = .013$). However, as

predicted, these differences did not occur in the difference focus condition, all $ps > .387$ (*BW M*

$= 1.78$, $SD = .79$; *WW M* $= 1.92$, $SD = .88$; *BM M* $= 1.68$, $SD = .77$; *WM M* $= 1.85$, $SD = .75$). No

other pairwise comparisons reached significance in either condition.

In addition, a three versus one planned comparison analysis was performed (comparing

d' for Black women compared with *d'* for the average of the 3 other groups; see Sesko &

Biernat, 2010), using the between-subjects factor of Focus Prime. There was an effect of Target,

$F(1, 92) = 4.50$, $p < .05$, and a marginal Focus Prime × Target (Black women/other) interaction,

$F(1, 92) = 3.16$, $p < .08$. As depicted in Figure 4, the 3 vs. 1 contrast was significant in the

similar focus condition, $t(48) = 2.62$, $p = .012$, (*M*s = 1.46 for BW; 1.83 for other 3 groups), but

not in the difference focus condition, $t(44) = .26$, $p = .796$, (*M*s = 1.78 for BW; 1.82 for other 3

groups). Further, participants were more sensitive in recognizing Black women in the difference

focus condition compared to the similar focus condition ($p = .05$), but there was no difference in

recognition by focus prime for the other three groups combined ($p = .92$), or for any of the other

groups separately (all $ps > .60$).[12]

Discussion

While the predicted Focus Prime ×Target Race × Target Gender interaction was not

significant, the results do suggest that procedurally priming participants to focus on differences

versus similarities reduces invisibility effects. Replicating past invisibility effects, recognition for

Black women was worse in comparison to White women, Black men, and White men in the

similarity focus condition. However, when participants were primed to focus differences, this

effect was attenuated. Further, recognition was better for Black women in the difference focus

condition compared to the similarity focus condition, but this difference in recognition across prime condition did not occur for other groups. These data closely mirror the findings from Study 1 and 2 and lend support to the hypothesis that presenting Black women in low numerical numbers or as having low trait overlap relative to White women and/or Black men may have actually manipulated a focus on how Black women are different or unique.

Study 4 extends work by Corcoran et al. (2009) on comparative thinking and stereotyping and also lends support to the idea that a difference focus can lead to a reduction in use of category based information and an increased used of individuating information. Implications for future work on invisibility are discussed below.

General Discussion

I began this research by manipulating the key feature deemed responsible for the invisibility: non-prototypicality. In Studies 1 and 2 I hypothesized that invisibility of Black women would be highest when Black women were explicitly depicted as non-prototypical of their race and/or gender groups, but reduced when Black women appeared *more* prototypical of the group "women" and/or "Black." To manipulate prototypicality, Study 1 varied the numerical representation of Black women to be low or high relative to White women and Study 2 varied the trait overlap of Black women to be low or high relative to White women and/or Black men. Rather than invisibility being reduced under conditions of equal numerical status and high trait overlap, the opposite occurred: *Low numerical representation* of Black women and *low trait overlap* reduced invisibility relative to conditions of high numerical status and high trait overlap with White females and/or Black males.

On their face, these findings seem at odds with a prototypicality account, and two counter-intuitive findings using different procedures are difficult to ignore. Studies 3 and 4 were

designed to further investigate the psychological processes that may have been instigated by my manipulations of low numerical representation and low trait overlap. I considered two alternative explanations: Power and attention to differences.

Power

Study 3 was based on the possibility that the women depicted in the manipulation phase of Study 1—in which participants viewed photo arrays of well-dressed Black and White women—looked particularly powerful. Research suggests that powerful people are more likely to be individuated than those with low power (Fiske, 1993). Thus I hypothesized that the combination of high power and low numerical status of Black women in this condition may have increased individuation and thus increased recognition for Black women's faces in the test phase. To test this possibility, I attempted to lower the perceived power of women, by explicitly labeling them "secretaries" in one condition of Study 3. I predicted that the combination of low power and low numerical status (low prototypicality) would increase the invisibility of Black women. But Study 3 found no support for this power account, and indeed, I failed to replicate the Study 1 findings in the "high power" ("managers") condition. One reason for the lack of effects may have been that the manipulation of power was simply not strong enough, but of course this still does not explain the lack of replication in the high power condition of Study 3. Perhaps the mention of occupational status of the women simply confused participants in some way, but at this point I have no clear explanation for the lack of findings in this study. Future work should use alternative power manipulations to investigate these ideas further.

Although Study 3 did not support the alternative power hypothesis, there is quite a bit of work that suggests that power may play a role in invisibility (Goodwin & Fiske, 1996; Goodwin, Gubin, Fiske, & Yzerbyt, 2000; Fiske, 1993). In fact I suggest that because low power

individuals are less likely to be individuated than those high in power, low power may itself be a direct antecedent of invisibility, and may contribute to negative downstream consequences of being invisible.

As an example, Thomas and González-Prendes (2009) propose that many negative health outcomes associated with Black women are due to a high risk of feelings of "powerlessness," which are in part shaped by social status disparities related to sexism and racism. Much like Franklin and Boyd-Franklin's (2000) *invisibility syndrome* that applies to Black males, they propose that feelings of powerlessness "creates barriers that limit, or even deny, the individual's capacity to implement solutions to problems, while simultaneously increasing an internal sense of helplessness, low self-efficacy, and physical and emotional distress" (p. 93). Specifically, they propose a conceptual model in which a combination of trying to meet the expectation of a "strong Black woman," but experiences of low income, employment status, few positions of power, and poverty leads to powerlessness. These feeling of powerlessness lead to feelings of anger and stress and as a consequence, negative health outcomes such as obesity, diabetes, and hypertension. Thomas and González-Prendes (2009) argue that the invisibility of Black women within the literature on the gender and race in the mental health arena may "actually exacerbate the sense of powerlessness experienced by these women" (p. 102). It is likely that the sense of powerlessness and negative health related outcomes lead to further decreases in power, perpetuating invisibility. Future work needs to address what role power may play in invisibility, both at the cognitive level that is the basis for the current work, but also at the level of downstream consequences for Black women..

Attention to differences

With power set aside as an explanation for the results of Study 1, Study 4 tested the hypothesis that the low numerical representation condition of Study 1 and the low trait overlap condition of Study 2 both could be conceptualized as manipulations of the perceived *difference* or *uniqueness* of Black women relative to their White female and Black male counterparts. Specifically, literature on comparative thinking suggests that focusing on *differences* compared to similarities leads to increased individuation and reduced reliance on stereotypes as guides for judgment (Corcoran, et al., 2009). Study 4 directly tested the hypothesis that it was this focus on differences that lead to Black women's increased visibility in these conditions by procedurally priming participants to be focused on similarities or differences before completing a face recognition task.

Although the 3-way interaction was not significant, the pattern of means, and the more focused 3 vs. 1 comparison (Black women versus other groups), supported predictions: Focusing on differences in an unrelated task *increased* recognition or visibility of Black women relative to focusing on similarities. These effects mirror the results of Studies 1 and 2 and suggest that indeed the manipulations in those studies may not have altered perceived prototypicality, but rather affected the extent to which Black women were *different* or *unique* compared to their White female and Black male counterparts. Being low in numerical representation and low in trait overlap triggered greater recognition of Black women's faces.

The findings of Study 4 are particularly compelling because the focus prime was completely unrelated to the face recognition task and cleanly manipulated a difference or similarity focus. The results were not as strong as predicted; unlike Studies 1 and 2, the overall 3-way interaction was not significant. But this may have been due to the very nature of the prime. The procedures used in Studies 1 and 2 directly manipulated perceived differences or

similarities between Black women and White men and/or Black men, whereas Study 4 led participants to think about drawing of town squares. In any case, the pattern of generally consistent findings across the three studies suggests that the "difference" account is worth pursuing.

Mussweiler and colleagues have suggested that a difference focus reduces a reliance on category based information, thus increasing individuation and visibility (e.g., Corcoran et al., 2009). Whether this is precisely the mechanism at work in the current studies is unclear. It is possible that the increased visibility of Black women in the difference focus condition (and in the low numerical or low trait overlap conditions of Studies 1 and 2) is not due to increased individuation but rather to participants having recategorized Black women into the subgroup "Black women." For example Fiske and Neuberg (1990) argue when individuals do not fit a category well, they are often recategorized into a better fitting category. By drawing participants' attention to how Black women are different than the prototypical categories of "Black" and "women," recategorization as "Black women" may have provided the better fit. In other words, inducing participants to notice how Black women do not fit the prototypical categories of Black and women could have also induced them to search for a better fitting category—or "Black women." If this was the case, they lost their non-prototypical status (i.e., Black women fit the category "Black women" better than "Black" or "women"), and thus visibility increased. While more work is needed to understand whether individuation or recategorization occurred in the current studies, the results of Study 1, 2, and 4 suggest that invisibility *can* be reduced by manipulations that highlight difference.

What about prototypicality?

I began this research arguing that non-prototypicality is a key antecedent of invisibility; the initial goal of Studies 1 and 2 was to investigate this assumption. I end the dissertation by highlighting the role of difference in reducing invisibility. But does this mean that similarity increases it? And to the extent that similarity means prototypicality, what does this mean for the prototypicality account? Research suggests that the more *similar* an individual is to a category the more *prototypical* they are. In this sense similarity = prototypicality (Spears et al., 1997). Thus it seems that if Black women are non-prototypical of their race and gender categories, then perceivers should readily switch from similarity testing to dissimilarity testing. Their lack of fit with the categories of "Black" and "women" should facilitate perceivers' use of dissimilarity over similarity testing. However if correct, this account does not explain prior invisibility effects (Sesko & Biernat, 2010) or the effects obtained in Studies 1, 2, and 4. If dissimilarity testing results from non-prototypicality, and focusing on differences leads to an *increase* in recognition then why are Black women often invisible? Is the non-prototypicality account incorrect? Importantly, I argue the role of difference focus in reducing invisibility is in fact compatible with the non-prototypicality account of invisibility.

Much research suggests that gender, race, and age are quickly encoded and used in judgments upon encountering individuals (Allport, 1954; Brewer, 1988; Devine, 1989; Fiske & Neuberg, 1990; Talyor, et al., 1978), and thus I assume that Black women are readily compared to the category standards of Black and female because these categories are highly accessible and used often; but this comparison is hindered because of their non-prototypical status, and a downstream consequence is invisibility. There is some research to suggest this is the case. As reviewed in the general introduction, Zárate and Smith (1990) found that White participants categorized Black targets more slowly than White targets (by race and gender), but especially

when the targets were Black women (Study 2). Further, Goff, et al., (2008) found that participants were less accurate in categorizing the gender of Black women relative to White women and Black men (using facial stimuli in Study 1, and silhouettes of people walking in Study 2). In this research, categories were explicitly given to participants. They were asked for example if the person in the photo was Black/White, Female/Male (Zárate & Smith, 1990). The low accuracy that occurs for Black women targets in these studies are comparable to the memory errors found in Sesko and Biernat (2010), where no direct gender and/or race comparison was given to participants. Poor recognition of Black women was also evident in the low numerical representation, low trait overlap, and similarity focus conditions of Studies 1, 2, and 4 of this dissertation. The comparability in findings across studies suggests perceivers do readily engage in categorizing Black women within the categories of "Black" and "women." Further, given poor recognition was found in the similarity focus condition of Study 4, but not in the difference focus condition, it suggests that perceivers also engage in similarity testing as a default and not dissimilarity testing.

Given these findings I argue that perceivers do readily engage in testing the similarity between Black women and their race and gender categories; however, because of their non-prototypical status this process is often hindered (e.g., poor memory and low accuracy). Further while it is the case that fit may be low compared to their prototypical Black male and White female counterparts, it is not the case that fit = 0. For example, as previously reviewed, descriptive research suggests that while some stereotypes of Black women are in direct opposition to the stereotypes of Black men and White women, others are inconsistent (Landrine, 1985; Niemann et al.,1994; Maddox & Gray, 2002). Also it is clearly the case that Black women's gender is female, and race/ethnicity is Black. Thus, I hypothesize that comparing the

similarities of non-prototypical individual to a category is what results in invisibility. By drawing perceivers' attention to differences, it reduces invisibility by decreasing the need for using category-based information of which is fit is low for the target.

However, as argued in the introduction increasing perceived prototypicality or similarity of Black women within the categories of Black and women should theoretically still increase their visibility. The empirical question that remains is how exactly to do this. It may be the case that it will take more than exposure to 4 slides, the technique used in Studies 1 and 2, to increase perceived prototypicality, and instead repeated exposure to Black women as prototypical of these groups. Rosch (1975) argues that prototypes are formed by repeated social representations of the categories. In other words, a robin is not intrinsically more prototypically of a bird than a penguin but instead these category features are learned. We hear more about and see more representations of robins as birds then penguins. Likewise, Fryberg and Townsend (2008) argue invisibility is a function of a repeated lack of social representation of group members. In sum, the best way to reduce invisibility long-term may still be to increase perceptions of Black women as prototypical of Black and women. However, it may also be the most difficult way.

In sum, I suggest that instead of increasing prototypicality to reduce invisibility, a more direct way to reduce invisibility may be to reduce reliance on category based information when making judgments. By focusing on how Black women are *different,* or maybe better stated— *unique,* from White women and Black men it reduces perceivers' need to use the categories of "women" and "Black" when perceiving and making judgments about Black women. In this sense, the non-prototypicality of Black women is bypassed when making judgments. Instead, as Corcoran et al. (2009) suggests "a difference focus may be the perfect tool in the cognitive misers' toolbox to undo the unwanted behavior and judgmental consequences of stereotype

activation" (p. 1010). A difference focus allows perceivers to reduce reliance on category-based information and subsequently reduces invisibility.

Consequences of invisibility

The studies presented in this dissertation examine the processes of invisibility at a basic, perceptual level of face recognition. Thus the findings are limited in scope and generalizablity to the broader question of how invisibility matters. However, I propose that treatment of non-prototypical group members as invisible (i.e., as interchangeable and indistinguishable) has certain downstream consequences for further treatment and experiences—both advantageous and disadvantageous—that could be considered in future work in light of the current findings.

For example, invisibility may mean that one is less likely to be treated as a prototypical group member. To the extent that prototypical Blacks are treated badly, this may mean that Black women are less likely to experience the "typical" discrimination faced by Black men and White women (Purdie-Vaughns & Eibach, 2008). But as a clear disadvantage, one of the main theorized outcomes of invisibility is marginalization (King, 1988; Purdie-Vaughns & Eibach, 2008). Specifically, not being seen or heard has direct effects on inclusion in policy and debate on social issues, opportunities for advancement, granting of degrees of power, etc. Additionally, psychological well-being may be harmed as a consequence of repeatedly feeling left out (Fryberg & Townsend, 2008; Franklin & Boyd-Franklin, 2000). While it is beyond the scope of the empirical work addressed here, it would be interesting to consider how and if reducing reliance on category-based information through a difference focus in fact reduces marginalization of Black women in social spheres. It may be the case that these effects are limited to the lab and cognitive measures. Further, researchers need to consider what sorts of polices, programs, or training sessions would be appropriate to implement.

Conclusion

The goals of the current work were to investigate the role of prototypicality as an antecedent of invisibility and to examine methods to reduce invisibility; to increase the likelihood that Black women will be differentiated and individuated. While the original assumption was that by increasing prototypicality invisibility may be reduced, I instead suggest that a more direct way to reduce invisibility may be to reduce reliance on category based information when making judgments. By focusing on how Black women are *different* or *unique* from White women and/or Black men it reduces perceivers' tendency to use the categories of "women" and "Black" and likewise increases visibility. The current work is the first to suggest and demonstrate that invisibility of Black women can be reduced. In addition, I argue that these processes are also applicable to similarly situated group members beyond Black women. In other words, focusing on differences to reduce reliance on category based information should theoretically also reduce invisibility of other non-prototypical group members.

Invisibility is a unique and qualitatively different form of discrimination that may be particular to groups that hold multiple-subordinate identities. The bulk of the literature has been on experiences of invisibility, but the focus in this dissertation was on understanding (and reducing) perceivers' treatment of others as invisible. I suggest considering invisibility as a form of discrimination offers an alternative to understand how discrimination may be uniquely characterized for such groups. Although much of the research on sexism and racism has concentrated on the prototypes of White women and Black men, it is important for researchers to understand and consider the unique effects that can occur from holding multiple-subordinate identities. I hope this work will add to the existing literature on invisibility, as well as to comparative thinking as a tool to reduce effects of category based judgment. Finally, I hope it

furthers an understanding of the processes related to invisibility among Black women and

similarly situated groups.

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Footnotes

[1] To be able to compute proportions in cases when no errors were made, we followed

conventions and changed false alarm rates of 0 to .05 (this affected 130 cases [out of 91

participants × 4 types of targets = 364 possible]). In addition, a false alarm rate of 1 (or 6 false

alarms out of a possible 6 for each gender/race target), was changed to .95. This only affected 2

participants. Also per convention perfect hit rates were changed to .95 (affecting 72 cases; see

Wickens, 2002).

[2] Because d' is based on the difference between hits and false alarms, we wondered

whether the effects reported above were due to one or both components. Hits and false alarms,

scored as proportions, were submitted to Numerical Representation × Target Race × Target

Gender repeated measures ANOVAs, with Numerical Representation as the between-subjects

factor. There were no significant effects on hits (all $ps > .20$), but the analysis of false alarms

revealed the significant Target Race main effect, $F(1, 89) = 12.51, p < .001$, along with a Target

Race × Target Gender interaction, $F(1, 89) = 4.18, p = .044$, and the predicted three-way

interaction, $F(1, 89) = 5.05, p = .027$. Like d' the pattern of results in this 3-way interaction was

in a direction opposite to my predictions. The Target Race × Target Gender interaction was

significant in the *equal* numerical representation condition, $F(1, 29) = 5.56, p = .025$, but not in

the low numerical representation condition, $F(1, 60) = .035, p = .85$. In the equal numerical

status condition more false alarms were committed for Black women ($M = .31, SD = .25$)

compared to White women ($M = .17, SD = .18; p = .001$), and marginally more compared to

Black men ($M = .24, SD = .23; p = .083$), and White men ($M = .23, SD = .18; p = .052$). But

equal numbers of false alarms were committed for Black women ($M = .20, SD = .17$) compared

to White women ($M = .16, SD = .14$), Black men ($M = .23, SD = .18$), and White men ($M = .18$,

SD = .13) in the low representation condition (all *p*s > .13). Also driving this 3-way interaction, participants committed more false alarms for Black women in the *equal* numerical representation condition compared to the low numerical representation condition, *F*(1, 89) = 5.51, *p* = .021, but differences in false alarms between conditions were not significant for White women, Black men, and White men (all *p*s > .17). Thus, increased recognition of Black women in the low numerical representation condition was driven primarily by the *decrease in false alarms* in this case.

[3] False alarm rates of 0 were changed to .05 (this affected 140 cases [out of 102 participants × 4 types of targets = 408 possible]). Also per convention, perfect hit rates were changed to .95 (affecting 90 cases; see Wickens, 2002).

[4] Further simple effects analysis showed that participants were also particularly good at recognizing White women in the high overlap condition compared to both Black men, *t*(48) = 2.50, *p* = .016, and White men, *t*(48) = 2.16, *p* = .036. In the low trait overlap condition, participants were better at recognizing White women, *t*(52) = 3.45, *p* = .001, and White men (*M* = 1.88, *SD* = .83), *t*(52) = 2.12, *p* = .039, compared to Black men.

[5] Hits and false alarms, scored as proportions, were also submitted to Trait Overlap × Target Race × Target Gender repeated measures ANOVAs, with the between-subjects factor of Trait Overlap. The only significant effect for hits was a main effect of Target Gender, *F*(1, 100) = 5.80, *p* = .018. Participants had more hits for female targets (*M* = .80, *SD* = .11), than for male targets (*M* = .77, *SD* =.13). For false alarms, there was a significant Target Race main effect, *F*(1, 100) = 7.60, *p* = .007, such that participants committed more false alarms when the target was Black (*M* = .23, *SD* = .14) than when the target was White (*M* = .19, *SD* = .13). No other effects were significant. Thus, the *d'* effects were not specifically driven by false alarms or hits.

[6]The original N was 196. Thirty-five participant responses were excluded due to negative *d's* (n=24) or for failing the manipulation check (n=11). A negative *d'* is not interpretable and indicates that participants performed worse than chance or that participants could distinguish the signal but were doing so incorrectly (Macmillan & Creelman, 1991; Wickens, 2002). For the manipulation check, participants were asked at the end of the experiment to recall what job the photos of women they saw had. Participants that were excluded from analysis answers included variations of: "I was not told," "I don't know," or they guessed an incorrect profession.

[7] This study was conducted over two semesters. A manipulation check was included only during the second semester, thus, only 60 out of the 102 participants completed this question.

[8] False alarm rates of 0 were converted to .05 (this affected 245 cases [out of 165 participants × 4 types of targets = 660 possible]). In addition, a false alarm rate of 1 (or 6 false alarms out of a possible 6 for each gender/race target), was changed to .95. This only affected 2 participants. Also per convention perfect hit rates were changed to .95 (affecting 131 cases; see Wickens, 2002).

[9] Hits and false alarms, scored as proportions, were submitted to a Numerical Representation × Power × Target Race × Target Gender repeated measures ANOVAs, with the between-subjects factor of Numerical Representation and Power. The only significant effect on hits was a main effect of Target Gender, $F(1, 159) = 8.22$, $p = .005$, such that male targets ($M = .78$, $SD = .15$) were correctly recognized better than female targets ($M = .75$, $SD = .17$). For false alarms there was an effect of Target Race, $F(1, 159) = 10.50$, $p = .001$, such participants committed more false alarms for Black targets ($M = .23$, $SD = .16$) th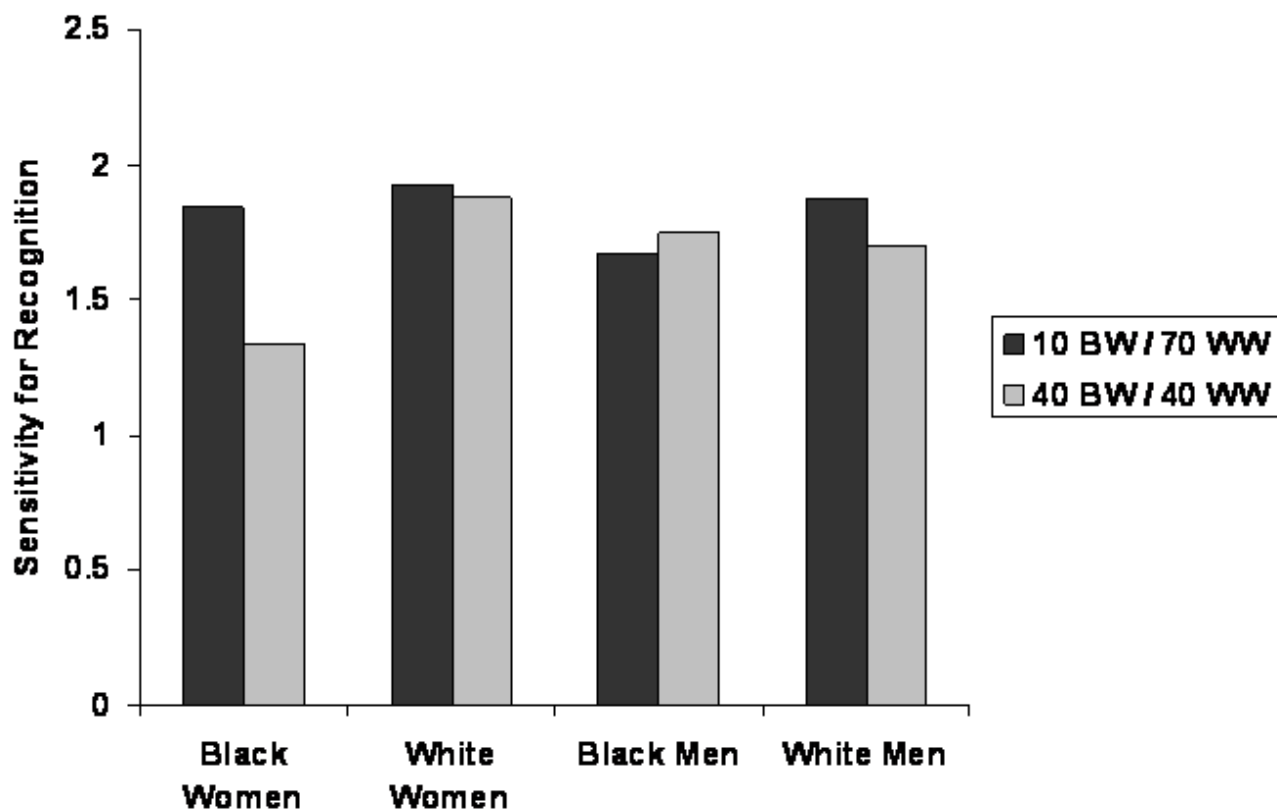an White targets ($M = .19$, $SD = .14$). There was also a Numerical Representation × Power interaction × Target Race × Target Gender interaction, $F(2, 159) = 3.88$, $p = .023$. The nature of this 4-way interaction did

not replicate any previous findings and did not bring any meaningful knowledge to the current dissertation. For this reason, it will not be discussed further.

[10] The original N was 104. Ten participant responses were excluded due to negative *d's*.

[11] False alarm rates of 0 were changed to .05 (this affected 120 cases [out of 94 participants × 4 types of targets = 376 possible]). In addition, a false alarm rate of 1 (or 6 false alarms out of a possible 6 for each gender/race target), was changed to .95. This only affected 1 participant. Also per convention, perfect hit rates were changed to .95 (affecting 81 cases; see Wickens, 2002).

[12] Hits and false alarms, scored as proportions, were also submitted to Focus Prime × Target Race × Target Gender repeated measures ANOVAs, with the between-subjects factor of Focus Prime. There were no significant effect of Hits (all ps > .19), and only a significant effect of Target Race on false alarms, $F(1, 92) = 11.53$, $p = .001$. Participants committed more false alarms for Black targets ($M = .25$, $SD = .17$) than White targets ($M = .20$, $SD = .12$).

Figure 1. Numerical Representation of Black Women × Target Race × Target Gender interaction on sensitivity (*d*'), Study 1

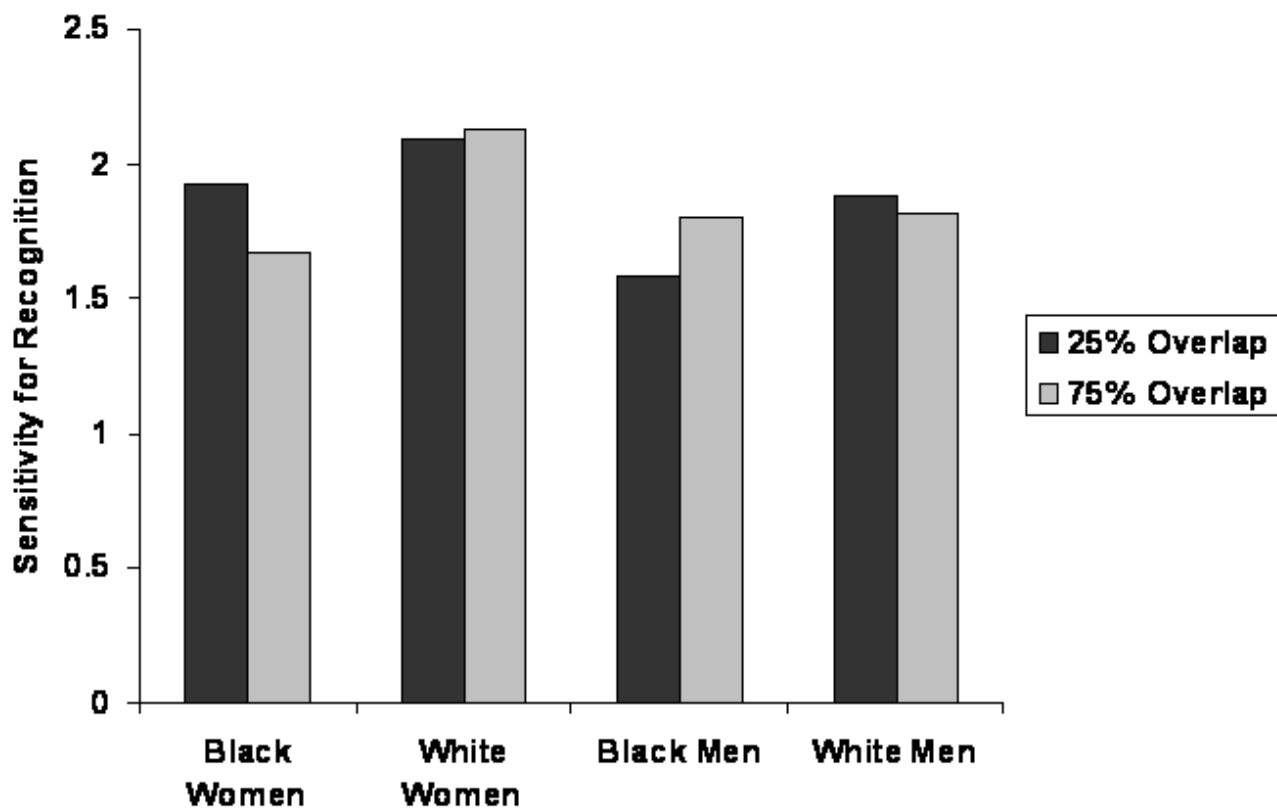*Figure 2.* Trait Overlap of Black Women compared to White women and Black men × Target Race × Target Gender interaction on sensitivity (*d'*), Study 2
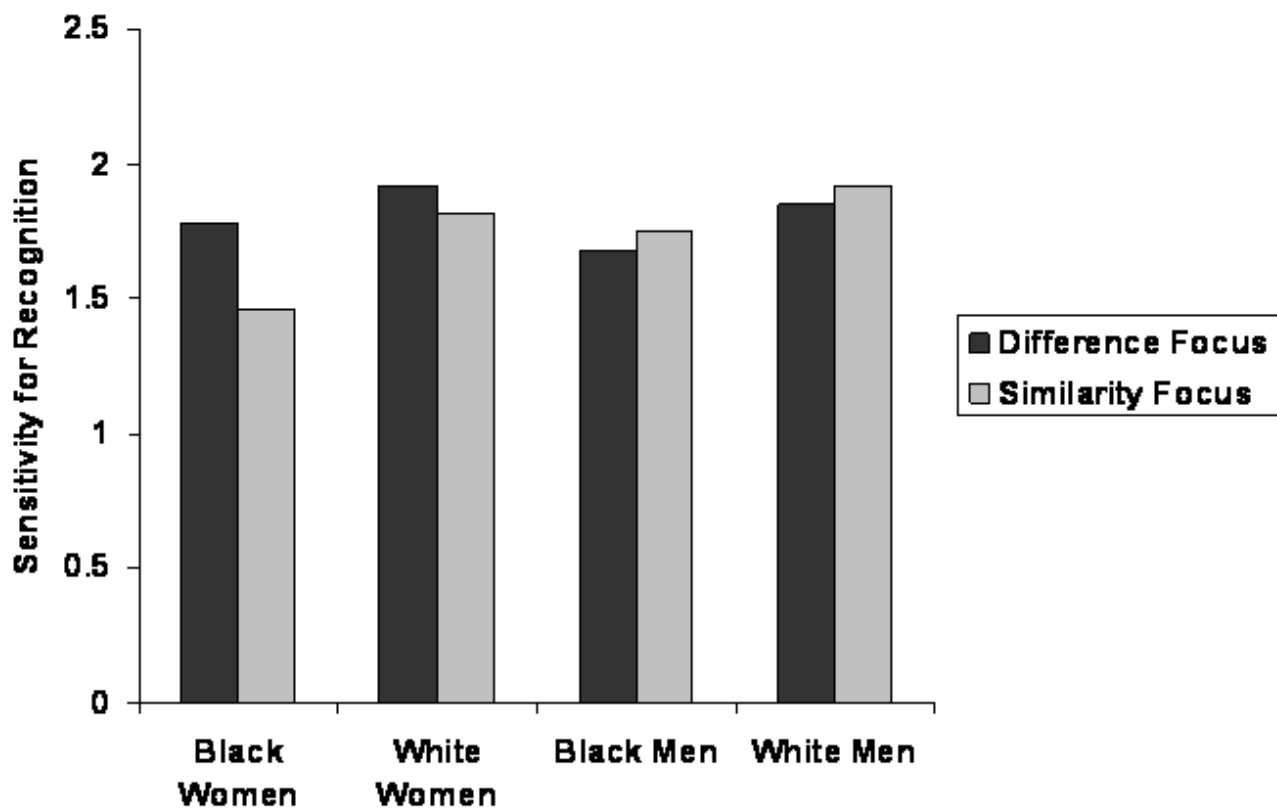
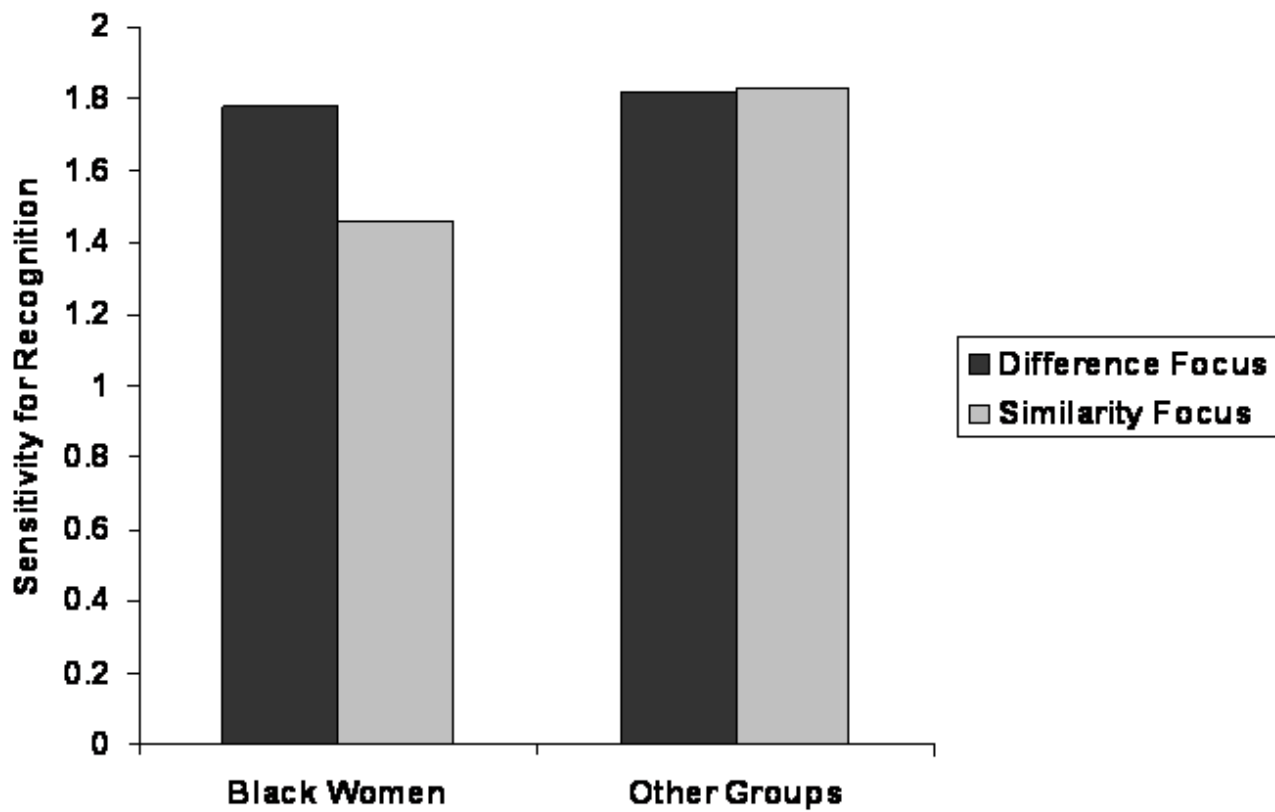*Figure 3.* Focus Prime × Target Race × Target Gender interaction on sensitivity (*d'*), Study 4

Figure 4. Focus Prime × Target (Black women vs. mean of other groups) interaction on sensitivity (*d'*), Study 4

Appendix A

Example slides from manipulation phase of Study 1

Example slide 1: Low numerical representation condition

Example slide 2: Equal numerical representation condition

Appendix B

Example slides from manipulation phase Study 2

High trait overlap condition/White women comparison: Slide 1 shown for 7 seconds followed by slide 2 highlighting trait overlap for 3 seconds

High trait overlap condition/White women and Black men comparison: Slide 1 shown for 7 seconds followed by slide 2 highlighting trait overlap for 3 seconds

Appendix C

Drawings for focus prime in Study 4