The Effect of Phenotypic Bias on Lineup Construction Fairness

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Lineup Construction Fairness and Phenotypic Bias

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Abstract

There is converging evidence that people make inferences about others’ culpability and deservingness of punishment based on whether they express more of the African phenotype (e.g., darker skin, wider nose, thicker lips; Blair, Judd, & Chapleau, 2004; Eberhardt Goff, Purdie & Davies, 2004; Kahn & Davies, 2011). What is less clear is whether facial features that are phenotypically related to particular racial groups play a role in the mistaken identification of innocent Black suspects. Eyewitness descriptions lack detail with regard to racial phenotypes (Fahsing, Ask & Granhag, 2004; Nicholson & Kovera, 2013). Without descriptions containing phenotypic features to use when choosing fillers (i.e., lineup members who are not the suspect) in lineups or photo arrays, it is possible that lineup constructors will choose fillers that do not match the phenotype expression of a suspect, increasing the risk that the suspect will stand out from among the other members of the lineup and that the lineup will be unfair. It is also possible that the racial stereotype associated with the crime under investigation may influence the phenotype expression of fillers chosen by lineup constructors (Kleider, Cavarak & Knuycky, 2012; Knuycky, Kleider & Cavarak, 2014; Osborne & Davies, 2012). This study employed four phases to test whether phenotypic bias affects lineup fairness. Phase 1 and 2 developed the stimulus materials. Phase 3 had participants construct lineups in a 2 (Construction method: match-to-suspect or match-to-description) x 3 (Crime type: stereotypically Black, stereotypically White or blind) x 2 (Suspect level of African phenotype expression: high or low). Phase 4 measured the fairness of the lineups created in Phase 3 to assess the potential affect of phenotypic bias on mock witness lineup identifications. I found that descriptions of out-group members are indeed vague and devoid of descriptors specific to phenotypically African features (Phase 2). In addition, lineups constructed using the match-to-suspect method of lineup
construction consisted of fillers with similar African phenotype expression ratings as the suspect’s rating, but lineups created using the match-to-description method had fillers with African phenotype expression ratings that did not match the suspect’s ratings (Phase 3). Mock witnesses’ lineup up identifications were affected by phenotypic bias, regardless of construction condition, but lineups containing suspects with low African phenotype expression were biased to the advantage of the suspect and lineups containing suspects with high African phenotype were biased to the disadvantage of the suspect (Phase 4). Given these findings, the recommended procedural safeguards may not be sufficient in protecting Black suspects with high African phenotype expression from the prejudicial effects of phenotypic bias.
Lineup Construction Fairness and Phenotypic Bias

Despite major developments in eyewitness accuracy research with regard to the effect of race on eyewitness identification accuracy, researchers have yet to explore how suspect’s race affects the construction of lineups (Brigham & Ready, 1985; Knuycky et al., 2014; Meissner & Brigham, 2001; Osborne & Davies, 2012). Eyewitness experts currently recommend lineup construction methods based on studies using only White men as suspects/perpetrators (Clark & Tunnicliff, 2001; Wells et al., 1998). In those studies, the match-to-description method of lineup construction resulted in the most fair lineup composition (Lindsay, Martina & Webber, 1994; Wells, Rydell & Seelau, 1993; Wells et al., 1998; Wogalter, Marwitz & Leonardo, 1992). However, the effects of phenotypic bias on perceived criminality, social judgment, and memory suggest that procedures that resulted in fair outcomes for White/Eurocentric suspects might not be fair for Black/Afrocentric suspects, specifically when the constructor is not blind to the crime that has been committed (Blair, Judd, Sadler & Jenkins, 2002; Knuycky et al., 2014; Osborne & Davies, 2012). The current research will test whether phenotypic bias affects lineup construction and fairness and whether procedural changes can moderate this potential bias.

The African Phenotype and Perceived Criminality

Regardless of racial group membership, individuals with more stereotypically African facial features are associated with more stereotypically “Black” attributes, which tend to be negative (Blair et al., 2002). This phenomenon is referred to as phenotypic bias. Most Black-Americans have features that fall along a phenotypic continuum with the African phenotype (dark eyes, dark skin, full lips, short kinky hair, wide nose) on one end and the European phenotype (light eyes, light skin, thin lips, straight long hair, narrow nose) on the other (Maddox, 2004). Feature-based judgments are more salient, automatic and less responsive to suppression
instructions than are categorically race-based judgments (Blair, Judd & Fallman, 2004). Even when presented with information to the contrary, participants tend to associate more phenotypically African subjects with more negative stereotypical attributes such as aggressiveness and criminality (Blair, Chapleau, & Judd, 2005).

Phenotypic bias has consequences for the treatment that people with Afrocentric features experience in our criminal justice system. First, lay people infer that Black people with Afrocentric features are more likely to engage in criminal activity (Kahn & Davies, 2011); police officers make similar judgments (Eberhardt et al., 2004). Second, among Black suspects found guilty of a crime, those with more Afrocentric features receive harsher punishments than those with less Afrocentric features (Blair et al., 2004), including an increased likelihood of receiving the death penalty (Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2006). Thus, there is converging evidence that people make inferences about people’s culpability and deservingness of punishment based on whether they possess Afrocentric features. What is less clear is whether facial features that are phenotypically related to particular racial groups play a role in the mistaken identification of innocent Black suspects. Previous studies have primarily studied the extent to which phenotypic bias influences inferences people make about previously unencountered individuals, but not memories of previously seen people.

**Phenotypic Bias in Eyewitness Identification Procedures**

The fear behind mistaken identification, in the context of phenotypic bias, is not that witnesses purposefully choose suspects based on their level of phenotypicality. It is that the automatic association between criminality and the African phenotype could potentially corrupt the encoding and recall of eyewitness memory. The presence of phenotypically African features has been shown to affect facial recognition and source memory. Participants correctly identified
and categorized targets with higher phenotypically African features more often when presented in a context associated with criminality and aggression (Kleider et al., 2012). Similarly, participants were more likely to wrongly categorize targets with higher phenotypically African features into the context of criminality and aggression when the targets were not presented in that context (Kleider et al., 2012). In addition, phenotypically African faces seem more familiar - participants reported to have seen faces with high phenotype expression previously, though the participants had not seen the faces before (Knuycky et al., 2014). This familiarity was reported both in a neutral context and in the context of a criminal lineup (Knuycky et al., 2014). When police officers viewed crime-related words before they performed a facial identification task, the officers remembered the faces with more phenotypically African features than they actually exhibited (Eberhardt et al., 2004). Although these studies suggest that witnesses may misremember perpetrators as more phenotypically African than they are, none of the studies used an eyewitness paradigm; the identification procedure did not contain critical features such as a properly constructed lineup or instructions to the witness that the perpetrator may not be in the lineup.

If studies show that in the context of criminal activity there is a tendency to misremember faces with more phenotypically African features at higher rates, does this phenotypic bias impact eyewitness procedures? In one series of studies, participants viewed a series of slides depicting a Black man leaving a building and were told that he was accused of committing either a stereotypically White or stereotypically Black crime (Osborne & Davies, 2012). Participants then chose the man’s face from a series of 100 pictures that were created by morphing the target face with a face that was more or less phenotypically African than the target face. The 50th picture in the series was the target face. Participants who were told that the target was
committing a stereotypically Black crime chose a morphed picture that was more phenotypically African and significantly different from the mid-point of the series (the target face), whereas the participants who were told the target was committing a stereotypically White crime chose a picture that was not significantly different from the target face. In another series of studies, participants viewed a perpetrator accused of committing grand theft auto and were presented a photo array from which to make an identification (Knuycky et al., 2014). Participants were either shown a perpetrator with high African phenotype expression or low African phenotype expression. Photo arrays were created by adding fillers that were half a standard deviation and one standard deviation higher and lower in African phenotype expression than the target; all arrays were fair. In target present arrays, participants were more accurate in identifying Black perpetrators who were not phenotypically African, which suggested that the diversion from the stereotype led them to stand out in the context of a stereotypically Black crime (Knuycky et al., 2014). When participants identified a filler (lineup members who are known not to be the perpetrator) in stereotypical target conditions, the fillers had higher expression of the African phenotype than did the target, but when participants identified a filler in the non-stereotypically target conditions, the fillers had lower expression of the African phenotype than did the target (Knuycky et al., 2014). Both studies exemplify that the eyewitness’s memory is skewed by not only the stereotypicality of the perpetrator, but also the stereotypicality of the crime committed. However, neither study explored whether phenotypic bias operated within the construction of the lineups. In addition, none of the aforementioned studies provide information about whether safeguards designed to reduce mistaken identifications will mitigate phenotypic bias in eyewitness identifications.

**Phenotypic Bias and Lineup Construction**
Lineup composition is an important consideration when evaluating the fairness of a lineup procedure (Cutler & Kovera, 2010). A lineup is considered fair when each lineup member has an equal chance of being selected by a person who did not view the crime (Wells et al., 1998). However, suspects who have more phenotypically African features may be at increased risk of misidentification if police follow recommended best practices for constructing lineups. Researchers investigating practices for eyewitness procedures recommend that fillers for lineups be chosen based on their similarity to the verbal description of the perpetrator provided by the witness (Luus & Wells, 1991; Wells et al., 1998). This match-to-description strategy is thought to prevent biased lineups by making it difficult for a witness to deduce the identity of the suspect because some or all of the fillers fail to match the description the witness gave of the perpetrator. In contrast, if fillers are matched to the suspect, there may not be enough variation among the lineup members to allow witnesses to differentiate among them, theoretically resulting in lower rates of correct identifications. Indeed, photo arrays composed through a match-to-description method are more likely to maximize correct identifications of guilty culprits and minimize mistaken identifications of innocent suspects (Wells et al., 1993). In addition, the match-to-suspect method could result in more mistaken identifications if the suspect is innocent but shares some features with the real offender, because matching to the suspect has the potential, by chance alone, to include only fillers that have the features that do not match the actual offender, making the innocent suspect the most likely to prompt recognition (Navon, 1992). However, when the suspect is the perpetrator, the match-to-description method specifies exactly which features are important for all fillers to have and allows variances in features not specified in the description (Luus & Wells, 1991; Navon, 1992). The early empirical research on lineup fairness provided support for the match-to-description method of lineup construction,
cementing the match-to-description method as the expert recommended method (Lindsay et al., 1994; Luus & Wells, 1991; Wells et al., 1993; Wogalter et al., 1992).

However, every published study comparing the two methods of lineup construction only used White males as the suspects and perpetrators. For suspects of other races, especially those with more phenotypically African features, the match-to-description method may increase the likelihood that their lineup was biased because witnesses’ descriptions of perpetrators are unlikely to contain information about stereotypically African features. Witness descriptions of perpetrators are relatively vague (Christianson & Hübinette, 1993), providing information about general characteristics (gender, race, age) rather than facial features (van Koppen & Lochun, 1997; Lindsay et al., 1994). For example, a comparison of witness descriptions provided in real cases with videotaped footage of perpetrators revealed that the descriptions contained general information about gender, height, build, clothing, and race but rarely mentioned identifying information (Fahsing et al., 2004; Nicholson & Kovera, 2013). Although these authors did not code for the mention of features that would provide information about whether perpetrators were phenotypically African, witnesses rarely mentioned features such as mouth or nose that might provide a clue about phenotypic category.

Given these findings, it is not likely that witnesses will mention Afrocentric features in their verbal descriptions. Witnesses may mention skin tone but are unlikely to describe features in a way that would indicate the presence of African facial features (e.g., prominent brow, wide or narrow nose, thin or full lips). Given that witnesses’ descriptions of perpetrators are unlikely to contain the types of detailed information about facial features that would capture the extent to which a perpetrator possessed stereotypically African features, the match-to-description method of constructing a lineup may result in a lineup that is more biased to the disadvantage of the
suspect than a lineup constructed using a match-to-suspect method. Because a suspect’s stereotypically African features are unlikely to be mentioned in the witness’s description of the perpetrator, the fillers chosen for the lineup are less likely to share these features but will still match the suspect. Unless the fillers in the lineup share the same level of phenotype expression as the suspect, those with phenotypically African features may be at higher risk of identification.

**Study Overview**

Fair lineups can only occur when the suspect does not stand out (Wells et al., 1998). The suspect should only stand out to the witness if he or she resembles the perpetrator on characteristics that were not stated in the description, indicating that they are indeed the perpetrator (Navon, 1992; Luus & Wells, 1991; Wells et al., 1993; Wells et al., 1998). However, the strong, automatic association between crime and memory of phenotypically African features may bias witness choices (Kleider et al., 2012; Knuycky et al., 2014; Osborne & Davies, 2012). In situations relating to criminal activity, individuals remember features as more phenotypically African than they actually are, especially when the crime offenders are associated with a particular race (Eberhardt et al., 2004; Kleider et al., 2012; Knuycky et al., 2014; Osborne & Davies, 2012). In addition, eyewitness descriptions are commonly lacking details related to the phenotype of facial features (Fahsing et al., 2004; Nicholson & Kovera, 2013). Without information on feature phenotype on which to base filler choices, it is likely that lineup constructors will choose fillers with higher African phenotype expression, especially when a crime is stereotypically associated with Black offenders. Thus, when lineups are constructed using the match-to-description method, phenotypic bias may affect lineup composition and fairness differently for suspects with different expression of the African phenotype. Specifically, when matching fillers to a witness description, crime type might influence choice of fillers, with
constructors choosing fillers with greater African phenotype expression for stereotypically Black crimes (e.g., pimp) and fillers with greater European phenotype expression for stereotypically White crimes (e.g., embezzlement). These choices will interact with suspect phenotype expression, resulting in more fair lineups for suspects with high African phenotype when they are accused of a stereotypically Black (rather than White) crime. Suspects with lower African phenotype expression will have fairer lineups when they are accused of a stereotypically White (rather than Black crime). Match-to-suspect lineups should show only an effect of suspect phenotype upon the average filler African phenotype expression rating and no effects of crime type upon lineup fairness.

The current research involved four phases of data collection, with separate methodologies. Phases 1 and 2 were focused on the generation of stimulus materials. In Phase 1, I tested the correct racial categorization rate of the six Black targets with the lowest ratings of African phenotype expression (measured in Eberhardt et al., 2006) to determine which three photos would be used as suspects. In Phase 2, I had participants create descriptions of the three low African phenotype expression suspect photos that had the highest correct racial categorization rates. The descriptions for the high African phenotype expression targets were developed in a previous pilot (Nicholson & Kovera, 2013). In Phase 3, participants constructed lineups using either a match-to-suspect or match-to-description method, also varying suspect phenotype and crime type stereotypicality. I assessed the average African phenotype expression of the lineup fillers for each lineup in relation to the African phenotype expression of the suspect in that lineup. Phase 4 required mock witnesses to make lineup selections to assess the fairness of the lineups created in Phase 3, receiving only a description of the perpetrator and the crime (i.e., they will not see the perpetrator). These choices will be used to calculate different indices of
lineup fairness (e.g., the extent to which suspects are chosen at rates greater than chance by people who did not witness the crime).

**Phase 1: Stimulus Photo Development**

In a pilot for another study, suspect descriptions for 6 target photos - 3 high African phenotype expression and 3 low African phenotype expression - were created and tested to use as a stimulus sample for lineup construction (Nicholson & Kovera, 2013). However, the study found that only the high African phenotype expression targets were effective stimuli. Manipulation checks in the pilot showed that the low African phenotype expression targets were often misidentified as Hispanic instead of Black. Misidentification of the target’s race as non-Black implied the stimuli did not effectively manipulate the intended construct, African phenotype expression. To solve this issue, I measured the correct racial categorization rate of the 6 photos with the lowest African phenotype expression ratings.

**Method**

**Participants.** Thirty-four participants were recruited from Amazon Mechanical Turk online data collection platform. All participants were above the age of 18, lived in the United States and were United States Citizens. Participants were diverse in age: 41.18% were between 26-35, 23.53% were between 36-45, 26.47% were between 18-25, 5.88% were between 46-60, and 2.94% were older than 60. Of the 34 participants, 19 (55.88%) were male and 15 (44.12%) were female. Thirty-one (91.18%) of the participants self-identified as Caucasian. Two participants self-identified as Hispanic/Latino, and one participant identified as Asian or Pacific Islander. Participants were paid $0.50 at the completion of the survey.

**Materials.**

**Target Photographs.** Target photographs were chosen from a photograph database
developed by Eberhardt and colleagues (2006). Participants rated 100 Black male faces based on attractiveness, age and level of African phenotype expression (Eberhardt et al., 2006). I used the 6 photographs with the lowest ratings of African phenotype expression from that database.

**Photograph Database.** A photograph database was created by current researchers that consisted of 30 photographs of men from White, Black, Hispanic, Asian or Pacific Islander, and Southeast Asian or Middle Eastern backgrounds. The database is a compilation of previously published photos and photos of volunteers (Eberhardt et al., 2006). All volunteers signed release forms that allowed the photos to be used in this study.

**Qualtrics Survey.** The Qualtrics research platform was used to determine eligibility of potential participants, randomly assign eligible participants to conditions, and present stimuli in random orders. A survey was created on the platform to facilitate the collection of lineup construction data. The survey used for the Phase 1 can be found in Appendix A.

**Procedure.** Participants volunteered for the study by clicking the link in the Amazon Mechanical Turk advertisement, which routed them to the Qualtrics consent form. Every participant saw the same consent form. The consent form was completed individually without the presence of any research staff, but the PI’s email was listed if participants needed any questions answered. They then had the option to click “Agree” to indicate that they had read and understood the consent form and wished to continue with the study. When the participants clicked “Agree”, they were then taken to the demographic prescreener to determine whether they were a resident and citizen of the United States and were consenting age to participate in the survey. Ineligible participants were taken to a disqualification screen. Eligible participants were then shown each photograph in the database in a random order and made a racial categorization of the suspect in the photograph from the following choices: White, Black, Hispanic, Asian or
Pacific Islander, and Southeast Asian or Middle Eastern. Once they had made racial categorizations of the individual depicted in each photograph they were taken to the debriefing page. At the completion of the study participants received their compensation, consistent with the Amazon Mechanical Turk guidelines.

Results

For, three of the target photos, all of the participants correctly identified the people depicted in the photos as Black. These photos were used as stimulus materials in subsequent phases.

Phase 2: Perpetrator Description Development

The 3 low African phenotype expression photos with the highest correct racial identification rate were used as the low African phenotype expression targets. I had participants view one of the three photos and provide a description of the target.

Method

Participants. Thirty White men were recruited from Amazon Mechanical Turk online data collection platform. I used a homogenous sample because out-group members have consistently been shown to be more sensitive to race based manipulations (Meissner & Brigham, 2001). All participants were above the age of 18, lived in the United States and were United States Citizens. Participants were diverse in age: 36.67% were between 26-35, 30% were between 36-45, 10% were between 18-25, 16.67% were between 46-60, and 6.67% were older than 60.

Materials.

Qualtrics Survey. The Qualtrics research platform was used to determine eligibility of potential participants, randomly assign eligible participants to conditions, and present stimuli in
random orders. A survey was created on the platform to facilitate the collection of lineup construction data. The survey used for the Phase 2 can be found in Appendix B.

**Target Photographs.** The target photographs that had the highest racial identification rate from Phase 1 were used as the target photographs in Phase 2.

**Procedure.** Participants volunteered for the study by clicking the link in the Amazon Mechanical Turk advertisement, which routed them to the Qualtrics consent form. Every participant saw the same consent form. The consent form was completed individually without the presence of any research staff, but the PI’s email was listed if participants needed any questions answered. They then had the option to click “Agree” to indicate that they had read and understood the consent form and wished to continue with the study. When the participants clicked “Agree”, they were then taken to the demographic prescreener to establish their eligibility to participate. Ineligible participants were taken to a disqualification screen. Eligible participants were then shown one of the three target photos for 15 seconds. Participants then answered nine analogy questions that acted as a distraction task. After they finished the distraction task they were asked to provide a description for the photo they had just seen. After they had completed their description they were taken to the debriefing screen. At the completion of the study participants received their compensation as consistent with the Amazon Mechanical Turk guidelines. Descriptors that appeared in 70% of the participants’ description of the photo were compiled to make a perpetrator description to be used in Phase 3.

**Phase 3: Constructing the Lineups**

Phase 3 had a 3 (Crime Type: stereotypical Black crime, stereotypical White crime, or no crime information) X 2 (Suspect African phenotype expression: high or low) X 2 (Construction method: match-to-suspect or match-to-description) experimental design to assess relationships
between the three manipulations on each lineup’s average African phenotype expression ratings of the fillers. Researchers developed a three-variable factorial design specifically to assess whether the proposed procedural changes effectively moderated the effects of phenotypic bias on the average filler African phenotype expression ratings of the lineups constructed. I expected to find a three-way interaction between constructor knowledge, suspect phenotype expression, and lineup construction method such that, the average African phenotype expression of fillers in lineups created using the match-to-suspect method would be consistent with the African phenotype expression ratings of the suspect and would be unaffected by lineup constructor knowledge of the crime. The African phenotype expression ratings of lineups constructed using the match-to-description method would be influenced by the constructor’s knowledge of the crime but would not be consistent with the African phenotype expression of the suspect.

Method

Participants. Only White men were recruited to construct lineups as out-group members have consistently been shown to be more sensitive to race based manipulations (Meissner & Brigham, 2001). An advertisement with a brief description of the study was posted online on the Amazon Mechanical Turk website (https://www.mturk.com/mturk/welcome) where users can view and then choose to complete the study. Participants were randomly assigned by the online research platform Qualtrics into one of the 12 conditions. Participants were given monetary compensation of $3.00 for their participation. The inclusion criteria involved being 18 years of age or older, self-reported as Caucasian, self-reported as male and having access to the internet, and a “masters” level worker on the Amazon Mechanical Turk website. Masters level workers have received high marks for providing quality data for previous projects on which they worked. I recruited masters level workers for this phase, because creating lineups requires a higher level
of commitment than answering multiple choice questions and I wanted to ensure that the participants were motivated to do a good job on the task because they were creating stimuli that would be used in the next study.

In total, 144 participants constructed lineups. Fifty percent of the lineup constructors reported being between the ages of 26 and 35; 7.4% were between 18 and 25, 23.6% were between 36-45, 15.5% were between 46-60; and only 2.7% were over the age of 60. There were no significant age differences between groups.

Materials.

*Qualtrics survey.* The Qualtrics research platform was used to determine eligibility of potential participants, randomly assign eligible participants to conditions, and present stimuli in random orders. A survey was created on the platform to facilitate the collection of lineup construction data. The survey used for the study can be found in Appendix C.

*Photo database and target descriptions.* Participants chose lineup members from a 97-photo database of Black male photos depicting subjects from only the neck up. The database was acquired from Eberhardt and colleagues (2006) and each photo was pre-rated according to African phenotype expression, age, and attractiveness. To increase the generalizability, three target photos were used for each African phenotype expression condition (high African phenotype expression and low African phenotype expression). Final descriptions of the target photos were created using features mentioned by at least 70% of the participants in either the Nicholson and Kovera (2013) study or in Phase 2 of this study (Appendix D).

*Crime type.* Along with either the target description or photo (depending on the condition) participants were given one of three descriptions:

“That police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night
that the money went missing. The police want to see whether the cleaning lady recognizes the person they have arrested as the man she saw leaving the bank that night.”

“The police have a suspected pimp in custody. He was arrested near a hotel where an undercover police officer was solicited by three prostitutes. A hotel staff member saw one of the prostitutes give money to a man who had been loitering in front of the building. The police want to see whether the hotel employee recognizes the person they have arrested as the man who was given money by the known prostitute.”

“The police have a person suspected of a crime in custody. The police have an eyewitness to the crime and they want to see whether that witness recognizes the person that they have arrested.”

Osborne and Davies (2012) thoroughly pre-tested these crime types and determined the ratings of crimes based on seriousness, level of violence and racial stereotypicality. “Suspected pimp” was rated on average with the same level of seriousness and violence as “suspected embezzler”, but “suspected pimp” was rated as a stereotypically Black crime and “suspected embezzler” was rated as a stereotypical White crime.

**Procedure.** Participants volunteered for the study by clicking the link in the Amazon Mechanical Turk advertisement, which routed them to the Qualtrics consent form. The consent procedure was identical to the procedure used in the preceding pages. Eligible participants were randomly assigned to a crime type and construction method and were sent to a screen that provided the crime description and instructed them on the construction method they were to use. Participants were also randomly assigned to prepare a photo array for a suspect with high or low African phenotype expression. In the match-to-description method, participants read the description of the suspect photo but not the actual photo. In the match-to-suspect method, participants were given the suspect photo but not the description of the photo. The screen then showed every participant the same 97 photo database, with the photos presented in a random order. After they chose 5 filler photos, they were given manipulation check questions. Finally, participants were directed to a debriefing screen explaining the true purpose of the study. At the
completion of the study participants received their compensation as consistent with the Amazon Mechanical Turk guidelines.

**Data Analysis.** The average filler African phenotype expression ratings of the lineups were calculated by averaging the African phenotype expression ratings of the five fillers chosen in the lineup. The suspect photo was not used in the calculation of the average filler African phenotype expression of the lineup, because in cases where the lineup members had significantly different African phenotype expression ratings than the suspect, the suspect’s African phenotype expression rating would skew the average decreasing the statistical strength of the analysis. A three-way ANOVA was run to compare the average African phenotype expression ratings of the lineups by condition.

**Results**

I hypothesized that lineups constructed by the match-to-suspect method of lineup construction would have average African phenotype expression ratings consistent with the African phenotype expression ratings of the suspect without being biased by the lineup constructor’s knowledge of the crime. A 3 (Crime type) X 2 (Suspect African phenotype expression) X 2 (Method of lineup construction) ANOVA was used to analyze the main effects and interaction effects of the three manipulations on the constructors’ choice of fillers by average African phenotype expression ratings. The average African phenotype expression rating of the high targets was $M = 6.07$ and the average African phenotype expression rating of the low targets was $M = 4.26$, $d = 4.59$, 95% CI [4.28, 4.91].

The results did not confirm our hypothesis of a three-way interaction, $F (2, 136) = .780$, $p > 0.05$. However, there was a significant interaction between the level African phenotype expression of the suspect and the method of lineup construction, $F (1, 136) = 16.87$, $p < .001$, $\eta^2$
Lineups that were created using the match-to-description method did not have fillers with African phenotype expression ratings similar to the suspect in the lineup: constructors created lineups with similar average filler ratings regardless of whether the suspect had high African phenotype expression ($M = 4.95$, $SD = 0.37$) or low African phenotype expression, $M = 5.08$, $SD = 0.51$. On the other hand, lineups that were created using the match-to-suspect method had fillers with African phenotype expression ratings consistent with the African phenotype expression ratings of the suspects: participants constructed lineups with higher filler African phenotype expression ratings when suspect had high African phenotype expression ratings ($M = 5.48$, $SD = 0.43$) and constructed lineups with lower filler African phenotype expression ratings when the suspect had low African phenotype expression ratings ($M = 4.95$, $SD = .62$; see Figure 1).

Figure 1: Two-Way Interaction: Average Filler African Phenotype Expression Ratings
Discussion

Phase 3 participants, in the match-to-description condition, picked photographs based on witness descriptions created in pretesting. These descriptions were created by taking the features used by at least 70% of the pretesting participants. Consistent with past research on actual witness descriptions, the descriptions made in this study were vague and made no mention of stereotypical features (Lindsay et al., 1994). As such, the African phenotype expression of the fillers chosen did not differ as a function of the phenotype expression of the suspect. Lineups containing suspects with higher African phenotype expression ratings had the same filler African phenotype expression ratings as lineups containing suspects with low African phenotype expression. The difference between the average filler ratings and the average suspect ratings was -0.99 for lineups containing suspects with high African phenotype expression and 0.69 for lineups containing suspects with low African phenotype expression. The fillers were lower in African phenotype expression compared to high African phenotype suspects and higher in African phenotype expression compared to low African phenotype suspects. In both cases, this difference in phenotypicality could cause the suspects to stand out to the mock witnesses. Witnesses may make judgments about the perceived criminality when the suspect stands out, specifically in cases where the suspect has higher phenotype expression than the rest of the fillers in the lineup.

However, participants in the match-to-suspect condition picked fillers based on how similar the fillers looked to a picture of the suspect. The phenotype expression of the suspect predicted the average African phenotype expression rating of the fillers but only in match-to-suspect lineups. The suspects’ African phenotype expression ratings were similar to the average ratings of the fillers in the lineups created by the match-to-suspect method. The difference between the average filler ratings and the average suspect ratings was -0.59 for lineups containing
suspects with high African phenotype expression and .69 for lineups containing suspects with low African phenotype expression. As such, it is less likely that suspect would stand out from the fillers based on phenotypic expression for suspects with higher African phenotype expression than in lineups created with the match-to-description method of lineup construction.

Knowledge about the crime type had no effect on the African phenotype expression ratings of the fillers chosen for the lineup. One possible explanation for why the crime stereotypes did not affect the fillers’ African phenotype expression could be due to a race salience effect. The race salience effect is a phenomenon demonstrated most consistently in the context of courtroom procedures; racial bias occurs more often when race is not a salient, or obvious, component in the trial (Cohn, Bucolo, Pride & Sommers, 2009; Sommers, 2006; Sommers & Ellsworth, 2000, 2001). Researchers hypothesize that the race salience effect operates as a mechanism of the backfire effect due to perceived social desirability (Sommers & Ellsworth, 2000). Participants, especially in juror studies, did not want to be viewed as racist and therefore responded with less bias, but only when the case brought the defendant’s race to attention (Cohn et al., 2009; Sommers, 2006; Sommers & Ellsworth, 2000, 2001). In the context of Phase 3 results, the manipulation of a strong racial stereotyped crime could have backfired and led participants to choose fillers less prejudicially. In match-to-suspect lineups, the photograph was sufficient information to choose fillers, so participants did not need to rely on stereotypes. However, for participants using the match-to-description method of construction, the racial salience of crime type could have caused the constructors to purposefully choose fillers that do not all conform to the racial stereotype of the crime. However, the crime types could prompt phenotypic bias in the mock lineup identifications, especially when the lineup’s filler African phenotype expression ratings do not match the African phenotype expression of the suspect.
Phase 4: Assessment of Lineup Fairness

In Phase 4, I empirically tested the fairness of the lineups constructed in Phase 3 by administering them to mock witnesses. I assessed the fairness of each lineup with respect to the condition in which the lineup was constructed, the $3 \times 2 \times 2$ factorial from before. I expected to find that lineups constructed using the match-to-suspect method would be fair regardless of any manipulations. I also expected that the lineups constructed using the match-to-description method would be more fair for suspects with high African phenotype expression when they are accused of a stereotypically Black (rather than White) crime. Suspects with low African phenotype expression will have fairer lineups when they are accused of a stereotypically White (rather than Black crime).

Method

Participants. 4,335 participants acted as mock witnesses roughly 30 per lineup. To recruit participants, an advertisement with a brief description of the study was posted online on the Amazon Mechanical Turk website where users could view and then choose to complete the study. Participants were randomly assigned by the online research platform, Qualtrics, to view one of the 144 lineups constructed in Phase 3. Participants were compensated $0.50 for their participation. The inclusion criteria involved being 18 years of age or older and having access to the internet. These wide inclusion criteria increased the likelihood of a diverse and representative sample.

Materials.

Qualtrics surveys. The Qualtrics research platform determined eligibility of potential participants, randomly assigned eligible participants to conditions, and presented stimuli in
random orders. A survey was created on the platform to facilitate the collection of lineup construction data (Appendix E).

**Lineups.** The 144 lineups, created in Phase 3, were the stimuli in Phase 4 (Appendix F).

**Procedure.** Participants volunteered for the study by clicking the link in the Amazon Mechanical Turk advertisement, which routed them to the Qualtrics consent form. Consenting participants were randomly assigned to view one of the 144 lineups; each had the same instructions with the exception that the description of the suspect depended on the target photo for the lineup presented and gave details about the crime that was given to the lineup constructor. Participants were then shown one of the 144 lineups and clicked the photo that they thought was most likely to be the suspect. Finally, participants were taken to a debriefing screen. At the completion of the study participants received their compensation as consistent with the Amazon Mechanical Turk guidelines.

**Data Analysis.** To assess lineup fairness, I calculated the effective and functional size of the lineup, as well as Tredoux’s $E'$ and the likelihood of suspect identification, four measures of lineup fairness. The effective size is the number of effective selection alternatives to the suspect (Malpass, 1981). The effective size was calculated by subtracting the adjusted nominal size ($N_a$) of the lineup (i.e., the number of people in the lineup that were chosen by at least one mock witness) by the degree to which fillers failed to fulfill their adjusted nominal chance expectation. Adjusted nominal chance expectation is $1/N_a(n)$. In theory, if a lineup member is not chosen by any of the mock witnesses, he must not fit the criteria for the lineup (i.e., description). The functional size reflects the number of lineup members that would be expected for the lineup to be fair based on the proportional identifications of the suspect; $n/D$, where $n$ is the number of mock witnesses and $D$ is the number of witnesses that chose the suspect (Doob & Kirshenbaum, 1973).
Effective size calculations quantify the fairness of the lineup based on the effectiveness of the lineup members only. It does not take the number of suspect identifications into consideration. Functional size is the opposite. It does not take the rate at which other fillers are chosen into consideration. Tredoux’s $E'$ takes the number of viable lineup fillers and all the lineup members likelihood of being chosen into statistical consideration (Tredoux, 1999). I ran a three-way ANOVA on each measure to compare the fairness of the lineups by condition. In addition, I ran a logistic regression of the suspect versus filler identifications of each participant with respect to the conditions under which the lineup viewed was constructed. The logistic regression gives the likelihood that a mock witness will identify the suspect.

Lineups fairness must be interpreted through a series of measurements due to the multitude of operational definitions of “fair.” Here is an example of an interpretation of lineup fairness using multiple measures of lineup fairness as opposed to just one: a lineup with a suspect identification rate of 0.33, but the effective size of 3 is technically more fair than a lineup with a suspect identification rate of 0.25 and an effective size of 6, because the suspect in the first lineup is still being chosen at a rate equal to chance, but only three lineup members are viable options with respect to the description. In addition, $E'$ calculates the lineup fairness with the respect to the suspect and the fillers, but it does not show the direction of the bias. If two lineups have the same $E' = 3$, they are both equally unfair but if the suspect in lineup A is identified at a rate of .22 and the suspect in lineup B is identified at the rate of .03 then the direction of the bias is different. Lineup A is biased to the disadvantage of the suspect, and lineup B is biased to the advantage of the suspect. Therefore, multiple measures need to be interpreted together for an accurate picture of lineup fairness.

**Results**
I hypothesized that lineups constructed by the match-to-suspect method of lineup construction would be fair regardless of the suspect’s African phenotype expression ratings or lineup constructor’s knowledge of the crime. However, I found that the method of lineup construction had no statistically significant difference on any measure of lineup fairness. Instead, I found evidence that phenotypic bias affected mock witnesses’ lineup identifications across all conditions with differences in the extent and direction of the bias in certain conditions.

**Likelihood of Suspect Identification.** According to the logistic regression of suspect identifications, suspects with high African phenotype expression were more likely to be chosen, regardless of method of lineup construction or the constructors knowledge of the crime, $B = -.77$, $SE = .91$, $X^2 (1, 4255) = 16.08$, $p < .001$, $exp(B) = .46$, 95% CI [.32, .66]. In lineups with 6 lineup members, each member should be chosen at a chance rate of .167. Whereas mock witnesses chose suspects with high African phenotype expression at a rate greater than chance ($M = .278$, $SD = .448$); they chose suspects with low African phenotype expression at a rate lower than chance, $M = .148$, $SD = .355$. In fact, mock witnesses only chose suspects with low African phenotype expression at a rate similar to chance when the lineup was constructed using the match-to-suspect method of lineup construction and the constructor did not know what crime had been committed, $M = .164$, $SD = .371$. In addition, mock witnesses only chose suspects with low African phenotype expression at a rate greater than chance when the lineup was constructed using the match-to-suspect method and the constructor was given a description of a stereotypically White crime, $M = .194$, $SD = .396$. In contrast, mock witnesses chose suspects with high African phenotype expression at rates higher than chance in every condition of lineup construction (see Table 1). No significant effect of crime type was found in the logistic regression, however the analysis of the measure was complicated since it was non-binary. It is
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interesting to note that mock witnesses chose the suspect the most often when the constructor and the mock witness was blind to the crime committed and the suspect had high African phenotype expression, $M = .316, SD = .465$.

**Effective Size.** Regardless of condition, the average effective size of the lineups was lower than the nominal size of the lineups, $M = 4.39, SD = .83$. The ANOVA found no statistically significant three-way interaction between the suspect’s African phenotype expression level, crime type, and method of lineup construction, $F(2, 132) = .02, p > .05$. However, there was a significant main effect of crime type on the effective size of lineups, $F(2, 132) = 4.32, p = .015, \eta^2 = .06$. Bonferroni’s multiple comparisons test showed that lineups constructed by participants who read the description of a stereotypically White crime had higher effective sizes ($M = 4.60, SD = .61$) than did lineups constructed by participants who were blind to the crime committed, $M = 4.12, SD = 1.04, p = .012, d = .57, 95\% CI [.40, .74]$. There was no significant difference between the average effective size of lineups constructed by participants who read the description of a stereotypically White crime and lineups constructed by participants who read the description of a stereotypically Black crime, $M = 4.45, SD = .71, p > .05$. Nor any differences between lineups constructed by participants who read the description of a stereotypically Black crime and lineups constructed by participants who did not read a description of the crime, $p > .05$. These results suggested that Phase 3 participants constructed lineups that were: the closest to fair when they read a stereotypically White crime description, slightly less close to fair when they read a stereotypically Black crime description and the farthest from fair when they were blind to the crime that was committed. No main effect of level of African phenotype expression was found, $F(1, 132) = 1.18, p > .05$. These results alone are very surprising. However, effective size measures lineup fairness without respect to rate of
suspect identifications and therefore should be interpreted with consideration for other fairness measures.

**Functional Size.** Regardless of condition, the average functional size of the lineups was larger than the actual number of lineup members \((M = 7.87, SD = 7.29)\), which alone would suggest that overall the lineups were unfair, but biased in the favor of suspects. However, functional size is bounded in one direction. The functional size can never be less than 0, but can be infinitely large in theory, so the overall mean is not a good indicator of overall fairness. Although there was no significant three-way interaction \((F(2, 128) = .24, p > .05)\), the ANOVA did show a significant main effect of level African phenotype expression, \(F(1, 128) = 30.95, p < .001, \eta^2 = .2\). Lineups containing suspects with high African phenotype expression had an average functional size less than the nominal size \((M = 4.9, SD = 3.11)\), whereas lineups containing suspects with low African phenotype expression had an average functional size greater than the nominal size, \(M = 11.17, SD = 8.90\). These results are consistent with the results seen in the regression model. Lineups were biased to the disadvantage of suspects with high African phenotype expression regardless of condition and were biased to the advantage of suspects with low African phenotype expression (see Table 2). However, functional size has significant statistical flaws (Tredoux, 1998). The most significant is that when the suspect is not chosen by any mock witnesses the functional size cannot be calculated. No mock witnesses chose the suspect in four of the lineups, all of which had suspects with low African phenotype expression. To be sure that those four lineups did not skew the results, I ran an ANOVA on the inverse functional size, \(D/n\). There was no significant difference in the \(F\) statistics.

**Tredoux’s \(E’\).** Regardless of condition, the average \(E’\) of the lineup was lower than the nominal size of the lineups \((M = 4.14, SD = 1.01)\), suggesting that in general the lineups were
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<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>7.8740</td>
<td>7.28608</td>
<td>140</td>
<td></td>
</tr>
</tbody>
</table>
unfair. As consistent with the rest of the measures, no three-way interaction was found, $F(2, 132) = .18, p > .05$. However, there was a main effect of level of African phenotype expression ($F(1, 132) = 7.97, p = .005, \eta^2 = .06$) and a main effect of crime type, $F(2, 132) = 4.04, p = .02, \eta^2 = .06$. Lineups containing a suspect with high African phenotype expression were closer to fair on average ($M = 4.36, SD = .91$) than were lineups containing a suspect with low African phenotype expression, $M = 3.91, SD = 1.06$. In addition, Bonferroni’s multiple comparisons tests found that lineups constructed using a stereotypically White crime description were statistically significantly closer to fair ($M = 4.44, SD = .76$) than were lineups constructed by constructors that were blind to the crime committed ($M = 3.88, SD = .123, d = .55, p = .02$); lineups constructed using the stereotypically Black crime description were less fair than the White crime type lineups but more fair than blind lineups ($M = 4.08, SD = .92$), but not statistically significantly ($p > .05$). These results seem counter to the other measures results; however, $E'$ shows magnitude of bias but not direction (i.e., to the advantage of the suspect versus to the disadvantage of the suspect).

**Discussion**

The data suggest that mock witnesses displayed phenotypic bias in their lineup identifications. The phenotypic bias was evident whether the lineup contained a suspect with low or high African phenotype expression, but the bias manifested differently based on the level of African phenotype expression of the suspect. Despite having similar numbers of viable filler choices, lineups containing suspects with low African phenotype expression were significantly less fair than lineups containing suspects with high African phenotype expression, but the bias that occurred in lineups containing suspects with low African phenotype expression was to the advantage of the suspect. In every condition--except lineups that were created using the match-
to-suspect condition with constructor either blind to the crime type or read a description of a stereotypically White crime—mock witnesses chose suspects with low African phenotype expression at a rate less than chance. On the other hand, phenotypic bias disadvantaged suspects with high African phenotype expression in every condition. Interestingly and unexpectedly, the bias to the advantage of suspects with low African phenotype expression was stronger than the bias to the disadvantage of suspects with high African phenotype expression.

In addition, the procedural safeguards that are currently recommended to protect suspects from bias had no moderating effect on mock witness phenotypic bias in lineup identifications. According to all four measures of lineup fairness, the match-to-description method of lineup construction did not produce lineups that dampened mock witness phenotypic bias. In addition, lineup constructor blindness to the crime committed, that I hypothesized would have a mildly moderating effect, actually led to fewer viable filler choices, with a slight/non-significant increase in suspect identifications and a stronger magnitude of bias, which suggests that the safeguard may result in lineups that either prompt phenotypic bias more often or allow suspects to rely more often a racial stereotypes when making identifications.

**General Discussion**

The goal of this research was to assess the effect of phenotypic bias on the lineup construction composition and fairness. The results suggest that phenotypic bias does affect lineup construction outcomes. Phase 3 suggests that suspects may stand out in lineups created by match-to-description method of lineup construction by function of the suspect’s level of African phenotype expression. Phase 4 suggests that phenotypic bias affected mock witnesses’ lineup selection choices regardless of which condition was used to construct the lineup, but lineups containing suspects with low African phenotype expression were biased to the advantage of the
suspect, whereas lineups containing suspects with high African phenotype expression were biased to the disadvantage of the suspect. In addition, the “positive” bias that occurred in lineups containing suspects with low African phenotype expression was greater than the “negative” bias that occurred in the lineups containing suspects with high African phenotype expression.

In addition, I assessed whether the recommended procedural safeguards of using the match-to-description method of lineup construction and leaving the lineup constructor blind to the crime committed would result in lineups that protected against mock witness phenotypic bias. The results in Phases 3 and 4 both suggest that the procedural safeguard of using the match-to-description method of lineup construction does not ensure fair lineups nor protect Black suspects from the threat of witness’s phenotypic bias. Phase 3 found that the procedural safeguard of constructor blindness to the crime did not produce lineups where suspect was likely to not stand out from the fillers. In fact, the analyses of the four measures of lineup fairness in Phase 4 suggest that constructor blindness may increase the likelihood for mock witnesses to rely on phenotypic bias when making lineup identifications. While I am unsure what mechanism is causing higher bias in blind condition lineups, it is evident that it is not an effective safeguard against lineup unfairness resulting from phenotypic bias.

Limitations

Like all research, the research presented here is not without flaws. Some of the stimulus materials may have involved some threats to validity due to possible social and cultural changes from the period and place were the materials were originally constructed. The photo database used was pre-rated by African phenotype expression and attractiveness in 2006. Although changes in social perception could have changed in ten years, possibly skewing the results, I am reasonably certain based on the manipulation checks in pretesting and previous pilot testing that
any change in social perception was minimal. In addition, the crime stereotype descriptions used in this study were based on ratings empirically developed in New Zealand (Osborne & Davies, 2012). Cultural differences may limit the strength of the crime stereotype manipulations.

This study was not conducted in a laboratory setting, so complete control over the construction and identification setting was not possible. This limits the confidence with which I can infer a conclusive causal relationship between the manipulations and the dependent variables. In attempts to limit the threat to the internal validity posed by the method of data collection, attention checks were built into the survey platform and the survey was developed to be as simple as possible.

The biggest limitation of this study is the lack of generalizability. Real lineup constructors are police officers, detectives or other criminal justice personnel. However, I recruited the lineup constructor participants for Phase 3 from a website of general community members. The lineups constructed by online volunteers may not be representative of the lineups that would be constructed by the real world population.

Implications and Future Research

The results of this experiment suggest that phenotypic bias does in fact affect the fairness for highly stereotypical and non-stereotypical Black suspects. In addition, the currently recommended procedural safeguards do not protect against phenotypic bias. Furthermore, Phase 4’s unexpected results, with regard to the effect the constructor’s -or possibly the witness’s- knowledge of the crime, need to be explained. Alone, these results would suggest that lineup constructors created more biased lineups when they were blind to the crime type than when they knew the crime that was committed. However, the results in Phase 3 contradict that interpretation: crime type had no effect on the average filler African phenotype expression
ratings. Instead, I theorize that the stereotyped crime descriptions may have activated phenotypic bias for the mock witnesses, but not the lineup constructors. Although I did not see a significant increase in the likelihood of suspect identification in the regression model when no crime description was given to the mock witnesses, I did find a significant decrease in the number of viable filler choices and a decrease in $E'$ measure of magnitude of bias when the witnesses were not told what crime had been committed, which means that the suspects are chosen at a rate greater than chance (even greater than before) with respect to the number of viable filler choices. Mock witnesses who were given the stereotypically White crime description had identifications that were the closest to fair, followed closely by mock witnesses who were given a stereotypically Black crime description, with mock witnesses who were blind to the crime having identifications that were the farthest from fair. According to the data from Phase 3, suspects should not stand out more, by function of difference in the average filler rating of African phenotype expression compared to the suspect’s African phenotype expression, to the witnesses based on the crime description used to create the lineup. However, because the high phenotypic expression suspect photos had the absolute highest ratings of African phenotype expression in the database, the average filler African phenotype expression ratings were necessarily lower than the suspect’s, though not significantly. The reverse is true for the low phenotypic expression suspect photos. When a racial stereotype was mentioned in the crime description given to the witnesses, it could have activated a race salience effect that made witnesses less likely to rule out filler members that had incongruent African phenotype expression, and therefore result in more viable filler choices. Furthermore by that logic, blind witnesses would not have had race salience activated and may have therefore relied on phenotypic bias. While there was no significant difference in the logistical regression based on
crime type, lineups in blind crime conditions did have the highest rate of suspect identification for suspects with high African phenotype expression, hinting at a possible increase of phenotypic bias by those mock witnesses. This is a theoretical explanation for why lineups constructed under the blind condition could result in more unfair lineups. The theory could easily be tested by asking mock witnesses to make identifications in lineups created in the blind condition but additionally giving those mock witness either the stereotypically White or Black crime description. If significant differences are found between the lineup fairness measures with blind constructor/blind mock witness versus blind constructor/Black crime mock witness or blind constructor/White crime mock witness in a similar pattern to what was seen in Phase 4, it would suggest that that stereotypical crime types activate a race salience effect that moderated the phenotypic bias in the mock witnesses.

Future research should replicate this methodology using construction participants recruited from a police force or from among other criminal justice personnel. Although this study did fill a gap assessing some of the racial differences in lineup construction, the true extent of phenotypic bias effects on lineup construction for suspects of other races has yet to be explored. In addition, no research exists to suggest that phenotypic bias is consistent across gender or age or if it will occur with racial in-group members as lineup constructors. Most importantly, this research gives no indication of how phenotypic bias affects the accuracy of lineup identifications. This study indicated that racial considerations in lineup construction must be taken, but a much bigger body of research needs to be developed to assess the extent that racial differences influence real life eyewitness lineup construction and identification.

The implications that these results have in terms of the potential failures of the procedural safeguards to protect Black suspects from biased lineups are daunting. Ensuring that the fillers
and the suspect are the same racial categorization is not enough to categorize a lineup as unbiased. Careful consideration of the stereotypicality the suspect and the fillers needs to be taken when constructing lineups for Black suspects. Real life lineup constructors should consider testing the lineups for fairness before administering them to a real witness when a suspect has either highly stereotypical features or has non-stereotypical features of his/her racial category. One lineup costs $17 dollars and takes an hour or less to test on Amazon Mechanical Turk. Although this would be a substantial cost considering the amount of lineups given to eyewitnesses daily across the country, there are numerous potential benefits of having a quantified assessment of the objective fairness of the lineup before the witness views it: (1) protects innocent suspects from mistaken identification due to unfair lineup construction (2) gives a degree support for a suspect identification, (3) ensures the officers do their best to be unbiased in their creation of every lineup, (4) protects the lineup constructor in the event the a mistaken identification does occur, assuming that constructor is not also the administrator, (5) creates a thorough and complete database of research for which future research can easily access.
References


Please select "Yes" below if you agree to participate in the study:

☐ Yes
☐ No
Demographic Prescreener

What is your age?
- Below 18
- 18-25
- 26-35
- 36-45
- 46-60
- above 60

What is your occupation?

What is your identified gender?
- Male
- Female
- Other

Do you live in the United States?
- Yes
- No

Are you a U.S. Resident?
- Yes
- No

What is your race/ethnicity?
- African-American
- Caucasian
- Hispanic/Latino
- Asian or Pacific Islander
- Middle Eastern
- Native American or Native Alaskan
- No response
Disqualification Screen
I'm sorry, you are not eligible to participate in this study. Thank you very much for your time and participation.

Instructions

You are about to be shown 30 photographs depicting people of different races. You should indicate the race of the person in the photograph as quickly AND accurately as possible. You may choose only one race for each picture (none of the people depicted in the photographs identified as biracial).

Do you wish to continue?

☐ Yes
☐ No

Identification Task

What race is the person in this photo?

☐ White
☐ Black or African American
☐ Hispanic Latino
☐ Asian or Pacific Islander
☐ Southeast Asian or Middle Eastern
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander

What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander

What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander

What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- [ ] White
- [ ] Black or African American
- [ ] Hispanic Latino
- [ ] Southeast Asian or Middle Eastern
- [ ] Asian or Pacific Islander

What race is the person in this photo?

- [ ] White
- [ ] Black or African American
- [ ] Hispanic Latino
- [ ] Southeast Asian or Middle Eastern
- [ ] Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander

What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- [ ] White
- [ ] Black or African American
- [ ] Hispanic Latino
- [ ] Southeast Asian or Middle Eastern
- [ ] Asian or Pacific Islander

What race is the person in this photo?

- [ ] White
- [ ] Black or African American
- [ ] Hispanic Latino
- [ ] Southeast Asian or Middle Eastern
- [ ] Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander

What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander
What race is the person in this photo?

- White
- Black or African American
- Hispanic Latino
- Southeast Asian or Middle Eastern
- Asian or Pacific Islander

Debrief

THANK YOU for participating in our study! We appreciate your participation.

In this study we were assessing the racial identification rates for target photos to be used in a future study. Within each race there are differences among people concerning how much like a “typical” group member they appear. Our future research will be exploring how differing levels of racial typicality affects how they are perceived, but the study you just completed assesses whether the target photos with lower typicality are correctly racially categorized.

Please let us know if you have any questions, and thank you so much for your participation!
Appendix B
Phase 2: Qualtrics Survey

THE CITY UNIVERSITY OF NEW YORK
John Jay College of Criminal Justice
Psychology Department

Title of Research Study: Photograph Description Study
Principal Investigator: Margaret Bull Kovera, PhD
Professor of Psychology

You are being asked to participate in this research study because you are a U.S. citizen that is at least 18 years of age or older. The purpose of this research study is to develop descriptions of photographs for future research. If you agree to participate, we will ask you to describe a photograph. The total time required to complete the experiment should be about 10–15 minutes. You will be one of 30 participants in this study. The foreseeable risks associated with participation in this study are minimal. The potential benefit to you is an opportunity to learn more about research methods in social psychology. You will also receive $0.50 in exchange for your participation. This study benefits society by providing information about how people describe facial features. Any information obtained in connection with this study will be strictly confidential. In any written reports or publications, no one will be identified or identifiable and only aggregate data will be presented. Research records will be kept on a password-protected computer; only the researchers will have access to the records. Your identity will be kept separate from your responses to the questions you will be asked. Your decision whether or not to participate is voluntary and will not affect your future relations with John Jay College of Criminal Justice or any of the researchers involved. You may refuse to answer any question. If you decide to participate, you are free to discontinue participation at any time without penalty. If you have any questions, you can contact Dr. Margaret Kovera at mkovera@jjay.cuny.edu or Sydney Wood at sydney.wood@jjay.cuny.edu. If you have any questions about your rights as a research participant or if you would like to talk to someone other than the researchers, you can contact CUNY Research Compliance Administrator at 646-664-8918.

Please select “Yes” below if you agree to participate in the study:

☐ Yes ☐ No
Demographic Prescreener

What is your age?
- Below 18
- 18-25
- 26-35
- 36-45
- 46-60
- above 60

What is your occupation?

What is your identified gender?
- Male
- Female
- Other

Do you live in the United States?
- Yes
- No

Are you a U.S. Resident?
- Yes
- No

What is your race/ethnicity?
- African-American
- Caucasian
- Hispanic/Latino
- Asian or Pacific Islander
- Middle Eastern
- Native American or Native Alaskan
- No response

Disqualification Screen
I'm sorry, you are not eligible to participate in this study. Thank you very much for your time and participation.
Instructions

You are about to be shown a photograph of a person. You will have 15 seconds to view the photograph. After you view the photograph, you will be asked to complete a few word analogy problems. When the time is up you will automatically be directed to a screen where you will answer a question about the face you saw.

Do you wish to continue?

☐ Yes
☐ No

THANK YOU for participating in our study! We appreciate your participation.

The descriptions generated from this study will be used to develop “witness” descriptions of the photographs for use in a future study. No individual participant’s responses will be identifiable.
Please let us know if you have any questions, and thank you so much for your participation!

Target Photograph 1

![Target Photograph 1](image1)

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Target Photograph 2

![Target Photograph 2](image2)

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Click Count: 0 clicks
Target Photograph 3

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Distraction Task

Directions:
Choose the pair of words that best express a relationship similar to that of the original pair.

Athlete: Fit

- chef: fat
- dog: energetic
- priest: religious
- dancer: intelligent

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Directions:
Choose the pair of words that best express a relationship similar to that of the original pair.

Comedy: Funny

- mystery: boring
- drama: romantic
- tragedy: sad
- newspaper: expensive

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Click Count: 0 clicks
Directions:
Choose the pair of words that best express a relationship similar to that of the original pair.

**Brother: Sibling**

- mother: daughter
- doctor: nurse
- uncle: aunt
- father: parent

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**Humiliated: Embarrassed**

- shy: timid
- enraged: angry
- sad: upset
- excited: anxious

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**Train: Railroad**

- boat: mountain
- helicopter: cloud
- truck: highway
- wagon: wheel

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**Skeptical: Belief**

- unpopular: wealth
Directions:
Choose the pair of words that best express a relationship similar to that of the original pair.

**Optimism: Pessimism**

- success: failure
- food: hunger
- motivation: dedication
- maturity: youth

**Sunscreen: Skin**

- magic: children
- grass: house
- armor: body
- faith: country

**Spaghetti: Pasta**

- ketchup: condiment
- lettuce: sauce
- bacon: fruit
- cereal: dairy
Description Task

In the box below please provide a description of the person in the photograph you viewed earlier in the study:


Debrief

THANK YOU for participating in our study! We appreciate your participation.

For this study we were looking at differences in how “stereotypical” people's facial features are, and whether this impacts how they are described.

The descriptions generated from this study will be used to develop “witness” descriptions of the photographs for use in a future study. The final descriptions will be made from descriptors, or adjectives mentioned, in 75% of the participant descriptions for that photograph. As such, no individual participant’s responses will be identifiable. Additionally, ratings of stereotypicality do not relate to racial biases or preferences.

Please let us know if you have any questions, and thank you so much for your participation!
Please select "Yes" below if you agree to participate in the study:

- Yes
- No

Enter the Text into the box below

Type the text

Demographic prescreener

What is your age?

- Below 18
- 18-25
LINEUP CONSTRUCTION FAIRNESS AND PHENOTYPIC BIAS

What is your occupation?

What is your identified gender?
- Male
- Female
- Other

Do you live in the United States?
- Yes
- No

Are you a U.S. Resident?
- Yes
- No

What is your race/ethnicity?
- African-American
- Caucasian
- Hispanic/Latino
- Asian or Pacific Islander
- Middle Eastern
- Native American or Native Alaskan
- No response

Disqualification Screen
I'm sorry, you are not eligible to participate in this study. Thank you very much for your time and participation.

MTD White
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. The police want to see whether the cleaning lady recognizes the person they have arrested as the man she saw leaving the bank that night.

Your task is to create a photo array consisting of a photo of the suspect and 5 additional photos (fillers). You should use a match-to-description strategy for choosing your fillers. This means that you should choose fillers who most closely match the description of the perpetrator given by the witness. That is, you should choose photos that contain all the features mentioned in the witness’s description the perpetrator. However, the pictures you choose should vary on features that are not in the description. E.g., if the description describes the color of the perpetrator’s hair but not the hair style, you should make sure that the fillers all have the hair color mentioned in the description but they should have various hair styles.

On the next page is the suspect’s description and 97 photos from which you can choose your fillers. Please look through all the photos before choosing the 5 fillers.
Below is the perpetrator's description:

"A Black male, young in his twenties or thirties with very short hair"

Below are 97 photographs from which you can choose your fillers. Please look through ALL the photographs before choosing the 5 fillers.

As you scroll the perpetrator's description will be among the photographs you to reference. Do not click on the perpetrator's description.
PERPETRATOR'S DESCRIPTION: "A Black male, young in his twenties or thirties with very short hair"
PERPETRATOR'S DESCRIPTION: "A Black male, young in his twenties"
LINEUP CONSTRUCTION FAIRNESS AND PHENOTYPIC BIAS

PERPETRATOR'S DESCRIPTION: "A Black male, young in his twenties or thirties with very short hair"
PERPETRATOR'S DESCRIPTION: "A Black male, young in his twenties or thirties with very short hair"
The police have a suspected pimp in custody. He was arrested near a hotel where an undercover police officer was solicited by three prostitutes. A hotel staff member saw one of the prostitutes give money to a man who had been loitering in front of the building. The police want to see whether the hotel employee recognizes the person they have arrested as the man who was given money by the known prostitute.

Your task is to create a photo array consisting of a photo of the suspect and 5 additional photos (fillers). You should use a match-to-description strategy for choosing your fillers. This means that you should choose fillers who most closely match the description of the perpetrator given by the witness. That is, you should choose photos that contain all the features mentioned in the witness’s description the perpetrator. However, the pictures you choose should vary on features that are not in the description. E.g., if the description describes the color of the perpetrator’s hair but not the hair style, you should make sure that the fillers all have the hair color mentioned in the description but they should have various hair styles.

On the next page is the suspect’s description and 97 photos from which you can choose your fillers. Please look through all the photos before choosing the 5 fillers.

These page timer metrics will not be displayed to the recipient.

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The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. The police want to see whether the cleaning lady recognizes the person they have arrested as the man she saw leaving the bank that night.

Your task is to create a photo array consisting of a photo of the suspect and 5 additional photos (fillers). You should use a match-to-suspect strategy for choosing your fillers. This means that you should choose fillers who are most similar to the suspect. That is, you should choose photos that most closely resemble the suspect, ensuring that the suspect and fillers are similar on as many dimensions as possible.

On the next page is the suspect's photo and 97 photos from which you can choose your fillers. Please look through all the photos before choosing the 5 fillers.

These page timer metrics will not be displayed to the recipient.
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Last Click: 0 seconds
Page Submit: 0 seconds
Click Count: 0 clicks

MTS Black
The police have a suspected pimp in custody. He was arrested near a hotel where an undercover police officer was solicited by three prostitutes. A hotel staff member saw one of the prostitutes give money to a man who had been loitering in front of the building. The police want to see whether the hotel employee recognizes the person they have arrested as the man who was given money by the known prostitute.

Your task is to create a photo array consisting of a photo of the suspect and 5 additional photos (fillers). You should use a match-to-suspect strategy for choosing your fillers. This means that you should choose fillers who are most similar to the suspect. That is, you should choose photos that most closely resemble the suspect, ensuring that the suspect and fillers are similar on as many dimensions as possible.

On the next page is the suspect's photo and 97 photos from which you can choose your fillers. Please look through all the photos before choosing the 5 fillers.

These page timer metrics will not be displayed to the recipient.
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MTS Blind
The police have a person suspected of a crime in custody. The police have an eyewitness to the crime and they want to see whether that witness recognizes the person that they have arrested.

Your task is to create a photo array consisting of a photo of the suspect and 5 additional photos (fillers). You should use a match-to-suspect strategy for choosing your fillers. This means that you should choose fillers who are most similar to the suspect. That is, you should choose photos that most closely resemble the suspect, ensuring that the suspect and fillers are similar on as many dimensions as possible.

On the next page is the suspect's photo and 97 photos from which you can choose your fillers. Please look through all the photos before choosing the 5 fillers.

These page timer metrics will not be displayed to the recipient.
First Click: 0 seconds
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Click Count: 0 clicks
When I constructed the lineup, I matched fillers to the:

- Perpetrator's Description
- Suspect's Photograph

What crime was the suspect guilty of?

- I wasn't given that information
- Embezzlement
- Pimping

**Debrief 1**

**Debriefing Statement**

THANK YOU for participating in our study! We appreciate your participation.

We are interested in the role of stereotypes in eyewitness identification. As you may know, people are better at identifying members of their own racial or ethnic groups than members of other groups. However, within each race, some people look more like a “typical” group member than do others. How much people resemble a typical member of their group can impact how others perceive them and what stereotypes they can activate. For this study, we were looking at differences in how “stereotypical” a suspect’s facial features are and whether this impacts the fairness of photo arrays created for them. Our main research question is whether the photo arrays created for Black men with more African-looking facial features are less fair than those who have more European-looking facial features.

Please let us know if you have any questions, and thank you so much for your participation.
Appendix D

Descriptions and Photographs of High Afrocentric Stereotypical Targets:


Target Photo # 30

“A Black male, young in his twenties or thirties with short hair”

Target Photo # 32

“A Black male, young in his twenties or thirties with very short hair.”

Target Photo #67

“A Black male, young in his twenties or younger with bald head.”
Descriptions and Photographs of High Stereotypical Targets: Phase 2 data

Target #93

"A Black male with facial hair"

Target #21

"A Black male, young in his twenties or thirties"

Target #62

"A Black male, young in his twenties or thirties"
Appendix E
Phase 4: Qualtrics Survey

THE CITY UNIVERSITY OF NEW YORK
John Jay College of Criminal Justice
Psychology Department

INTERNET BASED INFORMED CONSENT SCRIPT

Title of Research Study: First Impressions and Selections
Principal Investigator: Margaret Bull Kovera, PhD
Professor of Psychology

You are being asked to participate in this research study because you are a U.S. Citizen that is at least 18 years of age or older. The purpose of this research study is to assess first impressions based on a person’s face. If you agree to participate, we will ask you to record your impressions of several individuals featured in photographs. After viewing the photographs, you will be asked to select a photograph according to the instructions provided. After you make your selection, you will be asked to explain why you selected the photograph you did. The total time required to complete the experiment should be about 10-15 minutes. You will be one of 3,240 participants in this study. The foreseeable risks associated with participation in this study are minimal. The potential benefit to you is an opportunity to learn more about research methods in social psychology. You will also receive $0.50 dollar in exchange for your participation. This study benefits society by providing information about how people process information that they see. Any information obtained in connection with this study will be strictly confidential. In any written reports or publications, no one will be identified or identifiable and only aggregate data will be presented. Research records will be kept on a password protected computer; only the researchers will have access to the records. Your identity will be kept separate from your responses to the questions you will be asked. Your decision whether or not to participate is voluntary and will not affect your future relations with John Jay College of Criminal Justice or any of the researchers involved. You may refuse to answer any question. If you decide to participate, you are free to discontinue participation at any time without penalty. If you have any questions, you can contact Dr. Margaret Kovera at mkovera@jjay.cuny.edu or Sydney Wood at sydney.wood@jjay.cuny.edu. If you have any questions about your rights as a research participant or if you would like to talk to someone other than the researchers, you can contact CUNY Research Compliance Administrator at 646-664-8918.

Please select "Yes" below if you agree to participate in the study:

☐ Yes
☐ No
Demographics

What is your age?
- Below 18
- 18-25
- 26-35
- 36-45
- 46-60
- above 60

What is your occupation?

What is your identified gender?
- Male
- Female
- Other

Do you live in the United States?
- Yes
- No

Are you a U.S. Citizen?
- Yes
- No

What is your race/ethnicity?
- African-American
- Caucasian
- Hispanic/Latino
- Asian or Pacific Islander
- Middle Eastern
- Native American or Native Alaskan
- No response
Disqualification Screen
I'm sorry, you are not eligible to participate in this study. Thank you very much for your time and participation.

Debriefing

THANK YOU for participating in our study! We appreciate your participation.

In this study, we were looking at the role of stereotypes in eyewitness identification. As you may know, people often have more difficulty correctly identifying someone of a different race/ethnicity as them. We are better at identifying members of our own racial or ethnic groups than we are at identifying others. However, within each race there are differences among people concerning how much like a “typical” group member they appear. How much people resemble a typical member of their group can impact how others perceive them and what stereotypes they can activate.

For this study we were looking at differences in how “stereotypical” people's facial features are, and whether this impacts how they are described and how often they are mistakenly identified as committing a crime. Would people who look more like a typical member of their racial or ethnic group be more likely to stand out in a lineup? Our main research question concerns whether people who appear more “Afrocentric” might be at increased risk for misidentification through all stages of the identification process.

Please let us know if you have any questions, and thank you so much for your participation!
Lineup 1: MTS Black Low #93

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 2: MTS White Low #62

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 5: MTD White Low #21

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:
The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Please read the description below:
The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 10: MTD Black High #67

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 11: MTS Black Low #21

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

---

Lineup 12: MTS Blind High #30

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:
The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

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Please read the description below:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 21: MTS White Low #21

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 22: MTD White Low #93

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 23: MTD Blind Low #93

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 24: MTS Black High #30
The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 26: MTD White High #30

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 27: MTS White High #32

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 28: MTD Blind Low #62

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: “A Black male, young in his twenties or thirties”

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 29: MTD Black Low #62
The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 30: MTS Blind High #32

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 31: MTS White Low #93

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 32: MTD Blind High #67

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
LINEUP CONSTRUCTION FAIRNESS AND PHENOTYPIC BIAS

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 35: MTS Black Low #21

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 40: MTS White High #67

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 41: MTD Black Low #62

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 42: MTS Blind Low #62

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 45: MTS Black Low #93

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 46: MTD Blind Low #21

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

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Lineup 47: MTS Blind Low #93

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

---

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 51: MTS White High #30

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 52: MTD Black High #67

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 53: MTS Blind Low #21

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 54: MTD White High #67
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 55: MTS Black Low #62

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
**Lineup 56: MTS Black High #32**

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

**Lineup 57: MTS White Low #93**

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 60: MTD Blind Low #93

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 61: MTD Blind High #32

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 62: MTS Black High #67

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties".

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

---

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 66: MTS Blind High #32

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 67: MTD Blind High #30

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 70: MTS Blind High #67

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 71: MTS Black Low #93

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 72: MTS White High #32

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

![Options]

Lineup 75: MTD Blind Low #62

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

![Options]
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

![Photographs of individuals](image1)

Lineup 80: MTD White High #67

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

![Photographs of individuals](image2)
Lineup 81: MTS Blind Low #62

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: “A Black male, young in his twenties or thirties”

Please select the photograph of the individual who is most likely to be the man who committed this crime:

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Lineup 82: MTS Black High #67

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: “A Black male, young in his twenties or younger with a bald head”

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 85: MTD Blind High #32

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 88: MTS Black High #30

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 89: MTS White Low #21
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 90: MTD White Low #93

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 91: MTS Blind Low #21

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

---

Lineup 92: MTD Black High #32

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 95: MTS White Low #93

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 96: MTD Blind High #67

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

![Photographs]

Lineup 97: MTD Black High #30

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

![Photographs]
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 101: MTS Black Low #62

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 102: MTD Blind High #30

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 103: MTD Blind Low #21

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

---

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 106: MTS Black High #30

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 107: MTS Blind High #67

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 110: MTS Black Low #62

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 111: MTD White Low #93

Please read the description below:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 112: MTS Blind High #30

Please read the description below:
The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: “A Black male, young in his twenties or thirties”

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

---

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 116: MTS Black Low #93

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Lineup 117: MTS White High #30

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

- [ ]
- [ ]
- [ ]
- [ ]
LINEUP CONSTRUCTION FAIRNESS AND PHENOTYPIC BIAS

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

![Photographs of potential suspects](Lineup_120_MTS_Blind_Low_21.jpg)

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

![Photographs of potential suspects](Lineup_120_MTS_Blind_Low_21.jpg)
Lineup 121: MTD White Low #62

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: “A Black male, young in his twenties or thirties”

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 122: MTD Blind High #67

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: “A Black male, young in his twenties or younger with a bald head”

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 125: MTD Black Low #62

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 126: MTS Black High #67

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 127: MTD White High #67

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 130: MTS Blind Low #93

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 131: MTD Black High #30

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 132: MTD White High #32

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or younger with a bald head"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 135: MTS Blind High #32

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 136: MTS White Low #93

Please read the description below:

The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 137: MTD Blind High #30

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties with very short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
The police have a suspected embezzler in custody. He works for a bank that is missing $30,000 in cash. A cleaning lady saw a man fitting his description leaving the bank on the night that the money went missing. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 141: MTS Blind Low #62

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Lineup 143: MTS Black Low #62

Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:

Lineup 144: MTS Blind Low #93

Please read the description below:

The police have a person suspected of a crime in custody. The witness to the crime described the perpetrator as: "A Black male with facial hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties"

Please select the photograph of the individual who is most likely to be the man who committed this crime:
Please read the description below:

The police have a suspected pimp in custody. He was arrested in the area where an undercover police officer caught three women prostitutes. A hotel staff member saw a man in front of the building and being handed money by one of the prostitutes. She described him as: "A Black male, young in his twenties or thirties with short hair"

Please select the photograph of the individual who is most likely to be the man who committed this crime: