Biology and Race

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1. After the Obama presidency we were supposed to be living in a post-racial world. That was wishful thinking. Race has moved much further to the center of public discussions today than in was a decade ago, and much, much more so than two decades ago.

   - To some extent the resurgence of racial talk has been due to the medical consequences of the Human Genome Project which is one of the reasons why we will be discussing the issue here.
   - However, that is not the main reason. The political atmosphere has seen a resurgence of thinly-veiled racism, both in civil society and within academic disciplines including biology, philosophy, and the social sciences.
   - In 2000 we could with some plausibility declared scientific racism dead. There were still a few figures who defended it—for instance, J. Philippe Rushton and Charles Murray—but they were part of the fringe. That is no longer the case. In particular, philosophy of biology has suffered from a small but vocal influx of racists, for instance, Neven Seseardic.
   - Meanwhile the most important social movement in recent years has bee Black Lives Matter and it has drawn attention to the extent of police brutality nationwide directed against African-Americans and other people of color. If we believe that the situation is better today than it has been in the past, then the statistics of police murder of African-Americans in past decades must have been staggering.
   - At the University of Texas, we have two of our most prominent departments, Physics and Mathematics, housed in a building named after a faculty member, Robert Lee Moore, who refused to teach African-American students. Successive University of Texas Adminstrations have refused to rename the building or even to put up a historical marker next to it acknowledging Moore's blatant racism. (I refuse to enter the building, let alone teach in it.)

2. All that was in way of introduction: why race is important once again in contemporary United States. What this segment of the course hopes to do is use the philosophy of science to debunk racism by bringing into question the scientific assumptions on which it is supposed to be based.

   - In the process we will also question that part of the medical legacy of the Human Genome Project that has spawned the renewed use of racial categories.

3. Ultimately, the question we want to address is: "Are biological races *real*?" This may—and, perhaps, should—appear to be a silly question insofar as you could respond by asking: "What would it mean to call races not biologically real?" Fair enough, but note two points:

   - The first is that a lot of racism today depends on assuming that racial categories are based on biology. So, we have very good reason to pay attention to biology.
   - Second, to get to he skeptical question just posed: what does it mean to call something "real"? Typically we use the word in such a way that such a way that it seems obvious that we know what we mean. For instance, all of you (though not my daughters, who are two and four) will happily assert that rhinoceroses are real and unicorns are not. But, what do you mean by saying that unicorns are not real? There are plenty of depictions of unicorns. (My daughters have at least a dozen books with pictures of unicorns.) But, a depiction, *to be a depiction*, must be a depiction of something. But something, to be something, must exist. Otherwise, surely, it could not be a thing. But if something exists, it must be real. So, unicorns are real. (I bet you are not satisfied. But go through this chain of reasoning and see what may have gone wrong.)

- I have obviously been playing a philosophical game but the intent is serious. When we assert that something is real, we are using "real" to mean something else that may well be obvious. When we say rhinoceroses are real but unicorns are not we mean that we can encounter big lumbering rhinoceroses in forests and grasslands, and in documentaries, but we only encounter unicorns in pictures and works of fiction. And within this fictional world, and for a child engrossed in it, unicorns are very real: they have causal powers. They influence what other fictional entities do. They even influence what a child does, for instance, when choosing which book must be read at nap time.

4. Another way we could have asked the question is: "Do biological races exist?" or, more generally, "Do races exist?" Once again, the initial reaction could be that this is a silly question. Don't we see people of different races all around us when we look? Assuming we do not have the misfortune of living in a particularly culturally impoverished part of the U.S., we obviously see this diversity of people. Fair enough, but go back to the chain of argument earlier connecting reality and existence. (We could have asked: Do unicorns exist?)

5. So, let us ask what we mean when we ask generally (that is, so far without giving special attention to biology), whether races are real. As we shall also see in the case of biological definitions of race, a variety of definitions are possible. All of these are different ways of fleshing out some basic intuition on what race is, intuitions that we *should* all share though, as we shall also see, they are far from obvious to everyone.

6. These shared intuitions form the basis for what philosophers call adequacy conditions, criteria that all proposed definitions must satisfy. For race, there are five of these:

   (a) Race must be defined in such a way that the entire human population can be sub-divided into a finite set of more-or-less discrete races. The qualification "more-or-less" is necessary because we know that there are—and always have been—mixed-race people.

   (b) The racial classification must be complete in the sense that every person must belong to a race (though, as noted earlier, some people may belong to more than one race).

   (c) Distinctions between these races are significant (and obvious). Traditionally these distinctions have been made on the basis of physical characters, particularly structural characteristics such as shape and size of the body and its parts. In the twentieth century a strong focus emerged on the basis of skin pigmentation. However, behavioral characteristics have also routinely be used.

   (d) In comparison, for these same characters, there must be relative uniformity within each race.

   (e) Th different races must have their ancestral origins in different geographical regions. (It is unclear, though, whether the status of this requirement is on par with the others.)

   (f) Finally, the resulting classification must correspond that generated by the folk concept of race, that is, the racial categorizations that are used all the time.

7. We must immediately note two issues with these adequate criteria.

   - Folk classification of races is arbitrary to the point of being simply bizarre. In recent decades (2000 and 2010) the U.S. Census recognized five racial categories: White American; Black or African American; American Indians and Alaska Native; Asian American; and Native Hawaiian and Other Pacific Islander. It also recognized Hispanic or Latino and not Hispanic or Latino as ethnic but not racial categories. In contrast, the 1990 U.S. Census lumped together as one race Asians and Native Hawaiian and Other Pacific Islander. Meanwhile the U.S. Supreme Court has held that "race" is not fully defined by the Census; ever ethnicity could be a race. A century earlier, the 1890 Census opted for eight races: Black, White, Mulatto, American Indian, Chinese, Japanese, quadroon, and octaroon. This presumably was progress from the 1860 Census which only recognized Black, White, and Mulatto.
   - The adequacy criteria do not explicitly distinguish between biological and cultural factors or privilege biology over culture. In particular, since it is willing to use behavioral differences in

distinguishing races it is potentially implicitly endorsing cultural differences. But, once we embrace culture we have moved from race to ethnicity. (However, ethnicity is no better defined than race with some theorists insisting on a purely cultural definition. We should also note, that the boundary between biology and culture is fuzzy for humans.)

8. The last two sets of remarks should be sufficient to indicated that we have deep reason to be skeptical of the reality of race. This raises the possibility that the use of "race" is indicative of a racist agenda, that is, the subordination of a group that is demarcated for socio-political reasons as a race. But, perhaps, we have a way out of this mess if we focus on the biology of the situation?

9. Throughout its history, the use of the concept of race has been accompanied by value judgments about the ranking the races on the basis of supposedly desirable qualities. The concept of race as we understand it now emerges in Europe in the eighteenth centuries, spawned by luminaries such as Linnaeus, Kant, and Blumenbach. In the case of Linnaeus, who was responsible for establishing the taxonomic scheme for species that we still use today (the binomial classification by which every species is named using a genus designator [*Homo* in the case of humans] and species designator [*sapiens* in the case of modern humans]), the sub-division of humans into races was a biological project similar to the sub-division of species into sub-species. In fact, as we shall see, if "race" is biologically real, it must mean "sub-species." The European project of the racial classification of humans, with no exception that I know of, always put Europeans at the top of the hierarchy of races and thus served as a normative foundation for colonialist and imperialist projects. Obviously, much of Europe's history of interactions with other peoples should be subject to intense criticism: what neo-Europeans did to First Nations here or to native Tasmanians in Australia; what Europeans did in Africa, not only by expanding slavery but also by the Belgians in the Congo and by the Germans' ethnic cleansing of Namibia; and so on. Then there was the twentieth century's most striking event: the Holocaust. All this was achieved using racial hierarchies as a justification even when the underlying dynamic was driven by capitalism. But before non-Europeans feel too self-righteous about race, and without condoning what the Europeans did in the name of race, it should be taken into account:

    - Slavery has a long global history and has been justified by figures as diverse as Aristotle and Locke. Europeans took advantage of traditions of slavery already practiced in Africa and Asia though racial thinking encouraged the depths to which they took the practice.
    - Europe's racial hierarchy was long preceded by the caste hierarchy of the Hindus and, arguably, just as much oppression has been carried out, and continues to be carried out, in the name of case as in the name of race. Moreover, as should become clear from the discussion, Hindu castes that require complete endogamy may well be the best candidates to satisfy biological definitions of race.

10. Race, as we saw, was presumed to be of biological provenance going back to the time of Linnaeus. Now, before the nineteenth century, human temperament was routinely believed to be a result as much of environmental determination as of biologically inherited factors. That changed by the end of the nineteenth century as an increasingly virulent form of biological determinism began to take root. The emergence of Darwin's and Wallace's theory of evolution is typically taken to have played the most important role but cannot be the whole story. Until the mid-1920s there was widespread belief in the inheritance of acquired characteristics which would allow environmental influences to become biologically entrenched in us to be passed on to future generations.

11. Mendelian heredity, as worked out post-1900, rejected the inheritance of acquired characteristics. It also spawned a widespread biological determinism based on genetic reductionism. In the 1920s, it was accompanied by increasing focus on ethnic groups—the term "holism" was invented in 1926 leading to the political "equation": Mendelism + Racism = Holism.

12. Throughout, starting with World War I, there has been a deep connection between racism and IQ research. This is the topic of the next lecture.

13. What biological determinism does for racism is make racial features unchangeable. Thus, those belonging to a particular race are destined to have those features and transmit them to the next generation.

There is no hope for improvement beyond what is permitted within race-dependent boundaries. I will leave you to draw all the conclusions from such an assumption.

14. So, our question becomes, whether races are biologically real, that is, whether biological races exist.

    - As earlier, the question of reality/existence must be translated into the question whether humans as a species (remember: we must be consistently biological) can be divided appropriately into a number of races.
    - Now, dating back to Linnaeus in the eighteenth century, but with several important subsequent modifications, biologists have recognized a taxonomic hierarchy which, at a coarse resolution and moving upwards in generality consists of: species, genus, family, order, class, phylum, kingdom, domain.
    - There is considerable controversy about whether any of these levels are "real"or conventional, that is, there is unresolvable disagreement about the entities at some levels, for example, orders. There is general agreement the species "are real" in the sense that they capture an important level for classifying organisms. In animals, phya are also generally accepted as fundamental, defined by a *Bauplan* (construction plan, often incorrectly translated as body plan).
    - What about within species? Biologists used the term "race" for non-human species every now and then in the nineteenth century but that usage disappeared in the twentieth century and was replaced by sub-species. So, the question becomes: what is a sub-species? This question is not easy to answer.
    - For non-human species, it is generally accepted that sub-species are units of convenience with wide disagreements between species. Most designations, for example, for chimpanzees (see below) are accidents of history.
    - Other categories that biologists do commonly (and uncontroversially) use for units within species such as deme and ecotype have no bearing on race (Templeton 2013).
    - This may be sufficient to suggest that we abandon any attempt to provide a biological basis for race but, at least in the United States, the legal context requires that we come up with a working definition of sub-species. That legal context is provided by the Endangered Species Act of 1973 which includes sub-species as units of conservation.

15. There have been two strategies to define race in this way (Templeton 2013):

    (i.) Races are geographically separated subsets of species that have sharp boundaries with other such subsets. Traditionally these boundaries were established using morphological criteria. By the middle of the twentieth century the criterion that had come to be invoked most of the time was skin color. However, now the obvious criterion to use is the frequency of specific DNA sequences in each group. Variation within the group of potential races is compared to variation in the species as a whole. The most sophisticated statistical technique that has been developed to quantify this measure is known as AMOVA for "**A**nalysis of **MO**lecular **VA**riation. It is relatively straightforward to show that this definition satisfies the adequacy criteria developed earlier assuming that DNA sequences are similar to each other within a group due to inheritance (rather than independent mutations which is wildly implausible).

    (ii.) Alternatively, races are distinct evolutionary lineages within a species. There are some complexities about how these are shown to be distinct but they do not vitiate the general idea. During the last two decades a powerful technique, multilocus nested clade phylogeographic analysis (ML-NCPA) has been developed to identify these races. It is also easy to show that this definition satisfies our adequacy criteria.

16. Note that genetic differences between different human groups is necessary but not sufficient to define races. Definition (i) requires that these differences be sharp (though there can be some reasonable disagreement about how sharp). Definition (ii) requires that the differences identify different lineages based on shared ancestry.

- If both these definitions, and the empirical analysis of genomic data they require, identify valid and identical classifications of humans into distinct races, that would not only justify a biological concept of race but would tell us (unlike the U.S. Cenus or Supreme Court) what races exist.

17. Let us turn to what the data say. First, let us analyze chimpanzees who are the species genetically closest to us.

    - Traditionally, chimpanzees, *Pan troglodytes*, were sub-divided into five subs-species on the basis of morphological differences: *P .t. verus* in the Upper Guinea region of western Africa, *P. t. ellioti* in the Gulf of Guinea region (southern Nigeria and western Cameroon), *P. t. troglodytes* in central Africa, *P. t. schweinfurthii in the western part of equatorial Africa (mostly southern Cameroon), and P. t. marungensis in cent*ral and eastern equatorial Africa.
    - AMOVA identifies three sub-species/races: *P .t. verus*, *P. t. ellioti*, and everything else.
    - ML-NCPA gives the same result.
    - This means that we should have a lot of confidence that chimpanzees have three sub-species/races.
    - We should have a similar level of confidence in the validity of our techniques, AMOVA and ML-NCPA. They give the same result and, while they challenge the traditional classification of chimpanzees, they only clump together three putative sub-species (that, in any case, were recognized to be morphologically similar) while not sub-dividing any recognized sub-species.

18. Finally, let us turn to humans (Templeton 2013):

    - AMOVA generates no sharp genetic differences among geographical populations. Rather, the extent to which human populations differ genetically from each other depends on the geographical separation from each other (roughly, the physical distance mediate by barriers to migration such as oceans, mountains, and deserts).
    - ML-NCPA finds no distinct evolutionary lineages. Rather it finds a trellis structure. The oldest inferred event was an out-of-Africa range expansion of the Homo genus into Eurasia that is dated to 1.9 million years ago, about the same time that the fossil evidence shows *Homo erectus* spreading out of Africa into Eurasia. The next major event was a second population expansion out of Africa into Eurasia around 650 000 years ago. A third major expansion of humans out-of-Africa into Eurasia occurred around 130 000 years ago but there is also repeated gene flow back into Africa. There have been additional expansions, especially into areas not formerly occupied by humans. Wherever humans were present, gene flow between populations was soon established, mostly limited by distance but with some long-distance dispersal in more recent times. We do not get anything like a tree of distinct evolving lineages.

19. In other words, from a purely biological perspective, *there are no human races.*

    - Races are primarily social constructs. They thus reflect social prejudices as should be obvious from the vicious history of racism in many different regions of the world.
    - It may be the case that whatever defensible role "race" can have in any social or political context is better performed by ethnicity.
    - But racism remains a problem as long as people believe in the existence or races, value them differently, and act on these assumptions. Let us end with Marx's final thesis on Feuerbach: "The philosophers have only interpreted the world, in various ways; the point is to change it."

References:

- Templeton, A. R. 2013. Biological races in humans. Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences 44: 262 -271.