25

COULD DEHUMANIZATION BE PERCEPTUAL?

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25.1 Introduction

It is perhaps unsurprising that the first systematic investigations of dehumanization approached the phenomenon as linked to contexts of war, genocide, extreme hatred, and violence. One guiding hypothesis was that dehumanizers exclude the dehumanized from a moral community of human beings, implicitly conceptualized as displaying distinct individualities and being embedded in caring interpersonal relations. By comprehending the dehumanized as deindividuated entities to which moral norms and considerations of fairness do not apply (Opotow 1990), dehumanizers are able to disengage from moral restrictions and self-sanctions (Bandura 1999).

Subsequent research contributions deployed a broader focus, shifting emphasis from extreme cases of dehumanization to more subtle forms that occur under ordinary circumstances without intergroup conflict or even explicit negative assessment (Leyens et al. 2001; 2003; 2007). This broadened focus has advanced attentiveness to dehumanization among psychologists, propelling the emergence of new theoretical perspectives and interdisciplinary interest to which this volume also attests.

Nevertheless, dehumanization is still a relatively recent area of study, and the successful implementation of novel approaches and methodologies is accompanied by a number of conceptual questions that remain open. The first part of the chapter will shed light on three assumptions to which much of the contemporary research is committed: (a) dehumanization involves some degree of denial of humanness, (b) such denial is to be comprehended in mental terms, and (c) whatever the exact mechanisms that underlie the denial of humanness, they belong in the realm of post-perceptual processing. Accordingly, whether one thinks that the attribution of lesser-than-human minds is rooted in stereotypes, negative beliefs, or emotions directed at the outgroup, the process that leads to dehumanization occurs *after* the visual experience.

This chapter aims to contribute to current discussions by critically engaging assumption (c). Could dehumanization be, at least in part, a *perceptual phenomenon*, such that dehumanizers visually perceive members of certain outgroups as exhibiting lesser-than-human minds? This possibility has not received systematic consideration, perhaps due to a shared commitment in the dehumanization literature to the idea that there is no direct perceptual access to mentality. For example, Bain et al. (2014, 386) maintain that "(p)eople can only infer the existence and the inside of other minds from their own mind," while Waytz et al. (2014, 20) hold that "because a

person can only experience his or her own mental states directly, a person cannot be confident that any other mind exists besides one's own."

In contrast, the hypothesis that guides this chapter is that (c) is flawed. But if it is possible to visually perceive human beings as minded creatures, then dehumanization might at least in part turn out to be a perceptual phenomenon.

25.2 Three assumptions

a. Both *subtle and more severe forms of dehumanization involve some form of denial of humanness* (Bain et al. 2014). Subtle forms often referred to as "infrahumanization" (Leyens et al. 2003) are continuous with more extreme cases of dehumanization, as both involve an understanding other people "as less than fully human" (Murrow and Murrow 2015). Whether members of other groups are referred to as "vermin" or "rats" to be exterminated, or are merely comprehended as less capable of higher-order cognition or uniquely human emotions, the process involves denying the attribution of full humanness to others. Comprehending others as "less mindful" (Waytz et al. 2014) means understanding their minds as lacking depth, causal impact, and the ability to attain an objective perspective of the world. As Haslam (2013) puts it, "all such phenomena, however mild or extreme, involve at a bare minimum a denial of humanness." Crucially, subtle forms of dehumanization occur without stereotype activation or intergroup conflict, such that merely assigning subjects to particular groups changes their mind awareness thresholds (Hackel et al. 2014).[1] In the following, I will operate with a broad and inclusive sense of dehumanization, which encompasses both subtle and blatant forms, and refers to comprehending other human beings as somehow less than fully human.[2]

b. *The denial of humanness is understood in mental terms*, such that it may be warranted to speak of "mind denial." Leyens et al. (2001; 2003; 2007) have linked the relevant sense of humanness that is being denied in dehumanization to the capacity for having the kind of complex emotions (e.g., guilt, love, and shame) that are taken to distinguish human beings from other animals. So when individuals understand members of an outgroup as less human than those from the ingroup ("infrahumanization"), the denial of humanness occurs via the denial of particular *mental* capacities (secondary emotions). Others have extended this perspective, arguing that "humaneness" has two distinct senses, each tied to a particular human–nonhuman contrast comprehended in mental terms. *Human uniqueness* contrasts humans with animals, which lack secondary emotions, civility, refinement, and cognitive skills, while *human nature* contrasts with objects (e.g., machines and robots) that lack emotionality, vitality, and warmth (Haslam 2006; Haslam and Loughnan 2014). Offering some support for these two senses of humanness, research on the attributions of minds under the label "mind perception" (Gray et al. 2007; Epley et al. 2007),[3] suggest that the ascription of mindedness proceeds along the psychological capacities of *conscious experience* (e.g., awareness of the environment, fear, hunger, and pain, and complex emotions like sympathy, regret, and pride) and *intentional agency* (e.g., planning, goal-directed behavior informed by knowledge and preferences) (Gray et al. 2007; Grey et al. 2012; Epley and Waytz 2010; see Machery, this volume, for historical examples that involve the denial of one of these). While these mental capacities can diverge independently and are attributed to different degrees along a continuum, this research comprehends dehumanization as related to mind attribution in general (to fellow humans, beloved pets, divinities, complex computer systems, etc.).[4] Finally, also comprehending the denial of humanness in mental terms, other researchers link dehumanization to stereotypes that are associated with

different degrees of warmth and competence (see e.g., Harris and Fiske 2006; 2011; see also Machery, this volume; Kronfeldner, this volume). Respected groups figure as high on both dimensions, while pitied groups (e.g., elderly people) are seen as warm but incompetent, envied groups (e.g., wealthy people) as cold but competent, and disgust-evoking groups (e.g., homeless people, people with drug addiction) as low on both dimensions. The main finding is that dehumanization targets those who are seen as low on both dimensions: low-low groups activate disgust-related neural structures instead of the neural network responsible for social cognition. When participants perceive individuals belonging to low-low groups, the neural structures associated with social perception do not exhibit normal activation.

c. *Mind denial is post-perceptual.* Whether one thinks that the attribution of lesser-than-human minds is rooted in stereotypes, negative beliefs about the outgroup, emotions felt toward member of the outgroup, or simply holding the belief that an individual belongs to a neutrally evaluated outgroup, the process that leads to dehumanization occurs after the visual experience. Dehumanizers visually perceive others as minded creatures like themselves, but the perceptual input is somehow distorted by post-perceptual mechanisms. Although the overall framework of the studies is called "mind perception"—suggesting that the awareness of the mindedness of human beings is genuinely perceptual—the authors hold that an inference from observable behavior is necessary, because mentality is unobservable (Morewedge et al. 2007; Epley and Waytz 2010). Accordingly, these studies use numerical ratings and ask participants to report on their judgments ("Does this entity have a mind? Does it have the ability to think?"). Due to the nature of this method, it is probably more accurate to say that the studies primarily explore "mind judgments." As Scholl and Gao (2013, 228) note, "referring to such data in terms of mind perception (rather than "mind judgments" or "mind ratings") sounds exciting, but visual processing is never actually invoked."

25.3 The mind perception thesis

In order to critically engage (c)—that is, that mind denial is post-perceptual—we may start by exploring the particular mindreading skills that human beings have developed and that enable complex coordination and communication. The dominant view is that when we decipher the behavior of others in light of the causal powers of their minds, we utilize post-perceptual inferences about mentality. We can do this based on a quasi-scientific theory about the how mental states and types of behavior are connected (Gopnik and Meltzoff 1997; Carruthers 2009) or by using our own minds in an "offline" pretense mode (Goldman 2006; 2013). In both cases, the underlying assumption is that because mentality cannot be perceived, our perception does not offer much more than a "bag of skin" (Gopnik and Meltzoff 1994), such that our awareness of mentality requires an inferential "leap" from observable behavior (Epley and Waytz 2010).

However, this assumption is facing challenges. There has been resurgence of the idea that it is sometimes possible to perceive mentality (e.g., Green 2007; Gallagher 2008; Smith 2010; McNeill 2012; Varga 2018). While much of the literature concentrates on the visual perception of relatively basic intentions and emotions, it is possible to distinguish between two types of perceptual access to mentality (see Varga 2017b). About a century ago, Ludwig Wittgenstein and Nathalie Duddington put forward a distinction between the perception of others as minded creatures and the perception of mental states instantiated in human beings. The former occurs in the same direct and immediate fashion as in the case of human bodies and characterizes cases

in which we immediately perceive "the presence of a mind," but cannot determine what mental states they are undergoing (Duddington 1919).

Building on and further developing these pioneering ideas, I have proposed that there are two forms of perceiving mentality (Varga 2017b; 2018). According to the Mind Perception Thesis, appropriately endowed observers sometimes consciously visually perceive other human beings as minded. According to the Perceptual Mindreading Thesis, appropriately endowed observers sometimes consciously visually perceive others as angry, delighted, or afraid. Both forms of perceiving mentality play a vital role in social cognition, and the distinction between perceiving minds and mental states is implicit in the relevant literature of dehumanization. For example, Epley and Waytz (2010, 498) argue that "before an ordinary perceiver can decide which mental states are responsible for a given action, an ordinary perceiver needs to at least implicitly determine if another agent has a mind in the first place."

In the context of this chapter, the focus will be on the Mind Perception Thesis, which might be stimulating for the contemporary debate on dehumanization. Those who hold that only low-level observational properties exist (e.g., size, shape, color, etc.) will object that the Mind Perception Thesis requires too much of our perceptional apparatus. While a detailed counterargument is beyond the aims here, the chapter will review studies on the perception of animacy that support the view held by a number of philosophers that high-level properties (e.g., causal properties and properties like "being a mailbox") can be presented in perceptual experience (e.g., Siegel 2006; 2010; Block 2014). Subsequently, the chapter will review research on visual adaptation and *visual aftereffects* to support the thesis that not only high-level properties in general but high-level *mental* properties can be presented in perception. Throughout the chapter, the emphasis is not on whether the empirical results reviewed uniquely point to the Mind Perception Thesis as the correct account, but whether they offer enough support to undermine hypothesis (c) in dehumanization research.

25.4 The perception of animacy

Being able to identify animate beings and to distinguish them from inanimate objects carries a fitness-enhancing advantage and is important for complex social coordination. Some maintain that general learning mechanisms fail to account for the findings and maintain that there is a specialized machinery designed for this purpose, which explains the performance of typical observers and observers with autism on relevant tasks (Rutherford 2013).[5]

Research on the identification of animacy tends to either focus on particular features of the object giving rise to the perception of animacy (e.g., face or eyes) or motion cues. Numerous studies on the perception of animacy make use of simple geometric shapes (e.g., two squares or triangles) that are automatically perceived as not only animate but also as behaving in a goal-directed manner. For example, a square starts moving toward a second square and when arriving in its close proximity, the second square begins to rapidly move away in a random direction until it stops at a certain distance from the first square. Intriguingly, experiments involving rather simple animations of this kind have powerful effects. Subjects typically report that they cannot help but see the squares as animate, as having intentional states ("is afraid of the attacking square") and pursuing goals ("wanting to catch the other square"). The effect is strong and can be shown in young children (Rochat et al. 1997; Csibra 1999) and in a broad variety of cultural settings (Hashimoto 1966; Morris and Peng 1994).

Why think that animacy is perceived instead of inferred? The answer is, in a nutshell, that the awareness of animacy is automatic, irresistible, and highly stimulus-driven, which indicate perceptual processing. Let us consider two types of studies.

The first type typically employs point-light walker displays to study the perception of animacy. For example, a study comparing controls of adults with autism spectrum disorders concludes that general purpose perceptual processes fail to explain the findings. Instead, they are best explained by the existence of a specialized social perceptual processing. The idea is that much like the type of visual processing that specializes in depth, there is a particular type of visual processing that is specialized in the extraction of animacy from visual motion. As (Rutherford 2013, 135) puts it, "animacy perception seems to be accomplished using perceptual processes designed for this purpose."

The second type of study uses simple geometric shapes that move around on a computer display. In a study by Gao et al. (2009), participants were asked to observe a shape (the "wolf") chasing a different shape (the "sheep"). The participants were in control of the movements of the "sheep" and were asked to move it such that the "wolf" is unable to "catch" it. Among identical-looking distractors, the "wolf" could only be distinguished on the basis of its behavior, while the "sheep" was highlighted. Looking at the "wolf" led to robust percepts of animacy and goal-directedness. When these shapes are designed as "darts" rather than discs, the orientation of the moving darts toward a target causes perception of animacy, although their motions are actually random. The darts are perceived as constituting a "wolfpack" (Figure 25.1) (Gao et al. 2010).

Importantly, when the darts were angled to "threaten" the "sheep," the performance of the participants suffered a significant decline, most likely because their attention from the "wolf" dart was distracted by the "wolfpack" effect. "Wolfpack" members behaved identically throughout the trials; the participants were aware of its effects, and they were incentivized to disregard them. Still the participants were not able to treat the "wolfpack" as inanimate.

Because the findings rely on visuomotor activity instead of explicit reports, they are less vulnerable to misapprehensions than earlier studies exploring animacy. There are several reasons for thinking that there is perceptual processing at stake. Like in the case of many visual illusions, the perception is mandatory, and there is an apparent encapsulation from higher-order cognition. Participants cannot prevent seeing the movements as animated and goal-driven, just like it is not

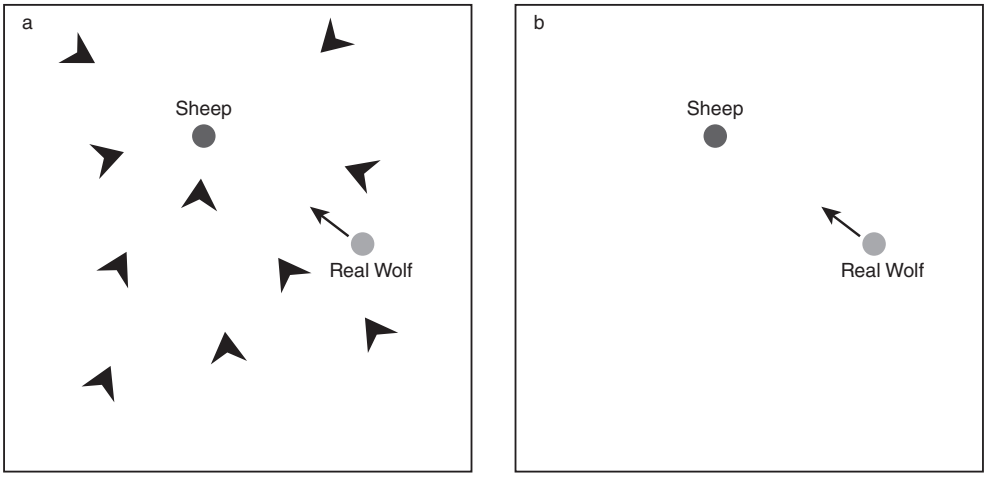

Figure 25.1 In Gao et al. (2010) the aim is to use the mouse to move the green disc ("sheep") across the display in order to avoid touching the display border, the darts, or a red wolf disc. In (a) the darts continually pointed to the "sheep," whereas in (b) they targeted the "wolf," thus changing the social significance of the "wolfpack" while keeping other visual factors constant (Reproduced with permission of the copyright owner)

possible to prevent the perception of low-level properties like shape and color. Moreover, the process is characterized by features such as close online control over attention, and strict dependence on refined details, which are typically understood as hallmark features of perception. Given the presence of all these features, an explanation by appeal to post-perceptual judgments based on visual input will be unsuccessful (see also Gao and Scholl 2011; Scholl and Gao 2013; van Buren et al. 2016).

We should add that while the percepts are irresistible for most observers, some individuals with neuropsychological disorders that affect social perception (Abell et al. 2000; Rutherford et al. 2006) constitute exceptions. Due to the cross-cultural robustness of the phenomenon, and because it occurs even in very young infants, it is reasonable to assume that animacy perception is mediated by specialized processes (McAleer and Love 2013; Rutherford 2013).

It seems reasonable to conclude that the awareness of animacy does not always require post-perceptual inferences and that the work on animacy delivers some indirect support for the view we sometimes consciously perceive others as minded human beings. Animacy and mentality are entangled in several ways, such that perceiving animacy can involve perceiving intentions (Gelman et al. 1995; Tremoulet and Feldman 2006).[6] More modestly, the findings undermine the view that perception is incapable of presenting high-level kind properties. Because animacy and mentality belong to the kind of high-level properties that are ordinarily conceived as unobservable (Santos et al. 2008; Yao and Sloutsky 2010), showing that animacy can be presented in perception removes a barrier for the claim that mentality can be as well.

25.5 Visual adaptation

The visual system is highly plastic, and investigating its malleable nature offers valuable information about how visual processing occurs. Philosophical examinations of perception have made use of empirical studies on the short-term plasticity of the visual system (Block 2014; Chudnoff 2018). Sustained exposure to a stimulus is typically followed by the visual system's adapting to the stimulus (Clifford et al. 2007), a process that can result in *visual aftereffects*—biased perceptions resulting from the adaptation (Webster et al. 2005; Rhodes et al. 2010). Such aftereffects can take on the form of perceptual shifts or detection threshold modification. The former occurs when perception is influenced by features of the preceding stimulus (e.g., a vertical stimulus will appear tilted clockwise upon adaptation to a counter-clockwise tilt) while the latter occurs when the chances of identifying a feature decrease upon previous adaptation to that particular feature.

These effects arise between properties that are presented in perception, which means that their study can help determine what properties are presented in perception. While it is well-known that aftereffects occur during the perception of low-level features (e.g., motion, color, surface, brightness, orientation, size, and shape), it is less known that there is some evidence for adaptation to high-level properties (e.g., ethnicity, gender, age, and attractiveness) resulting in corresponding aftereffects (for reviews, see Nieman et al. 2005; Webster 2011; Webster 2015; Palumbo et al. 2017). For example, adaptation to a male face will bias toward perceiving an androgynous face as female, while adaptation to a female face will bias toward perceiving an androgynous face as male (Webster et al. 2005; Fox and Barton 2007; for similar results with average Caucasian or Asian faces, see Rhodes et al. 2010) (Figure 25.2).

Retinal adaptation cannot explain these aftereffects, and the authors conclude that "adaptation has a functional role in high-level, as well as low-level, visual processing" (Rhodes et al. 2010, 963).

While these studies support the idea that that high-level properties in general can be presented in perception, particularly relevant for our purposes here are adaptation aftereffects for the perception of animacy in human faces, which indicate that high-level *mental* properties can be presented

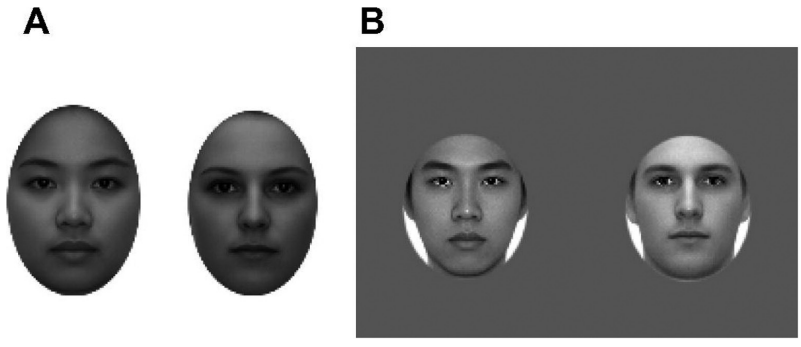

Figure 25.2 Rhodes et al. (2010) used both male and female Asian and Caucasian faces as adapting stimuli (Reproduced with permission of the copyright owner)

in perception. After adaptation to the face of an inanimate doll or a person, the perceived animacy of subsequently presented faces changes away from the adapting stimulus (Koldewyn et al. 2014). These do not transfer across species boundaries, which suggest perceptual processing instead of broader cognitive processes. Importantly, with regard to faces (but not to gender and race), animacy perception is distinctive in that the categorization of a face as animate entails that it belongs to an agent with a mind capable of having thoughts and emotions. In this sense, categorizing a face as animate means categorizing it as belonging to a minded human being.

There are very few studies on adaptation effects in this category, but some studies further indicate that high-level *mental* properties can be presented in perception. For instance, studies show that exposure to the facial expression of one emotion biases the judgment of the following face stimulus toward the opposite emotion (see e.g., Webster et al. 2005; Yamashita et al. 2005; Afraz and Cavanagh 2008). As an example, adaptation to a face expressing fear raises the threshold for perceiving the successively presented ambiguous face as fearful, while adaptation to an angry face raises the threshold for perceiving a successively presented ambiguous face as angry (Butler et al. 2008). Moreover, adaptation to sad face biases toward perceiving a subsequently presented neutral face as happy (Hsu and Young 2004; Rutherford et al. 2008). Very brief face presentations (50 ms adapting duration for happy face adaptation and 17 ms for angry face adaptation) are sufficient for emotion aftereffects (Lon et al. 2019).

These high-level aftereffects are easily inducible across diverse populations, and they appear to be genuinely perceptual, exhibiting the same characteristics as aftereffects provoked by low-level features. The aftereffects cannot be triggered in an alternative way (e.g., by viewing emotional words; see Fox and Barton 2007) and conscious attention does not seem to play a role (Davidenko et al. 2016).

One might grant that aftereffects linked to emotional expressions are perceptual, but resist the inference to high-level mental properties being presented in perceptual experience. Instead, one might argue that the aftereffects reflect adaptation to low-level facial configurations. On this view, adaptation to low-level features of the angry face changes how the same features are processed in the ambiguous face, explaining the aftereffect. However, even if low-level properties like size, lumination, retinal location, and viewpoint are varied, the aftereffects persist if the expressions are kept constant (Leopold et al. 2001; Zhao and Chubb 2001; Fang and He 2005; Butler et al. 2008). This can be taken as indication that such aftereffects cannot be fully explained as resulting from adaptation to lower-level properties (Rhodes et al. 2010).

One could object that the *expression* of some emotion being perceptually presented does not allow one to conclude that the relevant mental property is presented in visual experience.

Perhaps there is only adaptation to structural configurations that constitute facial expressions. However, this line of reasoning would face challenges in explaining why adaptation to a sad facial expression leads to biases that raise the likelihood of perceiving a neutral face as happier. An explanation along these lines would require positing that one facial configuration (e.g., expressing sadness) is somehow the "opposite" of the other facial configuration (e.g., expressing happiness). But it is difficult to see how this could be the case. Rather, it is much more plausible to think that the explanation must involve recourse to the emotion itself, because opposite relationship can only be said to hold between the relevant emotion categories (i.e., between happiness and sadness). The view that participants adapt to the category of emotion (and not merely low-level configurations) is supported by findings showing that aftereffects do not occur to the same degree in all emotions. For example, adaptation to emotions related to threat is less robust than adaptation to emotions that are not (Gerlicher et al. 2014).

25.6 Cognitive penetration and configural processing

Having reviewed findings from the perception of animacy and studies that investigate the short-term plasticity of visual perception, we are now in a position to cast doubt about assumption (c). If it is indeed possible to sometimes visually perceive human beings as minded creatures, then dehumanization might turn out to be at least in part *perceptual*. Dehumanizers visually perceive others as exhibiting lesser-than-human minds.

Before going further, we need to confront a challenge. If one assumes that the awareness of others as minded creatures results from post-perceptual inferences, then one can easily accommodate the fact that attributions of mind are modulated by beliefs, associations, and emotional attitudes toward certain racial or cultural groups. However, this seems to pose a difficulty for the thesis under consideration here, at least if one subscribes to the view that cognition cannot penetrate perception: when perceiving the same distal stimuli under identical conditions, post-perceptual (cognitive) states do not cause changes in the contents of perceptual experience. Many have argued that the early visual system is cognitively impenetrable such that top-down influences only ensue before and after early visual processes, for example, resulting from changed attention and recognition of memorized patterns (Fodor 1990a; 1990b; Pylyshyn 1999). These authors acknowledge that training might enable the perceptual system to gain some access to background knowledge (diachronic penetration of perception due to learning), but maintain that way individuals perceive the world is largely independent of their cognitive attitudes.

In order to deal with this objection, it is helpful to emphasize that it is increasingly accepted that the cognitive system exerts synchronic and diachronic top-down influences on perception (MacLin and Malpass 2003; Hansen et al. 2006; Levin and Banaji 2006; Hugenberg and Sacco 2008; Olkkonen et al. 2008; Witzel et al. 2011; Macpherson 2012; Collins and Olson 2014; Lupyan 2015). In addition, there is some evidence that perception can be penetrated by desires, moods, and character traits (Lyons 2011; Siegel 2011; Stokes 2012;Vance 2013).

With respect to visual social perception, research has traditionally assumed a linear approach, according to which perceptual cues activate a single social category and prior knowledge (e.g., attitudes and stereotypes) that influence judgments and behavior. More recently, dynamic models have gained terrain according to which social perception is characterized by the dynamic integration of facial cues and top-down information. Freeman and Johnson (2016) have used neural computational models of social perception to delineate how bottom-up visual features are integrated with a variety of top-down processes to form perceptions. Going beyond usual two-choice paradigms, some studies use a mouse-tracking task that records the trajectory of the hand.

Because motor dynamics and cognitive dynamics are taken to be coextensive, the trajectory of the hand is taken to reveal real-time unfolding of cognitive processes and offer insight into participants' provisional commitments to alternative choices. Using such tasks reveals activations across a number of social categories that impact perception but are not reflected in explicit perceptual judgments. Moreover, top-down knowledge binds seemingly unrelated categories together, such that the perception of gender, race, or emotion is biased toward how the face is expected to appear based on stereotypical knowledge of other category memberships (Stolier and Freeman 2016).

For an example in which the impact on explicit perceptual judgments is manifest, consider a well-known study by Levin and Banaji (2006). Participants were solicited to fine-tune the lightness of a square area. They were able to change the area from light to dark gray, and the task was to match the lightness of a face located beside the area. Some of the faces displayed stereotypical traits of Black individuals and some of White individuals, but the pictures had identical surface luminance. When subjects matched lightness to different samples of gray, White faces were consistently matched to lighter tones of gray than in the case of Black faces. According to Levin and Banaji's (2006, 501) conclusion, "perception of a fundamental property such as lightness is affected not only by the immediate perceptual context provided by surface or form as has been shown, but also by a top-down influence previously unstudied in the context of high-level vision."

Furthermore, when participants looked at labeled racially ambiguous faces (labeled as "Black" or "White"), faces labeled "White" were judged to have a lighter skin tone than faces labeled "Black." The shade of gray that participants chose as a match was fixed by the label, supporting the thesis that cognition can influence how we perceive low-level properties.

According to an alternative explanation, there is no evidence of cognitive penetration here. The effects can be explained as linked to changes in perceptual attention. Quite simply, the task is guiding participants' attention to particular features, which explains the perceptual change. I have elsewhere argued that an explanation by recourse to differing patterns of attention faces difficulties in explaining how attending to different parts of a surface can change how color is perceived (see Varga 2017a), but in this context it is more important to highlight that with respect to the perception of mentality, cognition can influence perception by changing patterns of visual attention.

An intriguing line of recent research links the perception of faces to the perception of minds (Deska et al. 2016). In contrast to the way we perceive objects, which we normally process feature by feature, being exposed to human faces typically gives rise to *configural perceptual processing*. Faces are processed as a whole; that is, as a single and integrated perceptual unit. Indicating that configural face processing is linked to mind perception, recent studies used *face inversion* to experimentally interrupt configural processing (Hugenberg et al. 2016; Deska and Hugenberg 2017).[7] This has compelled participants to rely more on feature-by-feature processing, which resulted in reduced mind ascription and decreased speed in recognizing words associated with humanity.

At the same time, while perceiving minds in others is dependent on face-typical processing being utilized, beliefs about and attitudes toward others can influence face processing. In a series of intriguing studies by Fincher and Tetlock (2016), participants who were informed that they were looking at faces of norm violators (serious criminals like murderers and rapists) used less configural processing. The conclusion was that when faces were processed more like objects, reduced mind perception perceived is correlated with an increased readiness to assign harsh punishments.

This is consistent with both findings suggesting that denying mind facilitates punishment (Viki et al. 2013) and findings suggesting that members of outgroups that tend to be denied fully

human minds also tend to prompt less configural processing than members of ingroups. This is the case for racial outgroups (Michel et al. 2006; Rhodes et al. 2006), for racially ambiguous stimuli labeled as outgroup members (Michel et al. 2007), for sexualized women (Bernard et al. 2012), and even for identical faces assigned to minimal outgroups (Bernstein et al. 2007; Hugenberg and Corneille 2009). In a recent study by Mende-Siedlecki et al. (2019), the authors investigate how disruptions of configural processing of faces belonging to marginalized racial outgroups are linked to pain perception and care. The study finds that White participants show higher thresholds for perceiving pain on Black faces than on White faces. While the effect cannot be attributed to low-level differences, the study maintains that disrupted configural face processing is the driving force behind the perceptual bias, which is "distinguishable from the influence of stereotypes concerning status or strength, inaccurate medical beliefs, or explicit racial prejudice" (Mende-Siedlecki et al. 2019, 884).

25.7 Concluding remarks

The main goal of this chapter was to explore and critically engage a common assumption in the literature on dehumanization. The assumption in question is that the mechanism that underlies the denial of humanness (or the attribution of lesser-than-human minds) belongs to post-perceptual processing. Simply, dehumanization occurs *after* the visual experience, whether it is rooted in stereotypes, negative beliefs, or emotions directed at the outgroup. At the same time, the possibility that dehumanization might at least in part be a *perceptual phenomenon* has not received systematic consideration, perhaps due to the prevalent idea that perceptual access to mentality is not possible.

To offer support for the view that this assumption might be flawed, the chapter considered work on the perception of animacy and studies on perceptual aftereffects. It was argued that top-down modulation does not constitute an intractable challenge to the view that perception is able to present human bodies as instantiating minds and mental properties. The results pave the way for the possibility that dehumanization might at least in part be a perceptual phenomenon, without claiming that dehumanization is entirely perceptual, or that initial perceptual phases that do not involve mindedness are not distorted.

Notes

1 While stereotypes play a major role in the process, beliefs in a human essence (psychological essentialism) may not be necessary for dehumanization (Kronfeldner, this volume).
2 Some have reserved the term for "complete deprivation of humanity" (Leyens et al. 2007) and deploy "infrahumanization" to refer to the more subtle and common phenomenon, which can also occur in absence of intergroup conflict or hostility.
3 Questions about how we attribute distinctly human mental capacities were traditionally addressed under the label "person perception." In contrast, "mind perception" (Wegner 2002) accommodates that human beings can attribute minds to nonhuman agents (e.g., pets, deities, figures) and deny mental states to other human beings.
4 Others may be attributed little agency or experience, a high degree of experience but little agency, or high agency but little experience (Epley and Waytz 2010; Gray et al. 2007; Gray and Wegner 2008).
5 Rutherford (2013) argues that the findings cannot be accounted for by general learning mechanisms but only by the activity of specialized social perceptual psychology.
6 That said, there might be cases of animacy without goal-directedness (see e.g., Gao et al. 2012).
7 "Configural" and "holistic" processing in this part of the literature are sometimes used interchangeably, although others point to differences (for a review, see Piepers and Robbins 2012). Thanks to an anonymous reviewer for pointing this out to me.

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