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# Looking Black or looking back? Using phenotype and ancestry to make racial categorizations ☆

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## HIGHLIGHTS

- We examine the effects of racial ancestry and phenotypicality on race categorization.
- Both factors influence categorization, but phenotipicality effects are larger.
- Low Black phenotypicality targets were perceived as warmer and more competent.
- Bias against low Black phenotypicality targets was perceived as less discriminatory.
- All biracial targets were categorized as biracial.

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## ABSTRACT

When it comes to the racial categorization of biracial individuals, do people look at phenotypicality (i.e., a race consistent appearance) for clues, or do they look back at racial ancestry? We manipulated racial ancestry and racial phenotypicality (using morphed photos) to investigate their influence on race categorizations. Results indicated that while ancestry and phenotypicality information both influenced deliberate racial categorization, phenotypicality had a substantially larger effect. We also investigated how these factors influenced perceptions of warmth and competence, and racial discrimination. We found that Black–White biracials with low Black phenotypicality were perceived as warmer and more competent than biracial targets with moderate and high Black phenotypicality. Moreover, given identical instances of racially discriminatory treatment, low Black racial phenotypicality targets were significantly less likely to be perceived as victims of racial discrimination. Our findings shed light on how ancestry and phenotype influence perceptions of race and real world social judgments such as perceptions of discrimination. Previous studies have shown that low minority ancestry biracials are presumed to have experienced less discrimination; our findings indicate that racial cues impact perceptions of discrimination even in incidences of known racial discrimination.



Nearly 3% of the US population identifies as biracial (U.S. Census Bureau, 2011) and that number is expected to grow as interracial marriages become increasingly common (Wang, 2012). Thus, there is a critical need for psychologists to understand the factors that influence racial categorizations of biracial individuals. Moreover, knowing just how these factors influence attitudes toward the distribution of minority resources (e.g., legal protection, minority scholarships) will become increasingly important. Previous research indicates that people use racial phenotypicality information (e.g., skin tone, shape of eyes and nose) to make social categorizations (e.g., Ho, Sidanius, Levin, & Banaji, 2011; Maddox & Gray, 2002). The more racially phenotypical a target's features, the greater the extent to which they are categorized as members of that racial group. People also tend to look back at racial ancestry to make racial categorizations, and those with more minority racial ancestry are more likely to be categorized as minority group members (Ho et al., 2011; Sanchez, Good, & Chavez, 2011). While these findings provide valuable insight into the perceptions of biracials, in the real world people often have multiple sources of information (e.g., phenotypicality and ancestry) from which to draw conclusions. Thus, it may be more appropriate to investigate the impact of these factors simultaneously in relation to social perceptions and categorizations of race.

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### Phenotypic features

The more race prototypical a target's features, the more closely aligned they are perceived to be with that racial group (Maddox, 2004). Maddox and Gray (2002) found that participants use racial phenotypicality information (i.e., skin tone) to make social categorizations. Faces with more Afrocentric features are more readily categorized as Black, in comparison with faces with fewer Afrocentric features (Blair, Judd, Sadler, & Jenkins, 2002). Another study, manipulating hairstyles, showed that identical targets presented with hairstyles stereotypical of either Blacks or Latinos were perceived to possess more attributes consistent with that group (MacLin & Malpass, 2001). Ho et al. (2011) presented participants with morphs of Black–White biracial faces in constant 1% and 5% intervals. The White–Black biracial target faces used by Ho et al. were categorized as White when Black phenotypicality was below a threshold of 34.8% to 44.7%. Although these findings suggest some level of hypodescent, the tendency for biracial individuals to be assigned the label of the lower status racial group, they provide overall support for the notion that phenotypicality influences racial categorization. Taken together these findings indicate that the more racially phenotypical a target's features, the greater the probability they will be categorized as members of the corresponding racial group.

### Racial ancestry

Historically, racial categorization in the U.S. was based almost entirely upon racial ancestry. The "one-drop rule" stated that even one drop of Black blood (i.e., any known amount of Black ancestry) made an individual categorically Black (Hickman, 1997). Thus, racial categorization was largely independent of actual appearance, or phenotypicality. Hirschfeld's (1995) investigation of the development of racial categorizations over the lifespan indicated that young children (2nd graders) base racial categorizations of mixed race children on the race of the mother. Older children and adults, on the other hand, are much more likely to show a pattern of hypodescent in their categorizations. In fact, given the categorical options "Black," "White," and "something else" all adults in the sample ($N = 43$) categorized the child of a Black–White interracial couple as Black. Interestingly, Hirschfeld also found that while the child of a same race couple was expected to equally resemble both mother and father, the child of an interracial couple was expected to show a greater resemblance to the Black parent. This pattern did not emerge for 2nd graders, but both 5th graders and adults believed that the child of a mixed race couple would look more like the Black parent. Therefore, when making racial categorizations young children appear to initially use intuitive theories of biology. They predict that offspring will look like a mix of both parents or more closely resemble the mother—who physically carried and bore the offspring. However, as children age, social learning appears to lead to the development of hypodescent.

To determine whether race is perceived as a unique biological concept Hirschfeld (1995) also investigated the predictions associated with another hued physical feature (i.e., hair color). Across both age groups (2nd and 5th graders), children were equally likely to predict that the child of a light haired parent and a dark haired parent would have light hair, dark hair, or mixed color hair. This is in contrast to the results regarding skin color (i.e., race) predictions, in which dark features were expected to be dominant. Thus, the social relevance of race appears to be driving these effects rather than beliefs about the biology of mixing light and dark features.

The one-drop rule would suggest that all individuals with any Black ancestry would equally be labeled as "Black." However, more recent studies have shown an incremental effect of parental ancestry on racial categorization—such that the degree of minority ancestry predicts the extent to which participants categorize biracial individuals with minority labels (Ho et al., 2011; Sanchez et al., 2011). Sanchez et al. (2011) found that participants perceived targets that were described as having more racial minority ancestry as more categorically Black, even after controlling for perceptions of phenotypicality. Although perceptions of phenotype were statistically controlled, it's likely that perceptions of phenotype and racial ancestry are highly correlated. Therefore, it is important to simultaneously examine the influence of phenotype and racial ancestry. Indeed, several researchers have suggested that future research should independently manipulate these variables (Good, Sanchez, & Chavez, 2013; Sanchez et al., 2011), as we have done in the current study.

### Racial ancestry vs. racial phenotypicality

Although both phenotypicality and ancestry have been used as biracial manipulations, the two have never been manipulated simultaneously. Ho et al. (2011)) investigated both racial phenotypicality and racial ancestry, finding that both impacted race judgments. However, they did not manipulate ancestry and phenotypicality simultaneously in a single sample; thus, it is not clear which has a stronger influence or whether they interact to impact race determinations. Colloquial beliefs about the strong impact of visual information, as demonstrated by the old saying "a picture is worth a thousand words," would suggest that racial phenotypicality information would dominate racial categorizations. This is supported by findings from neuroscience research, which indicate that target faces are categorized by race within a half a second after visual presentation. For example, using event related potentials (ERP) Willadsen-Jensen and Ito (2006) found that within 200 ms after stimulus presentation participants' brain waves differentiated White targets from Black targets. Later in the waveform (~500 ms after stimulus presentation), ERP amplitude differentiated White faces from racially ambiguous faces. Thus, there is evidence that the brain makes nearly instantaneous racial categorizations based on phenotypicality information.

However, there is evidence that racial ancestry information may moderate the effect of racial phenotypicality information on racial categorizations. For example, Peery and Bodenhausen (2008) found that when participants were required to make fast reflexive race categorizations, mixed race target photos were more likely to be categorized as Black when presented with information about mixed racial ancestry. On the other hand, when participants were allowed time for thoughtful deliberation, information about mixed racial ancestry increased categorization as both Black and White (i.e., multiracial). Although these findings are informative for determining how biracials in general may be perceived relative to monoracials, it is not clear how these results apply to variations among biracials. For instance, will information indicating that a target has 75% Black ancestry influence the way a low Black phenotypicality target will be categorized? According to lay genetic theories of race (the theory that genetic differences underlie racial differences; Jayaratne, Sheldon, Brown, Feldbaum, & Petty, 2006), it stands to reason that ancestry and phenotypicality would interact. High Black phenotypicality targets would likely be categorized as Black regardless of ancestry, while the categorization of low Black phenotypicality targets would likely depend upon ancestry. Yet the most recent evidence suggests that genetic theories of race have largely fallen out of favor. In a large sample of White Americans 74% indicated that genetic factors had very little or no influence on perceived racial differences in things like math ability and tendency to act violently (Jayaratne et al., 2006). Given that most Americans do not endorse lay genetic theories of race we predicted that ancestry and phenotypicality would largely operate independently.

## Biracial individuals and the distribution of minority resources

Understanding the combined influence of racial ancestry and phenotypicality may be especially important when it comes to the distribution of minority resources (e.g., legal protection from racial discrimination, minority scholarships). In comparison with monoracial minority applicants, biracial applicants are perceived to be less worthy of a minority scholarship (Sanchez & Bonam, 2009). Moreover, among biracial applicants, those with more White ancestry are perceived to be less deserving of minority scholarships (Good et al., 2013). Biracials also tend to be perceived as less warm and competent than both monoracial Whites and monoracial minority targets, which partially explains variability in the distribution of minority resources (i.e., a minority scholarship; Sanchez & Bonam, 2009).

More recent studies have identified a linear relationship between minority racial ancestry and presumptions about experienced discrimination (Good et al., 2013; Sanchez et al., 2011). Specifically, as minority racial ancestry goes down presumed experience with racial discrimination goes down. A similar linear relationship was observed for deservingness of a minority scholarship, as minority racial ancestry decreased targets were rated as less deserving of a minority scholarship. Thus, participants expected low minority ancestry individuals to have experienced less racial discrimination. However, given that participants only provided their assumptions about past discrimination it is unclear whether racial cues influence actual perceptions of discriminatory treatment. If it is the case that low minority ancestry biracials are only presumed to have experienced less discrimination, it stands to reason that if participants are provided evidence of discrimination the effects of ancestry (or phenotype) should disappear. Yet, it is possible that minority ancestry and phenotype influence perceptions of discrimination, such that treatment is perceived as less discriminatory when the target of the alleged discrimination has less minority ancestry (or phenotypicality). Furthermore, previous research has indicated that penalties to warmth and competence account for the reduced distribution of minority resources (i.e., a scholarship) to biracial targets (Sanchez & Bonam, 2009). In other words, relative to monoracial targets, biracial targets are perceived to be colder and less competent, which partially explained their lower perceived qualification for minority scholarships. Thus, if perceptions of discrimination do vary dependent upon racial ancestry and phenotypicality, perceived warmth and competence may help explain this variation.

## Study overview

The current research was developed to investigate the impact of racial phenotypicality and racial ancestry on deliberate racial categorizations, stereotype content (i.e., warmth and competence ratings), and perceptions of claims of racial discrimination. This work extends previous research on the categorization of biracial individuals by independently manipulating both of these variables in a single sample, allowing for the comparison of main effects and investigation of interactions between these factors. In line with previous research (e.g., Ho et al., 2011; Sanchez et al., 2011) we expected to find that increased Black ancestry and Black racial phenotypicality would predict a greater tendency to label the target as Black. However, given evidence of involuntary neural differentiation of targets based on phenotypicality (Willadsen-Jensen & Ito, 2006), we put forth the phenotypicality superiority hypothesis. In other words, we expected phenotypicality to have a stronger influence on race categorization than ancestry. Furthermore, given the disfavor of lay genetic theories of race (Jayaratne et al., 2006) we predicted that race and ancestry would not interact to predict racial categorizations.

Next, we aimed to investigate the social implications of these racial perceptions. Previous research has shown that low minority ancestry targets are presumed to have experienced less discrimination (Good et al., 2013; Sanchez et al., 2011). However, we hypothesized that racial cues (i.e., phenotype and ancestry) influence more than just presumptions about discrimination. We expected that instances of discrimination would be perceived as less discriminatory when targets have low minority phenotypicality/ancestry. Further, because penalties to warmth and competence partially explain the reduced allocation of minority resources to biracials in previous studies (Sanchez & Bonam, 2009), we expected that low racial minority phenotypicality/ancestry targets would be perceived as less warm and competent than biracial targets that are "more minority."

### *Study 1 overview*

Study 1 was designed to investigate the impact of racial phenotypicality and racial ancestry on deliberate racial categorizations. This study extends previous research on the categorization of biracial individuals by independently manipulating both of these variables in a single sample, allowing for the comparison of main effects and investigation of interactions between these factors. We also investigated the impact of racial phenotypicality and racial ancestry on perceptions of warmth and competence, which have both emerged as partial mediators of the effect of biracial ancestry on minority resource distribution (Sanchez & Bonam, 2009).

## Method

### *Participants*

Participants included 59 college students (61% women) recruited from the undergraduate research participant pool at a large university in the Midwestern U.S. ($M$ age = 20.81, $SD$ = 2.90). The majority of participants were White (approximately 80%, 7% Latino, 3% Asian, 3% Black, and 7% identified as other racial groups).

## Materials

The university's Institutional Review Board approved all materials and procedures. Materials included a series of three target photos, which were paired with each of the three possible Black–White biracial ancestry (i.e., the race of the target's four biological grandparents) descriptions. The three target photographs were headshots of young Black–White biracial adult men—created using facial morphing software available for research purposes on the Face Research website (http://www.faceresearch.org). Male faces were used because previous research has shown than men tend to be seen as racial exemplars more than women (Eagly & Kite, 1987). Faces were created by morphing the face of a Black male (parent) with the face of a White male (parent), to varying degrees (25%, 50%, 75%). Thus, a total of three morphed photos were produced: a 75% Black (25% White) face, a 50% Black (50% White) face, and a 25% Black (75% White) face (see Appendix A for photos). Descriptions of the target's racial ancestry indicated Black ancestry of 25% (1 Black grandparent, 3 White grandparents), 50% (2 Black grandparents, 2 White grandparents), or 75% (3 Black grandparents, 1 White grandparent). More specifically, ancestry descriptions were presented in the form of a statement that read, for example, "the target has 1 White grandparent and 3 Black grandparents."

### *Dependent measures*

Our scaled race measure was identical to that used by Ho et al. (2011); Study 1). Participants were asked, "to what extent do you consider the target to be Black or White?" Participants responded on a 7-point scale, which was labeled as follows: *1* (completely Black), *2* (predominantly Black), *3* (somewhat more Black than White), *4* (equally Black and White), *5* (somewhat more White than Black), *6* (predominantly White), and *7* (completely White). Next, participants were asked to "select the monoracial label that is most appropriate for the

target" with the options of "White" and "Black." These measures were selected to provide an assessment of traditional categorical race perception as well as a more nuanced measure of race perception on the continuum from Black to White. We also asked participants to rate each target on a series of warmth and competence related characteristics on a scale from *1* (not at all) to *7* (extremely). Characteristics included warm, good natured, sincere, trustworthy, capable, efficient, organized, and skillful (Cuddy, Fiske, & Glick, 2004).

*Procedure*

This study comprised a 3 (Black racial phenotypicality: 25%, 50%, 75%) × 3 (Black racial ancestry: 25%, 50%, 75%) within groups design. Participants accessed the study online where they were informed that they would be participating in a study of person perception. After providing informed consent each participant was presented with each of the nine target photo and description pairs (presented in random order). Thus, each participant saw each of the three morphed target faces (25%, 50%, 75%) three times, paired with each of the three ancestry descriptions. Target photos and ancestry descriptions were presented simultaneously with the two racial categorization items; thus, participants had access to both phenotype and ancestry information while making racial categorization decisions and warmth and competence ratings. Participants were permitted to view and assess targets at their leisure, they were not encouraged to respond quickly and reaction times were not recorded. For each of the nine targets, participants completed race categorization items and responded to warmth and competence items. Following the study, participants were compensated with course extra credit for their time and thanked for their participation.

## Results

*Race categorizations*

Before analysis both ancestry and phenotype were centered at 50%. To predict race categorization, both categorical independent variables (ancestry and phenotypicality) and their interaction were entered into a logistic regression (SAS PROC GLIMMIX), with a random intercept for participant to account for repeated measurements. The interaction between ancestry and phenotypicality was not significant ($F = .03$, $p = 1.00$); therefore it was dropped from the model. Results of the reduced model showed that ancestry significantly predicted racial categorizations, $F(2, 482) = 22.07$, $p < .001$ (see Fig. 1). See Table 1 for percent Black categorizations broken down by condition. Specifically, targets with 75% Black racial ancestry had a significantly greater probability of being categorized as Black than targets with 50% Black racial ancestry, $t = 4.93$, $p < .001$, odds ratio = 6.80. Targets with 25% Black racial ancestry had a significantly lower probability of being categorized as Black than targets with 50% Black racial ancestry, $t = 2.57$, $p = .01$, odds ratio = 2.69. Thus, all racial ancestry conditions significantly differed from one another.

**Table 1**
Percent of targets categorized as Black broken down by study for ancestry and phenotypicality.

| Categorization as Black | | | | |
|---|---|---|---|---|
| | Ancestry | | Phenotype | |
| Racial indicator | Study 1 | Study 2 | Study 1 | Study 2 |
| 25% | 24% | 45% | 6% | 13% |
| 50% | 32% | 57% | 20% | 64% |
| 75% | 49% | 67% | 81% | 95% |

There was also a significant main effect of phenotypicality on race categorization, $F(2, 482) = 55.31$, $p < .0001$ (see Fig. 1). See Table 1 for percent Black categorizations broken down by condition. Specifically, the target with high (75%) Black racial phenotypicality had a significantly greater probability of being categorized as Black than the target with moderate (50%) Black racial phenotypicality, $t = 9.37$, $p < .001$, odds ratio = 71.83. The target with low (25%) Black racial phenotypicality had a significantly lower probability of being categorized as Black than the target with 50% Black racial phenotypicality, $t = 4.30$, $p < .001$, odds ratio = 6.31. Thus, all racial phenotypicality conditions significantly differed from one another. Finally, we used a SAS contrast statement to test the effect of phenotype relative to ancestry, which confirmed that the effect of phenotype was significantly larger than the effect of ancestry, $F(2, 482) = 25.39$, $p < .001$.

*Scaled perceptions of race*

To predict scaled perceptions of race, both independent variables (ancestry and phenotypicality, centered at 50%) and their interaction were entered into a repeated measures ANOVA using restricted maximum likelihood (SAS PROC MIXED). The interaction was not significant ($F = .43$, $p = 79$); therefore it was dropped from the model. Results of the reduced model revealed a significant main effect of ancestry on scaled perception of race, $F(2, 485) = 45.01$, $p < .001$ (see Fig. 2). See Table 2 for means and

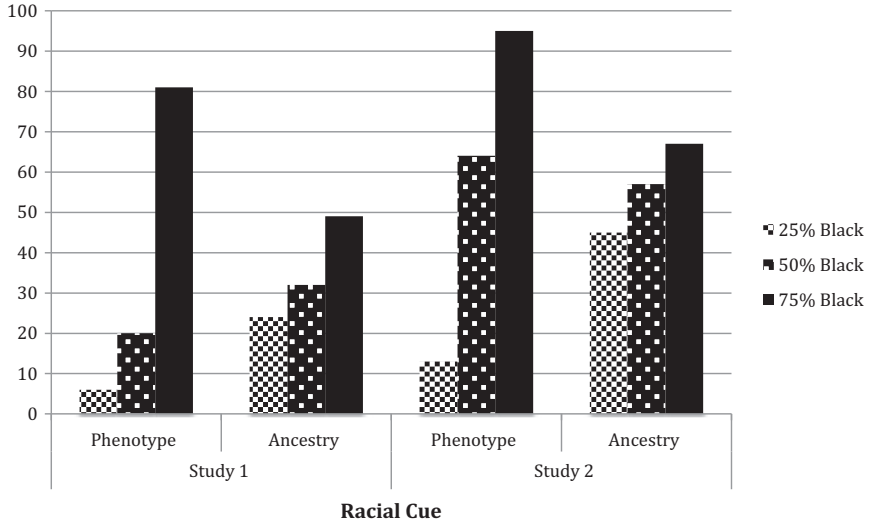


**Fig. 1.** Percent of targets categorized as Black broken down by study for ancestry and phenotypicality. All targets within each condition (ancestry, phenotype) significantly differ from one another.

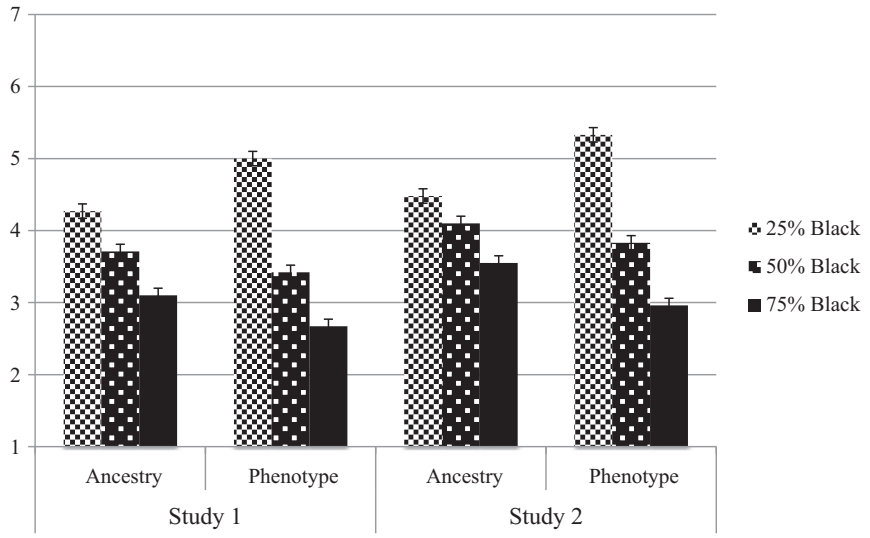


**Fig. 2.** Scaled race categorization broken down by study for ancestry and phenotypicality. All targets within each condition (ancestry, phenotype) significantly differ from one another.

standard deviations broken down by condition. Specifically, targets with 75% Black racial ancestry were perceived as significantly more Black than targets with moderate (50%) racial ancestry, $t(1) = 4.94$, $p < .001$, 95% CL [0.37, 0.85]. Moderate racial ancestry (50%) targets were also perceived as significantly more Black than low (25%) racial ancestry targets, $t(1) = 4.53$, $p < .001$, 95% CL [0.32, 0.80]. Thus, all racial ancestry conditions significantly differed from one another. All racial ancestry conditions also significantly differed from both of the monoracial extremes (completely Black and completely White), $ps < .001$.

There was also a significant main effect of phenotypicality on scaled perceptions of race, $F(2, 484) = 186.56$, $p < .001$ (see Fig. 2). See Table 2 for means and standard deviations broken down by condition. Specifically, the high (75%) Black racial phenotypicality target was perceived as significantly more Black than the moderate (50%) Black racial phenotypicality target, $t(1) = 6.17$, $p < .001$, 95% CL [0.52, 1.00]. The moderate Black racial phenotypicality (50%) target was also perceived as significantly more Black than the low (25%) Black racial phenotypicality target, $t(1) = 12.81$, $p < .001$, 95% CL [1.33, 1.82]. Thus, all racial phenotypicality conditions significantly differed from one another. All racial phenotypicality conditions also significantly differed from both of the monoracial extremes (completely Black and completely White), $ps < .001$. Finally, we used a SAS contrast statement to test the effect of phenotype relative to ancestry, which confirmed that the effect of phenotype was significantly larger than the effect of ancestry, $F(2, 485) = 26.87$, $p < .001$.

*Perceptions of warmth and competence*

Next, we computed the warmth (warm, good natured, trustworthy, and sincere; $\alpha = .93–.96$) and competence (capable, efficient, organized, and skillful; $\alpha = .91–.95$) scales. To predict perceptions of target warmth, both independent variables (ancestry and phenotypicality, centered at 50%) and their interaction were entered into a repeated measures ANOVA using restricted maximum likelihood (SAS PROC MIXED). Once again the interaction was not significant ($F = 1.20$, $p = .31$); therefore, it was not included in the model. There was also no main effect of ancestry ($F = .69$, $p = .50$); however, to stay consistent with our other models ancestry was retained in the model. There was a significant main effect of phenotypicality on perceived warmth, $F(2, 483) = 12.80$, $p < .001$. Specifically, the low (25%) Black racial phenotypicality target ($M = 4.63$, $SD = .13$) was perceived to be significantly warmer than the moderate (50%) Black racial phenotypicality target ($M = 4.49$, $SD = .12$) $t(1) = 3.32$, $p = .001$, 95% CL [0.06, 0.24]). The low Black racial phenotypicality (25%) target was also perceived to be significantly warmer than the high (75%) Black phenotypicality target ($M = 4.41$, $SD = .12$), $t(1) = 4.97$, $p < .001$, 95% CL [0.14, 0.31]). Thus, the low phenotypicality target was perceived to be warmer than both of the other targets.

Finally, to predict perceptions of target competence both ancestry and phenotypicality (and their interaction) were entered into a repeated measures ANOVA using restricted maximum likelihood (SAS PROC MIXED). Once again the interaction was not significant ($F = .64$, $p = .64$); therefore it was not included in the model. There was also no main effect of ancestry ($F = .89$, $p = .41$); however, to stay consistent with our other models ancestry was retained in the model. There was a significant main effect of phenotypicality on perceptions of target competency, $F(2, 483) = 9.92$, $p < .001$. Specifically, the low (25%) Black racial phenotypicality target ($M = 4.74$, $SD = .12$) was perceived to be significantly more competent than the moderate (50%) Black racial phenotypicality target ($M = 4.57$, $SD = .12$), $t(1) = 3.43$, $p < .001$, 95% CL [0.07, 0.27]. The low Black racial phenotypicality (25%) target was also perceived to be significantly more competent than the high (75%) Black phenotypicality target ($M = 4.54$, $SD = .12$), $t(1) = 4.18$, $p < .001$, 95% CL [0.11, 0.31]. Thus, the low phenotypicality target was perceived to be more competent than both of the other targets.

**Table 2**
Means (standard deviations in parentheses) of scaled perceptions of race broken down by study for ancestry and phenotypicality.

| Scaled perceptions of race | | | | |
|---|---|---|---|---|
| | Ancestry | | Phenotype | |
| Racial indicator | Study 1 | Study 2 | Study 1 | Study 2 |
| 25% | 4.27 (.09) | 4.48 (.09) | 5.00 (.09) | 5.33 (.10) |
| 50% | 3.71 (.09) | 4.10 (.09) | 3.42 (.09) | 3.83 (.10) |
| 75% | 3.10 (.09) | 3.55 (.10) | 2.67 (.09) | 2.96 (.10) |

## Study 1 discussion

Study 1 provided support for our hypothesized pattern of results: while both ancestry and phenotypicality influenced deliberate race categorization and scaled categorizations of race they did not interact with one another. We also found support for the phenotypicality superiority hypothesis, as indicated by the significantly larger effect of phenotypicality relative to ancestry. The pattern of results for warmth and competence provided further support for the strength of

phenotypicality. Phenotypicality, but not ancestry, influenced perceptions of warmth and competence. As predicted warmth and competence ratings of low phenotypicality targets did significantly differ from all other targets, yet, contrary to expectations, the low phenotypicality target was perceived to be warmer and more competent than moderate and high phenotypicality targets.

## Study 2 overview

Study 2 was designed to extend previous findings indicating that targets with low levels of racial minority cues (e.g., ancestry and phenotypicality) are presumed to have experienced less discrimination. Specifically, we investigated how ancestry and phenotypicality influence perceptions of discrimination in incidents of known racial discrimination. Although the stereotype content findings of Study 1 were contrary to our expectations they do support the notion that low phenotypicality targets are processed differently than higher phenotypicality targets. Yet, because these findings were not in the predicted direction, warmth and competence were no longer considered as possible mediators of perceptions of discrimination.

## Method

### *Participants*

Participants included 325 adult U.S. community members ($M$ age = 29.74, $SD$ = 9.57) who were recruited online via *Mechanical Turk*—an online workforce of over 100,000 people who complete tasks in exchange for monetary compensation (Pontin, 2007). Empirical investigation of data produced by the *Mechanical Turk* workforce indicates that samples are more representative than typical college samples and at least equally reliable (Buhrmester, Kwang, & Gosling, 2011). Among those who reported their gender ($N$ = 314), 55% were men. The majority of participants were White (approximately 73%, 9% Asian, 7% Black, 4% Latino, and 7% identified as other racial groups) and 10 participants declined to report their race.

## Materials

The university's Institutional Review Board approved all materials and procedures. Materials included a photo and racial ancestry description of a biracial target (varied by condition) and a vignette describing mistreatment the target had experienced at work (see Appendix A). The vignette explained multiple instances of workplace mistreatment experienced by the target that were all explicitly related to race. For example, the target was referred to as the "affirmative action hire" by his supervisors and was repeatedly asked to provide his "minority perspective" on something, only to be assigned menial tasks such as filing or sorting documents. In each condition, vignettes were presented with a photo of the target and a description of his racial ancestry. Photographs and racial ancestry descriptions were identical to those used in study 1.

### *Dependent measures*

Our measures of categorical and scaled race perceptions were identical to study 1. Participants also rated the likelihood that the target was a victim of racial discrimination on a scale from *1* (not at all likely) to *9* (very likely).

### *Procedure*

This study comprised a 3 (Black racial phenotypicality: 25%, 50%, 75%) × 3 (Black racial ancestry: 25%, 50%, 75%) between groups design. Participants accessed the study online, where they were informed they would be participating in a study designed to examine how people perceive workplace interactions. They provided informed consent and read the description of racial discrimination paired with one of the 9 randomly assigned photo and racial ancestry description conditions. After reading the vignette participants were asked to complete the race perception measures, rate the likelihood that the target was a victim of racial discrimination, and complete a demographics questionnaire. Following the study, participants were compensated $0.50 for their time and thanked for their participation.

## Results

### *Race categorizations*

Before analysis both ancestry and phenotype were centered at 50%. Both independent variables (ancestry and phenotypicality) and their interaction were entered into a logistic regression (SAS PROC LOGISTIC) predicting race categorization. This model could not be properly estimated because one condition showed no variability across participants (i.e., all participants categorized the 75% Black phenotypicality, 75% Black ancestry target as Black). Therefore the interaction between ancestry and phenotype was dropped from the model. Results of the reduced logistic regression model showed that ancestry significantly predicted racial categorizations, $X^2(2) = 16.40$, $p < .001$. See Table 1 for percent Black categorizations broken down by condition. Specifically, targets with 75% Black racial ancestry had a significantly greater probability of being categorized as Black than targets with 50% Black racial ancestry, $z = -2.34$, $p = .02$, odds ratio = 2.58. Targets with 25% Black racial ancestry had only a marginally lower probability of being categorized as Black than targets with 50% Black racial ancestry, $z = -1.92$, $p = .06$, odds ratio = .48.

There was also a significant main effect of phenotypicality ($X^2(2) = 94.25$, $p < .001$) on race categorization. See Table 1 for percent Black categorizations broken down by condition. Specifically, the target with high (75%) Black racial phenotypicality had a significantly greater probability of being categorized as Black than the target with moderate (50%) Black racial phenotypicality, $z = -5.02$, $p < .001$, odds ratio = 13.18. The target with low (25%) Black racial phenotypicality had a significantly lower probability of being categorized as Black than the target with moderate (50%) Black racial phenotypicality, $z = -7.11$, $p < .0001$, odds ratio = 0.07. Thus, all racial phenotypicality conditions significantly differed from one another. Finally, we used a SAS contrast statement to test the effect of phenotype relative to ancestry, which confirmed that the effect of phenotype was significantly larger than the effect of ancestry, $X^2(1) = 38.10$, $p < .001$.

### *Scaled perceptions of race*

Next, both independent variables (ancestry and phenotypicality, centered at 50%) were entered into an ANOVA (SAS PROC GLM) predicting scaled perceptions of race. The interaction was not significant ($F = 2.24$, $p = 06$); therefore it was not included in the model. Results of the reduced model revealed a significant main effect of ancestry on scaled perception of race, $F(2, 320) = 21.22$, $p < .0001$, $\eta_p^2 = .12$ (see Fig. 2). See Table 2 for means and standard deviations broken down by condition. Specifically, targets with 75% Black racial ancestry were perceived as significantly more Black than targets with moderate (50%) Black racial ancestry, $t(1) = 3.84$, $p < .001$. Moderate Black racial ancestry (50%) targets were also perceived as significantly more Black than low (25%) Black racial ancestry targets, $t(1) = 2.63$, $p = .02$. Thus, all racial ancestry conditions significantly differed from one another. All racial ancestry conditions also significantly differed from both of the monoracial extremes (completely Black and completely White), $ps < .001$.

There was also a significant main effect of phenotypicality on scaled perceptions of race, $F(2, 320) = 140.52$, $p < .0001$, $\eta_p^2 = .47$ (see Fig. 2). See Table 2 for means and standard deviations broken down by condition. Specifically, the high (75%) Black racial phenotypicality target was perceived as significantly more Black than the moderate (50%) Black racial phenotypicality targets, $t(1) = 5.98$, $p < .0001$. The moderate Black racial phenotypicality (50%) target was also perceived to be significantly more Black than the low (25%) Black racial phenotypicality target, $t(1) = 10.41$, $p < .0001$. Thus, all racial phenotypicality conditions significantly differed from one another. All racial phenotypicality conditions also significantly differed from both of the monoracial extremes (completely Black and completely White), $ps < .001$. Finally, we used a SAS contrast statement to test the effect of phenotype relative to ancestry, which confirmed that the effect of phenotype was significantly larger than the effect of ancestry, $F(2, 320) = 26.67$, $p < .001$.

### *Perceptions of discrimination*

Finally, both independent variables (ancestry and phenotypicality, centered at 50%) and their interaction were entered into an ANOVA (SAS PROC GLM) predicting perceptions of workplace racial discrimination. As with warmth and competence ratings, ancestry and the interaction were not significant ($Fs < 1.50$, $ps > .21$); however, to stay consistent with our other analyses only the interaction was dropped from the model (i.e., ancestry was retained).

In line with previous analyses, there was a significant main effect of phenotypicality on perceptions of workplace racial discrimination, $F(2, 320) = 7.33$, $p = .001$, $\eta_p^2 = .04$. Specifically, the low (25%) Black racial phenotypicality target ($M = 5.92$, $SD = .21$) was significantly less likely to be perceived as a victim of workplace racial discrimination than the target with moderate (50%) Black racial phenotypicality ($M = 6.65$, $SD = .22$; $t(1) = -2.41$, $p = .04$) and the target with high (75%) Black racial phenotypicality ($M = 7.06$, $SD = .22$; $t(1) = -3.77$, $p < .001$). In sum, the low Black phenotypicality biracial target was significantly less likely to be perceived as a victim of workplace racial discrimination than targets with moderate and high levels of racial phenotypicality.

### *Study 2 discussion*

In Study 2 we replicated the race categorization results of Study 1 in a between subjects design with a community sample. In line with the results of warmth and competence ratings in Study 1 we found that the low Black phenotypicality target was significantly less likely to be perceived as a victim of racial discrimination than targets with moderate or high levels of Black phenotypicality.

## *General discussion*

These studies are important because they are the first to independently manipulate racial ancestry and racial phenotypicality. To our knowledge all previous research has manipulated appearance (i.e., phenotypicality) or ancestry (e.g., Ho et al., 2011). While some have used racially descriptive information to influence perceptions of target photos (e.g., Peery & Bodenhausen, 2008), appearance and description were not manipulated independently, as in the current study. Thus, we were able to compare the impact of ancestry and phenotypicality on perceptions of target race simultaneously. We found support for the phenotypicality superiority hypothesis across two studies, such that phenotypicality had a significantly larger impact on deliberate race categorizations than ancestry. This was also supported by our findings on the stereotype and discrimination measures, which only varied as a function of phenotypicality.

As predicted, we found significant effects of racial ancestry on our race perception variables: for both race categorizations and scaled perceptions of race. In line with previous research (e.g., Ho et al., 2011) targets described as having more Black ancestry were perceived to be more Black. We also found a significant effect of phenotypicality on perceptions of target race. As expected, for both race categorizations and scaled perceptions of race, when targets were higher on Black phenotypicality they were perceived as more Black. Further, in support of our predictions we found no interaction between phenotypicality and ancestry, indicating that each racial indicator independently influenced racial categorizations.

It is also worth noting that when given the opportunity to use biracial categorizations, on the scaled race measure, participants made mixed race categorizations. Across both studies ancestry and phenotypicality effects indicated that mean target ratings were closer to "equally Black and White" than either of the monoracial categorization options. In fact, when given the option to use biracial labels, none of the targets were considered to be monoracial. In other words, results of the scaled categorization measure indicate that all targets were considered to be significantly different from "completely White" and "completely Black." Thus, although low Black phenotypicality targets were most likely to be categorized as White when participants were forced to apply a monoracial label, when they were given the option to use mixed race labels these targets were considered to be biracial. These findings indicate that when participants are given the option (and time to make deliberative judgment) they apply mixed race labels to biracial targets, even those with low minority phenotypicality.

In step with our predictions we found that our racial indicators also influenced perceptions of target warmth and competence. Moreover, in support of our phenotypicality superiority hypothesis we found that only phenotypicality cues influenced perceptions of warmth and competence. We expected that targets with low minority phenotypicality would face penalties to warmth and competence, in line with previous findings. Yet we found that low phenotypicality targets were actually perceived to be warmer and more competent than higher phenotypicality targets. We believe that this pattern of results can be explained by participants perceiving low Black phenotypicality targets as "White enough" to face different social judgments. Low Black phenotypicality targets were not categorized as "completely White" on the scaled race task, yet on the monoracial categorization task they were only categorized as Black 6%–13% of the time. In line with stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002), although all targets were considered to be biracial, the target with the highest White racial phenotypicality (i.e., the low Black phenotypicality target) was perceived to be significantly warmer and more competent than lower White racial phenotypicality targets. In light of these findings we determined that any reduction in perceptions of discrimination for low Black phenotypicality targets could not be explained by penalties to warmth and competence; thus these items were not assessed in Study 2.

Previous findings indicate that biracials with low racial minority status cues (e.g., ancestry or phenotypicality) are presumed to have experienced less discrimination (Good et al., 2013; Sanchez et al., 2011). We extended these findings by testing whether known instances of discrimination are perceived to be less discriminatory when targets have low levels of racial minority status cues (e.g., ancestry, phenotypicality). In support of our hypotheses we found that given identical descriptions of racial harassment and discrimination, targets with low levels of racial phenotypicality were significantly less likely to be perceived as victims of racial discrimination. Our findings indicate that low minority phenotypicality targets are not just presumed to have experienced less discrimination, but that even when discriminatory treatment is known low racial phenotypicality targets are less likely to be recognized as victims of discrimination. While the impact of phenotypicality is still rather small we argue that any significant differences between targets are worth noting. All targets were categorized as biracial and faced

identical treatment that was explicitly linked to their minority racial background, yet this treatment was less likely to be labeled as discriminatory toward low phenotypicality targets. We believe that the current findings suggest that people may be more likely to get away with racial discrimination when targets don't "look the part" of minority. This finding is particularly important in light of recent work indicating that targets whose membership in a stigmatized group is ambiguous may be more likely to face discrimination (Cox & Devine, 2013). In other words, when group membership is clear others may avoid acting in a prejudicial fashion. However, when membership is ambiguous, prejudice based on group membership is plausibly deniable; thus those who hold relevant biases may be more willing to express that prejudice in the form of discrimination. Thus, although individuals with racial biases may be most willing to express those biases against targets that are not easily identifiable as racial minority group members, racial discrimination against these targets is least likely to be perceived as such.

Contrary to the previous literature on the distribution of minority resources to biracials (Sanchez et al., 2011), we found no effect of racial ancestry on perceptions of discrimination. However, in Sanchez et al. (2011) study only ancestry information was presented; thus, it is likely that phenotypicality was inferred from ancestry. Indeed, the final path model presented by Sanchez et al. indicated that ancestry information only influenced distribution of minority resources indirectly through other variables (e.g., presumed skin tone, racial categorization). We posit that when phenotypicality information is absent, ancestry information is used to make inferences about phenotypicality, influencing distribution of minority resources. However, when both ancestry and phenotypicality information are explicitly presented it is not necessary to infer phenotypicality from ancestry—therefore ancestry no longer predicts distribution of minority resources.

### *Limitations and future directions*

Previous work indicates that biracials are perceived as more socially confused, and less warm and competent (Remedios, Chasteen, & Oey, 2012; Sanchez & Bonam, 2009) than monoracial minority and majority group members. Based on these findings it could be predicted that biracial category exemplars (50% White/50% Black targets) would be perceived as least warm and competent. Yet, our findings indicate that among biracials those with the least Black (and most White) phenotypicality are perceived to be warmest and most competent. Given the fully crossed factorial design of our study we were not able to include monoracial conditions, which would have included conditions that may be perceived as implausible, such as 100% Black phenotypicality paired with 0% Black ancestry. Thus, it is not entirely clear how our warmth and competence findings should be interpreted in the context of the previous literature. We submit that although biracials are perceived to be less warm and competent than monoracials, relative to other biracials, those that are highest in White racial phenotypicality are perceived to be warmest and most competent.

## Conclusions

In conclusion, extending the previous findings on racial categorizations of biracial individuals, our research shows that while ancestry and phenotypicality information both influence deliberate racial categorizations, phenotypicality has a substantially larger effect. Our findings indicate that as Black phenotypicality and ancestry indicators decrease, targets are more likely to be categorized as White. However, when participants are given the option to apply biracial labels, biracial targets are categorized as mixed race rather than completely Black or White. All targets in the current study were categorized as biracial, yet, low Black phenotypicality targets were stereotyped as warmer and more competent than higher Black phenotypicality targets. The same pattern of results emerged for perceptions of our mock racial discrimination claim. Although all targets were categorized as biracial, treatment was perceived to be less discriminatory when it was directed toward low Black phenotypicality targets than when it was directed toward higher Black phenotypicality targets. Our results build upon previous findings indicating that biracials are not only presumed to have experienced less discrimination (Sanchez et al., 2011), but that targets with low Black racial phenotypicality are significantly less likely to be perceived as victims of racial discrimination, even when discriminatory treatment is known. This is important to note, given that this may place Black–White biracials with lower racial phenotypicality at risk for double discrimination. In other words, while they may not be considered minority enough to qualify for minority resources (e.g., protection from discrimination, minority scholarships), they may not be White enough to garner the privileges automatically afforded to Whites. Even biracial individuals who may have been spared personal discrimination because they look sufficiently White to be categorized that way likely have a family history of facing prejudice and discrimination (e.g., less access to education and resources), which may have placed them at a disadvantage. Thus, it is important that they too have access to the resources designed to level the playing field for societally disadvantaged groups.

## Appendix A

Target faces (from left to right, 25% Black, 50% Black, 75% Black)

**Discrimination vignette.**

Chris (who has *X* White grandparent and *X* Black grandparents), a middle class man who graduated from college 5 years ago, has been fairly successful in his job at InfoTech. He was recently promoted to a new position. While in this new position several of his direct supervisors have made comments suggesting that Chris was promoted because the company wants to appear "more diverse," rather than as a result of Chris' own personal accomplishments. Several of his supervisors have been witnessed publicly referring to Chris as the "affirmative action hire" on one or more occasions. Furthermore, Chris has testified that on more than one occasion he has been asked to provide his "minority perspective" on a project, only to be delegated a menial task such as filing or sorting documents.

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