

Oppressive Things*

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Abstract

In analyzing oppressive systems like racism, social theorists have articulated accounts of the dynamic interaction and mutual dependence between *psychological* components, such as individuals' patterns of thought and action, and *social* components, such as formal institutions and informal interactions. We argue for the further inclusion of *physical* components, such as material artifacts and spatial environments. Drawing on socially situated and ecologically embedded approaches in the cognitive sciences, we argue that physical components of racism are not only shaped by, but also shape psychological and social components of racism. Indeed, while our initial focus is on racism and racist things, we contend that our framework is also applicable to other oppressive systems, including sexism, classism, and ableism. This is because racist things are part of a broader class of *oppressive things*, which are material artifacts and spatial environments that are in congruence with an oppressive system.

In *The Design of Everyday Things*, Don Norman (1988/2013) singles out automatic soap dispensers for praise as a prime example of a mundane artifact that shapes our understanding of the world in deep and pervasive ways. Just as importantly, he argues that since our collective understanding of the world has become anchored to the materiality of these artifacts, they tend to frustrate users when there is a lack of response: “we sometimes put our hands under faucets expecting to receive water, but wait in vain ... [o]r the water turns on and then stops, so we wave our hands up and down, hoping to find the precise location where the

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water turns on” (Norman, 1988/2013, p. 116). However, there is a troubling racialized disparity in the distribution of frustration among users of such technology that seemingly remains opaque to Norman, despite all his attention to the cognitive foundations of human-environment mappings. In a viral video entitled “Whites Only?” (2015), T. J. Fitzpatrick makes this disparity transparent: while his hotel’s automatic soap dispenser responds perfectly to his friend’s light skin, it fails to respond to his dark skin.¹ As Fitzpatrick rightly remarks, these kinds of automatic soap dispensers are “racist m*****f***** things”. Our goal in this paper is to develop the philosophical insight that lies behind Fitzpatrick’s frustration.

In analyzing oppressive systems like racism, social theorists have articulated accounts of the dynamic interaction and mutual dependence between *psychological* components, such as individuals’ patterns of thought and action, and *social* components, such as formal institutions and informal interactions.² We argue for the further inclusion of *physical* components, such as material artifacts and spatial environments. Put bluntly, not only are there racist beliefs and racist policies, there are also racist things.

Drawing on socially situated and ecologically embedded approaches in the cognitive sciences, we argue that physical components of racism are not only shaped by, but also shape psychological and social components of racism.³ That is, racist

¹ The technical problem is due to the infrared sensor that is used to detect the user’s gesture. As the maker of this particular automatic soap dispenser explained, the sensor “sends out invisible light from an infrared LED bulb for hands to reflect the light back to a sensor” and, well, lighter skin reflects more light than darker skin (Plenke, 2015). The same infrared sensors—and so the same racial disparity—can also be found in security cameras, videogame consoles, and other everyday objects. We will argue, however, that the real problem that Fitzpatrick’s video brings out is not only, or even foremost, a technical one.

² For example, see Anthony Giddens’s (1979, 1981) discussion of the dynamic interaction and mutual dependence between actions and structures, and Pierre Bourdieu’s (1972/2013, p. 72) discussion of the dynamic interaction and mutual dependence between *habitus* (“systems of durable, transposable *dispositions*”) and social structures. In philosophy, Giddens’s concept of social structure has exerted a notable influence on the accounts of oppression developed by Iris Marion Young (2011) and Sally Haslanger (2012, ch. 15 & 17). Giddens’s conception of social structure includes *rules*, which are similar to the formal institutions and informal interactions that we place at the social level, and *resources*, which include material artifacts and environments that we place at the physical level. We are not unsympathetic to Giddens’s overall conception, but prefer to use the term ‘social structure’ narrowly in order to offer a more fine-grained abstraction model (compare the separation of material *resources* and social *schemas* in Haslanger 2016, p. 127). By distinguishing social components from physical components, we hope to better articulate the underlying mechanisms of the dynamic interaction and mutual dependence between the social and the physical, and between the psychological and the physical. We are especially concerned with cases in which material artifacts and spatial environments outlast not only the patterns of thought and action but also the social interactions and institutions that created them in the first place, such that they become a shaping force of future patterns of thought and action and future social interactions and institutions.

³ We are broadly sympathetic to the so-called 4E cognition research program. Most importantly, we understand cognition to be *embedded*, in the sense that at least some cognitive processes partly depend on ecological environment or social scaffolding (Clark 1996, 1997, 2008; Gibson, 1979/2014; Haugeland, 1993; Huebner, 2013; Hutchins 1995, 2005, 2011; Kirsh, 1995, 2010; Malafouris, 2013; Risko & Gilbert, 2016; Rupert, 2009; Sterelny 2003, 2010). While the relevant issues do not explicitly arise in this paper, we also accept a version of the claim that cognition is *embodied*, and more specifically, we hold that many cognitive processes are likely to depend on capacities for interoceptive monitoring and allostatic regulation (Atzil et al., 2018; Huebner & Schulkin, in prep; Seth & Tsakiris, 2018). We are also sympathetic to the claim that cognition is *enactive*, such that our understanding of the world emerges through attempts to make sense of the world. But neither of us is particularly committed to the claim that cognition is *extended*, at least in the first-wave sense that “things can have a cognitive life” (Sutton, 2010, p. 194; see also Clark & Chalmers, 1998; Malafouris, 2013).

things play an essential role in the ecology of racial oppression by shaping racialized thoughts and actions and racialized interactions and institutions. Indeed, while our initial focus is on racism and racist things, we contend that our framework is also applicable to other oppressive systems, including sexism, classism, and ableism. This is because racist things are part of a broader class of *oppressive things*, which are material artifacts and spatial environments that are in congruence with an oppressive system.

1. Examples of Racist Things

Our primary examples of racist things are the material artifacts of visual culture technologies which have a light-skin bias.⁴ Although philosophers have devoted considerable attention to psychological and social manifestations of racism, they have not done the same for physical manifestations of racism.⁵ In introducing these examples, we devote substantial space to the specific facts about their sociohistorical contexts and their connections to other manifestations of racism, in order to keep our philosophical analysis tethered to particularities of the real world.

1.1. Normality, Descriptive and Prescriptive

For many years, Kodak's Shirley card was the standard tool used by professional photographers to calibrate skin-color balance during the printing process. A photo of a "Shirley"—so named after the model in the original incarnation—was typically printed first; and so long as Shirley's ivory skin, brown hair, and red lipstick looked "right", photographers could expect subsequent printing to look "right" as well.

In a sense, these Shirley cards were necessary. The introduction of small printers that could be used in independent photo labs required a new technology that could guarantee that each local printer would preserve the quality and consistency of the photos they were printing (Roth, 2009, p. 116). The Shirley card was just such a technology, and ostensibly it simply described what "normal" looked like in this context. It is a display of a natural skin color, which shows how a particular kind of skin contrasts with the surrounding features of a photo. But a Shirley card is not just a description; it also prescribes normality. It provides a framework for understanding what "natural skin" color should look like, and how "natural skin" should contrast with the surrounding features of a photo.

⁴ We draw on Lorna Roth's (2009) sociohistorical study of photo technologies, which extends Richard Dyer's (1997) critical analysis of film and photo technologies. Variations of the same history told here can be found in the popular press (Del Barco 2014; Lewis 2019; McFadden 2014), in fine arts (Bradley, 2018; Broomberg & Chanarin, 2012), in user experience design (Lovejoy, 2018), and in philosophy of film (Flory, 2008). Note that the light-skin bias that we discuss is a property of the material artifacts themselves, which is instantiated in their propensity for a particular class of outcomes. Questions about whether a material artifact has a light-skin bias can thus be addressed independent of whether it is the product of psychological processes or social structures that have a light-skin bias.

⁵ Notable exceptions include Alia Al-Saji (2010), Shannon Sullivan (2006), and Ronald R. Sundstrom (2003). Our philosophical approach significantly differs from these authors' in drawing from contemporary cognitive science to clarify the mechanistic details of how physical components of racism shape psychological and social components of racism.

In practice, the descriptive and the normative aspects of the Shirley card were conflated. On the one hand, using a Shirley card was likely to seem like a simple matter of visual matching: it did not require deliberation about what was being matched, so long as the colors were aligned. On the other hand, since the only available normative standard for calibration reflected the light-skin bias of its creators, it also imposed this light-skin bias on its users. Everywhere that Kodak film was used, Shirley cards became the standard against which photo printing was calibrated, leading calcified forms of bias to emerge in any context where skin-tone diverged from Shirley's ivory complexion. Darker skin tones ended up being over saturated, or under-lit, so the only images that always looked "right" were images of light-skinned people.

Light-skin bias is neither accidental nor unique. Given the close connection between skin color and racialization, light-skin bias overlaps with and partly constitutes racist bias. When Shirley cards prescribe what "natural skin" color should look like, that "should" is at once aesthetic, epistemological, and moral.⁶ It represents an ideal of beauty in which White features are valued and non-White features are not. It privileges a particular way of experiencing the world as objective and correct. It aids in the construction of White personhood and non-White subpersonhood. Altogether, it provides a prescriptive standard against which variations are treated as deviations from the norm.

1.2. Sociohistorical Context

Light-skin bias in film is not primarily a technical issue (Dyer, 1997; Roth, 2009; Winner, 1980). Film emulsions could have been designed that were more sensitive to a wider range of skin tones; but, peoples of colors "were not the constituency group leading the visual engineers and scientists to further explore the dynamic range of their company's film products" (Roth, 2009, p. 116). And deeply entrenched forms of racial ignorance and racial biases led the people who were developing emulsion technologies to ignore variations in skin tone, or assume that racialized differences were irrelevant to the design of this technology, perhaps because they assumed, implicitly or explicitly, that film would center White bodies. These psychological strategies were predictable, as they were supported by complex networks of social arrangements that entrenched racially unequal conditions, operating over material phenomena (such as purchasing power) as well as immaterial phenomena (such as social status), which made peoples of color irrelevant to the commercial processes of manufacturing and marketing.

Nevertheless, when ignorance about the interactions between different instantiations of racism becomes deeply entrenched, it becomes easy to assume that

⁶ Compare Charles W. Mills (1997, p. 41–62) on the ways that the racial contract norms spaces epistemologically and morally, and the ways that it norms individuals aesthetically, epistemologically, and morally. Also compare Paul C. Taylor (2017, p. 48) on the notion of *whiteness*, which refers to "the ways of interpreting, navigating, and inhabiting the world that are consistent with or follows from white supremacist ideology. In this spirit, we can say that expressive objects and practices manifest whiteness when they accept, rely on, follow from, or advance white supremacist prejudices, and that anti-whitely objects and practices will resist or challenge these prejudices".

biases reflected in technology are driven primarily by technical limitations. When Lorna Roth spoke with video engineers at the American TV stations CBS and NBC, she was told that “the issues around colour balance are purely technical, based on physics, and involve the exact colour matching of reflective skins among several studio cameras” (Roth 2009, p. 130). No doubt, technical issues were at play in this context. But which technical issues arise always depends on the assumptions that frame the discussion. And the exclusive focus on technical issues, to the exclusion of the historical constraints that structure the technology, privileges the descriptive norms that are encoded by these objects. It does so by treating biased prescriptive norms as irrelevant to questions about which technologies should be adopted; and this way of framing the discussion ignores the normative function of the technology, and the normative factors that shaped the adoption of one technology rather than another (Winner, 1980). In this way, the structure of technology helps to stabilize and entrench structural forms of social ignorance, which leads to the continued use of such technologies; in this case, it made it difficult for video engineers who witnessed the effects of these technologies on a daily basis to recognize the problems that were introduced by their studio cameras, and by the social contexts that these technologies reflected.

Likewise, the structural forms of social ignorance made it difficult to escape or quarantine the effects of these racist things, as the corresponding patterns of racial biases became calcified in the materiality of artifacts. Well-known directors such as Jean-Luc Godard did advance criticisms of the racialized biases in Kodak film stock; but their criticism had little noticeable effect. And the reason for this is relatively clear. Since racist things had come to serve as anchors for social practices, they made habituated biases seem natural (Fields & Fields, 2014). And for this reason, changing the biases that were built into the technology would have required transforming the broader cultural background.

1.3. Inheritance and Mutation

Finally, note that the path dependence of technological development means that biases will often be inherited from one technology to another. Film technologies inherited light-skin bias from photography, borrowing innovations “gradually and selectively, carrying forward the assumptions that had gone into them [...] always keeping the white face central as a touchstone and occasionally revealing this quite explicitly, when it is not implicit within such terms as ‘beauty’, ‘glamour’, and ‘truthfulness’” (Dyer, 1997, p. 91). Indeed, light-skinned biases remained even as visual culture technologies progressed from analog to digital; and even where attempts have been made to correct light-skin biases these have typically yielded effects that are partial, local, and temporary.

It might seem like this is an effect of sloppy and careless decisions, which arise because it is easier to copy existing technologies. But Kodak began to research local visual preferences in the 1960s, and they released different film stocks for different markets; they also released different Shirley cards, featuring many different Shirleys (Roth, 2009, p. 113, pp. 119–121). These practices yielded a marked

improvement over the one-stock-fits-all approach; yet a global light-skin bias continued to be encoded in various film stocks (Roth, 2009, p. 117). And a moment of reflection helps to clarify why this is the case. Once a norm for film processing has been settled upon, variations from that norm must be calibrated and adjusted against that norm. So the practice of using a Shirley card must ignore the existing forms of heterogeneity within a geographical region; and this risks reproducing any local dynamics of oppression that happen to be at play. For example, in developing a film stock for the region “Asia Pacific, China, and Japan”, researchers are likely to have paid more attention to more economically important markets like Japan, where people typically have lighter skin, and less attention to Southeast Asia and Polynesia, where people typically have darker skin. This problem has not gone away, and we continue to see such biases in more recent technologies. While Adobe chose a non-White model as a calibration image for Photoshop, “the lightness of complexion attests to the reappearance and re-privileging of the ‘look’ of Whiteness as a beauty norm in this ‘internationally ideal’ photo.” (Roth, 2009, p. 123). Similarly, when photo apps like Instagram strive to recreate retro looks with filters, they end up reproducing the light-skin bias that was encoded in analog photography technologies (Jerkins, 2015).

2. The Concept of Oppressive Things

Against this backdrop, we now turn to a more general discussion of oppressive things. To begin with, we contend that oppression is likely to exist wherever unjust power relations obtain between different groups of people, and wherever people are compelled to find ways of adjusting their cognition and action to interact in a world that rarely centers their interests. This is not a definition of ‘oppression’, and we think it unlikely that any essentialist definition of oppression can be given (Young, 1990, p. 42). That said, we think Iris Marion Young is right to say that “in the most general sense, all oppressed people suffer some inhibition of their ability to develop and exercise their capacities and express their needs, thoughts, and feelings” (Young, 1990, p. 40). Young famously argues that different groups can be oppressed in different ways, as there are several distinct factors—exploitation, marginalization, powerlessness, cultural imperialism, and violence—that can interact in ways that impact different individuals in different ways (Young, 1990, 64).⁷ This means that different types of oppression can only be understood by paying close attention to their particularities, including the ways that they constrain the lives of oppressed people and the specific sociohistorical factors that have led to their emergence and stability. Critically, this means that oppressive effects on

⁷ Black feminist scholars have consistently emphasized the importance of intersectionality in understanding oppression (Combahee River Collective, 1977/2017; Crenshaw, 1991; and see Cooper, 2016, for an overview). In the same spirit, Young resists constructing different oppressive systems for different oppressed groups (Young, 1990, p. 63). Following these scholars, when we speak of oppressive systems (such as racism, sexism, and ableism), we are only employing a convenient shorthand, which implies neither the independence of different types of oppression, nor the essentialization of the oppressed.

cognition and action can be either material or immaterial, either economic or psychological; so it follows that responses to oppression can include both redistributive and recognitional claims (Bartky, 1979; Fraser, 1996/2003; Young, 1990).

Within this framework, racism can be understood as one type of oppression, which emerges within the context of the racial frame that organizes our understanding of the social world (Feagin, 2009).⁸ In characterizing racism as an oppressive system, we are invoking an externalist conception of racism—sometimes called “systemic racism” or “structural racism”—that has become standard in critical studies of race (Bonilla-Silva, 1997, 2003/2017).⁹ On this conception, racism is not to be found just in individuals’ minds (or their bones), but in the ways that individuals’ interact with other individuals and social institutions. In philosophers’ vocabulary, racism is not to be found in intrinsic properties, but in extrinsic relations. The externalist conception of racism, we contend, makes room for applying the term ‘racist’ to material artifacts and spatial environments. As we argue below, racist things are material artifacts and spatial environments that partially constitute the stability and structure of this racial frame, while also shaping the habits of attention and categorization and the attitudes that are typically adopted by people who live and act within this racial frame.

We expect that some people will still object to the claim that things can be racist. Even if they adopt a more externalist understanding of racist practices, the application of the term ‘racist’ to material artifacts may seem to trade on a subtle ambiguity in the use of the term ‘bias’. Something can demonstrate a statistical bias toward a particular class of outcomes without being biased in a way that reflects the normative assumptions that are at play in oppressive contexts. Assuming that the visual culture technologies that we have been discussing are biased only in the statistical sense of the term threatens to lump where we should split. And while adopting an externalist conception of racism might make it easier to justify the application of the term ‘racist’ to things like material artifacts and spatial environments, it seems to do so at the cost of jeopardizing the intuitive link between racist attitudes and the presence of normatively significant biases; put differently, this approach might make it clear that both people and material artifacts play important roles in sustaining racial oppression, but it does so by making it less clear

⁸ We are aware that even this restriction might be too general still. For example, as Andrea Smith (2006) points out, racism in the North American context includes distinct “logics”, or dynamics of oppression, that construct most groups as both the oppressor and the oppressed. For example, within the dynamic of racialized labor (‘Slavery/Capitalism’), Asians are coopted by Whites to exert power over Blacks; but within the dynamic of racialized xenophobia (‘Orientalism/War’), Blacks are coopted by Whites to exert power over Asians.

⁹ There is an ongoing philosophical debate between internalist and externalist conceptions of racism (Taylor, 2013, pp. 31–37). J. L. A. Garcia (1996) notably provides an influential defense of an internalist conception of racism, on which racism fundamentally lies in an agent’s volition. In turn, Tommie Shelby (2002) and Charles W. Mills (2003) notably criticize Garcia’s conception and offer their own, more externalist conceptions of racism. For a few other contemporary perspectives on the proper conception of racism, see Faucher & Machery, 2009; Glasgow, 2009; and Haslanger, 2012. In light of our pluralist sympathies, our externalist assumption in this context should not be read as dismissing the utility of an internalist conception of racism in other contexts. Moreover, our invocation of the externalist conception is not meant to preclude a nuanced vocabulary that tracks different shapes of racism (Blum, 2001).

that people and material artifacts can be biased in the same normatively significant way.

To address such worries, we propose to adopt a functionalist and pluralist interpretation of racial biases, as well as biases involving other social categories. This approach is *functionalist* to the extent that *anything* that reliably produces a particular outcome on the basis of variable inputs will count as biased; an account of how something is biased thus requires specifying how the biases is *implemented*, as well as the class of outcomes that it is biased toward (compare Johnson forthcoming). But critically, this will make it clear that racial biases can be instantiated by not only psychological processes, but also social structures and physical things. Just as importantly, our approach is *pluralist*, in the sense that racial biases can include everything from statistical disparities in outcomes, to differences in psychological dependence relationships, and more (Del Pinal & Spaulding, 2018). Just as there are many definitions of fairness, some of which cannot be simultaneously satisfied, we believe that there are correspondingly many definitions of racial bias, some of which also cannot be simultaneously satisfied (Narayanan, 2018).

In light of this framework, let us consider what it takes to show that biases can be implemented in oppressive things, and that the class of outcomes they are biased toward are correctly understood as normatively biased and not merely statistically biased. We work up to this claim slowly, by considering the differences between merely biased things, and oppressive things in more detail.

To begin with, consider a coin with the disposition to land on one side more frequently than the other. Such coins are commonly said to be 'biased'. And they would continue to be biased toward a particular class of outcomes even if they ceased to function as money. Many physical things have similar propensities toward a particular class of outcomes; and the term 'biased' is readily applied to them. That is, there is a minimal sense of bias that is neither value-laden nor normatively-significant, it merely refers to a statistical tendency. However, through a series of cases, we shall see how things that are minimally biased can become value-laden and normatively-significant with further scaffolding, as it becomes more entangled with ongoing networks of psychological and social phenomena.

We can begin to see how this process of entanglement works by considering a biased slot machine, which misses more often than it hits. Like the coin, it is minimally biased because it connects a particular action, pulling the arm, with a non-random particular class of outcomes. But unlike the coin, the slot machine is situated within a broader system of practices, which advantages the house and disadvantages the players. However, since the slot machine's bias affects all players equally and it is only entangled with a relatively isolated system of practices, it remains only moderately value-laden and normatively-significant. By contrast, if the same slot machine were placed in a casino that targets and systematically disadvantages a specific racialized group, it would then take on further normative

significance as it becomes entangled with racialized psychological and social phenomena.¹⁰

Finally, moving one step closer to the kinds of oppressive things that we discussed above, consider everyday objects with a right-handedness bias, such as fountain pens, scissors, and chainsaws. For left-handed people, the common versions of these objects range from difficult to use, to downright dangerous. Once again, they are minimally biased insofar as a propensity toward particular uses and particular outcomes is built into these objects. But unlike the coin and the slot machine, they are further entangled with a wide-ranging set of psychological and social phenomena, which together treat right-handed people as normal, and left-handed people as deviations that require special accommodations. As such, the objects are even more value-laden and normatively-significant than the slot machine. While their kind of normativity does not rise to the level of oppressiveness in contemporary United States, which seems to not exhibit many psychological or social manifestations of oppression against left-handed people, it could in another sociohistorical context.

The oppressive things we are most interested in take this connection between a bias and a system one step further. For example, material artifacts of visual culture technologies are not only minimally biased, but value-laden and normatively significant—that is, they play a critical role in producing and sustaining systemic and structural oppression. More specifically, unlike the right-handed-biased everyday objects in the United States, material artifacts of visual culture technologies are significantly entangled with the pervasive oppressive system of racism. As our extensive recounting of their causal antecedents and consequences demonstrates, they are both shaped by, and shape, psychological and social components of racism. In this context, Whiteness is normalized, and varieties of non-Whiteness are treated as deviations from normality; and we contend that these mundane facts play an important role in organizing and structuring a robust and persisting system of racial oppression: they are a component of a robust system that normalizes Whiteness and treats varieties of non-Whiteness as deviations (compare Dyer, 1997).

As Langdon Winner notes, while it may seem obvious at first that “people have politics, not things”, artifacts can, in fact, embody political systems insofar as they are “convenient means of establishing patterns of power and authority in a given setting” or have “intractable properties [... that] are strongly, perhaps unavoidably, linked to particular institutionalized patterns of power and authority” (Winner 1980, p. 122, p. 134). This is a critical insight, which calls for further philosophical reflection.¹¹ Winner only focuses on the contrast between democracy

¹⁰ Often, slot machines and the casinos that they are situated within are organized around oppressive class relations, and they often target and exploit people who are poor; something similar unfolds in the context of lottery tickets. And importantly, these material artifacts will often play a role in sustaining intersecting forms of oppression, given the complex relationships between race and class in the world that we currently inhabit. Unfortunately, addressing these issues in detail would pull us away from our main argument in this paper. But see note 18 for further discussion of “classist things”.

¹¹ Philosophers of technology continue to tackle similar objections today. Hans Radder (2009) provides a review of the literature generated by Langdon’s insight, corrections for common misunderstandings of Langdon’s argument,

and authoritarianism, and he fails to address the interaction between material artifacts and oppressive systems such as racism. Our framework extends Winner's insights into philosophical discussions of oppression, and fills a gap in his discussion of the politics of artifacts.

Within our framework, things are racist (or sexist, or ableist, etc.) when they are *congruent with* an oppressive system such as racism (or sexism, or ableism, etc.). There are three conditions associated with this notion of congruence. First, physical things must be *biased in the same direction* as other manifestations of an oppressive system. Second, they must be *causally embedded* in the respective oppressive system. Third, these causal connections must be *bi-directional*: racist things must be more than mere products of racist psychological processes and racist social structures; they must also guide and constrain racist psychological processes and racist social structures. The causal conditions differentiate racist things, in our sense, from things that merely express or symbolize racism. For example, consider a mammy jar that is hidden in the attic and forgotten. In the Jim Crow South, mammy jars met our three conditions, and they would have functioned as racist things. Moreover, they continue to express the stereotypes that are partially constitutive of the racist social frame in which we continue to be embedded. Finally, so long as people continue to encounter mammy jars in ways that trigger racist stereotypes, and they evoke thoughts that perpetuate and sustain racially oppressive systems, it will be impossible for a mammy jar to be "out in the open" without it functioning as a racist thing. A mammy jar that is hidden in the attic and forgotten, by contrast, will continue to express and symbolize racism as the result of its causal history; however, it will not be a racist thing, in our sense, as it will not continue to guide and constrain racist psychological processes and racist social structures. A different mammy jar, in a different context, could exert such influences by being embedded in bi-directional causal processes. And importantly, as we argue in the next section, material artifacts of visual culture technologies that do not obviously express or symbolize racism can be racist things if they exert psychological and social influence.

Together, these three conditions yield a notion of congruence that is applicable to physical things, as well as psychological processes and social structures—which can be more or less racist depending on their congruence with oppressive systems. Furthermore, since the notion of congruence comes in degrees, the concept of racist things (and other nearby concepts) are also degreed: an object will not simply be racist or not racist, but racist to whatever extent it is causally embedded within a network of other racist phenomena.¹² Again, this means that the degree to which an object is racist does not depend just on its intrinsic properties,

and elucidations of the kinds of normativity that are inherent to technological artifacts. Peter-Paul Verbeek (2005, 2011) draws extensively from post-Kantian traditions to discuss the morality of material artifacts. However, these discussions do not explicitly address the interaction between material artifacts and *oppressive systems*.

¹² That is, we treat racist as a thick evaluative concept, and 'racist' as a multidimensional gradable adjective (Väyrynen, 2014; Williams, 1985; contra Blum, 2001). As such, there are off-the-shelf semantics available for explaining non-degreed uses of 'racist', derived from either context-dependent comparison classes or context-independent rules (see, for example, Kennedy & McNally, 2005; McNally, 2011).

but on its extrinsic relations.¹³ To discern the degree to which an object is racist, we must attend to their particularities, such as the particular ways that they function to constrain the lives of the oppressed and the particular sociohistorical factors that have led to their emergence and stability.

3. Oppressive Things and Human Cognition

Suppose there are bi-directional causal relations that obtain between racist physical things, on the one hand, and racist psychological processes and social structures on the other. While it is relatively straightforward how racist psychological processes and social structures can play a critical role in shaping racist things, there are bound to be questions about how racist things can play a critical role in shaping racist psychological processes and social structures. It is commonly recognized that human populations arrange their environments to minimize demands on cognitive processing—we “make the world smart so that we can be dumb in peace” (Clark, 1997, p. 180). Building on this insight, we contend that when parts of the physical environment are organized and constructed in a way that reflect racist psychological processes and social structures, they will come to function as material anchors for patterns of thought and action. Put somewhat differently, material things play a critical role in sustaining the human-environment mappings that shape thought and action, as well as the overlapping forms of psychological, social, and physical structures that collectively constitute a cognitive niche. A *cognitive niche* is a distributed ecological control system, which is “partially created by the appearance of artifacts as representations of social norms” (Stotz, 2010, p. 496; see also Clark, 1997, 2008; Sterelny, 2003, 2010). And we contend that a racist cognitive niche consists of numerous networks of material anchors, which encode and enforce numerous mutually-supporting social norms, and do so in ways that influence and normalize patterns of thought and action.

There are other ways to think about our interactions within a racist cognitive niche. We pursue this approach because it sits comfortably with much of the recent work on gene-culture co-evolution and the organization of social spaces (see, for example, Henrich, 2017; Norenzayan, 2013; Reber & Norenzayan, 2018). The reference to the concept of an *evolutionary niche* is thus more than metaphorical (Laland, Matthews, & Feldman, 2016; Odling-Smee, Laland, & Feldman, 2003). It reflects the fact that cognitive niches are not only physical environments that individual humans find themselves in, but physical environments that human groups collectively construct and pass on from generation to generation (Constant et al., 2018). Moreover, our approach also sits comfortably with recent works on characterizing racism from the perspective of cultural psychology and critical race psychology (Mukherjee et al., 2015; Salter & Adams, 2016; Salter et al., 2018).

¹³ That is, on our framework, no physical thing is *essentially* racist. A bodily feature like skin tone only comes to be associated with particular races given the contingent form of racism that obtains and its process of racial construction. The degree to which an object is racist is to be found in extrinsic relations because racism itself is to be found in extrinsic relations.

3.1. *Material Anchors and Cognitive Niches*

The core of our hypothesis builds upon Edwin Hutchins's (2005) work on *material anchors*. Material anchors are aspects of the physical world, which generate intrapersonal and interpersonal forms of stability in social spaces, by shaping patterns of association, behavior, and imagining. To get a sense of how material anchors work, it will help to consider a mundane case, before we return to racist things in the sequel.

Suppose that Enby arrives in an unfamiliar city late on a Saturday afternoon. They will be staying at an apartment near the center of the city; and they have been told that they can collect their key by entering a unique four-digit code into a centralized key-box. Things work smoothly, and Enby collects a key card (of the sort that is commonly used in hotels), and they walk to the apartment where they will be staying. Without thinking about what they are doing, Enby slides the card through the lock on the door, and walks into the apartment. But when they flip the light switch, nothing happens. Enby reflexively looks to their right, and sees a card slot on the wall; and when they slip the key card into the slot, the lights come on. This is the pinnacle of mundanity for a frequent traveler! But it requires a surprising number of cognitive resources.

As a frequent traveler, Enby has probably used similar technologies in a hotel. But they may not have encountered this kind of technology in an apartment. Nonetheless, the use of a key card shapes the kinds of associations that come readily to mind, and guides Enby's action in response to the surprising fact that the lights do not come on. They probably don't think about this response very much; and while there are other possibilities (for example, the circuit might be broken, or the lightbulb might be blown), there are unlikely to occur to Enby when they enter the apartment where they will be staying. The familiar association between a key card and an electric circuit simply prompts Enby to explore the possibilities that are more likely to be relevant to this situation, by evoking the construction of memories and associations, which are tied to the social possibilities that this kind of situation typically affords. And in this respect, the physical structure of this apartment functions as a guide for Enby's imaginings, which are anchored to ongoing feedback from this socially structured space. As we see it, the physical structure of this apartment allows Enby to perform these cognitive tasks relatively effortlessly, automatically, and unconsciously. And importantly, similar physical structures would evoke similar mental states, across a wide range of different situations. Wherever Enby encounters physical phenomena such as these, in contexts that are sufficiently similar to a hotel (or now an apartment), a similar chain of thought and action will be likely to unfold.

Something similar will hold for many people other than Enby. Anyone who has passed through similar social and physical environments will construct the relevant patterns of thought and action just as Enby has, effortlessly and effectively; after all, Enby's actions are patterned on their previous interactions with similar physical situations, and anyone who has a similar learning history to Enby will engage with this highly structured environment in a similar way. At least in part, this

is because the organization and layout of the apartment that Enby encounters is constituted by numerous familiar kinds of material and social structures, which work in concert to facilitate the retrieval of memories that have been encoded in similar kinds of contexts (compare Soon forthcoming). And spaces like apartments reflect facts about human cities, which organize a wide range of human-environment interaction mappings. And this is precisely the reason why many agents from a similar social background would be able to carry out similar kinds of actions in this case.

As parts of shared cognitive niches, material anchors thus structure patterns of cognition for human agents from a similar developmental and social background. They do so habitually and reflexively. And they prompt patterns of thought and action that accord with specific kinds of socially structured behavior. This is what it means to say that material anchors offer two kinds of stability in cognition: intrapersonal stability across time, and interpersonal stability across agents.

3.2. Oppressive Things and Oppressive Cognitive Niches

As we understand them, oppressive things constitute a special class of material anchors, which play a critical role in structuring our cognitive niche. Like other material anchors, they structure patterns of thought and action; more specifically, they influence and normalize particular patterns of associations, behaviors, and imaginings. As with the material anchors we discussed above, it can be difficult to realize the ongoing work that is done by oppressive things in everyday life. To return to the example that has structured this paper, Syreeta McFadden (2014) vividly describes the associations, imaginings, and behaviors that racist film stocks tend to influence and normalize: “I hated shooting brown skin on color film. [...] The inconsistencies were so glaring that for a while, I thought it was impossible to get a decent picture of me that captured my likeness. I began to retreat from situations involving group photos”. The racist film stocks functioned as a prompt for associative thinking: McFadden came to associate brown skin on color film in negative ways, perhaps with looking aesthetically bad, or with looking differently from normality. The racist film stocks also functioned as a motivator for behavior: McFadden began to retreat from situations involving group photos. And finally, the racist film stocks also functioned as a (restrictive) guide for imaginings: McFadden thought it was impossible for a color photo to capture her likeness.

Like other material anchors, oppressive things not only offer conditions for intrapersonal stability across time, they also offer conditions for interpersonal stability across agents. In doing so, they normalize particular patterns of cognition. In the same way that a particular pattern of cognition just seems to make sense upon entering an hotel or an apartment, particular patterns of cognition just seem to make sense with film stocks, photo apps, and soap dispensers. Given this interpersonal stability across agents, these racist things end up biasing patterns of associations, behaviors, and imaginings in congruence with racism. As such, they also end up sustaining and reinforcing racist epistemological, moral, and aesthetic norms in social structures.

More troublingly, since material anchors rarely work in isolation, racist things often work in concert to create and sustain oppressive cognitive niches. Like other manifestations of racism, they reflect a systematic bias against non-Whiteness. And they reproduce the patterns in the world that make Whiteness seem like the unmarked category, and the grounds of normality, which then shapes the ways in which people think about the kinds of actions that the world affords. At a minimum, they influence psychological processes such as judgments of who looks good in films and photos. In making such judgments the norm, they affect social structures such as collective choices regarding who gets cast in movies. One can also imagine the feedback loop going further, so that judgments about who looks good in films and photos turn into judgments about who looks beautiful, and collective choices regarding who gets cast in movies turn into collective choices regarding who gets nominated for prestigious awards. Then, to further accommodate these psychological processes and social structures, new material artifacts with the same old biases get collectively constructed and passed on from generation to generation. And so on and so forth. (Yes, the actual world is not hard to imagine.)¹⁴

The racist cognitive niche that consists of material artifacts of visual culture technologies is especially interesting because its effects stretch far beyond narrow welfarist considerations (for a slightly different way of thinking about these effects, see Huebner, 2019). Recall that, on Young’s characterization, all oppressed people suffer from some inhibition of their ability to develop and exercise their capacities and express their needs, thoughts, and feelings. These racist things do exactly that: they make the lives of the oppressed materially, socially, and psychologically worse. In fact, since they also function to narrow the pool where good art can come from, they can make all our lives worse by making the world aesthetically less well-off.

We emphasize this aspect of our framework because it has not been sufficiently appreciated, even by those who are otherwise attentive to the effects of racism on cognition and culture. For example, Charles W. Mills (1997) argues that a key operation of the Racial Contract is to norm *spaces*, but he only notes that spaces can be normed epistemologically and morally. (In contrast, he does note that *bodies* can be normed epistemologically, morally, and aesthetically.) Our framework extends this suggestion, to show how parts of the physical environment, including spaces, can be normed aesthetically too: by influencing and normalizing patterns of aesthetic cognition. And we want to insist that that is no small matter. As Peter Railton emphatically puts the point, “Mere aesthetics!—As if discussing and deciding about what we truly admire or detest were not a central, shaping force in human life”

¹⁴ Or, for those who prefer outlandish philosophical thought experiments instead, consider another scenario that illustrates similar causal connections. Suppose that all existing humans were annihilated and replaced by new humans, who share all of our basic psychological infrastructure but none of our contingent biases related to oppressive systems. If these new humans were to find and make use of the racist things existing humans have made, then—we hypothesize—they would be more disposed toward developing the same biases that existing humans have, such as seeing lighter skin as more beautiful, and they would also be disposed toward developing the same collective choices that existing humans make, such as casting lighter-skin actors in movies. Through time, partly on the bases of these psychological processes and collective choices, these new humans might even come to stratify themselves into groups, for which an unjust power relation obtains.

(Railton 1998, p. 100).¹⁵ We agree; we can best understand the causal connections between different instantiations of racism—including racist things and the racist cognitive niches that they partly constitute—by examining them epistemologically, morally, and aesthetically.¹⁶

3.3. *Oppressive Things & Psychological and Algorithmic Biases*

The approach we have developed thus far provides a new way of thinking about the mechanisms that underwrite the dynamic patterns of interaction and mutual dependence that obtain between the psychological, social, and physical components of oppression. However, we have only taken the first steps toward an exploration of the ways in which physical things shape and sustain oppressive systems. And there is quite a bit more to say about the role of oppressive things in human cognition. For now, however, we will offer one further illustration of the theoretical significance of this approach: our account of oppressive things reveals one place where early discussions of implicit bias went wrong, and it suggests a better way of moving forward on related questions about algorithmic biases.

There are ongoing debates about the existence, characterization, and significance of implicit bias (Brownstein & Saul, 2016a, 2016b). And some philosophers have argued that many of the early discussions of implicit bias fail to recognize the mutual dependence between psychological and social phenomena (see, for example, Haslanger, 2015 and Huebner, 2016; but see also Saul, 2018 and Zheng, 2018). By focusing only on implicit biases, these approaches overlooked crucial bi-directional relationships between psychological processes and social structures. Our framework extends this critique by calling attention to role of material artifacts and spatial environments in producing and sustaining oppression. Put bluntly, we show that racist things shape racist thoughts. And they do so because they provide anchors for our attitudes, which lead us to backslide toward biases, even when we make good faith efforts to change our habituated patterns of thought and action. This claim is consistent with the results of a recent large-scale study, which found data “consistent with the theory that implicit bias reflects biases in the environment rather than individual dispositions” (Vuletich & Payne, 2019, p. 854; see also Forscher et al., 2019). Of course, racist things are only one factor in a broader sea of material causes

¹⁵ There is evidence that aesthetic presences are deeply tied to mechanisms for valuation, which are calibrated against social feedback. In studies examining judgments of attractiveness, as well as aesthetic judgments about art and music, people commonly adjust their judgments against peer feedback, in ways that are reflected in the magnitude of neural activity in circuits that are classically associated with the estimated value of a reward-predicting stimulus (Klucharev et al., 2009, 2011; Berns et al., 2010; Campbell-Meiklejohn et al., 2010). While there is room for disagreement over the precise interpretation of these data, it seems relatively clear that a drive toward social conformity mediates basic value signals in ways that can yield rapid learning, as well as the social dispersal of evaluative judgments throughout a population.

¹⁶ Monique Roelofs (2005) and Paul C. Taylor (2017, pp. 21–23) have argued for the significant role of the aesthetic in the process of racial construction. So, perhaps the emphasis on aesthetics is especially appropriate for racism, compared to other oppressive systems. In which case, uncovering how parts of the physical environment is normed aesthetically is especially important to understanding how the oppressive system of racism is sustained and reinforced.

that structure biases. But in some contexts, they may serve as a key structural feature that sustains a class of biased attitudes.

More intriguingly, our perspective helps to explain the striking finding that despite decades of research into debiasing strategies, only a small number have any practical effectiveness, and none are effective beyond twenty-four hours (Lai et al., 2014, 2016). These findings seem less surprising once we recognize the patterns of dynamic interaction and mutual dependence that obtain between psychological, social, and physical phenomena; and it becomes clearer why we should expect isolated psychological interventions to have little practical effect. So long as the social and physical environments remain in congruence with an oppressive system, psychological states will tend to converge upon the kinds of social and physical phenomena that they are anchored to.

Finally, the framework that is suggested by focusing on oppressive things is also instructive for forewarning against a similar sort of mistake in the burgeoning discussions of *algorithmic bias*. Like scholars in many other fields, philosophers are starting to critically assess the ethics of algorithms. Although our focus has been on material artifacts, there are obvious parallels between these technological products and ones that we have considered, especially as regards patterns of interaction and mutual dependence that obtain between the psychological, social, and physical components of oppression. We think that philosophical investigations of algorithmic bias thus demand a framework that is more sensitive to oppressive systems at the start, instead of a framework that examines this phenomenon in isolation. In this respect, our recommendation is in line with recent works in critical algorithm and data studies outside of philosophy (Benjamin, 2019; boyd & Crawford, 2012; Dalton, Taylor, & Thatcher, 2016; Noble, 2018). Without such an attention to oppression, the efforts to debias algorithms is likely to be as successful as previous efforts to debias the mind.¹⁷

4. The Variety of Oppressive Things

As we have noted earlier, different types of oppression can only be understood with attention to their particularities, such as the particular ways that they function to constrain the lives of the oppressed and the particular sociohistorical factors that have led to their emergence and stability. We have thus restricted our attention to racist things. However, we hope to have provided a useful framework for examining other instances of oppressive things, and their relations to other ecologies of oppressive systems. We have also employed the convenient shorthand of talking about different oppressive systems, and the corresponding different oppressive things and niches. But we want to reiterate that this is only a

¹⁷ In fact, a narrow focus on countering biases without attention to oppression can end up reinforcing or exacerbating ongoing oppressive systems. For example, like material artifacts of visual culture, facial recognition algorithms tend to regard Whiteness as the norm and varieties of non-Whiteness as deviations. As such, they tend to not recognize Black faces well, especially as compared to White faces. However, given the uses of facial recognition in state surveillance and state violence, debiasing these algorithms—that is, making Black faces as recognizable as White faces—actually turns out to be an oppressive intervention (West, Whitaker, & Crawford, 2019).

convenient shorthand; different groups, and different individuals in a group, can be oppressed by a different combination of factors; and so no oppression stands independent of another. For example, as Combahee River Collective (1977/2017) might remind us, not only are racism and sexism intertwined with each other, they are also crucially intertwined with capitalism as yet another oppressive system.

Nevertheless, we believe that there is practical value to adopting this convenient shorthand, for it allows us to look across so-called different oppressive systems for new understandings. We leave this task to be examined in future research; and we hope to have made it clear that the complexity that undergirds different kinds of oppressive things, in different kinds of contexts, is something that must be explored empirically as well as theoretically.¹⁸ However, we wish to close with a brief discussion of ableism and ableist things, as discussions that have unfolded in this context offer significant insights about the nature and status of oppressive things, and potential ways of intervening on the oppressive systems that they are entangled within.

As an oppressive system, ableism is socially and materially constructed in an ongoing way (Barnes, 2016; Campbell & Stramondo, 2017; Tremain, 2015, 2017; Yergeau, 2018). Ableism is fundamentally a matter of unjust power relations, which hold between nondisabled and disabled people; it is not simply a matter of individual prejudice—though individual prejudices can play a critical role in sustaining biased social structures (Amundson & Taira, 2005; Parens & Ashe, 2000). Moreover, disabilities are not fundamentally biological phenomena, they are at least in part social phenomena: in the same way that particular body variations are only contingently associated with different races and genders, other particular body variations are only contingently associated with different disabilities. Ableist things, in this sense, are thus parts of the physical world that are biased in congruence with ableism. A thorough discussion of ableist things would take us far afield from our current discussion. But importantly, we do not need to include a full discussion here, as disability activists and theorists have long taken note of, and struggled against, ableist things (Amundson, 1992; Boys, 2017; Hamraie, 2013, 2017; Silvers, 1998). In this respect, the framework of oppressive things might be helpful as a point of intellectual exchange, for race and gender theorists to learn from disability theorists.

¹⁸ Just as racist things play a critical role in the ecology of racial oppression, *classist things* play a critical role in the ecology of socioeconomic oppression. Hostile forms of architecture, such as homeless spikes and rounded public benches, provide on fairly obvious example of a classist thing (Lam, 2018). But a wide range of research in architecture, design, geography, and urban studies has discussed other significant ways in which public spaces are built to exclude the most socioeconomically vulnerable (Gilmore, 1998, 2002; Holmes, 2018; Jacobs, 1961; Savičić & Savić, 2013; Thatcher, 2013). And theorists like Michel Foucault (1975/1995) and Henri Lefebvre (1974/1991) have developed theories about the nature and status of classist things. There are also *sexist things*—found in domains that range from transportation to medicine—that play a critical role in the ecology of gender oppression (Criado-Perez, 2019; D'Ignazio & Klein, 2020; Hutchison, 2019). And there are also *heterosexist things* (Ahmed, 2006). Since different kinds of oppression are commonly intertwined, these kinds of oppressive things are not mutually exclusive; and since economic exploitation is central to many forms of racism, classist things will often be racist things as well.

As an example of ableist things, consider the majestic stairs of the U.S. Capitol Building.¹⁹ In 1990, mobility disabled people left their wheelchairs and crutches to crawl up these stairs, to call attention to the exclusionary nature of this majestic stairway. The Capitol Crawl, as this event came to be known, played a crucial role in the eventual passing of the Americans with Disabilities Act of 1990, a first step toward guaranteeing formal equalities for diverse bodies navigating the physical environment. Although the Capitol Crawl served multiple functions in the disability rights movement, we want to focus on the fact that it made the oppressive nature of the physical environment transparent to nondisabled people. Put somewhat differently, it revealed that the Capitol stairs were part of an ableist cognitive niche, which inhibited mobility disabled people's ability to develop and exercise their capacities and express their needs, thoughts, and feelings.

Of course, even when formal equalities are codified, lived inequalities can still persist. As Aimi Hamraie points out, the 25th anniversary celebration of the ADA paints "Bush's promise of universal access on the built form of a staircase—the same structure that was the Capitol Crawl's focal point—[but] the murals hid in plain sight (and without a hint of irony) the persistent architectural, attitudinal, and economic barriers that disabled people continue to face in the post-ADA world." (Hamraie, 2017, p. 3). Despite the formal equality in access, there remains a lived inequality of entering the U.S. Capitol Building via the majestic stairs versus via the alternate entrance. The systematicity of such ableist things—and the ableist cognitive niches they partly constitute—is unlikely to go unnoticed for mobility disabled people, given that they are forced to constantly interact with them in their lives. But for people who are not disabled with respect to mobility, the stairs are likely to look "normal". When it comes to ableist things, the epistemic difference between nondisabled and disabled people is likely to be significant, even and this difference is likely to be even more pronounced than it in the context of other oppressive things, given the pronounced effects of these disabling structures on numerous forms of practical activity that are simply assumed to be universal by many people who are not disabled in this way.

Unsurprisingly, disability activists and theorists—especially, it should be said, disabled people of color—have been at the forefront in developing strategies for counteracting ableist things, often grouped under the term "universal design" (Hamraie, 2017; Mace, 1985). At its best, these attempts to pursue universal design go beyond partial, local, and temporary fixes to make physical environments as inclusive as possible from the outset (Dolmage, 2016/2017). In aiming to restore spatial agency to disabled people, the approach also goes beyond a narrow welfarist conception of accessibility to include aesthetic considerations as well (Cachia, 2016/2017; see also Siebers, 2006). Importantly, as the name indicates, universal design does not only aim to improve the lived experiences of disabled people, even

¹⁹ We want to emphasize that this is just one example amongst many. And since our conception of disability is not limited to physical and sensory disabilities, ableist things must also include material artifacts and spatial environments that play an oppressive role in the lives of intellectually and psychiatrically disabled people. For example, we contend that spatial environments that are oppressive toward autistics also count as ableist things (Arnaiz Sanchez, Segado Vazquez, & Albaladejo Serrano, 2011).

though this would be a good aim in itself, but for everyone. One powerful example of universal design is *DeafSpace*, a set of architectural principles to make a physical environment that grants spatial agency to members of the d/Deaf community (Bauman, 2014).

We therefore suggest universalizing universal design: to take the same strategies to racist things, sexist things, and other oppressive things. Aimi Hamraie (2013, 2017) calls this approach *design for collective access*, which underscores the interdependence of oppressive systems and the corresponding interconnected needs of accessibility. Of course, given that different types of oppression can only be understood with attention to their particularities, specific interventions must attend to the particular ways that each oppressive system constrains the lives of the oppressed and the particular sociohistorical factors that have led to its emergence and stability. Nevertheless, all the interventions are united by their embracement of diverse ways in which we are embodied and embedded in the world, against the impulse of thinking in terms of normality and deviations.

References

- Ahmed, S. (2006). *Queer Phenomenology: Orientations, Objects, Others*. Durham, NC: Duke University Press. <https://doi.org/10.1215/9780822388074>
- Al-Saji, A. (2010). The Racialization of Muslim Veils: A Philosophical Analysis, *Philosophy and Social Criticism*, 36, 875–902. <https://doi.org/10.1177/0191453710375589>
- Amundson, R. (1992). Disability, Handicap, and the Environment, *Journal of Social Philosophy*, 23, 105–118. <https://doi.org/10.1111/j.1467-9833.1992.tb00489.x>
- Amundson, R. & Taira, G. (2005). Our Lives and Ideologies: The Effect of Life Experience on the Perceived Morality of the Policy of Physician-Assisted Suicide, *Journal of Disability Policy Studies*, 16, 53–57. <https://doi.org/10.1177/10442073050160010801>
- Arnaiz Sanchez, P., Segado Vazquez, F. & Albaladejo Serrano, L. (2011), Autism and the Built Environment, in T. Williams (ed.), *Autism Spectrum Disorders - From Genes to Environment*, IntechOpen. <https://doi.org/10.5772/20200>
- Atzil, S., Gao, W., Fradkin, I., & Barrett, L. F. (2018). Growing a Social Brain, *Nature Human Behaviour*, 2, 624–636. <https://doi.org/10.1038/s41562-018-0384-6>
- Barnes, E. (2016). *The Minority Body: A Theory of Disability*. New York: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198732587.001.0001>
- Bartky, S. L. (1979). On Psychological Oppression. In S. Bishop & M. Weinzwieg (eds.), *Philosophy and Women* (pp. 33–41), Belmont, CA: Wadsworth Publishing Company.
- Bauman, H. (2014). DeafSpace: An Architecture toward a More Livable and Sustainable World. In H. Dirksen, L. Bauman & J. J. Murray (eds.), *Deaf Gain: Raising the Stakes for Human Diversity* (pp. 375–401), Minneapolis: University of Minnesota Press.
- Benjamin, R. (2019). *Race After Technology: Abolitionist Tools for the New Jim Code*. Medford, MA: Polity.
- Berns, G., Capra, C., Moore, S., & Noussair, C. (2010). Neural mechanisms of the influence of popularity on adolescent ratings of music. *Neuroimage*, 49, 2687–2696. <https://doi.org/10.1016/j.neuroimage.2009.10.070>
- Blum, L. (2001). *I'm Not A Racist, But...?: The Moral Quandaries of Race*. Ithaca: Cornell University Press.
- Bonilla-Silva, E. (1997). Rethinking Racism: Toward a Structural Interpretation, *American Sociological Review*, 62, 465–480. <https://doi.org/10.2307/2657316>
- Bonilla-Silva, E. (2003/2017). *Racism Without Racists: Color-Blind Racism and the Persistence of Racial Inequality in America* (Fifth Edition). New York: Rowman & Littlefield.
- Bourdieu, P. (1972/2013). *Outline of a Theory of Practice* (Richard Nice, trans.). New York: Cambridge University Press.
- boyd, d. & Crawford, K. (2012). Critical Questions for Big Data, *Information, Communication & Society*, 15, 662–679. <https://doi.org/10.1080/1369118X.2012.678878>
- Boys, J. (ed.) (2017). *Disability, Space, Architecture: A Reader*. New York: Routledge.
- Bradley, M. (2018). *Puaki*. <<https://www.puaki.com/>>
- Broomberg, A. & Chanarin, O. (2012). To Photograph the Details of a Dark Horse in Low Light. <<http://www.broombergchanarin.com/to-photograph-a-dark-horse-in-low-light>>
- Brownstein, M. & Saul, J. (eds.) (2016a). *Implicit Bias and Philosophy, Volume 1: Metaphysics and Epistemology*. New York: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198713241.001.0001>
- Brownstein, M. & Saul, J. (eds.) (2016b). *Implicit Bias and Philosophy, Volume 2: Moral Responsibility, Structural Injustice, and Ethics*. New York: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198766179.001.0001>

- Cachia, A. (2016/2017). Along Disabled Lines: Claiming Spatial Agency through Installation Art. In J. Boys (ed). *Disability, Space, Architecture: A Reader* (pp. 247–260), New York: Routledge.
- Campbell, S. M., & Stramondo, J. A. (2017). The Complicated Relationship of Disability and Well-Being, *Kennedy Institute of Ethics Journal*, 27, 151–184.
<https://doi.org/10.1353/ken.2017.0014>
- Campbell-Meiklejohn, D. K., Bach, D. R., Roepstorff, A., Dolan, R. J., & Frith, C. D. (2010). How the Opinion of Others Affects Our Valuation of Objects. *Current Biology*, 20, 1165–1170. <https://doi.org/10.1016/j.cub.2010.04.055>
- Clark, A. (1996). Linguistic Anchors in the Sea of Thought. *Pragmatics and Cognition*, 4, 93–103. <https://doi.org/10.1075/pc.4.1.09cla>
- Clark, A. (1997). *Being There*. Cambridge, MA: MIT Press.
- Clark, A. (2003). *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*. New York: Oxford University Press.
- Clark, A. (2008). *Supersizing the Mind: Embodiment, Action, and Cognitive Extension*. New York: Oxford University Press.
<https://doi.org/10.1093/acprof:oso/9780195333213.001.0001>
- Clark, A. & Chalmers, D. (1998). The Extended Mind, *Analysis*, 58, 7–19.
<https://doi.org/10.1093/analys/58.1.7>
- Combahee River Collective (1977/2017). The Combahee River Collective Statement. Reprinted in K. Taylor (ed.) *How We Get Free: Black Feminism and the Combahee River Collective* (pp. 15–27), Chicago: Haymarket Books.
- Constant, A., Ramstead, M. J., Veissiere, S. P., Campbell, J. O., & Friston, K. J. (2018). A Variational Approach to Niche Construction, *Journal of The Royal Society Interface*, 15(141), 20170685. <https://doi.org/10.1098/rsif.2017.0685>
- Cooper, B. (2016). Intersectionality. In L. Disch & M. Hawkesworth (eds.), *The Oxford Handbook of Feminist Theory* (pp. 385–406), New York: Oxford University Press.
<https://doi.org/10.1093/oxfordhb/9780199328581.013.20>
- Crenshaw, K. (1991). Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color, *Stanford Law Review*, 43, 1241–1299.
<https://doi.org/10.2307/1229039>
- Criado-Perez, C. (2019). *Invisible Women: Data Bias in a World Designed for Men*. New York: Penguin Books.
- D’Ignazio, C. & Klein, L. (2020). *Data Feminism*. Cambridge, MA: MIT Press Open.
<https://doi.org/10.7551/mitpress/11805.001.0001>
- Dalton, C., Taylor, L. & Thatcher, J. (2016). Critical Data Studies: A Dialog on Data and Space, *Big Data & Society*, 3, 1–9. <https://doi.org/10.1177/2053951716648346>
- Del Barco, M. (2014). How Kodak’s Shirley Cards Set Photography’s Skin-Tone Standard, *NPR*. <https://www.npr.org/2014/11/13/363517842/for-decades-kodak-s-shirley-cards-set-photography-s-skin-tone-standard>
- Del Pinal, G. & Spaulding, S. (2018). “Conceptual Centrality and Implicit Bias”, *Mind & Language*, 33, 95–111. <https://doi.org/10.1111/mila.12166>
- Dolmage, J. (2016/2017). From Steep Steps to Retrofit to Universal Design, from Collapse to Austerity: Neo-Liberal Spaces of Disability. In J. Boys (ed). *Disability, Space, Architecture: A Reader* (pp. 102–113), New York: Routledge.
- Dyer, R. (1997). *White*. New York: Routledge.
- Faucher, L. & Machery, E. (2009). Racism: Against Jorge Garcia’s Moral and Psychological Monism, *Philosophy of the Social Sciences*, 39, 41–62.
<https://doi.org/10.1177/0048393108328149>

- Feagin, J. (2013). *The White Racial Frame: Centuries of Racial Framing and Counter-Framing*. New York: Routledge. <https://doi.org/10.4324/9780203076828>
- Fields, K. E., & Fields, B. J. (2014). *Racecraft: The soul of inequality in American life*. Verso Trade.
- Fitzpatrick, T. J. (2015). Whites Only?. <https://www.youtube.com/watch?v=WHynGQ9Vg30>
- Flory, D. (2008). *Philosophy, Black Film, Film Noir*. University Park, PA: The Pennsylvania State University Press.
- Forscher, P., Lai, C., Axt, J., Ebersole, C., Herman, M., Devine, P., & Nosek, B. (2019). A Meta-Analysis of Procedures to Change Implicit Measures, *Journal of Personality and Social Psychology*, 117, 522–559. <https://doi.org/10.1037/pspa0000160>
- Foucault, M. (1975/1995). *Discipline & Punish: The Birth of the Prison* (A. Sheridan, trans.). New York: Vintage Books.
- Fraser, N. (1996/2003). Social Justice in the Age of Identity Politics: Redistribution, Recognition, and Participation. In N. Fraser & A. Honneth (eds.), *Redistribution or Recognition? A Political-Philosophical Exchange* (pp. 7–109), New York: Verso.
- Garcia, J. L. A. (1996). The Heart of Racism, *Journal of Social Philosophy* 27, 5–45. <https://doi.org/10.1111/j.1467-9833.1996.tb00225.x>
- Gibson, J. J. (1979/2014). *The Ecological Approach to Visual Perception* (Classic Edition). New York: Psychology Press. <https://doi.org/10.4324/9781315740218>
- Giddens, A. (1979). *Central Problems in Social Theory: Action, Structure, and Contradiction in Social Analysis*. Berkeley: University of California Press. <https://doi.org/10.1007/978-1-349-16161-4>
- Giddens, A. (1981). *A Contemporary Critique of Historical Materialism*. Berkeley: University of California Press. <https://doi.org/10.1007/978-1-349-16638-1>
- Gilmore, R. W. (1998). Globalisation and US Prison Growth: From Military Keynesianism to Post-Keynesian Militarism, *Race and Class*, 40, 171–178. <https://doi.org/10.1177/030639689904000212>
- Gilmore, R. W. (2002). Fatal Couplings of Power and Difference: Notes on Racism and Geography, *The Professional Geographer*, 54, 15–24. <https://doi.org/10.1111/0033-0124.00310>
- Glasgow, J. (2009). Racism as Disrespect, *Ethics*, 120, 64–93. <https://doi.org/10.1086/648588>
- Hamraie, A. (2013). Designing Collective Access: A Feminist Disability Theory of Universal Design, *Disability Studies Quarterly*, 33. <https://doi.org/10.18061/dsq.v33i4.3871>
- Hamraie, A. (2017). *Building Access: Universal Design and the Politics of Disability*. Minneapolis: University of Minnesota Press. <https://doi.org/10.5749/minnesota/9781517901639.001.0001>
- Haslanger, S. (2012). *Resisting Reality: Social Construction and Social Critique*. New York: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199892631.001.0001>
- Haslanger, S. (2015). Social Structure, Narrative, and Explanation, *Canadian Journal of Philosophy*, 45, 1–15. <https://doi.org/10.1080/00455091.2015.1019176>
- Haslanger, S. (2016). What Is A (Social) Structural Explanation?, *Philosophical Studies*, 173, 113–130. <https://doi.org/10.1007/s11098-014-0434-5>
- Haugeland, J. (1995/1998). Mind Embodied and Embedded. In *Having Thought* (pp. 207–237), Cambridge, MA: Harvard University Press.
- Henrich, J. (2017). *The Secret of Our Success: How Culture is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*. Princeton: Princeton University Press. <https://doi.org/10.1515/9781400873296>
- Holmes, K. (2018). *Mismatch: How Inclusion Shapes Design*. Cambridge, MA: MIT Press. <https://doi.org/10.7551/mitpress/11647.001.0001>

- Huebner, B. (2013). *Macrocognition: Distributed Minds and Collective Intentionality*. New York: Oxford University Press.
<https://doi.org/10.1093/acprof:oso/9780199926275.001.0001>
- Huebner, B. (2016). Implicit Bias, Reinforcement Learning, and Scaffolded Moral Cognition. In M. Brownstein & J. Saul (eds.) *Implicit Bias and Philosophy, Volume 1: Metaphysics and Epistemology* (pp. 47–79). New York: Oxford University Press.
<https://doi.org/10.1093/acprof:oso/9780198713241.003.0003>
- Huebner, B. (2018). Picturing, Signifying, and Attending, *Belgrade Philosophical Annual* 31: 7–40. <https://doi.org/10.5937/BPA1831007H>
- Huebner, B. (2019). The Emptiness and Interdependence of Whiteness. In G. Yancy & E. McRae (eds.), *Buddhism and Whiteness: Critical Reflections* (pp. 229–252), New York: Rowman & Littlefield.
- Huebner, B. & Schulkin, J. (in prep). The Allostatic Stance.
- Hutchins, E. (1995). *Cognition In The Wild*. Cambridge, MA: MIT Press.
- Hutchins, E. (2005). Material Anchors for Conceptual Blends, *Journal of Pragmatics*, 37, 1555–1577. <https://doi.org/10.1016/j.pragma.2004.06.008>
- Hutchins, E. (2011). Enculturating the Supersized Mind, *Philosophical Studies*, 152, 437–446. <https://doi.org/10.1007/s11098-010-9599-8>
- Hutchison, K. (2019). Gender Bias in Medical Implant Design and Use: A Type of Moral Aggregation Problem?, *Hypatia*, 34, 570–591. <https://doi.org/10.1111/hypa.12483>
- Jacobs, J. (1961). *The Death and Life of Great American Cities*. New York: Vintage Books.
- Jerkins, M. (2015). The Quiet Racism of Instagram Filters, *Racked*.
<https://www.racked.com/2015/7/7/8906343/instagram-racism>
- Johnson, G. (forthcoming). The Structure of Bias, *Mind*.
- Kennedy, C. & McNally, L. (2005). Scale Structure, Degree Modification, and the Semantics of Gradable Predicates, *Language*, 8, 345–381. <https://doi.org/10.1353/lan.2005.0071>
- Kirsh, D. (1995). The Intelligent Use of Space, *Artificial Intelligence*, 73, 31–68. [https://doi.org/10.1016/0004-3702\(94\)00017-U](https://doi.org/10.1016/0004-3702(94)00017-U)
- Kirsh, D. (2010). Thinking with External Representations, *AI & Society*, 25, 441–454. <https://doi.org/10.1007/s00146-010-0272-8>
- Klucharev, V., Hytönen, K., Rijpkema, M., Smidts, A., & Fernández, G. (2009). Reinforcement learning signal predicts social conformity. *Neuron*, 61, 140–151. <https://doi.org/10.1016/j.neuron.2008.11.027>
- Klucharev, V., Munneke, M. A., Smidts, A., & Fernández, G. (2011). Downregulation of the posterior medial frontal cortex prevents social conformity. *Journal of Neuroscience*, 31, 11934–11940. <https://doi.org/10.1523/JNEUROSCI.1869-11.2011>
- Laland, K., Matthews, B., & Feldman, M. (2016). An Introduction to Niche Construction Theory, *Evolutionary Ecology*, 30, 191–202. <https://doi.org/10.1007/s10682-016-9821-z>
- Lai, C. K., Marini, M., Lehr, S. A., Cerruti, C., Shin, J. L., Joy-Gaba, J. A., Ho, A. K., Teachman, B. A., Wojcik, S. P., Koleva, S. P., Frazier, R. S., Heiphetz, L., Chen, E., Turner, R. N., Haidt, J., Kesebir, S., Hawkins, C. B., Schaefer, H. S., Rubichi, S., Sartori, G., Dial, C. M., Sriram, N., Banaji, M. R., & Nosek, B. A. (2014). Reducing Implicit Racial Preferences: I. A Comparative Investigation of 17 Interventions, *Journal of Experimental Psychology: General*, 143, 1765–1785. <https://doi.org/10.1037/a0036260>
- Lai, C. K., Skinner, A. L., Cooley, E., Murrar, S., Brauer, M., Devos, T., Calanchini, J., Xiao, Y. J., Pedram, C., Marshburn, C. K., Simon, S., Blanchar, J. C., Joy-Gaba, J. A., Conway, J., Redford, L., Klein, R. A., Roussos, G., Schellhaas, F. M. H., Burns, M., Hu, X., McLean, M. C., Axt, J. R., Asgari, S., Schmidt, K., Rubinstein, R., Marini, M., Rubichi, S., Shin, J. L., & Nosek, B. A. (2016). Reducing Implicit Racial Preferences: II. Intervention

- Effectiveness Across Time, *Journal of Experimental Psychology: General*, 145, 1001–1016. <https://doi.org/10.1037/xge0000179>
- Lam, B. (2018). Freedom and Hostile Design, *Hi-Phi Nation*. <https://hiphination.org/complete-season-two-episodes/season-2-episode-4-freedom-and-hostile-design-jan-23rd-2018/>
- Lefebvre, H. (1974/1991). *The Production of Space* (D. Nicholson-Smith, trans). Cambridge, MA: Basil Blackwell.
- Lewis, S. (2019). The Racial Bias Built Into Photography, *The New York Times*. <https://www.nytimes.com/2019/04/25/lens/sarah-lewis-racial-bias-photography.html>
- Lovejoy, J. (2018). Fair Is Not the Default, *Google Design*. <https://design.google/library/fair-not-default/>
- Mace, R. (1985). Universal Design: Barrier-Free Environments for Everyone, *Designer's West*, 33, 147–152.
- Malafouris, L. (2013). *How Things Shape the Mind: A Theory of Material Engagement*. Cambridge, MA: MIT Press. <https://doi.org/10.7551/mitpress/9476.001.0001>
- McFadden, S. (2014). Teaching The Camera To See My Skin, *BuzzFeed*. <https://www.buzzfeednews.com/article/syreetamcfadden/teaching-the-camera-to-see-my-skin>
- McNally, L. (2011). The Relative Role of Property Type and Scale Structure in Explaining the Behavior of Gradable Adjectives. In R. Nouwen, R. van Rooij, U. Sauerland, & H.-C. Schmitz (eds.), *Vagueness in Communication 2009* (pp. 151-168), Berlin: Springer. https://doi.org/10.1007/978-3-642-18446-8_9
- McRae, E. (2019). White Delusion and Avidyā: A Buddhist Approach to Understanding and Deconstructing White Ignorance. In G. Yancy & E. McRae (eds.), *Buddhism and Whiteness: Critical Reflections* (pp. 43–60), New York: Rowman & Littlefield.
- Mills, C. W. (1997). *The Racial Contract*. Ithaca, NY: Cornell University Press.
- Mills, C. W. (2003). 'Heart' Attack: A Critique of Jorge Garcia's Volitional Conception of Racism, *The Journal of Ethics*, 7, 29–62. <https://doi.org/10.1023/A:1022874712554>
- Mukherjee, S., Salter, P. S., & Molina, L. E. (2015). Museum spaces as psychological affordances: representations of immigration history and national identity. *Frontiers in Psychology*, 6, 692. <https://doi.org/10.3389/fpsyg.2015.00692>
- Narayanan, A. (2018). 21 Definitions of Fairness and Their Politics. <https://www.youtube.com/watch?v=jIXIuYdnvyk>
- Noble, S. (2018). *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York: New York University Press. <https://doi.org/10.2307/j.ctt1pwt9w5>
- Norenzayan, A. (2013). *Big Gods: How Religion Transformed Cooperation and Conflict*. Princeton: Princeton University Press. <https://doi.org/10.1515/9781400848324>
- Norman, D. (1988/2013). *The Design of Everyday Things* (Revised and Expanded Edition). New York: Basic Books.
- Odling-Smee, F. John, Laland, Kevin N., & Feldman, Marcus W. (2003). *Niche Construction: The Neglected Process in Evolution*. Princeton: Princeton University Press.
- Parens, E. & Asch, A. (eds.) (2000). *Prenatal Testing and Disability Rights*. Washington, D.C.: Georgetown University Press.
- Plenke, M. (2015). The Reason This 'Racist Soap Dispenser' Doesn't Work on Black Skin, *Mic*. <https://www.mic.com/articles/124899/the-reason-this-racist-soap-dispenser-doesn-t-work-on-black-skin>
- Pohlhaus Jr, G. (2012). Relational knowing and epistemic injustice: Toward a theory of willful hermeneutical ignorance. *Hypatia*, 27, 715–735. <https://doi.org/10.1111/j.1527-2001.2011.01222.x>

- Radder, H. (2009). Why Technologies are Inherently Normative. In A. W. M. Meijers (ed.), *Philosophy of Technology and Engineering Sciences* (pp. 887–921), Amsterdam: Elsevier. <https://doi.org/10.1016/B978-0-444-51667-1.50037-9>
- Railton, Peter (1998). Aesthetic Value, Moral Value, and the Ambitions of Naturalism. In J. Levinson (ed.), *Aesthetics and Ethics* (pp. 59–105), New York: Cambridge University Press. <https://doi.org/10.1017/CBO9780511663888.003>
- Reber, R. & Norenzayan, A. (2018). Shared Fluency Theory of Social Cohesiveness: How the Metacognitive Feeling of Processing Fluency Contributes to Group Processes. In J. Proust & M. Fortier (eds.), *Metacognitive Diversity: An Interdisciplinary Approach* (pp. 47–67), New York: Oxford University Press. <https://doi.org/10.1093/oso/9780198789710.003.0003>
- Risko., & Gilbert, S. (2016). Cognitive Offloading, *Trends in Cognitive Sciences*, 20, 676–688. <https://doi.org/10.1016/j.tics.2016.07.002>
- Roelofs, M. (2005). Racialization as an Aesthetic Production: What Does the Aesthetic Do for Whiteness and Blackness and Vice Versa?. In G. Yancy (ed.), *White on White/Black on Black* (pp. 83–124), New York, Rowman & Littlefield.
- Roth, L. (2009). Looking at Shirley, the Ultimate Norm: Colour Balance, Image Technologies, and Cognitive Equity, *Canadian Journal of Communication*, 34, 111–136. <https://doi.org/10.22230/cjc.2009v34n1a2196>
- Rupert, R. (2009). *Cognitive Systems and the Extended Mind*. New York: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195379457.001.0001>
- Salter, P. S., & Adams, G. (2016). On the intentionality of cultural products: Representations of Black history as psychological affordances. *Frontiers in Psychology*, 7, 1166. <https://doi.org/10.3389/fpsyg.2016.01166>
- Salter, P. S., Adams, G., & Perez, M. J. (2018). Racism in the structure of everyday worlds: A cultural-psychological perspective. *Current Directions in Psychological Science*, 27, 150–155. <https://doi.org/10.1177/0963721417724239>
- Saul, J. (2018). (How) Should We Tell Implicit Bias Stories?, *Disputatio*, 10, 217–244. <https://doi.org/10.2478/disp-2018-0014>
- Savičić, G. & Savić, S. (2013). *Unpleasant Design*. Belgrade: G.L.O.R.I.A.
- Seth, A. K., & Tsakiris, M. (2018). Being a Beast Machine: The Somatic Basis of Selfhood, *Trends in Cognitive Sciences*, 22, 969–981. <https://doi.org/10.1016/j.tics.2018.08.008>
- Shelby, T. (2002). Is Racism in the ‘Heart’?, *Journal of Social Philosophy* 33(3): 411–420. <https://doi.org/10.1111/0047-2786.00150>
- Siebers, T. (2006). Disability Aesthetics, *Journal for Cultural and Religious Theory*, 7, 63–73.
- Silvers, A. (1998). Formal Justice. In A. Silvers, D. Wasseran, & M. B. Mahowald (eds.), *Disability, Difference, Discrimination: Perspectives on Justice in Bioethics and Public Policy* (pp. 13–145), New York: Rowman & Littlefield.
- Smith, A. (2006). Heteropatriarchy and the Three Pillars of White Supremacy: Rethinking Women of Color Organizing. In INCITE! Women of Color Against Violence (eds.), *Color of Violence: The INCITE! Anthology* (pp. 66–73), Boston: South End Press. <https://doi.org/10.1215/9780822373445-007>
- Soon, V. (forthcoming). Implicit Bias and Social Schema: A Transactive Memory Approach, *Philosophical Studies*.
- Sterelny, K. (2003). *Thoughts in a Hostile World: The Evolution of Human Cognition*. Malden, MA: Blackwell.
- Sterelny, K. (2010). Minds: Extended or Scaffolded?, *Phenomenology and the Cognitive Sciences*, 9, 465–481. <https://doi.org/10.1007/s11097-010-9174-y>

- Stotz, K. (2010). Human Nature and Cognitive-Developmental Niche Construction, *Phenomenology and the Cognitive Sciences*, 9, 483–501. <https://doi.org/10.1007/s11097-010-9178-7>
- Sullivan, S. (2006). *Revealing Whiteness: The Unconscious Habits of Racial Privilege*. Bloomington, IN: Indiana University Press.
- Sundstrom, R. (2003). Race and Place: Social Space in the Production of Human Kinds, *Philosophy and Geography* 6, 83–95. <https://doi.org/10.1080/1090377032000063333>
- Sutton, J. (2010). Exograms and Interdisciplinarity: History, the Extended Mind, and the Civilizing Process. In R. Menary (ed.), *The Extended Mind* (pp. 189–225), Cambridge, MA: MIT Press. <https://doi.org/10.7551/mitpress/9780262014038.003.0009>
- Taylor, P. C. (2013). *Race: A Philosophical Introduction* (Second Edition). Malden, MA: Polity.
- Taylor, P. C. (2017). *Black is Beautiful: A Philosophy of Black Aesthetics*, New York: Wiley. <https://doi.org/10.1002/9781119118527>
- Thatcher, J. (2013). Avoiding the Ghetto through Hope and Fear: An Analysis of Immanent Technology Using Ideal Types, *GeoJournal*, 78, 967–980. <https://doi.org/10.1007/s10708-013-9491-0>
- Tremain, S. (2015). This Is What a Historicist and Relativist Feminist Philosophy of Disability Looks Like, *Foucault Studies*, 19, 7–42. <https://doi.org/10.22439/fs.v0i19.4822>
- Tremain, S. (2017). Knowing Disability, Differently. In I. J. Kidd, J. Medina, & G. Pohlhaus Jr. (eds.), *The Routledge Handbook of Epistemic Injustice* (pp. 175–183), New York: Routledge. <https://doi.org/10.4324/9781315212043-17>
- Väyrynen, P. (2014). Essential Contestability and Evaluation, *Australasian Journal of Philosophy*, 92, 471–488. <https://doi.org/10.1080/00048402.2013.868008>
- Verbeek, P. (2005). *What Things Do: Philosophical Reflections on Technology, Agency, and Design*. University Park, PA: Penn State University Press.
- Verbeek, P. (2011). *Moralizing Technology: Understanding and Designing the Morality of Things*. Chicago: University of Chicago Press. <https://doi.org/10.7208/chicago/9780226852904.001.0001>
- Vuletich, H. & Payne, B. K. (2019). Stability and Change in Implicit Bias, *Psychological Science*, 30, 854–862. <https://doi.org/10.1177/0956797619844270>
- West, S., Whittaker, M. & Crawford, K. (2019). *Discriminating Systems: Gender, Race, and Power in AI*. AI Now Institute.
- Williams, B. (1985). *Ethics and the Limits of Philosophy*. Cambridge, MA: Harvard University Press.
- Winner, L. (1980). Do Artifacts Have Politics?, *Daedalus*, 109, 121–136.
- Yancy, G. & McRae, E. (eds.) (2019). *Buddhism and Whiteness: Critical Reflections*, New York: Rowman & Littlefield.
- Yergeau, M. (2018). *Authoring Autism: On Rhetoric and Neurological Queerness*. Durham: Duke University Press. <https://doi.org/10.1215/9780822372189>
- Young, I. M. (1990). Five Faces of Oppression. In *Justice and the Politics of Difference* (pp. 39–65), Princeton: Princeton University Press.
- Young, I. M. (2011). Structure as the Subject of Justice. In *Responsibility for Justice* (pp. 43–74), New York: Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195392388.003.0002>
- Zheng, R. (2018). Bias, Structure, and Injustice: A Reply to Haslanger, *Feminist Philosophy Quarterly*, 4, 1–29. <https://doi.org/10.5206/fpq/2018.1.4>