Coming apart at the seams: When attire and racial phenotypicality cues elicit counter-stereotypic person perceptions

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Abstract

The degree to which a perceiver activates a social category may depend on the extent to which a target appears to look like a member of their category. One appearance-based moderator of stereotyping behavior is a target's *racial phenotypicality.* The degree of target-category fit may also depend on the broader context within which the target is encountered (e.g., attire). The current studies test the hypothesis that counter-stereotypic attire will influence racial categorizations of low- (but not high-) phenotypic targets. Employing a rapid binary categorization task, two experiments examine how a low-status janitor uniform and high-status business suit (Experiment 1) or doctor's lab coat (Experiment 2) moderate rapid racial categorizations of high- and low-phenotypic Black and White targets. Categorizations of low-Afrocentric targets were facilitated by the high-status business suit. Conversely, categorizations of high-Eurocentric targets were facilitated by high-status doctor's lab coat. We consider the role of target typicality in categorization processes.

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Coming apart at the seams: When attire cues elicit counter-stereotypic person perceptions

Classic theories of person perception suggest that social categorization is the first of three stages leading to stereotyping behavior. Allport (1954) was the first to suggest that perceivers automatically categorize the people they encounter using cues about race, sex, and age. Indeed, upon initial exposure to a target, a perceiver categorizes them using salient visual characteristics about their membership to some social group (e.g., race; Macrae, Quinn, Mason, & Quadflieg, 2005). Once a perceiver categorizes a target, the chosen category guides subsequent stages of impression formation. These early, automatic categorizations lead to downstream effects on intergroup interactions, such as the activation and subsequent application of category-relevant stereotypes (Brewer, 1988; Fiske & Neuberg, 1990). In this way, the perceived degree of fit between a target and a social category has the potential to influence the perceiver's subsequent impressions of the target (E. Smith & Zarate, 1992; Stangor, Lynch, Duan, & Glass, 1992; Stangor & McMillan, 1992). While these initial categorizations can occur within the first milliseconds of target presentation, the effects are far-reaching. For instance, Eberhardt, Dasgupta, and Banaszynski (2003) demonstrated that after initially encountering a racially ambiguous face labeled as Black (vs. White), participants later recalled the face as containing more facial features typical of Black targets. These results suggest that categorization actually influences the perceptual processes involved in person construal and memory.

Much of the extant literature has examined how a perceiver categorizes a face when encountered in isolation. Since we rarely encounter a disembodied head outside of the psychology laboratory, the current studies aimed to extend the categorization literature by examining how contextual cues surrounding a social target influence these categorizations.

Furthermore, much of the previous work has focused on distinctions across group boundaries (e.g., categorizations of White versus Black targets). The current work will extend these findings by examining the effect of within group variations on categorization behavior.

Target-category fit

Social categorizations may occur by way of a prototype-matching process. Prototype-theory posits that a perceiver possesses an abstract representation of a category derived from all members of the category that the perceiver has encountered (Posner & Keele, 1968). In this way, the prototype represents the average of the traits of all members of a given social group. When deciding whether a new target belongs to a given category, a perceiver determines the degree of similarity between the target and the abstract prototype, with more perceived similarity predicting stronger target-category fit (Reed, 1972).

An alternative route to social categorization may happen by way of an exemplar-matching process. The exemplar-matching model posits that a perceiver assesses the degree of fit between the target and a salient member of a given category (E. Smith & Zarate, 1992). Categorization is predicted under two conditions. First, categorization can occur when a perceiver determines strong feature overlap between the target and one salient exemplar. Alternatively, categorization can also occur when a perceiver determines weak feature overlap between the target and many individual exemplars. Rather than assessing target-category fit based on an abstract prototype, a perceiver assess whether a target sufficiently mimics the features of salient category exemplars who come to mind easily during the interaction.

There is evidence that perceivers employ both methods when encountering a new social target, depending on the perceiver's level of familiarity with a category (E. R. Smith & Zarate,

1990). While distinct, these two models converge on the notion that a perceiver assesses the degree of fit between a target and some mental representation of the category when assessing social targets. While the current studies were not designed to test this distinction as it relates to our research questions, we will explore possible implications of these models in light of our results.

Factors contributing to social categorization

Racial phenotypicality

The degree to which we perceive overlap between a target's features and our mental representation of the prototype depends on the target's specific features (E. R. Smith & Zarate, 1990; Zárate & Sanders, 1999). One such appearance-based moderator of stereotyping behavior is a target's *racial phenotypicality*: the degree to which a person's features appear to be prototypical of their race. Racial phenotypicality is an individuating factor that guides a perceiver's association between a target and a racial category (Maddox & Gray, 2002). One way to describe a person's racial phenotypicality is along the Afrocentricity continuum. Afrocentric features include traits typical of people of Black African decent (e.g., dark skin, broad nose, full lips). Eurocentricity is the White counterpart to Afrocentricity, and is characterized by facial features such as light skin, narrow nose, and thin lips. These individuating characteristics of a target's face influence both the category to which a target is assigned and the extent to which the relevant stereotypes are activated and applied to the target (Stangor & McMillan, 1992).

Black targets that are high (versus low) in Afrocentricity are more likely to be stereotyped and to a greater degree (Blair, Chapleau, & Judd, 2005; Maddox & Gray, 2002). For instance, Maddox and Gray (2002) demonstrated that perceivers are aware of distinct

stereotypes of high- versus low-Afrocentric targets, and attributed more negative cultural stereotypes to high-Afrocentric targets. Perhaps as a result of these more negative stereotypes, juries are more likely to sentence a Black defendant to capital punishment if the defendant possesses more Afrocentric facial features (Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2006). The extent to which a target appears to be a member of their racial category appears to predict the degree to which the target will be judged according to stereotypes of that group.

Social context

The context within which the target is encountered may also play a large role in guiding the categorization process (Wittenbrink, Judd, & Park, 2001). The type of context cues that a perceiver associates with a target depends on cultural stereotypes of the target category. For instance, consistent with the cultural stereotype of Black men as aggressive (Devine, 1989), Hugenberg and Bodenhausen (2004) found that participants were more likely to categorize a face as Black (versus White) when the face displayed an angry (versus happy) facial expression. Therefore, context cues that are typical of a racial stereotype will facilitate categorizations of a target according to the activated category.

The extent to which context influences racial categorizations may depend on the extent to which a target appears to be typical of their group. For instance, when a target's facial features demonstrate strong overlap with those facial features typical of Black men, a perceiver can easily categorize the target as "Black", regardless of competing context cues (Freeman, Penner, Saperstein, Scheutz, & Ambady, 2011). However, when a target's features diverge from those of the prototype, a perceiver will be less accurate when categorizing the target into a racial category. In those cases when a target does not match a category representation, a perceiver

may be more likely to use additional context cues to determine how closely the target fits into the candidate categories (Brewer, 1988).

Attire

In real-world interactions, attire is one of the most readily available sources of context that a perceiver can use to inform their perceptions of a social target. Stereotypes associated with various attires may contribute to the extent to which a perceiver activates a given category. Freeman and colleagues (2011) demonstrated that when viewing photographs of racially ambiguous faces, participants used context cues conveying high- or low-status (suit and tie or coveralls, respectively) to inform their decision whether to categorize a target as Black or White. As the targets became more racially prototypical, participants relied less on context cues to assign a racial category to the target. The aim of the previous work was to examine context effects on ambiguous versus unambiguous social targets; therefore the question remains about how context influences perceptions of within-category variations of racial phenotypicality. These findings provide further evidence that in situations with greater uncertainty, a social perceiver may look to context cues that are diagnostic of category membership in order to facilitate categorization of a target's race. Dukes (2007) found that participants were more likely to apply stereotypes to high-Afrocentric targets, regardless of the social status implied by their attire. On the other hand, low-Afrocentric targets were more likely to be stereotyped only when their attire conveyed low social status, suggesting that the more Afrocentric a target appears, the more strongly a perceiver will be to associate the target with the racial category, "Black".

Current studies

The research reviewed here suggests that a target's racial phenotypicality may interact with social context to influence categorization. However, research has yet to examine how context influences categorization at varying levels of *within*-category racial phenotypicality. The proposed research will examine the potentially interactive effect of a target's race (Black or White), racial phenotypicality (high or low), and social status (high or low) as it impacts person categorizations. Previous research demonstrates that high-Afrocentric targets suffer the effects of stereotyping to a greater degree compared to their low-Afrocentric counterparts (Blair et al., 2005; Dukes, 2007), and that participants rely on context cues when categorizing racially ambiguous (but not unambiguous) targets (Freeman et al., 2011). These results suggest that the more strongly a person is associated with their social category, the more likely it is that a perceiver will activate the relevant category and fail to use other context cues that may accentuate or attenuate the category activation.

The current studies test the hypothesis that context, phenotypicality, and race interact to influence participants' category activations using a variation of the category verification task (E. R. Smith & Zarate, 1990; Stroessner, 1996). In this task, participants view a stimulus and indicate whether it belongs to a given category. The length of time it takes a participant to respond to a given stimulus is interpreted as an indicated of the extent to which the stimulus elicits familiarity or exhibits typicality of the given category (Larochelle & Pineau, 1994). In the current studies, we expect that stimuli that are strongly linked to a given category will elicit faster responses, compared to those stimuli that are not as strongly linked to the category.

We propose that stereotypic contexts will influence categorization speeds in response to low- (but not high-) phenotypic targets. Specifically, we tested the following two-part hypothesis:

H1a: Attire cues will not influence categorizations of high-phenotypic targets.

H1b: Attire cues will influence categorizations of low-phenotypic targets such that high-status attire will facilitate categorizations of White targets and low-status attire will facilitate categorizations of Black targets.

Due to the contrasting stereotypes of Black and White men within the US, we expect to observe a distinct pattern of categorization behavior. That is, because White men are stereotypically associated with high-status attributes, while Black men are stereotypical associated with low-status attributes, we expect to observe a divergent influence of high- versus low-status cues on the categorizations of high- and low-phenotypic targets, depending on the race of the target.

Experiment 1

Experiment 1 examined social categorization by employing a reaction-time task during which participants viewed a brief presentation of a stimulus and indicated the race of the man in the photograph. Photographs depicted a Black or White man, high or low in phenotypicality, wearing a shirt and tie (i.e., business suit) or coveralls (i.e., janitor's uniform). We expected the results to reveal an interaction between attire, race, and phenotypicality such that among all targets, reaction time (RT) and accuracy would be equal for high-phenotypic faces regardless of

attire, and that RT and accuracy would vary for low-phenotypic faces when paired with a shirt and tie versus coveralls. Among Black targets, we expected that categorizations of low-phenotypic faces would be faster and more accurate for (i.e., be facilitated by) low- (compared to high-) status targets. Conversely, among White targets, we expected that categorization of low-phenotypic faces would be facilitated by high- (compared to low-) status targets.

Method

Participants. Forty Tufts University undergraduates (18 female, 3 unreported; 27 White, 4 Asian, 1 Black, 6 multiracial, 2 unreported) participated in the experiment for partial course credit.

Design. In this 2 (race: black or white) x 2 (phenotypicality: high or low) x 2 (attire status: high or low) within-subjects design, the dependent measures are participants' reaction time (RT) and accuracy in response to the target stimuli.

Stimulus material. Face stimuli were comprise of 8 male computer-generated face identities that were morphed along a 13-point race continuum, from White (morph -6), to Black/White racially ambiguous (morph 0) to Black (morph +6), using FaceGen Modeler (Freeman et al., 2011). Pretest data demonstrated that participants viewed faces in the high-phenotypic group (morph +/-6) as significantly more racially phenotypic compared to faces in the low-phenotypic group (morph +/-3). No significant differences were observed regarding the rating of attractiveness between faces.

Each of the 32 target stimuli (8 Black high-phenotypic [high-Afrocentric], 8 Black low-phenotypic [low-Afrocentric], 8 White high-phenotypic [high-Eurocentric], 8 White low-phenotypic [low-Eurocentric]) was affixed to a high-status attire (shirt and tie) or a low-status

attire (coveralls; see Appendix A). Pretest data indicated that participants associate the high- and low-status attire with White- and Blue-collar occupations, respectively. Each face was paired with each attire category, yielding eight stimuli categories (1: high-Afrocentric—high-status; 2: high-Afrocentric—low-status; 3: low-Afrocentric—high-status; 4: low-Afrocentric—low-status 5: high-Eurocentric—high-status; 6: high-Eurocentric—low-status; 7: low-Eurocentric—high-status; 8: low-Eurocentric—low-status).

Procedure. In this reaction-time task, each trial started with the presentation of a black fixation point slightly above center of a blank gray screen for 1000 ms, followed by a 200 ms presentation of a stimulus followed by the fixation screen. The next stimulus followed after the participant's response. A four-trial practice session preceded the experimental trials.

Participants were instructed to indicate on a keyboard as rapidly and accurately as possible whether the face was a Black or White man. Participants were instructed to use their index fingers to make these judgments using two designated keys, with responses counterbalanced across participants. Each target stimulus was presented 4 times for a total of 256 experimental trials.

Results

Before analyzing the data we removed RTs greater than three standard deviations from the mean (2.1% of the data). Before analyzing the reaction time data we also removed data for incorrect responses.

Reaction time data. For RTs, we observed a main effect of race, $F(1, 39) = 22.454$, $p < .001$, $\eta^2 = .365$, such that participants categorized Black targets ($M = 450.68$ ms, $SE = 13.593$) faster than White targets ($M = 478.4$ ms, $SE = 15.615$). We also observed a main effect of

phenotypicality, $F(1, 39) = 64.033$, $p < .001$, $\eta^2 = .621$, such that participants categorized high-phenotypic targets ($M = 451.19$ ms, $SE = 13.44$) faster than low-phenotypic targets ($M = 477.88$ ms, $SE = 15.375$). The main effect of status was not significant $F(1, 39) = .406$, $p = .528$, $\eta^2 = .01$. These main effects were qualified by a significant phenotypicality x status interaction $F(1, 39) = 9.239$, $p = .004$. Follow-up paired t-tests indicated that participants were faster to accurately categorize low-phenotypic targets when they were depicted in the high-status attire ($M = 472.2$ ms, $SE = 15.304$) compared to the low-status attire ($M = 483.57$ ms, $SE = 15.691$; $t(39) = -2.908$, $p = .006$). Conversely, we observed a marginal effect such that participants were faster to categorize high-phenotypic targets when they were depicted in low-status attire ($M = 447.154$ ms, $SE = 12.497$) compared to high-status attire ($M = 455.224$ ms; $SE = 14.641$; $t(39) = 1.874$, $p = .068$).

The hypothesized race x phenotypicality x status interaction was not significant, $F(1, 39) = .223$, $p = .639$, $\eta^2 = .006$. However, because we had a clear prediction about the nature of the phenotypicality x status interaction among Black versus White targets, we conducted a planned contrast to test our a priori hypothesis (Figure 1). Contrary to our hypothesis, categorizations of high-Afrocentric faces were facilitated by low-status attire ($M = 438.685$ ms, $SE = 12.082$) compared to high-status attire ($M = 450.023$, $SE = 15.092$; $t(39) = -1.733$, $p = .091$). Furthermore, categorizations of low-Afrocentric faces were facilitated by high-status attire ($M = 451.701$ ms, $SE = 13.827$) compared to low-status attire ($M = 462.297$ ms, $SE = 14.505$; $t(39) = .2079$, $p < .01$). Among White, high-phenotypic targets, categorization RTs for high- versus low-status targets did not differ, $t(39) = .965$, *ns*. For White, low-phenotypic targets, we observed a marginally

significant trend such that high-status (M = 492.7 ms, SE = 17.705) compared to low-status (M = 304.83 ms, SE = 18.095) cues facilitated faster reaction times, $t(39) = 1.973$, $p = .056$.

Accuracy data. For accuracy, there was no main effect of race, $F(1, 39) = 1.086$, *ns* or status, $F(1,39) = 4.395$, *ns*. There was a main effect of phenotypicality $F(1, 39) = 9.463$, $p = .004$, such that participants were more accurate when categorizing high-phenotypic targets (M = 95.898%, SE = .703) compared to low-phenotypic targets (M = 93.906%, SE = .822). The race x phenotypicality interaction was marginally significant F(1, 39) = 3.978, p = .053[1]. We also observed a marginally significant phenotypicality x status interaction F(1, 39) = 3.944, p = .054[2]. The race x status interaction was not significant, $F(1, 39) = .009$, $p = .923$.

Again, the hypothesized race x phenotypicality x status interaction was not significant, $F(1, 39) = 1.099$, $p = .774$, $\eta^2 = .002$. However, because we had a clear prediction about the nature

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[1] Follow-up paired t-tests indicate that when categorizing White targets, participants were more accurate for high-phenotypic (M = 96.016%, SE = .664) compared to low-phenotypic faces (M = 92.539%, SE = 1.403; $t(39) = 2.729$, $p = .009$). On the other hand, for categorizations of Black targets there was no significant difference in the accuracy for high- versus low-phenotypic targets, $t(39) = .893$, $p = .253$.

[2] Follow up paired t-test indicate that attire influenced participants' accuracy when categorizing low-phenotypic faces, such that they were more accurate when categorizing targets in high- (M = 94.531%, SE = .783) compared to low-status attire (M = 93.281%, SE = .964; $t(39) = 2.013$, p =.51). On the other hand, attire did not influence participants' accuracy rates when categorizing high-phenotypic targets, $t(39) = -1.215$, $p = .232$.

of the phenotypicality x status interaction among Black versus White targets, we conducted a planned contrast to test our a priori hypothesis (Figure 2). Again, contrary to our hypothesis, participants' categorizations of low-phenotypic Black targets were more accurate when they were depicted in high- (M = 95.938%, SE = 1.002) compared to low-status attire (M = 94.609%, SE = .988), $t(39) = -1.715$, $p = .094$ (Figure 2). Attire did not moderate participants' accuracy for categorizing high-phenotypic Black targets, $t(39) = 1.16$, *ns.* Among White targets, attire did not moderate participants' accuracy when categorizing low- or high-phenotypic targets, $t(39) = -.173$, *ns* and $t(39) = .773$, *ns*, respectively.

Discussion

Consistent with the conception of racial phenotypicality, participants were quicker and more accurate when categorizing high-phenotypic targets compared to low-phenotypic targets, suggesting that, indeed, our high-phenotypic targets were perceived as more representative of their racial category. Participants were also faster when categorizing Black targets, which is consistent with previous literature demonstrating an attentional bias for outgroup faces (Dickter & Bartholow, 2007) and faces associated with threatening situations (Maner & Miller, 2013). Interestingly, results of Experiment 1 revealed a pattern of results contrary to our hypotheses. Among Black targets, we did observe the expected target phenotypicality x status interaction; however, we did not find that status moderated phenotypicality in the expected manner. Specifically, while we expected status to moderate participants' response to low- but not high-phenotypic Black targets, we found that status influenced the speed with which participants categorized both groups of targets as "Black". Participants' rapid categorizations of high-phenotypic targets were consistent with stereotypes about Black men in the US, suggesting an

association between the category "Black" and low-status occupations (Blair et al., 2005; Devine, 1989; Maddox & Gray, 2002). However, contrary to typical accounts of Black male stereotypes, participants' rapid categorizations of low-phenotypic targets were facilitated when the targets were depicted as high- (compared to low-) status, suggesting a link between low-phenotypic Black targets and high-status cues.

One possible explanation for this unexpected pattern of results is that people may have a separate set of stereotypes associated with high-Afrocentric versus low-Afrocentric targets. For instance, people may possess salient mental representations of "Black businessman" exemplars, against which they compared low- (but not high-) phenotypic Black targets (Devine, 1989). This subtype hypothesis may explain why categorizations of low-Afrocentric targets were facilitated by the counter-stereotypical high-status attire. That is, if participants associate low-Afrocentric facial features with businessmen, (but not with high-status cues in general), their categorizations of low-Afrocentric targets will not be facilitated by other high-status cues (e.g., doctor's lab coat).

Experiment 2

Consistent with cultural stereotypes of Black men, Experiment 1 established that low-status cues (coveralls) facilitated categorizations of high-Afrocentric targets. However, inconsistent with these stereotypes, Experiment 1 also demonstrated that high-status cues (shirt and tie) facilitated categorizations of low-Afrocentric targets. On the other hand, we did not find strong evidence for a moderating effect of attire status for high- versus low-Eurocentric targets. The high-status cue used in Experiment 1 may have conveyed a specific social role, activating the "Black businessman" subtype. In an attempt to isolate the effect of the subtype

from the intended social status manipulation, Experiment 2 will use alternative high-status attire. Experiment 2 examined social categorization by employing a nearly identical reaction-time task to that used in Experiment 1, with one key difference: instead of a shirt and tie, Experiment 2 employed a doctor's lab coat for the high-status attire condition. Previous research has identified the "Black businessman" subtype, however to the author's knowledge, there is no evidence to date of a "Black doctor" subtype. Therefore, the lab coat provides a way to examine the effect of a high-status cue that is not linked to a specific Black subtype. Furthermore, compared to a shirt and tie, which has overlapping associations with both Black subtypes and White stereotypes, the lab coat represents stronger overlap with White stereotypes only, such as well-educated, intelligent, and wealthy. By using the lab coat as the high-status cue, we are able to isolate stereotypic overlap to only one racial group, while maintaining the intended high-status context. In regards to the race x phenotypicality x status interaction, we consider the interpretation that the results of Experiment 1 derived from a *specific* association between stereotypes associated with the targets and the attires (e.g., a Black businessman subtype effect). As such we hypothesize that in Experiment 2 the coveralls will facilitate categorizations of low-Afrocentric targets and the lab coat will facilitate categorizations of low-Eurocentric targets.

Method

Participants. Forty-six Tufts University undergraduates (35 female; 29 White, 9 Asian, 4 Hispanic, 3 multiracial/multiethnic, 2 Black) participated in the experiment for partial course credit or $5.

Design. The design was the same as Experiment 1.

Stimulus material. The 32 face stimuli were identical to those used in Experiments 1 and depicted either high-Afrocentric (8), low-Afrocentric (8), high-Eurocentric (8), or low-Eurocentric (8) features.

Each of the 32 target stimuli was affixed to a high-status attire (lab coat) or a low-status attire (coveralls). The coverall attire was identical to that used in Study 1. The experimental stimuli were prepared in the same way as in Study 1, yielding eight categories: (1: high-Afrocentric—high-status; 2: high-Afrocentric—low-status; 3: low-Afrocentric—high-status; 4: low-Afrocentric—low-status; 5: high-Eurocentric—high-status; 6: high-Eurocentric—low-status; 7: low-Eurocentric—high-status; 8: low-Eurocentric—low-status; see Appendix B).

Procedure. Participants were asked to indicate on a keyboard as rapidly and accurately as possible whether the stimuli depicted a Black or White man. The experimental procedure used in Experiment 2 was identical to the procedure in Experiment 1.

Results

Before analyzing all data we removed RTs less than 250 ms and greater than three standard deviations from the mean (1.2% of the data). Before analyzing RT data we removed only participants' inaccurate responses (2.1% of the data).

Reaction time data. For RTs, we observed a main effect of race, $F(1,45) = 19.429$, $p < .001$, $\eta^2 = .302$, such that participants categorized Black targets ($M = 437.05$ ms, $SE = 12.999$), faster than White targets ($M = 455.05$ ms, $SE = 13.99$). We also observed a main effect of phenotypicality, $F(1,45) = .768$, $p < .001$, $\eta^2 = .497$, such that participants categorized high-phenotypic targets ($M = 437.2$ ms, $SE = 12.884$) faster than low-phenotypic targets ($M = 455.13$ ms, $SE = 13.919$). The main effect of status was not significant $F(1, 45) = .768$, *ns*. There was a

significant race x phenotypicality interaction, $F(1,45) = 10.066$, $p = .003$[3], a significant race x status interaction, $F(1, 45) = 4.139$, $p = .048$[4], and a significant phenotypicality x status interaction, $F(1, 45) = 7.506$, $p = .009$[5].

These effects were qualified by a race x phenotypicality x status interaction $F(1, 45) = 5.405$, $p = .025$ (Figure 3). Among Black targets, participants' categorizations of high- and low-phenotypic targets were not moderated by target status. However, among White targets, participants were faster to categorize high-phenotypic targets when they were depicted with

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[3] Follow-up paired t-tests reveal that there was no significant difference in participants' RT when categorizing White, high-phenotypic ($M = 442.959$ ms, $SE = 13.21$) and Black, low-phenotypic targets ($M = 442.643$ ms, $SE = 13.28$; $t(45) = .082$, $p = .935$); all other pairwise comparisons were significant.

[4] Follow-up paired t-tests indicate a marginal effect of status on participants' race categorizations such that when categorizing White targets, participants were faster for targets wearing a lab coat ($M = 433.859$ ms, $SE = 12.61$) compared to a janitor's uniform ($M = 440.548$ ms $SE = 13.303$; $t(45) = 1.816$, $p = .076$). Attire did not influence participants categorizations of Black targets, $t(45) = 1.266$, $p = .212$.

[5] Follow-up paired t-tests indicate that among low-phenotypic targets, attire did not influence participants' RTs, $t(45) = 1.058$, $p = .296$. Attire did influence categorization speed among high-phenotypic targets, such that participants were faster to categorize targets in a lab coat ($M = 433.859$ ms, $SE = 12.61$) compared to a janitor uniform ($M = 440.548$ ms, $SE = 13.303$; $t(45) = 2.372$, $p = .022$).

high-status cues (M = 424.74 ms, SE = 12.865) compared to low-status cues (M = 451.17 ms, SE = 13.928), $t(45) = 3.584$, $p = .001$. Conversely, status did not moderate participants' categorizations of White, low-phenotypic targets, $t(45) = .425$, *ns*.

Accuracy data. For accuracy, there was a main effect of phenotypicality, $F(1,45) = 19.283$, $p < .001$, such that participants were more accurate when categorizing high-phenotypic (M = 95.279%, SE = .625%), compared to low-phenotypic targets (M = 96.943%, SE = .448%). We did not observe a main effect for race, $F(1, 45) = .741$, *ns* or status, $F(1, 45) = .043$, *ns.* The race x status interaction was marginally significant $F(1, 45) = 3.741$, $p = .059$[6]. Neither of the other two-way interactions was significant (race x phenotypicality, $F(1, 45) = .551$, *ns*; phenotypicality x status, $F(1, 45) = .583$, *ns*), nor was the race x phenotypicality x status interaction, $F(1, 45) = .061$, *ns* (Figure 4).

Discussion

The reaction time and accuracy results of Experiment 2 revealed a race x phenotypicality x status effect that partially supported our hypothesis. We found that attire interacted with phenotypicality to moderate participants' categorization of White, but not Black, targets. Furthermore, contrary to our original hypothesis that status cues would influence

[6] Follow-up paired t-tests reveal that attire moderated participants' accuracy rates when categorization White but not Black targets. When categorizing White targets, participants were more accurate for targets in a lab coat (M = 96.399%, SE = .429) compared to a janitor uniform (M = 95.245%, SE = .779; $t(45) = -1.889$). Attire did not influence participants' accuracy for categorizing Black targets, $t(45) = 1.479$, $p = .146$.

categorizations of targets that are less prototypical of their group (H1a), the results demonstrate that the lab coat facilitated categorizations of high-Eurocentric, but not low-Eurocentric targets. The results of Experiment 2 suggests that that the effect of attire in moderating participants' responses to high- versus low-Afrocentric targets in Experiment 1 was guided by the specific occupational roles conveyed by the shirt and tie and coveralls uniform. This interpretation is further bolstered by the observation that the lab coat facilitated participants' categorizations of high-Eurocentric targets.

General discussion

Experiments 1 and 2 established that perceivers integrate specific attire cues with individuating facial features when categorizing targets by race, and that the extent to which these cues are integrated depends in part on the race of the target. Taken together, the results of two studies illustrate divergent sub-categorization (e.g., subtyping) effects depending on a target's racial group membership and his phenotypicality. In Experiment 1 we did not confirm our original hypothesis: we found that status cues moderated participants' rapid categorizations of both low- and high-phenotypic Black targets. Consistent with cultural stereotypes, a low-status cue (coveralls) facilitated rapid categorizations of high-phenotypic targets as Black. However, we also observed the counter-stereotypic effect such that high-status cues (shirt and tie) facilitated categorizations of low-Afrocentric targets as Black. Contrary to our original hypothesis, we did not observe an effect of attire cues for racial categorizations of high- versus low-phenotypic White targets. Experiment 2 further probed the attire and racial phenotypicality association by examining whether an alternative high-status cue, a lab coat, would elicit a similar facilitation for categorization of low-phenotypic White or Black targets. In

Experiment 2, participants did not demonstrate the same high-status—Black, low-phenotypic association. However, Experiment 2 did reveal an association such that the lab coat facilitated participants' categorizations of White high- but not low-phenotypic targets. In sum, the results reveal that participants' rapid categorizations of faces is moderated by the extent to which the target's features (facial and attire) are prototypical of the target's category.

Face perception in context

The results of these two experiments support and extend the literature investigating how contextual factors influence face perception. The current work contributes to the growing literature demonstrating that many types of cues beyond facial features, such as scene context (Barden, Maddux, Petty, & Brewer, 2004), status (Freeman et al., 2011; Ratcliff, Hugenberg, Shriver, & Bernstein, 2011), and emotion (Young & Hugenberg, 2010) influence social categorization. These results are also consistent with previous work demonstrating that bodily cues can influence early stages of face processing (Freeman et al., 2011; Hinzman & Kelly, 2013). By demonstrating that certain attire cues moderate participants' social categorizations depending on the target's phenotypicality, we have replicated previous work and extended these findings by demonstrating that this interaction also manifests as a result of *within*-category variations. Furthermore, by demonstrating that an alternative, high-status, stereotype consistent cue (lab coat) facilitated participants' categorizations of White, high- but not low-phenotypic targets, we provide initial evidence for distinct processing of faces depending on relevant racial stereotypes.

Indeed, these experiments demonstrate that only *certain* high-status cues appear to facilitate categorizations of low- versus high-phenotypic targets, depending on a target's racial

group. A high-status shirt and tie, but not a lab coat, facilitated categorizations of Black, low-phenotypic targets. Conversely, a lab coat but not a shirt and tie facilitated participants' categorizations of White high-phenotypic targets. Devine and Baker (1991) provided initial evidence for the "Black businessman" subcategory and its unique stereotype content. The phenomenon observed in the current studies may be interpreted as a subcategorization effect, explaining why a high-status shirt and tie, but not a lab coat, facilitates categorizations of Black, low-phenotypic targets. While the Black subtyping literature can explain why a perceiver may associate businessman cues with a Black target, it fails to explain why we observed this association for only low-Afrocentric targets.

Subcategorization

The Continuum Model proposed by Fiske and Neuberg (1990) describes a recategorization stage of person perception. If, after an initial social categorization, a perceiver assesses that the original no longer adequately describes the target, they may access a subcategory of the original category. The target is therefore fenced off from the superordinate category. According to this perspective, initial superordinate categorization precedes subcategorization. However, the current studies and other recent work suggest that global categorization may not necessarily precede subcategorization (Pattyn, Rosseel, Van Overwalle, & Van Hiel, 2015). While initial global categorization may be necessary for creation of subcategories, after repeated experience, a perceiver may be able to automatically assign a target into a particular subcategory, while simultaneously activating the global category.

Subgroups versus subtypes. In the more recent literature, efforts have been taken to distinguish the process of sub*typing* - or the fencing off of an errant group

member from his or her group, from the process of sub*grouping* - creating a distinct group of people within the superordinate category (see Richards & Hewstone, 2001 for review). While Fiske and Neuberg did not consider the distinctions between subtyping and subgrouping in their Continuum Model, their definition of subcategorization is consistent with both process (Fiske & Neuberg, 1990). Some research suggests that, while subgroups are strongly linked to the global stereotype content, subtypes are not (Hewstone, Hassebrauck, Wirth, & Waenke, 2000; Hewstone, 1994). Subsequent subtyping research has examined the extent to which a target's typicality predicts a perceiver's tendency to subtype the target from the superordinate category. Evidence suggests that atypical targets are more likely to be subtyped (Hewstone, 1994; Kunda & Oleson, 1995).

When considered in light of the more recent subtyping literatures, the subcategories identified by Devine and Baker (1991) may represent the distinct processes of subtyping and subgrouping. The "athlete", "ghetto", and "welfare" categories contained considerable overlap with the overall Black stereotype content, which perhaps represents a subgrouping process. On the other hand, the "business man" category did not have any overlap with the overarching group, suggesting that the "Black business man" category represents a subtype of the superordinate stereotype. Subcategories may represent varying degrees of social role typicality: with the Black businessman representing an atypical exemplar of the category and the "ghetto" or "welfare" Black man representing highly typical exemplars of the category. Though there is less literature examining the specific content of the White male stereotype and its subtypes, general stereotypical characteristics of Whites include intelligent, well-educated, and hard-working (e.g., Stone, Perry, & Darley, 1997). Considered in light of the social roles employed in

the current studies, we can map a continuum of the White male stereotypicality of these roles from least (janitor) to middle (businessman) to most (doctor). As a result, the doctor's attire may represent the strongest degree of overlap with the White male stereotype.

Typicality congruence and **categorization.** By considering the degree of typicality conveyed by each of the attire cues as they relate to Black versus White stereotypes, the current studies may demonstrate the process by which a perceiver categorizes a target using cues about their subcategory. Atypical targets are more likely to be subtyped (Hewstone et al., 2000; Yzerbyt, Coull, & Rocher, 1999) and the current results may demonstrate an extension of these previous findings. Categorizations of atypical (low-phenotypic) targets were facilitated by cues consistent with an atypical subtype (Black businessman) while categorizations of typical (high-phenotypic) targets were facilitated by cues consistent with a typical subtype (Black janitor and White doctor). The current work provides initial evidence that the typicality of a target's facial features (relative to a mental category representation) and the typicality of their social role (relative to the group stereotype) must align in order for a perceiver to categorize a target according to stereotypes associated with the superordinate group (high-typicality) or a subtype (low-typicality). The evidence here suggests that congruence of typicality on both of these dimensions (facial features and social role) facilitates use of either the overall stereotype (both dimension are typical) or the subtype (both dimensions are atypical).

Implications for stereotype change. Other research has also examined the effect of atypical targets on the content of a global stereotype. Yzerbyt, Coull, and Rocher (1999) demonstrated that a target's perceived typicality mediated the extent to which a perceiver maintained the group stereotype in the face of counter stereotypic information. The more atypical a perceiver rated a target, the less likely the perceiver was to alter their view of the group as a

whole. This is consistent with the Continuum Model, which posits once targets are recategorized, they are perceived as slightly removed from the overarching category. This perceived distance between the atypical target and the global category is likely to be the mechanism by which a distinction between the subtyped target and the overarching stereotypes of the global category are maintained. In turn, this perceived distance may inhibit change to the global stereotype in response to counter-stereotypic targets.

Limitations and future directions

There are some limitations of the current work to consider. Primarily, these studies were not designed to specifically probe the proposed subcategorization processes discussed above, leaving alternative explanations for the observed results open for consideration. For instance, there may be aspects of a perceiver's attentional processing driving their differential responses to targets. When categorizing targets by race, participants responded to high-phenotypic targets more quickly and accurately compared to low-phenotypic targets. While we interpreted this phenotypicality effect as confirmation that the targets were more prototypical — and therefore more easily categorized— than their low-phenotypic counterparts. An alternative explanation not yet explored is that there is something else driving participants' preferential response to high-phenotypic targets. For instance, in the case of high-phenotypic Black targets, participants' attention may be drawn to the targets' facial features more quickly due to the stereotypic threat concepts associated with these features. Therefore, the current study cannot make any definitive conclusions regarding the mechanism driving the pattern of results.

Another limitation of the current studies arises from roles conveyed by the status cues in the study. The business attire depicted a well-established subtype of the Black male stereotype.

Furthermore, the lab coat reflects strong convergence with the overall White male stereotype as hard-working, intelligent and well-educated. However, the janitor attire, which we have interpreted to be consistent with the global Black male stereotype may not overlap with the Black male stereotype as strongly as the White—doctor pairing because it implies employment, a concept not generally associated with Black men. Therefore, these studies did not include analogous manipulations conveying a White-male subtype and a Black-male stereotype. This discrepancy may account for our inconsistent results in Study 1 and Study 2. Future work should explore social roles that fully cross the stereotypic congruence (high versus low) with race (Black versus White) in order to comprehensively examine whether typicality congruence predicts the nature of subcategory processing.

Conclusions

We have shown that perceivers integrate information about the typicality of a target's facial features and the typicality of their social role when making race-based categorization judgments. Specifically, adding to the extant literature examining subcategorization processes, these results demonstrate that the when a target conveys a high level of group typicality, a perceiver's categorizations of the target will align more strongly with the stereotypes of the superordinate category. Conversely, when the target conveys a low level of group typicality, a perceiver's categorizations will more strongly align with the specific subtypes of the superordinate category. While these studies demonstrate that a perceiver's rapid racial categorizations can be influenced by a target's social status cues, the perceiver continues to rely heavily on well-learned stereotypes about the overarching group. Furthermore, these studies

demonstrate that a target's typicality will play a large role in determining a perceiver's categorization process.

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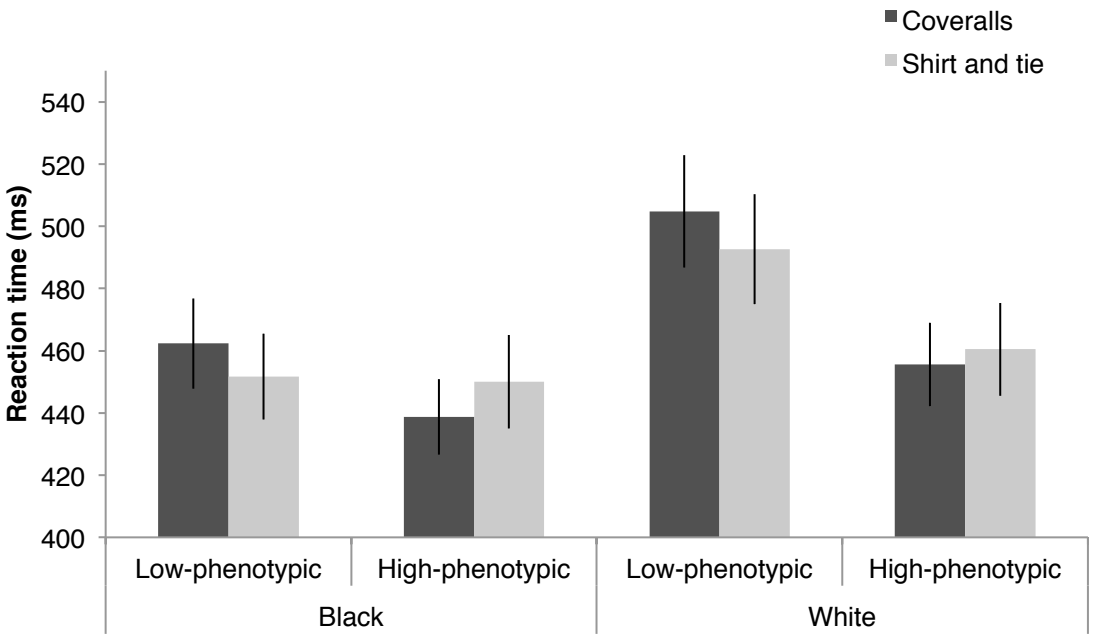


Figure 1. Experiment 1 reaction time results as a function of race, phenotypicality, and attire.

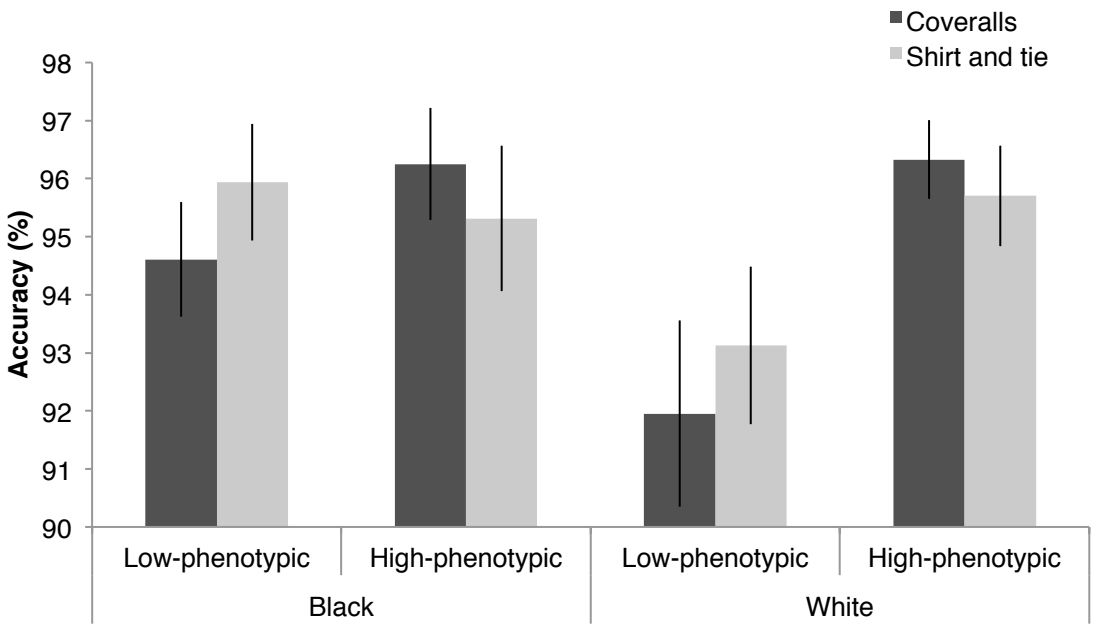


Figure 2. Experiment 1 accuracy rates as a function of race, phenotypicality, and attire.

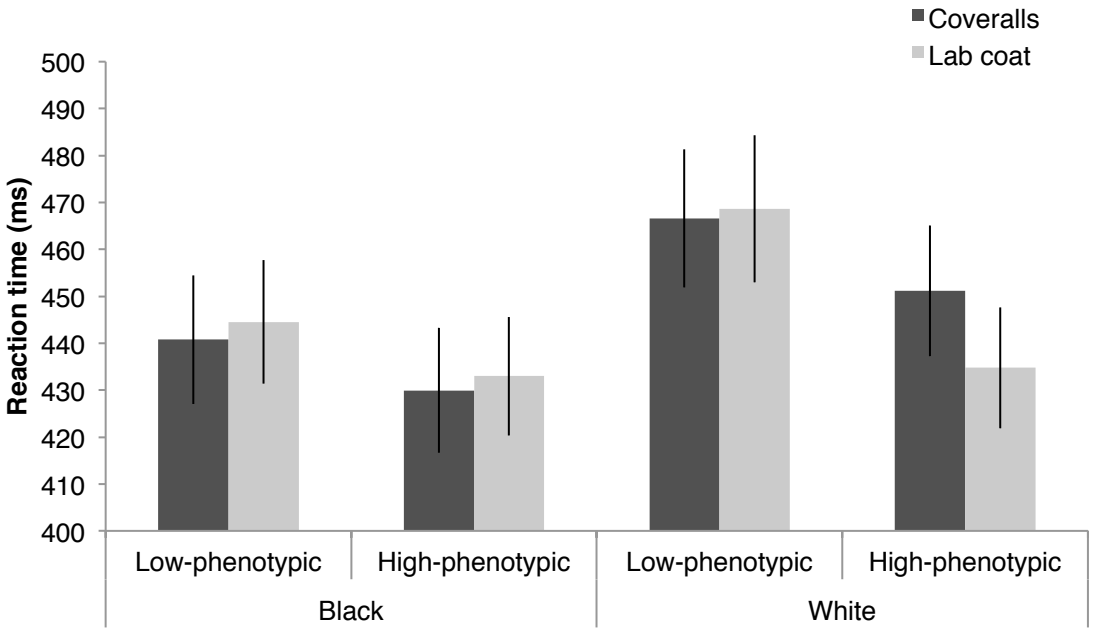


Figure 3. Experiment 2 reaction time results as a function of race, phenotypicality, and attire.

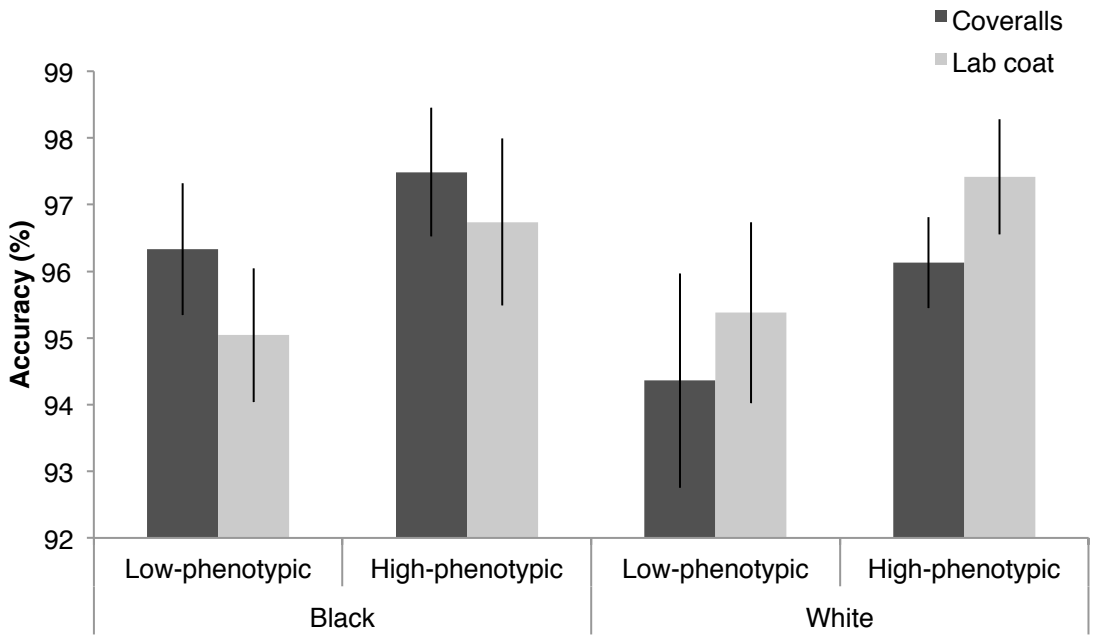
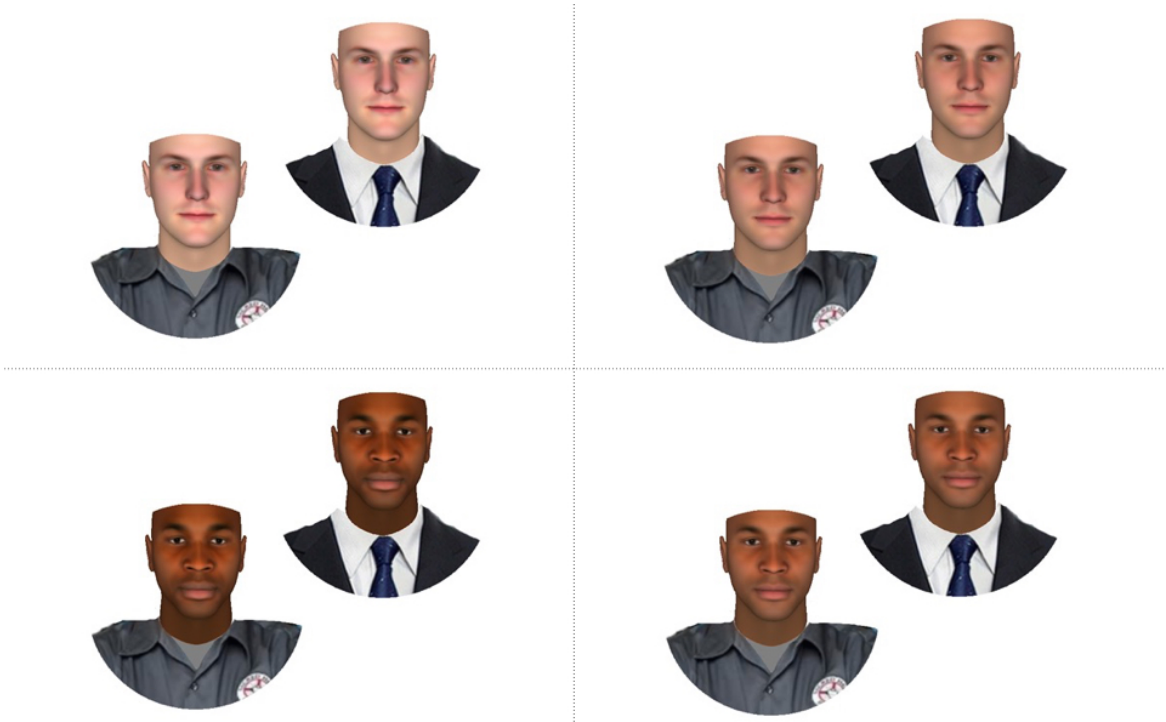


Figure 4. Experiment 2 accuracy rates as a function of race, phenotypicality, and attire.

Appendix A: Subset of Experiment 1 Stimuli



Appendix B: Subset of Experiment 2 Stimuli