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# Configural face processing impacts race disparities in humanization and trust



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## ABSTRACT

The dehumanization of Black Americans is an ongoing societal problem. Reducing configural face processing, a well-studied aspect of typical face encoding, decreases the activation of human-related concepts to White faces, suggesting that the extent that faces are configurally processed contributes to dehumanization. Because Black individuals are more dehumanized relative to White individuals, the current work examined how configural processing might contribute to their greater dehumanization. Study 1 showed that inverting faces (which reduces configural processing) reduced the activation of human-related concepts toward Black more than White faces. Studies 2a and 2b showed that reducing configural processing affects dehumanization by decreasing trust and increasing homogeneity among Black versus White faces. Studies 3a–d showed that configural processing effects emerge in racial outgroups for whom untrustworthiness may be a more salient group stereotype (i.e., Black, but not Asian, faces). Study 4 provided evidence that these effects are specific to reduced configural processing wersus more general perceptual disfluency. Reduced configural processing may thus contribute to the greater dehumanization of Black relative to White individuals.

#### 1. Introduction

Black Americans have been dehumanized for centuries relative to White Americans (e.g., Cuddy, Rock, & Norton, 2007; Goff, Eberhardt, Williams, & Jackson, 2008; Goff, Jackson, Di Leone, Culotta, & DiTomasso, 2014), and subjected to treatment denying their full personhood (for a review, see Haslam & Loughnan, 2014). Such dehumanization has serious consequences for intergroup interactions. Non-Black Americans reliably report Blacks as "less evolved" than other racial groups (Kteily, Bruneau, Waytz, & Cotterill, 2015). White Americans associate Blacks with apes (Goff et al., 2008) and see Blacks as lacking trustworthiness (Stephan et al., 2002), a trait uniquely associated with humans (Wilson, Young, Rule, & Hugenberg, 2017). Dehumanizing Black individuals influences social behaviors and judgments. For example, dehumanizing beliefs about Blacks predicts increased condoning of police violence directed at Black suspects (Goff et al., 2008) even when a suspect is a child (Goff et al., 2014). Understanding the mechanisms by which Black individuals are dehumanized is therefore an important issue.

The present work focuses on how face processing may contribute to the dehumanization of Black individuals. How faces are processed may

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play an important role in activating basic concepts related to humanness, and in judging if faces have humanlike faculties (Deska, Almaraz, & Hugenberg, 2016; Fincher & Tetlock, 2016; Hugenberg et al., 2016). Further, people attend to and encode the features of ingroup and outgroup faces differently, with these differences corresponding to race-biased behaviors. For instance, differences in how White perceivers scan Black versus White faces predict biases characteristic of dehumanization, such as less willingness to interact with Black individuals (Kawakami et al., 2014). The current work tested the hypothesis that how faces are encoded may affect the extent to which Black versus White individuals are dehumanized. We begin by discussing how reducing configural face processing, which is a type of face specific encoding, may trigger dehumanization. We then discuss how the dehumanizing effects of reduced configural processing may vary by target race.

#### 2. Configural face processing triggers humanness

Most stimuli are processed via a piecemeal integration of their features. By contrast, people often process the faces of ingroup members as an

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integrated Gestalt (Farah, Wilson, Drain, & Tanaka, 1998) referred to as *configural processing* (see Maurer, Le Grand, & Mondloch, 2002 for a review). A widely-used manipulation of configural processing is face inversion (Yin, 1969).<sup>1</sup> Disrupting the configural processing of faces (i.e., the regular eyes-over-nose-over-mouth configuration) is associated with more dehumanization of inverted versus upright faces. For example, Hugenberg et al. (2016) found that inverting a human face disrupted the tendency for faces to activate human-related concepts, disrupted the categorization of the face as human, and reduced ascriptions of human-related traits. Exemplifying the effects of such "perceptual dehumanization," faces that are not afforded configural processing become easier to treat in less humane ways (Fincher & Tetlock, 2016).

Past perceptual dehumanization work has focused exclusively on perceivers viewing White faces. Although holding race constant has been important to link configural processing with humanness, it remains unknown if disrupting configural processing differentially affects the dehumanization of racial outgroup faces. The present work addressed this question by testing how target race impacts the association between configural face processing and dehumanization.

#### 3. Configural processing and target race

How and why might race affect the interface between configural face processing and dehumanization? Two hypotheses are plausible based on extant work. First, although Black faces would be expected to be broadly dehumanized by White perceivers (e.g., Goff et al., 2008), disrupting configural processing could trigger dehumanization more strongly for White versus Black faces. This hypothesis stems from findings suggesting that configural face processing may occur more strongly for ingroup versus outgroup member faces (Hugenberg & Corneille, 2009; Michel, Corneille, & Rossion, 2007; Michel, Rossion, Han, Chung, & Caldara, 2006). If White perceivers configurally process White faces more strongly than Black faces, then reducing configural processing may affect the dehumanization of White more than Black faces.

Second, disrupting configural processing may intensify the dehumanization of outgroup Black versus White faces. This hypothesis stems from work showing that outgroup faces may be processed configurally, but that the integration of facial features occurs less efficiently relative to ingroup faces (Wiese, Stahl, & Schweinberger, 2009). If true, ingroup and outgroup face processing may differ in a more quantitative versus qualitative way. Configurally processing upright faces should signal humanness for both White and outgroup Black faces. The signal of humanness stemming from configural processing may, however, be important to forestall the broader dehumanization of Blacks.

If configural processing signals humanity, reducing it may allow salient and pre-existing dehumanizing associations with Black faces (e.g., that they are less human and lack humanity-defining traits like trustworthiness) to intensify their dehumanization relative to White faces. Indeed, regardless of prejudice level, people are equally knowledgeable of cultural stereotypes and automatically activate stereotypes in the presence of group members (Devine, 1989). Removing the humanness signal afforded by configural processing should affect White faces less, as they are not subject to such dehumanizing stereotypes. Without this signal, perhaps the most pernicious dehumanizing treatment of Blacks will emerge.

#### 4. The current work

By examining how target race affects the interface between configural processing and dehumanization, the present work fills a gap in literature useful in understanding the pervasive dehumanization of American Blacks. This work also clarifies the extent to which disrupting configural processing plays a role in triggering dehumanization across racial lines, another important lacuna in the literature. The present work examined dehumanization defined by the activation of humanrelated concepts (as tested in past work using White faces; Hugenberg et al., 2016) and by analyses of the trustworthiness ascribed to faces.

Assessing trustworthiness ascriptions is important because decreased trust characterizes impressions of dehumanized outgroup members (Vezzali, Capozza, Stathi, & Giovannini, 2012). Trustworthiness is a core dimension of face evaluation (Oosterhof & Todorov, 2008) underlying the motives driving if and how people interact with others (Slepian, Young, & Harmon-Jones, 2017; Todorov, 2008). Trustworthiness impressions are made without intention (Rule, Krendl, Ivcevic, & Ambady, 2013) and are negatively affected if a face is Black versus White (Cassidy & Krendl, 2016; Kubota, Li, Bar-David, Banaji, & Phelps, 2013). Unlike other aspects of face evaluation (e.g., dominance), trustworthiness is uniquely associated with humanness (Wilson et al., 2017). Because people spontaneously evaluate the trustworthiness of faces, less trustworthiness being ascribed to Black faces may arise, in part, due to reduced configural face processing.

The current work investigated if and how disrupting configural processing impacts the dehumanization of Black and White faces. Study 1 tested if face inversion elicits differential activation of human-related concepts for Black and White faces. Studies 2–4 tested if race effects were paralleled in other correlates of dehumanization. Studies 2a and 2b tested how configural processing affected perceived trustworthiness in Black and White faces, and also how homogeneously these faces were perceived (as homogeneity is characteristic of dehumanization; see Kteily et al., 2015). Studies 3a–d assessed if the trustworthiness effects observed in Studies 2a and 2b were unique to Black faces, or generalized to Asian faces. Study 4 examined configural face processing as a mechanism underlying race disparity in perceived trustworthiness. All measures, manipulations, and exclusions are reported.

### 5. Study 1

Reducing the configural processing of White faces slows the activation of human-related concepts (Hugenberg et al., 2016). Using face inversion, Study 1 extended this work by establishing if configural processing contributes differentially to the dehumanization of Black versus White targets.

One hypothesis, drawing from the idea that configural processing may be reserved for ingroup faces (e.g., Michel et al., 2006), was that reducing configural processing would only disrupt a signal of humanness for White faces. If Black faces are not configurally processed, then reducing configural processing should not affect how they activate human-related concepts. A competing hypothesis drew from work suggesting that racial outgroups do receive configural processing (Wiese et al., 2009), and that this signal of humanness may buffer more pernicious effects of dehumanizing stereotypes. If true, inverted versus upright Black faces should slow the activation of human-related concepts more than inverted versus upright White faces.

We adapted the procedure of Hugenberg et al.' (2016) Study 1 (see also Deska et al., 2016) to test these hypotheses. Participants completed a lexical decision task (LDT) measuring the activation of human-related concepts. Each trial was preceded by a prime: an upright or an inverted White or Black face. Inverting White faces slows the activation of human-related concepts. Of interest was if stronger or weaker effects emerged for Black faces.

#### 5.1. Method

#### 5.1.1. Participants

Power analyses (PANGEA; for details see www.jakewestfall.org/pangea/) using r = 0.15 (d = 0.30; a modest effect was expected based

<sup>&</sup>lt;sup>1</sup> Face inversion is a widely used method to examine configural face processing (e.g., Hugenberg et al., 2016). Face inversion maintains facial features (i.e., the eyes, nose, and mouth still exist), but disrupts the eyes-over-nose-over-mouth configuration of features. Maintaining these features makes face inversion well-suited to isolate effects of configural processing on social cognition.

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