Beyond the realism debate: the metaphysics of 'racial' distinctions

OLIVIER LEMEIRE (KU LEUVEN)

Published in Studies in History and Philosophy of Biological and Biomedical Sciences, 59, 47-56, 2016.

Abstract

The current metaphysical race debate is very much focused on the realism question whether races exist. In this paper I argue against the importance of this question. Philosophers, biologists and anthropologists expect that answering this question will tell them something substantive about the metaphysics of racial classifications, and will help them to decide whether it is justified to use racial categories in scientific research and public policy. I argue that there are two reasons why these expectations are not fulfilled. First of all, the realism question about race leads to a very broad philosophical debate about the semantics of general terms and the criteria for real kinds, rather than to a debate about the metaphysics of racial categories specifically. Secondly, there is a type of race realism that is so toothless that it is almost completely uninformative about the metaphysics of race. In response to these worries, I argue that the metaphysical race debate should rather be focused on the question in what way and to what extent 'racial' distinctions can ground the epistemic practices of various scientific disciplines. I spell out what I mean by this and go on to demonstrate that trying to answer this question leads to a more fruitful metaphysical debate.

Acknowledgement

I thank Andreas De Block, Pieter Adriaens, Jonathan Sholl, Muhammad Ali Khalidi, and David Ludwig for their comments on earlier drafts of this paper. I also thank the audience at the 2014 Barcelona Conference on Gender, Race, and Sexuality for their comments on a very early version of this paper.

1. Introduction

Currently, the debate amongst philosophers, biologists and anthropologists about the metaphysics of human races is very much focused on the question whether races *exist*. Anti-realists claim that races do not exist (Atkin 2012; Glasgow 2009; Graves 2005; Zack 2002), sometimes adding that races are nothing but illusions, much like unicorns (Gracia 2005) or witches (Appiah 1992). In their view, the fact that this illusion is so widespread just goes to show how powerful a social construction (Frederickson 2003; Omi & Winant 2002) or the cognitive architecture of our minds can be (Cosmides et al. 2003; Gil-White 2001; Hirschfeld 1996).

Realists, on the other hand, believe that races do exist. Several *biological* race realists have claimed that anti-realists are just out of touch with current biological research (Sesardic 2010; Sarich & Miele 2005). Especially recent studies on human population structure have been used to reinvigorate biological race realism (Risch et al. 2002; Spencer 2014). *Social* race realists, on the other hand, argue that human races are socially constructed, but that these constructions have a social reality nonetheless (Haslanger 2000, 2008; Sundstrom 2002). In a society in which one's perceived race affects one's health prospects and job opportunities, races are very real indeed, or so the social realist argues. According to Sundstrom, '[w]hatever reality race can lay claim to results singularly from the social practice of individuals and groups classifying others and themselves into races. Race is a real, socially constructed kind, a real human kind" (Sundstrom 2002, 102).

Why, however, are so many philosophers, scientists and lay people interested in finding out whether races exist? Why, that is, is this realism question at the center of the metaphysical race debate? There appear to be two reasons. One reason is that the question whether human races even *exist* seems to be the most fundamental metaphysical question one could ask about them. Hence one might also think that answering this question will yield a very fundamental and substantive insight about (the differences between) the people that are being categorized as belonging to a particular race.

A second reason is that the existence of human races is thought to have important normative implications. In the end, what many in the race debate really want to know is whether it is epistemically and morally justified to use racial distinctions in public policy and scientific research (Atkin 2012; Glasgow 2009). Knowing whether races exist is supposed to help one decide on these delicate issues, exactly because it is supposed to tell you something substantive about the metaphysics of racial categories.

In this paper I argue against the importance of the realism question about race. According to me, philosophers, anthropologists and biologists should not ask or debate the question whether races exist. After all, or so I will argue, knowing whether races exist will not tell you something substantive about (the differences between) people who are racially classified, nor will it help you to decide on the normative issues concerning the use of those classifications. Instead, I will argue that one should prioritize the following epistemic-metaphysical question: in what way, and to what extent, do 'racial' distinctions provide the metaphysical ground that is required for the epistemic practices of various scientific disciplines?

The paper will be divided into two main parts. In the first part I start by elaborating on the structure of the realism debate about race and I present two reasons (2.1, 2.2) why focusing on the reality of race has led to a debate that is uninformative about the metaphysics of race. In the second part of the paper, I explain why asking about the way in which racial categories allow us to trace the metaphysical grounds required for various kind-based epistemic practices is a better alternative (3.1) and I go on to demonstrate this by providing a partial answer to this question (3.2).

2. Two problems with asking whether races exist

So far, the metaphysical race debate has been dominated by the realism question, which is generally understood as asking whether race terms refer to real kinds. Understood in this way, the reality of race is not just a metaphysical issue, nor is it an issue that only concerns race in particular.

One cannot decide whether race terms refer to real kinds without knowing what terms like 'race', 'White' and 'Black' are supposed to refer to in the first place. Nor can one ask whether races exist in this way without first having established metaphysical criteria for the existence of kinds more generally. Thus, the current debate about the reality of race can be presented by the following step-by-step questionnaire.

(Q1) What are race terms supposed to refer to?

(Q2) What does it take to be a real kind?

(Q3) Do race terms refer to real kinds?

To present the debate in this way is not to say that the answer to the third question would follow as a conclusion from answering the first two questions. Rather, it intends to make clear that asking about the existence of race is also a semantic question about the meaning and reference of race terms (Q1), and a more general metaphysical question about the reality of kinds (Q2). Only when both these prior questions have been answered, is it possible to determine whether race terms refer to real kinds based on additional empirical information (Q3). In the following two subsections (2.1, 2.2) I will argue that this step-like structure of the realism debate has resulted in two distinct problems.

2.1 A general philosophical debate

According to Joshua Glasgow, a philosopher, the reality of race is an issue that cannot be left to biologists or other scientists to answer, since there are deep philosophical issues at stake (Glasgow 2009, 13). Although this is certainly true of the current race debate, the question is whether it *should* be true. Granted, determining whether something exists will always remain

underdetermined by the data to some extent and therefore a philosophical problem. The debate about the reality of race is an extreme case however. Race realists and anti-realists often agree on *all the empirical facts*, while just having different philosophical views on how to interpret those facts (Ludwig 2015; Mallon 2006). As a result of this, the realism debate about race has become a debate that is for a large part about very general philosophical issues, rather than about the metaphysics of race in particular. Let us look at some of these broader philosophical disputes.

There are, first of all, disputes about the *semantics* of general terms that are at stake when discussing the reality of race. After all, in order to decide whether races exist — that is, whether race terms refer to real kinds (Q3) — one must first know what race terms like 'White' or 'Black' are supposed to refer to (Q1). In turn, this question requires that one has some idea about how the reference of general terms is determined. Needless to say there are countless philosophical theories to answer this question. One general issue dividing these theories has also impacted the race debate.

This general semantic issue is the dispute between internalists/descriptivists and externalists/referentialists. Perhaps these positions need no introduction, but as a rough sketch one might say that descriptivists believe that the meaning of a general term is the description, or concept, associated with it, and that a term refers by virtue of the fact that this description applies to things in the world. On the referentialists' point of view, however, the semantic value of a term is (at least in part) just its referent, and this reference is not determined by an associated description but rather, according to one theory, via a causal-historical link with an initial 'baptism' (Kallestrup 2013). Sally Haslanger, who is herself a referentialist, aptly summarizes the debate in the following way:

> Roughly, on the pure reference externalist view, what we are referring to takes priority in our use of language to how we think about it. Language is used primarily to refer to things in the world, and having latched onto the world we find multiple ways to describe it. Sometimes our descriptions are accurate and sometimes not. On the descriptivist model, in contrast, thought takes priority. We have a thought and it turns out that there are things in

> the world that match it. We communicate, according to the externalist, by talking about the same things; according to the descriptivist, by expressing the same thoughts. (Haslanger 2010, 175-176)

This fundamental dispute in the philosophy of language has been important for the race debate as well. Quayshawn Spencer's recent defense of biological race realism, for example, also depends on his claim that we should be referentialists about 'race' (Spencer 2014). Very roughly, he argues as follows. First, he explains that in the US meaning of 'race', this term is not associated with a logically consistent set of descriptive criteria. Nevertheless, it does appear to have a robust extension, tied to the racial discourse of the US census. Despite having no consistent description of 'race' in mind, most Americans use the five racial labels that are also used by the US census – 'Black', 'White', 'Asian', 'American Indian', 'Pacific Islander' – and tend to agree on their extension. Thus, it appears that 'race' in the US does refer to something, but refers directly rather than through an associated description.[1] Secondly, Spencer argues that population geneticists have shown that there is one particular level of worldwide population structure, consisting of five genomic clusters, that corresponds to the extensions of these US census categories. There is a large amount of overlap between the extensions of US race terms and, as he calls them, 'Blumenbachian population terms' used in population structure studies. Thus, in the US, 'race' does refer to something biologically real.

Anti-realists, however, tend to be descriptivists. As such, many of them claim that even if genomic clusters exist, they cannot be what race terms refer to (Glasgow 2009, 95; Zack 2002). According to one version of the descriptivist objection, it is true that people hold very different descriptive theories about what races are, but there is also a consistent set of minimal descriptive criteria that determine the reference of 'race'. One of these criteria is that there are visible physical

[1] This still leaves open the question how this reference is actually determined, if it is not through a description associated with the term. According to Spencer, 'race' in the US just refers to whatever the 'Office of Management and Budget' (OMB) intends to pick out with this term, since the US census has to defer to them by law. As it turns out, the OMB does not define 'race' as a kind but rather as a 'set of categories'. That is, "according to the OMB, race is just {black, white, Asian, American Indian, Pacific Islander}" (Spencer 2014, 1028).

differences between races. Population structure, however, is measured using non-coding DNA markers that have no effect on visible physical differences, since these markers are also not affected by natural selection and therefore provide a better view of the demographic history of our species. According to Naomi Zack, "[t]he ancestral genetic tracking material has no effect on phenotypes, or biological traits of organisms, which would include the traits deemed racial, because the ancestral tracking genetic material plays no role in the production of protein—it is not the kind of material that "codes" for protein production" (Zack 2002, 41). This intensional 'Mismatch Objection', as Mallon (2006) has called it, is crucial to many anti-realist arguments about race. Importantly, there is no metaphysical dispute about race at stake here. Both realists and anti-realists can agree on all the biological facts, like the existence of five genomic clusters. Instead, the debate centers on the question whether one should be a referentialist or descriptivist about racial terms.

The same point applies to the debate between biological anti-realists and social realists. Say that one accepts, — as many realists and anti-realists about race do —, that (a) the concept associated with 'race' is essentially that of a *biological* distinction, (b) that human races are not biologically real, and (c) that there are very real *social* kinds that coincide with common sense racial distinctions. Being socially classified as belonging to a race can have very real effects on one's health, for instance, as is shown by the disparities in child mortality and HIV (Sundstrom 2002, 97). However, whether race terms actually refer to social kinds depends on which theory of reference is the correct one. Based on the three points above, descriptivists would have it that human races do not exist because 'White' and 'Black' are associated with essentially *biological* concepts that do not apply to any real biological kinds. According to a referentialist like Haslanger, however, races do exist because racial terms actually refer to real *social* kinds, in spite of our mistaken belief that we are referring to biological kinds (Haslanger 2000, 2008, 2010). Thus, referentialists claim that races are (socially) real, descriptivists that races are (biological) illusions, while both parties agree on all the empirical facts. As in the previous case, this debate between anti-realists and realists is not

really a metaphysical debate about race, but rather a more general philosophical debate about theories of reference.

Furthermore, there are not only semantic but also very general *metaphysical* issues that can determine whether one is a realist or anti-realist about race. To know whether races are real kinds (Q3) one must first decide on the criteria that characterize real/natural kinds (Q2). These requirements remain a hotly debated topic, however, with answers ranging from the very strict criteria associated with 'essentialism' (Wilkerson 1988) to the more relaxed criterion that real kinds need to be 'Homeostatic Property Clusters' (Boyd 1999). The debate between realists and anti-realists about race is often just a debate about similar metaphysical criteria.

Two criteria have been particularly important in the literature on race, namely that real kinds need to have discrete boundaries, and that kind-members need to share many properties with each other that they do not share with non-members. Like other anthropologists, Livingstone has famously argued that both criteria do not apply to subdivisions of the human species, since "there are no races, only clines" (Livingstone 1962, 279). Clinal variation refers to the gradual change of a particular phenotypic trait or gene frequency along a geographic gradient. The skin color of humans, for instance, varies along a north-south gradient, generally being darkest around the equator and continuously becoming lighter as one moves closer to the poles. Anti-realists about race have used clinal maps to make two points about human variation. First of all, they have argued that so-called human races actually blend into one another, seeing that both phenotypic and genotypic variation is continuous rather than discrete. Based on this fact, and on the criterion that real kinds need to have sharp boundaries, anti-realists conclude that human races do not exist (Blum 2002; Zack 2002). Race realists do not accept this inference, because they do not accept the criterion.

> And the simple answer to the objection that races are not discrete, blending into one another as they do, is this: They're supposed to blend into one another, and categories need not be discrete. It is not for us to impose our cognitive difficulties upon Nature; rather we need to adjust them to Nature. (Sarich & Miele 2004, 211)

Secondly, anthropologists have also used clinal maps to argue that phenotypic and genetic variation in the human species is discordant, meaning that different traits vary independently of each other. These anthropologists argue that the maps representing the clinal variation of various traits are very different and do not correlate well with each other. As a result, it seems one cannot define races based on multiple shared and distinctive properties (Diamond 1994; Livingstone 1962). As Livingstone (1962) explains, the discordant variation of human clines means that every additional trait that one would use to describe a particular race would also result in extra 'mixed' groups that have some of these proposed traits, but not all. If one takes it to be a criterion of real kinds that kind members share many distinctive properties, then it follows that human races are not real, or so Livingstone and other anti-realists have argued (Brace 1964; Ehrlich & Holm 1964).

Some realists respond by showing that there is at least enough concordant variation to allow for the reliable identification of an individual's geographic origin, a point we will revisit later (Mayr 2002; Sarich & Miele 2004). Other realists, however, argue that real kinds need not be defined in terms of phenotypic or genetic *similarity* at all. Robin Andreasen (1998, 2000), for example, defends a historical view of races according to which members of the same race do not need to have many distinctive phenotypic or genetic traits in common. According to her, races "are ancestor-descendant sequences of breeding populations, or groups of such sequences, that share a common origin" (Andreasen 1998, 200). A breeding population, in turn, "is a set of local populations linked to one another by reproductive ties that are, for the most part, reproductively isolated from other such populations"(Andreasen, 1998, 209). Although reproductive isolation between breeding populations will often result in phenotypic and genetic differentiation, this differentiation is not what makes them distinct races. Instead it is the reproductive isolation that results in there being lineages of breeding populations, which accounts for the reality of races. Andreasen maintains that there has been a sufficient level of breeding isolation between populations over the course of human history to consider human races (historically) real. Thus, according to this cladistic race concept,

human races are real even though they cannot be characterized by distinctive traits. Note that this is not just a dispute about the correct scientific definition of 'race', but just as much about the importance of similarity as a metaphysical criterion for the reality of kinds.

Based on what has been said so far, it should now be clear that the current focus on the question whether races exist — that is, on whether race terms refer to real kinds — has resulted in a 'metaphysical' race debate that is to a large extent a debate about very broad semantic and metaphysical issues, rather than one about the metaphysics of race specifically. This is an unfortunate situation for the race debate. The problem is not that people defend theories about the reality of race based on particular semantic and metaphysical commitments, but rather that the difference between race realism and anti-realism is often *only* attributable to these general philosophical commitments. Hence figuring out which position is the right one will not tell you something substantive about the metaphysics of human races, nor will it help you to decide whether it is justified to use racial categories in scientific research and public policy. Instead, it will mainly tell you which general semantic or metaphysical theory is the correct one. The frustration of those who had hoped to learn something about the metaphysics of race by figuring out whether race terms refer to real kinds is unavoidable, since one simply cannot answer this question without first determining what race terms purport to refer to and what it is that makes kinds real, inevitably leading to these very general philosophical debates.

Here then we have a first reason not to focus the metaphysical race debate on the question whether races exist, that is, on the question whether racial terms refer to real kinds: it leads to a debate that is to a large extent just a debate about very broad semantic and metaphysical issues, rather than one about the metaphysics of race.

2.2 Toothless realism

There is also a second reason why answering the realism question will not tell you much about the metaphysics of race. As I aim to explain in this section, race realism can be so toothless that even when it is true, it would not say anything metaphysically substantive. This is not just an obvious consequence of the fact that, as we have seen, one must first decide on criteria for the reality of kinds (Q2) before one can ask whether races are in fact real kinds (Q3). While some philosophers propose quite relaxed criteria for the reality of kinds, in general they are strict enough so that asking whether races satisfy them is indeed a substantive metaphysical question. However, as I will argue, it is because the semantic question about the reference of race terms (Q1) precedes the metaphysical question about the reality of kinds (Q2), that races could also be called real even when they do not satisfy any of the metaphysical criteria one would propose for 'real kinds'. In fact, the priority of the semantic question, even in the metaphysical race debate, has two interesting consequences, the second one being the possibility of a very toothless type of realism.

The first consequence is that the criteria for the reality of *races* can be much stricter than those one would propose for the reality of other kinds. This is the case when these stricter criteria are part of the very meaning of 'race'. The point applies mainly to descriptivists who give a very *thick* conceptual analysis of the race concept. Naomi Zack, for example, claims that "to this day, racialists assume the following: (1) races are made up of individuals sharing the same essence; (2) each race is sharply discontinuous from all others" (Zack 2002, 63). Clearly, if it is part of the descriptive meaning of 'race' that all members of a race share the same essence and can be discretely separated from non-members, then races can only exist when they satisfy these strict metaphysical criteria, irrespective of whether one would generalize 'essentialism' and 'discreteness' as criteria for the reality of kinds. A thick analysis of the race concept is a common anti-realist strategy, since it makes race realism a very difficult and metaphysically very demanding position to defend. Neven Sesardic, who is a race realist, therefore objects that a thick conceptual analysis is just an easy way to define

race away (2010, 145) .

The second consequence is the exact opposite of this first one, yet has not received the same attention in the literature. Just as one can define race away, one can also define it into existence, so to speak. After all, many descriptivists hold that 'race' is actually a very *thin* concept (Atkin 2012; Glasgow 2009; Hardimon 2003). According to Hardimon, for instance, 'race' is the concept of a group of human beings (1) "distinguished from other human beings by visible physical features of the relevant kind," (2) "whose members are linked by a common ancestry," and (3) "who originate from a distinctive geographic location" (Hardimon 2003, 442-447).[2]

Say that this is a correct conceptual analysis of 'race', and that by saying of someone that she is 'White' or 'Asian' one does not mean to say more than that this person has some visible traits that are indicative of a European or Asian ancestry and geographic origin. What would then be required for these races to exist? In my view, all that would be required is that there are in fact groups of people such that one can determine their European or Asian ancestry and geographic origin based on visible physical features. Yet very few people in the race debate would deny that this is the case. Even an avid anti-realist like Glasgow claims that the following is true:

> (1) People have different visible traits, including skin color, facial features, and hair types.
> (2) These different traits are often clustered, so that, say, different skin colors tend to co-vary with different facial features.
> (3) The different clusters can be correlated with different ancestral origins, so that we can just look at many people and justifiably say, 'It's highly probable that many of your ancestors came form Europe, or Africa, or Asia, or Australia, or the Americas.' (Glasgow 2009, 86)

In other words, if one is a 'thin descriptivist' about the race concept, as Hardimon and many others are, and if one accepts just these three claims above, it seems one should be a realist about race. After all, if the race concept only purports to refer to groups of people that share some visible

[2] For empirical evidence that supports a thin conceptual analysis of 'race', see Haslam et al. (2000).

traits indicative of their ancestry and origin, then the referents of the race concept exist if such groups exist. Of course, this would be a very superficial type of realism, as it would only imply that one can truly say of someone that he/she is 'White', 'Black', or 'Native American' in the same way as one can predicate of someone that he/she is a 'ginger' or is 'skinny'.

Glasgow (2009) clearly disagrees, however, since he is a thin descriptivist about race, yet also an anti-realist. That is because according to him, races also need to satisfy additional criteria if they are to exist. More specifically, he argues that races cannot exist because they are arbitrary groupings rather than biologically meaningful kinds. Even though he agrees that one might be able to determine someone's ancestry and geographic origin based on superficial features, according to him this does not mean that there exist racial groups *as groups/kinds*, since racial predicates are just arbitrary ways of grouping people.

> The superficial theory moves too hastily from the point that there are real differences between individuals on the continuum to the conclusion that those different points can be bundled according to biologically non-arbitrary boundaries. So the central and distinctive claim of the Arbitrariness Objection, even when we focus on just one visible feature such as skin color, is that because there is no biological reason to draw the boundaries between racial groups that we draw, racial groupings based on distinctive visible traits are biologically arbitrary as *groups*. (Glasgow 2009, 87)

According to Glasgow's view, races do not satisfy one of the basic criteria for the reality of kinds — being non-arbitrary groups —, and hence superficial realism is not a coherent type of realism. What he fails to see, however, is that superficial race realists need not claim that races are non-arbitrarily demarcated groups in order to be realists. One can also be a realist in a much more superficial sense. If one accepts a very thin analysis of 'race', the referents of racial terms can exist even if they do not meet any criteria for being real kinds, simply because *racial terms only purport to refer to superficial differences*, not to biologically meaningful kinds. Surely one can also say that 'gingers' exist, for example, even though it would be an arbitrary way of classifying people, since this

predicate only purports to refer to a superficial difference in hair-color. If the predicate 'White' similarly only purports to refer to a group of people that can be distinguished as having a European ancestry and origin based on some superficial traits, then this purported referent exists if there is such a group of people. Would this group constitute a distinct *kind* of people and exist in a biologically meaningful way? Not necessarily. Does such a group of people exist? Probably it does. That is, it is likely that there are many people of whom one can determine their ancestry and geographic origin as 'European, 'African', 'Asian', 'Native American' or 'Oceanian' based on superficial visible traits.[3]

It is understandable, however, that Glasgow (2009) would want to deny that superficial race realism is a coherent type of realism. After all, the existence of these superficial races is not what those who are interested in the metaphysics of race want the realism debate to be about. It is such a toothless type of realism that knowing whether races exist in this sense does not tell you much of interest about the metaphysics of race, and will not help you decide whether it is justified to use such classifications in public policy or scientific research.[4] Nevertheless, toothless realism is just the

[3] Glasgow might still object that there is crucial difference between the concepts 'ginger' and 'race', namely that 'ginger' is an individual property, whereas 'race' purports to refer to a *group*. "That is, nobody has a race if there are no racial groups" (Glasgow 2009, 79). Glasgow seems to think that this means these groups can only exist if they exist as kinds, that is, as meaningful and non-arbitrary groups. But of course, the fact that race terms purport to refer to groups need not mean more than that there must be *several* people that have visible traits indicative of their ancestry and geographic origin. The concept of a 'queue' also purports to refer to a group of people and surely there can be a queue even though the people standing in line do not satisfy the criteria for being a real kind. Thus, when one accepts a thin analysis of the race concept, toothless realism is a coherent answer to the question whether races exist.

[4] Interestingly, Glasgow has recently changed his mind about this and now endorses a 'basic racial realism' that is very similar to what I would call toothless realism (Glasgow & Woodward 2015). In their view, such a basic realism "captures much of what many want from a theory of race" (Glasgow & Woodward 2015, 449). I disagree. It is not that I think basic racial realism cannot be true, or that establishing its truth would be entirely uninformative about the metaphysics of race. It tells us that one is not just deluded when one talks about 'White' or 'Black' people, but that these words actually refer to something. In that sense, we would know that 'White' is more like 'ginger' than that it is like 'witch', because there are gingers but there are no real witches. Nevertheless, I have aimed to argue that if such a superficial theory is a good answer to one's metaphysical question, one has asked the wrong question. This theory tells us near to nothing about the nature or causes of the differences between people who are racially classified, neither about the biological nor about the social differences. Hence it also does not help us decide when, if ever, it is justified to use racial terms in

consequence of accepting a very thin description of the race concept. This means that for thin descriptivists to have an interesting debate about the metaphysics of race, they should specify that they are not interested in the existence of races *per sé*, but only in their existence as real/natural kinds. Yet this only shows that it is not the realism question that we should focus upon in the metaphysical race debate.

Thus we have a second reason not to ask whether races are real, that is, whether the purported referents of our racial terms exist: depending on one's conceptual analysis of the race concept, a positive answer to this question can be so toothless that it is almost completely uninformative about the metaphysics of racial distinctions. Together with the fact that asking about the reality of race has resulted in a very broad philosophical debate, this second objection should give us sufficient reason to pause and consider alternatives. This is what I will do in the second part of this paper.

3. The metaphysics of 'racial' distinctions

The inevitable result of asking whether races exist is a 'metaphysical' debate with a step-like structure. This step-like structure, however, is also the source of both problems we have discussed in the previous sections. It results in a realism debate that is to a large extent dependent on much broader philosophical theories. And if one answers the prior semantic question with a very thin analysis of the race concept, the existence of race can be so toothless that it becomes almost entirely uninformative.

Thus, the challenge is to find a new question, an answer to which will be informative about the metaphysics of racial distinctions and will help one decide whether it is justified to use these distinctions in science and public policy. At the same time, we should aim to avoid a debate about the semantics of 'race' and the metaphysics of real kinds. In the next section, I will propose a epistemic-metaphysical question that I believe should be the focus of the metaphysical race debate.

(biological or social) scientific research, or in public policy. All it tells us that we could talk about race, if we mean something very superficial by it.

In the final section I continue by providing a partial answer to this question in order to show that it leads to a substantive debate about the metaphysics of 'racial' distinctions.

3.1 A different question

According to Richard Boyd, the naturalness of kinds lies in their suitability for induction and explanation, as a result of accommodating our epistemic practices to the causal structure of the world. In his view, natural kind categories allow us to trace the causal structure of the world and are thereby apt to ground the inductive generalizations and explanations of a particular scientific discipline (Boyd 1999). This view of natural kinds has become very popular within the philosophy of science (Khalidi 2013; Kornblith 1993; Griffiths 1999).

For the purposes of this paper, however, I am not interested in deciding whether this is a good general theory of natural kinds. After all, I have argued that we should avoid infusing the debate about race with general philosophical issues like the criteria for real or natural kinds. However, Boyd's notion of 'naturalness' does point us towards a question that I believe should take center stage in the metaphysical race debate. That question is *in what way and to what extent 'racial' distinctions provide the metaphysical ground for the epistemic practices, — like induction and explanation —, of various scientific disciplines.*

To answer this question one must first determine the epistemic purposes of 'racial' distinctions in various scientific disciplines and to what extent they fulfill these purposes. This is purely an epistemic issue. The second step is to ask the *metaphysical* question what it exactly is about 'racial' distinctions that make them apt to support these epistemic practices. Answering this question will result in substantive information about (the differences between) people who are racially classified, and thereby also provide much of the metaphysical information that will be helpful when one eventually aims to decide whether it is normatively justified to use these 'racial' distinctions in scientific research and public policy. Such metaphysical information is necessary, because one

might, for example, wonder whether the epistemic usefulness of 'racial' distinctions is not just an artifact of arbitrarily dividing what is actually continuous, and hence could also be achieved with other distinctions.

What should be clear from the start, however, is that answering this metaphysical-epistemic question will not tell you whether races *exist*. The goal is not to discover whether the purported referents of race terms exist or satisfy some general criteria for real kinds. Hence we avoid a general metaphysical debate about those criteria. In fact, answering the proposed question will not even lead to a yes-or-no answer. That is because the various epistemic practices of different scientific disciplines do not require the same metaphysical ground. 'Racial' distinctions could, for example, support the explanatory practices of evolutionary biologists very well, while they do not really support the predictive practices of biomedical researchers.

Even so, we would not be out of the woods just yet. It seems we would still have to know what terms like 'race', 'White', or 'Black' purport to refer to before we can ask any metaphysical questions. Hence we are still faced with both general and more specific questions about the semantics of race terms.

My strategy in solving this problem is to bracket the semantic question so that we can directly address the metaphysical issues. How can we do this? First of all, we should recognize that without a semantic account of race terms, we do not know what these terms actually refer to. I will therefore consistently talk about *'racial'* distinctions, including the quotation marks. With these quotation marks I intend to make clear that the semantic issues have not been settled yet and that it remains uncertain what race terms refer to. We deliberately leave the semantic questions unanswered. Nevertheless, I believe we can make progress in the metaphysical race debate even when these semantics questions remain undecided.

Secondly, I propose to do so by focusing on 'racial' *distinctions.* As Spencer (2014) already argued, people mean very different things when they use racial labels like 'White' or 'Black'.

Nevertheless, many people, especially in an American context, "know how to pigeonhole not only themselves but also others into census races" (Spencer 2014, 1027). Although people disagree on the race concept associated with race terms, they do seem to agree, for the most part, on their extensions. Spencer infers from this that race terms refer directly, but I refrain from such a semantic claim. Rather, I take this agreement on the extensions of race terms as a good starting point for a metaphysical race debate that remains as much as possible undecided about semantic issues. By focusing on the intended extensions of racial terms, that is, on the *distinctions* people intend to make when they use labels like 'White', 'Black', or 'Asian', we can make progress without first having to determine what people actually think races are. Instead, we focus the metaphysical race debate on the distinctions between humans that people, — both lay people and scientists —, seem to agree on when they use racial labels, and we ask to what extent such distinctions provide the metaphysical ground that is required for the epistemic practices of various scientific disciplines.

Lastly, I will focus my discussion in the next section on the *continental* 'racial' distinctions that people intend to make when they use terms like 'European', 'African', 'Native American', 'East Asian' and 'Oceanian'. That is because most people would agree that these are race terms and hence they constitute a good starting point. Of course, one could extend the debate to other 'racial' terms used by lay people and scientists, even without deciding which groups actually constitute races.

To be clear, without a proper conceptual analysis and theory of reference, I do not know whether these five so-called 'racial' groups really are the referents of racial terms. Perhaps referentialists are correct and people are mistaken in their beliefs about the referents of their racial terms. But even when these semantic issues remain unresolved, it is possible to ask in what way and to what extent the continental 'racial' distinctions that many lay-people and scientists think of when they talk about races, are apt to support the epistemic practices of several scientific disciplines. In the following section, I aim to show that this pragmatic approach allows for a very substantive metaphysical debate.

3.2 A partial answer

Before we get started on this discussion of the metaphysics of 'racial' distinctions, it is good to note that nobody denies that there is phenotypic and genotypic variation in the human species. Neither does anybody deny that the frequency with which one finds many phenotypic traits, genes and DNA markers varies geographically. The existence of geographic variation is not the subject of the debate. What is up for debate, however, is why and to what extent it is epistemically fruitful to classify people using labels like 'European' or 'African'.

A first way in which 'racial' distinctions could be useful is by allowing biological taxonomists to *represent* the geographic variation in the human species. According to Mayr, for instance, a race is a geographic subspecies, that is, "an aggregate of phenotypically similar populations of a species inhabiting a geographic subdivision of the range of that species and differing taxonomically from other populations of that species" (Mayr 1970, 210). In this view, subspecies are groups of populations that have to some extent reproduced separately from other populations, resulting in phenotypic and genetic differentiation. To the taxonomist who aims to represent such geographic subspecies, the usefulness of human 'racial' distinctions lies primarily in the extent to which they are apt to act as a "a sorting device in collections, that is, as an index to populations that differ from each other 'taxonomically'" (Mayr 1982).

So, how well do continental 'racial' distinctions allow us to represent human geographic variation? According to anti-realists, not well at all. In his seminal paper, *The Apportionment of Genetic Diversity,* Lewontin (1972) partitioned the genetic variation within and between so-called human races, based on 15 protein loci. His analysis showed that 85,4% of the total variation in this particular set of loci is found within small populations like the Belgians or the Bantu. An additional 8,3% of the total variation was explained by differences between these small populations and only 6,3% of the total genetic variation was explained by differences between continental 'races'. Results of such diversity partitioning studies are usually reported using Wright's Fixation Index, or F*st*.

Geneticists use this statistical measure to estimate the portion of total variation in a species (H*t*) that is due to variation within subpopulations (H*s*) or between subpopulations ((H*t*-H*s*)/H*t*).[5] Studies based on protein loci, like that of Lewontin, tend to find that around 5 to 10 percent of the total variation is variation between continental 'races' (Barbujani et al. 1997). More recent studies based on non-coding DNA markers find similar patterns (for an overview, see Madrigal & Barbujani 2007). Based on these results, anti-realists like to agree with Lewontin's (in)famous conclusion:

> It is clear that our perception of relatively large differences between human races and subgroups, as compared to the variation within these groups, is indeed a biased perception and that, based on randomly chosen genetic differences, human races and populations are remarkably similar to each other, with the largest part by far of human variation being accounted for by the differences between individuals. Human racial classification is of no social value and is positively destructive of social and human relations. Since such racial classification is now seen to be of virtually no genetic or taxonomic significance either, no justification can be offered for its continuance. (Lewontin 1972, 397)

It should be noted that anti-realists who support their anti-realism based on diversity partitioning studies, often claim that the minimal threshold for subspecies recognition in the biological literature is an F*st* value of 25 or 30 percent (Hochman 2014; Sussman 2014). Yet this threshold is never really used in the literature on subspecies recognition and apparently stems from a simple misunderstanding by Templeton of the 75 percent rule (1998).[6] This other rule, which does exist but is also not really used that often, states that "at least 75 percent of the individuals of one subspecies (or of the available specimens) should be separable, on the basis of their diagnostic characters, from the specimens of the most similar subspecies" (Mayr 1942, 16). Whatever

[5] For a more detailed explanation of the use and limitations of F*st* and related measures, see Meirsman & Hendrick (2011).

[6] Templeton bases his claims on the following section by Smith et al. (1997): 'The non-discrete nature of subspecies is evident from their definition as geographic segments of any given gonochoristic (bisexually reproducing) species differing from each other to a reasonably practical degree (e.g., at least 70-75%), but to less than totality. […] Dichopatric populations are regarded as subspecies if they fail to exhibit full differentiation (i.e., exhibit overlap in variation of their differentiae up to 25-30%), even in the absence of contact."

threshold one would select, however, it would necessarily be an arbitrary one. There is no theoretical reason to choose a particular point at which geographic variation between populations becomes taxonomically significant (Wilson & Brown 1953).

In my view, the best response to the results of human diversity partitioning studies is to read them as telling us something about the *extent* to which 'racial' distinctions allow taxonomists to represent single-locus variation, and hence support this particular epistemic practice, but not about the normative question whether this is *sufficient* to actually merit taxonomic classification. The metaphysical and normative questions are distinct, although of course not unrelated. What we can say is that when we distinguish continental 'races', we represent around 5 to 10 percent of human genetic variation. Phenotypic variation shows a similar pattern, with F*st* estimates of craniometric variation lying around 13 percent (Relethford 2002). Not all phenotypic variation results in such relatively low F*st* values, however, seeing that 'racial' distinctions represent 88 percent of the total variation in skin color, a result of natural selection increasing between-group variation (Relethford 2002). Looking at different (non-coding) DNA markers, we also find F*st* values that lie around 10 percent, but again, things are more complicated. F*st* estimates vary depending on which type of marker is being measured. In general, highly variable multi-allelic loci like microsatellites will result in lower F*st* estimates (around 5%) compared to bi-allelic loci like SNP's (around 10%). For Y chromosome markers, however, F*st* estimates can be as high as 40.1 percent (Romualdi et al. 2002) or even 52,7 percent (Seielstad et al. 1998).[7] Thus, for each type of human variation – phenotypic, genetic, various DNA markers – we can be specific about the proportion of the total single-locus variation that can be represented by 'racial' distinctions.

However, there is of course more to 'racial' distinctions than the portion of total single-locus variation they allow us to represent.

[7] For a discussion of why this might be the case, see Madrigal & Barbujani (2007).

> These [Lewontin's] conclusions are based on the old statistical fallacy of analysing data on the assumption that it contains no information beyond that revealed on a locus-by-locus analysis, and then drawing conclusions solely on the results of such an analysis. The 'taxonomic significance' of genetic data in fact often arises from correlations amongst the different loci, for it is these that may contain the information which enables a stable classification to be uncovered. (Edwards 2003, 799)

Whereas anti-realists like to refer to the relatively low F*st* values of 'racial' distinctions to support their views, realists refer to recent results of human population structure studies (Spencer 2014). These studies use multi-locus analyses to find clusters in the genomic data that are due to the existence of population structure within the human species.[8] In one frequently cited paper, Rosenberg et al. (2002) looked for population structure based on 377 autosomal microsatellite loci from a worldwide sample of people. They found that there is indeed, as Lewontin showed, very little single-locus genetic differentiation between continental 'races'. Nevertheless, when their STRUCTURE program was instructed to look for clusters within this data, they found exactly those distinctions that are often called continental 'racial' distinctions. In other words, these five 'racial' distinctions do represent some population structure. More precisely, when one analyses the DNA markers that Rosenberg and colleagues used, then continental 'racial' distinctions are the optimal way of grouping people such that individuals can be assigned to one of five clusters – or a weighted combination of two clusters for mixed individuals – with high probability. Of course, there is a lot more population structure to be found in the human species than shown by these five continental clusters. One would also find a lot of population structure within each of these 'racial' clusters.

Needless to say, these results have not remained uncontested. According to one popular critique, the appearance of clusters is merely the result of a sampling bias (Fujimura et al. 2014). In fact, these critics say, there are no clusters that correspond to 'racial' distinctions because genetic variation actually has a smooth clinal pattern. The reason why Rosenberg and colleagues find

clusters is because they used samples of populations with great geographic distance between them across continental boundaries (Serre & Pääbo 2004). Thus, while allele frequencies actually have smooth clinal patterns, the sampling bias creates the illusion of discontinuity, that is, of clusters. Rosenberg et al. (2005) have aptly responded to this criticism, stating that:

> Serre and Pääbo argue that human genetic diversity consists of clines of variation in allele frequencies. We agree. […] At the same time, we find that human genetic diversity consists not only of clines, but also of clusters, which STRUCTURE observes to be repeatable and robust. How can these seemingly discordant perspectives on human genetic diversity be reconciled? […] For population pairs from the same cluster, as geographic distance increases, genetic distance increases in a linear manner, consistent with a clinal population structure. However, for pairs from different clusters, genetic distance is generally larger than that between intracluster pairs that have the same geographic distance. For example, genetic distances for population pairs with one population in Eurasia and the other in East Asia are greater than those for pairs at equivalent geographic distance within Eurasia or within East Asia. Loosely speaking, it is these small discontinuous jumps in genetic distance—across oceans, the Himalayas, and the Sahara—that provide the basis for the ability of STRUCTURE to identify clusters that correspond to geographic regions. (Rosenberg et al. 2005, 668)

Thus, while much of the variation is smooth and clinal, 'racial' distinctions nevertheless represent small discontinuities, since the genetic distance between different 'racial' clusters is bigger than one would expect based on geographic distance alone. What does all of this mean for the way in which 'racial' distinctions can metaphysically ground the epistemic practices of various sciences? For one, the existence of population structure shows the usefulness of these distinctions for evolutionary anthropologists interested in *charting the demographic history* of our species. Secondly, this population structure allows for very reliable *identification of one's 'race' based on DNA markers* alone (Tang et al. 2004). Witherspoon et al. (2007) confirmed that there is only modest

[8] For an excellent discussion of the methodology of both population structure and diversity partitioning studies, see Winther (2014).

genetic variation between populations, but that when looking at several thousands of polymorphic loci, people of the same 'race' are always more similar compared to people of other 'races'. To the question how often a pair of individuals from the same population is genetically more different than two individuals from different populations, they answered that "if genetic similarity is measured over many thousands of loci, the answer becomes 'never' when individuals are sampled from geographically separated populations"(Witherspoon et al. 2007, 357). Under these conditions, very reliable identification of someone's 'racial' origin is possible. Yet it is not only DNA polymorphisms that allow for reliable identification. Forensic anthropologists can *identify the 'racial' origins of skeletal remains* very reliably based on craniometric variation (Ousley et al. 2009; Relethford 2009, Sauer 1992). Thus, to some extent, 'racial' distinctions support the historical epistemic interests of evolutionary anthropologists and the diagnostic epistemic interests of both geneticists and forensic anthropologists. Note that this does not exclude the possibility that other 'racial' distinction would be even more fruitful for such purposes.

Does this mean that 'racial' distinctions also allow population geneticists to *explain much of the geographic variation* in the human species? Not necessarily. As Rosenberg et al. (2005) show, the discontinuities picked up by the STRUCTURE program are small and much of the variation is in fact clinal in nature. Thus, continental 'racial' boundaries like the Sahara or Himalaya will play some explanatory role, but geographic distance will also be important in explaining the total variation in allele frequencies. Depending on the explanatory interests at stake, either clines or clusters will be the optimal way of representing human geographic variation.

What about *predicting phenotypic traits* of individuals based on 'racial' distinctions? If this were possible, it would make 'racial' distinctions particularly useful for biomedical researchers, among others. But 'racial' distinctions are less useful in this regard as one might expect based on what has been said about recent cluster analyses. As Witherspoon et al. explain:

> Since an individual's geographic ancestry can often be inferred from his or her genetic

> makeup, knowledge of one's population of origin should allow some inferences about individual genotypes. To the extent that phenotypically important genetic variation resembles the variation studied here, we may extrapolate from genotypic to phenotypic patterns. […] However, consider a hypothetical phenotype of biomedical interest that is determined primarily by a dozen additive loci of equal effect whose worldwide distributions resemble those in the insertion data set. […] About one-third of the time […] an individual will be phenotypically more similar to someone from another population than to another member of the same population. […] [E]ven when the most distinct populations are considered and hundreds of loci are used, individuals are frequently more similar to members of other populations than to members of their own population. Thus, caution should be used when using geographic or genetic ancestry to make inferences about individual phenotypes. (Witherspoon et al. 2007, 358)

Although two individuals of distinct 'racial' populations will always be more different than individuals from the same population if several thousands of loci of non-coding DNA are considered, this will not be the case if phenotypic traits are considered that are determined by only a few hundred genetic loci. This is important when considering phenotypic traits that are of biomedical interest, as this fact shows that the predictive value of 'racial' kind-membership pertaining to such traits will not be very high. Thus, while it is possible to use genetic data to reliably identify the 'racial' population an individual belongs to, this does not imply that such 'racial' distinctions will also provide enough predictive power when there are medical interests at stake. All of this is not to say that 'racial' distinctions cannot be informative about risk factors (Risch et al. 2002) and useful for reducing the amount of false positives in biomedical association studies (Calafell 2003). It does mean, however, that these continental 'racial' distinctions will likely not be predictive enough to ground treatment decisions. In those cases, the more precise one can be about someone's ancestry the better, with the ideal being an individual genetic profile (Schwartz 2001).

Thus, to summarize what has been said about the way in which 'racial' distinctions can ground the epistemic practices of various scientific disciplines, it should be remembered that single-locus

genetic differentiation between 'racial' populations appears to be rather small, although numbers vary for different types of markers. Much geographic variation also has a smooth clinal pattern, with 'racial' distinctions only representing small discontinuities. As such, we should not overestimate their explanatory relevance for the population geneticist. Nevertheless, these discontinuities are big enough to result in clusters that allow for very reliable identification based on thousands of DNA markers, or based on craniometric variation. These clusters are also interesting for the evolutionary anthropologist who aims to reconstruct the demographic history of our species. Phenotypic traits that are of medical interest, however, are not determined by thousands of loci, and as a result people belonging to the same 'racial' population will often be more similar to people from other 'racial' populations than to people of their own. The predictive value of 'racial' distinctions for medical practices that require high probabilities is therefore limited, but they might still be somewhat useful for creating samples for biomedical association studies. Perhaps, however, the explanatory and predictive value of 'racial' distinctions is higher when one focuses on their socially, rather than genetically, mediated effects on health prospects. Although this goes beyond the scope of this paper, the same epistemic-metaphysical question about 'racial' distinctions can be asked when focusing on the epistemic projects of the social sciences.

4. Conclusion

A lot more could be and has been said about the metaphysics of 'racial' distinctions, and about each claim that I have made in the previous section. And that is exactly how it should be. That is, the metaphysical race debate should focus on discussing these issues, rather than on the question whether races 'exist'.

To support this view, I have argued that by focusing on the realism question, the metaphysical race debate has become a general philosophical debate in which the only difference between being a realist or anti-realist is often one's commitment to very broad semantic or metaphysical positions.

After all, one cannot determine the reality of race without first knowing what 'race' purports to refer to and what it is that constitutes a real kind. Furthermore, because of the dependence of the metaphysical question on the semantic one, realism can become a very toothless and therefore uninformative position if 'race' turns out to be a very superficial concept that does not purport to refer to real *kinds*.

These issues can best be resolved by focusing our attention on a different metaphysical-epistemic question, namely in what way and to what extent 'racial' distinctions are able to ground the epistemic practices of various scientific disciplines. This allows us to focus on the metaphysics of 'race' without having to determine what it is that constitutes the reality of a kind. The semantic question about 'race' was bracketed by pragmatically focusing on those distinctions that seem to capture the intended extensions of many people when they use common racial terms.

As I have aimed to show in the last section, the metaphysics of 'racial' distinctions is an issue that requires a complex answer, since they could support many possible epistemic practices of many different scientific disciplines. As a result, answering this question will provide substantive and specific metaphysical information about (the difference between) the people who are racially classified. It is this metaphysical information that will ultimately help one determine whether it is justified, based on additional epistemic and moral criteria, to continue to use these distinctions in science and public policy.

References:

Andreasen, R. O. (1998). A new perspective on the race debate. *The British Journal for the Philosophy of Science, 49*(2), 199-225.

——(2000). Race: Biological reality or social construct?. *Philosophy of Science*, 67 (suppl.), S653-S666.

Appiah, K. A. (1992). Illusions of race. In K. A. Appiah, *In My Father's House: Africa in the Philosophy of Culture*. New York: Oxford University Press, 28-46.

Atkin, A. (2012*). The Philosophy of Race*. Durham: Acumen Publishing.

Barbujani, G., Magagni, A., Minch, E., & Cavalli-Sforza, L. L. (1997). An apportionment of human DNA diversity. *Proceedings of the National Academy of Sciences*, *94*(9), 4516-4519.

Blum, L. A. (2002). "*I'm Not a Racist, But…": The Moral Quandary of Race*. Ithaca, NY: Cornell

University Press.
Boyd, R. (1999). Homeostatis, species and higher taxa. In: R. A. Wilson (Ed.), *Species: new interdisciplinary essays.* Cambrdige: MIT Press, 141-186.
Brace, L.C. (1964) A Non-Racial Approach toward the Understanding of Human Diversity, In A. Montagu, (Ed.), *The Concept of Race*, New York: The Free Press of Glencoe, 103-152.
Calafell, F. (2003). Classifying humans. *Nature genetics*, *33*(4), 435-436.
Campbell, D. T. (1958). Common fate, similarity, and other indices of the status of aggregates of persons as social entities. *Behavioral science*, *3*(1), 14-25.
Cosmides, L., Tooby, J., & Kurzban, R. (2003). Perceptions of race. *Trends in cognitive sciences*, *7*(4), 173-179.
Diamond, J. (1994). Race without color. *Discover, 15*(11), 83-89.
Edwards, A. W. (2003). Human genetic diversity: Lewontin's fallacy. *BioEssays, 25*(8), 798-801.
Ehrlich, P. R., Holm, R.W. (1964). A Biological View of Race, In A. Montagu (Ed.) *The Concept of Race.* New York: The Free Press of Glencoe.
Fredrickson, G. M. (2003). *Racism: A short history*. Princeton: Princeton University Press.
Fujimura, J. H., Bolnick, D. A., Rajagopalan, R., Kaufman, J. S., Lewontin, R. C., Duster, T., ... & Marks, J. (2014). Clines Without Classes How to Make Sense of Human Variation. *Sociological Theory*, *32*(3), 208-227.
Gil-White, F. (2001). Are ethnic groups biological "species" to the human brain?. *Current anthropology*, *42*(4), 515-553.
Glasgow, J. (2009). *A Theory of Race*. New York: Routledge.
Glasgow, J. & Woodward, J.M. (2015). Basic Racial Realism. *Journal of the American Philosophical Association*, *1*(03), 449-466.
Gracia, J. J. (2005*). Surviving Race, Ethnicity, and Nationality: A Challenge for the 21st Century*. Lanham, MD: Rowman & Littlefield Publishers.
Graves, J. L. (2005). *The Race Myth*. New York: Plume-Penguin Books.
Griffiths, P.E. (1999). Squaring the Circle: Natural Kinds with Historical Essences. In Wilson, R.A. (Ed.), *Species: New Interdisciplinary Essays*. Cambridge, MA: MIT Press, 209-228
Häggqvist, S. (2005). Kinds, projectibility and explanation. *Croatian journal of philosophy, 13*, 71-87.
Hardimon, M. O. (2003). The ordinary concept of race. *The Journal of Philosophy*, *100*, 437-455.
Haslanger, S. (2010). Language, Politics and 'The Folk': Looking for 'The Meaning' of 'Race'. *The Monist 93*(2), 169-187.
–– –– (2008). A Social Constructionist Analysis of Race, In B. Koenig, S. Lee, and S. Richardson, (Eds.), *Revisiting Race in the Genomic Age*, New Brunswick, NJ: Rutgers University Press, 56-69.
–– –– (2000). Gender and race: (What) are they? (What) do we want them to be? *Noûs 34*(1), 31-55.
Haslam, N., Rothschild, L., & Ernst, D. (2000). Essentialist beliefs about social categories. *British Journal of Social Psychology, 39*(1), 113-127.
Hirschfeld, L. A. (1998). *Race in the making: Cognition, culture, and the child's construction of human kinds*. Cambridge, MA: MIT Press.
Hochman, A. (2013). Against the new racial naturalism. *Journal of Philosophy, 110*, 331-351.
Kallestrup, J. (2013). *Semantic externalism*, New York: Routledge.
Khalidi, M.A. (2013). *Natural Categories and Human Kinds. Classification in the Natural and Social Sciences.* New York: Cambridge UP.
Kornblith, H. (1993). *Inductive inference and its natural ground: An essay in naturalistic epistemology.*

Cambridge, Ma: MIT Press.
Lewontin, R. C. (1972). The apportionment of human diversity. *Evolutionary Biology, 6*, 381-398.
Livingstone, F. B. (1962). On the non-existence of human races. *Current Antropology, 3*(3), 279-281.
Ludwig, D. (2015). Against the new metaphysics of race. *Philosophy of Science*, *82*(2), 244-265.
Madrigal, L., & Barbujani, G. (2007). Partitioning of genetic variation in human populations and the concept of race. In: M.H. Crawford (Ed.), *Anthropological Genetics: Theory, Methods and Applications*, Cambridgje: Cambridge University Press, 19-37.
Mallon, R. (2006). 'Race': Normative, Not Metaphysical or Semantic. *Ethics, 116*(3), 525-551.
Mayr, E. (1942). *Systematics and the Origin of Species*. New York: Columbia University Press.
——(1970). *Populations, species, and evolution: an abridgment of animal species and evolution*. Cambridge, MA: Harvard University Press.
——(1982). *The growth of biological thought: diversity, evolution, and inheritance*. Cambridge, MA: Harvard University Press.
——(2002). The Biology of Race and the Concept of Equality. *Daedalus, 131*(1) , 89-94.
Meirmans, P. G., & Hedrick, P. W. (2011). Assessing population structure: FST and related measures. *Molecular Ecology Resources*, *11*(1), 5-18.
O'Brien, S. J., & Mayr, E. (1991). Bureaucratic mischief: recognizing endangered species and subspecies. *Science, 251*(4998), 1187-1188.
Ousley, S., Jantz, R., & Freid, D. (2009). Understanding race and human variation: why forensic anthropologists are good at identifying race. *American Journal of Physical Anthropology, 139*(1), 68-76.
Relethford, J. H. (2002). Apportionment of global human genetic diversity based on craniometrics and skin color. *American Journal of Physical Anthropology*, *118*(4), 393-398.
Relethford, J. H. (2009). Race and global patterns of phenotypic variation. *American Journal of Physical Anthropology, 139*(1), 16-22.
Rips, L. J. (2001). Necessity and natural categories. *Psychological bulletin*, *127*(6), 827.
Risch, N., Burchard, E., Ziv, E., & Tang, H. (2002). Categorization of humans in biomedical research: genes, race and disease. *Genome Biol*, *3*(7), 1-12.
Romualdi, C., Balding, D., Nasidze, I. S., Risch, G., Robichaux, M., Sherry, S. T., Stoneking, M., Batzer, M. & Barbujani, G. (2002). Patterns of human diversity, within and among continents, inferred from biallelic DNA polymorphisms. *Genome Research*, *12*(4), 602-612.
Rosenberg, N. A., Pritchard, J. K., Weber, J. L., Cann, H. M., Kidd, K. K., Zhivotovsky, L. A., & Feldman, M. W. (2002). Genetic Structure of Human Populations. *Science, 298*, 2381-2385.
Rosenberg, N. A., Mahajan, S., Ramachandran, S., Zhao, C., Pritchard, J. K., & Feldman, M. W. (2005). Clines, clusters, and the effect of study design on the inference of human population structure. *PLoS Genetics, 1*(6), 660-671.
Sarich, V., & Miele, F. (2004). *Race: The reality of human differences*. Boulder, CO: Westview Press.
Sauer, N. J. (1992). Forensic anthropology and the concept of race: If races don't exist, why are forensic anthropologists so good at identifying them. *Social Science & Medicine, 34*(2), 107-111.
Schwartz, R. S. (2001). Racial profiling in medical research. *The New England Journal of Medicine, 344*(18), 1392-1393.
Seielstad, M. T., Minch, E., & Cavalli-Sforza, L. L. (1998). Genetic evidence for a higher female migration rate in humans. *Nature genetics*, *20*(3), 278-280.

Serre, D., & Pääbo, S. (2004). Evidence for gradients of human genetic diversity within and among continents. *Genome Research, 14*(9), 1679-1685.

Sesardic, N. (2010). Race: A Social Destruction of a Biological Concept. *Biology & Philosophy, 25*(2), 143-162.

Smith, H. M., Chiszar, D., & Montanucci, R. R. (1997). Subspecies and classification. *Herpetological Review*, *28*(1), 13-17.

Spencer, Q. (2015). Philosophy of Race Meets Population Genetics. *Studies in History and Philosophy of Biological and Biomedical Sciences 52*: 46-55.

–– –– (2014). A Radical Solution to the Race Problem. *Philosophy of Science 81*(5): 1025-1038.

–– –– (2012). What 'Biological Racial Realism' Should Mean. *Philosophical Studies 159*(2): 181-204.

Sundstrom, R. R. (2002). Race as a human kind. *Philosophy & Social Criticism, 28*(1), 91-115.

Sussman, R. W. (2014). *The Myth of Race: The Troubling Persistence of an Unscientific Idea*. Cambridge, MA: Harvard University Press.

Tang, H., Quertermous, T., Rodriguez, B., Kardia, S. L., Zhu, X., Brown, A., Pankow, J. S., Province, M. A., Hunt, S. C., Boerwinkle, E., Schork, N. J., & Risch, N. J. (2005). Genetic structure, self-identified race/ethnicity, and confounding in case-control association studies. *The American Journal of Human Genetics, 76*(2), 268-275.

Templeton, A. R. (1998). Human races: a genetic and evolutionary perspective. *American Anthropologist*, *100*(3), 632-650.

Wilkerson, T.E. (1988). Natural Kinds. *Philosophy, 63*, 19-42.

Wilson, E. O., & Brown, W. L. (1953). The subspecies concept and its taxonomic application. *Systematic Zoology, 2*(3), 97-111.

Winther, R. G. (2014). The Genetic Reification of 'Race'?: A Story of Two Mathematical Methods. *Critical Philosophy of Race*, *2*(2), 204-223.

Witherspoon, D. J., Wooding, S., Rogers, A. R., Marchani, E. E., Watkins, W. S., Batzer, M. A., & Jorde, L. B. (2007). Genetic similarities within and between human populations. *Genetics, 176*(1), 351-359.

Wright, S. (1965). The interpretation of population structure by F-statistics with special regard to systems of mating. *Evolution*, 395-420.

Yzerbyt, V., Corneille, O., & Estrada, C. (2001). The interplay of subjective essentialism and entitativity in the formation of stereotypes. *Personality and Social Psychology Review*, *5*(2), 141-155.

Zack, N. (2002). *Philosophy of science and race*. New York: Routledge.