COMMENTS AND CRITICISM

THE MEANING OF 'RACE': FOLK CONCEPTIONS AND THE NEW BIOLOGY OF RACE*

The idea that race is biologically real has played a central role in scientific discussions of race, and in *common sense* (CS) as well, for some time. Indeed, some historians argue that scientific and folk conceptions of race developed hand in hand around the late eighteenth century.[1] While a number of biological definitions have been proposed, many share the assumption that it is possible to divide humans into races such that the members of each share certain heritable characteristics, such as overt physical traits and some psychological or behavioral traits as well, that they do not share with members of other races. Though this assumption went largely unquestioned for some time, today the problems with it are fairly well known. Many of the traits typically used to individuate races vary independently.[2] Moreover, research in human genetics shows that there is more genetic variation within than among the three major races.[3] Most academics have taken these problems to show that race is biologically unreal, but Philip Kitcher and I take a different view.[4] We have independently argued that while the above assumption is problematic, most problems faced by earlier biological conceptions can be avoided by defining race genealogically. Kitcher and I are not alone in defining race this way; there is a growing number of biologists who endorse similar definitions.[5]

* I thank Fred Adams, Kai Draper, Richard Hanley, and Doug Stalker for their helpful comments.

[1] Michael Banton and Jonathan Harwood, *The Race Concept* (London: David & Charles, 1975); Audrey Smedley, *Race in North America* (Boulder: Westview, 1993); David Goldberg, *Racist Culture* (Cambridge: Blackwell, 1993); Anthony Appiah, "Race, Culture, Identity," in *Color Conscious* (Princeton: University Press, 1996), pp. 30–105.

[2] Frank Livingstone, "On the Nonexistence of Human Races," *Current Anthropology*, III, 3 (June 1962): 279–81.

[3] Richard Lewontin, "The Apportionment of Human Diversity," in Theodosius Dobzhansky et al., eds, *Evolutionary Biology 6* (New York: Appleton-Century-Crofts, 1972), pp. 381–98.

[4] Andreasen, "A New Perspective on the Race Debate," *British Journal for the Philosophy of Science*, XLIX, 2 (June 1998): 199–225; Andreasen, "Race: Biological Reality or Social Construct?" *Philosophy of Science*, LXVII, 3S (September 2000): S653–66; Andreasen, "The Cladistic Race Concept: A Defense," *Biology and Philosophy*, XIX (June 2004): 425–42; Kitcher, "Race, Ethnicity, Biology, Culture," in Leonard Harris, ed., *Racism* (Amherst, NY: Humanity, 1999), pp. 87–120.

[5] Masatoshi Nei and Arun Roychoudhury, "Evolutionary Relationships of Human

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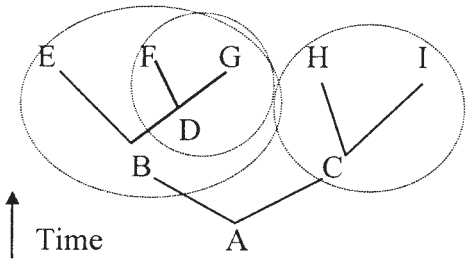

Figure 1: In this figure, the letters represent well-defined species, the branches represent speciation events, and the circles identify monophyletic groups.

I have developed what I call *the cladistic race concept* (CRC). Cladistics is a branch of systematic biology that defines taxa solely in terms of common ancestry. Cladistic classification begins with a well-confirmed evolutionary branching structure (see figure 1) and defines taxa as monophyletic groups (groups that are composed of an ancestor and all of their descendents).[6] Typically, cladistic classification is used for defining higher taxa. With reference to a diagram depicting evolutionary relations among species, higher taxa are defined monophyletically. Nonetheless it is possible to apply these ideas to race. A number of research groups have proposed branching diagrams (see for example, figure 2) that aim to represent evolutionary relations among reasonably reproductively isolated human breeding populations.[7] I maintain that races can be defined as monophyletic groups of such populations.

As already mentioned, Kitcher also argues that races can be defined,

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Populations on a Global Scale," *Molecular Biology and Evolution*, x, 5 (1993): 927–43; H. B. Shaffer and Mark McKnight, "Polytypic Species Revisited," *Evolution*, L, 1 (1996): 417–33; John Legge et al., "Genetic Criteria for Establishing Evolutionarily Significant Units in Cryans Buckmoth," *Conservation Biology*, x, 1 (1996): 85–98; Neil Risch et al., "Categorization of Humans in Biomedical Research: Genes, Race and Disease," *Genome Biology*, III, 7 (September 2002): 1–12; Noah Rosenberg et al., "Genetic Structure of Human Populations," *Science*, CCXCVIII (December 2002): 2381–85; Michael Bamshad and Steve Olson, "Does Race Exist," *Scientific American*, CCLXXXIX, 6 (December 2003): 78–85.

[6] It is important not to confuse cladistic classification with cladistic methods of phylogenetic inference.

[7] Figure 2 is from L. L. Cavalli-Sforza et al., *The History and Geography of Human Genes* (Princeton: University Press, 1994), p. 80. For similar models, see Nei and Roychoudhury; Linda Vigilant et al., "African Populations and the Evolution of Human Mitochondrial DNA," *Science*, CCLIII (September 1991): 1503–07; Allan Wilson and Rebecca Cann, "The Recent African Genesis of Humans," *Scientific American*, CCLXVI, 4 (April 1992): 68–73.

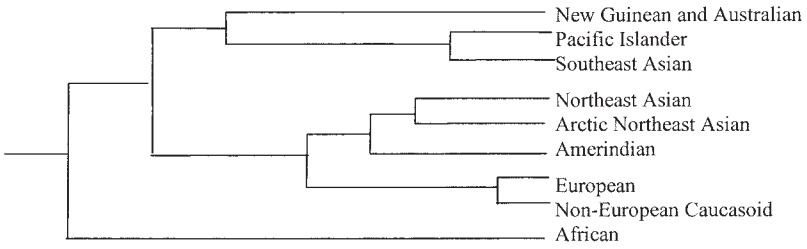

Figure 2: This diagram represents evolutionary relations among human breeding populations.

in part, as reasonably reproductively isolated breeding populations. Yet, because he does not appeal to principles of cladistic classification, there are several important differences between our views. I require that races be monophyletic groups. Consequently, a population must be reproductively isolated over a significant portion of evolutionary history before it can be designated a cladistic race. Kitcher, however, does not require monophyly. He allows the designation of founder populations, so long as (a) the members of such populations show some phenotypic or genetic distinctness, and (b) residual mixed race populations are relatively small. Additionally, I argue that genealogy alone is sufficient for defining 'race', whereas Kitcher holds that it is necessary but not sufficient (conditions (a) and (b) must also be met). Third, Kitcher supports his view using rates of interbreeding among groups in the U.S. today. I, in contrast, use current work in human evolution. Hence, Kitcher is more optimistic about the existence of human races today. Indeed, I hold that races once existed, but may be on their way to becoming extinct.

Joshua Glasgow has recently questioned the viability of our accounts.[8] Although his argument focuses primarily on CRC, his worry is the same for any account that defines races as lineages of breeding populations. Glasgow does not deny that human clades exist, nor does he deny their biological significance. Rather he argues that CRC deviates too far from CS conceptions of race. Glasgow's objection raises important questions about the relation between the scientific and CS meanings of *natural kind* (NK) terms. Who decides the meaning of 'race', or any other NK term, when scientific and folk meanings diverge?[9] In what follows, I address this question and argue that CRC

[8] "On the New Biology of Race," this JOURNAL, C, 9 (September 2003): 456–74.

[9] It is sometimes assumed that genealogical entities are not NKs. See Richard Boyd, "Homeostasis, Species, and Higher Taxa," in Robert Wilson, ed., *Species* (Cambridge: MIT, 1999), pp. 141–85, for an explanation of their compatibility.

is legitimately a theory about race. It is important to note, however, that much of what I say works in defense of Kitcher's model or any similar conception of race.

I

Glasgow's argument proceeds in two steps. First, he argues that CRC deviates both extensionally and intensionally from CS notions of 'race'. For example, he contends that the number of races recognized by CRC, which he assumes is nine, exceeds the number recognized in CS. While admitting some disagreement within CS over the number of races, Glasgow maintains that rarely does the number exceed five. Second he reminds the reader that CRC raises the possibility that cladistic races cross-classify CS racial groupings.[10] To see why this is so, recall that CRC defines races monophyletically. Though the reconstruction of human evolution is still under way, according to one model, 'Asian' is not a cladistic race. Referring to the phylogeny depicted in figure 2, there is no monophyletic group that includes both Northeast and Southeast Asians that does not also include Caucasoids. In addition to these claimed extensional mismatches, Glasgow argues that there are important intensional mismatches. The main problem, on his view, is that observable traits such as skin color are an inextricable part of the folk race concept. CRC, however, defines 'race' in terms of genealogy alone. Thus, according to Glasgow, CRC treats overt morphology as irrelevant.

Next, Glasgow maintains that because the divergence from CS is extensive, cladistic 'races' are not really races. To make his case, he turns to the following question: "How revisionist can one be about the meaning of 'race' and still call it 'race'" (462)? He answers that minor revisions in meaning are allowable, but when there is too much deviation from CS, the scientific term fails to refer. Glasgow also considers (and rejects) semantic deference to science. He maintains that when deciding the meaning of NK terms, we defer to experts only under certain conditions (which I will discuss below). He adds that CRC cannot meet these conditions and concludes that CS provides the meaning of 'race'. This is just a brief overview of Glasgow's argument. Now let us examine it more closely.

II

Some of Glasgow's objections have been raised before. I will only briefly discuss my earlier responses here.[11] What I argue instead is

[10] Andreasen, "New Perspective," and "Race."
[11] Andreasen, "Race," and "Cladistic Race Concept."

that Glasgow tells a selective story about the CS meaning of 'race.' Once we examine a fuller picture, we see more overlap between CS and CRC than Glasgow allows. Later I argue that, even in the face of some disagreement, we should call cladistic races 'races'.

Let us begin with Glasgow's "intensional mismatch argument." Recall that his main worry is that CRC treats overt morphology as irrelevant for defining 'race'. Though I agree that overt morphology is often an important part of CS, Glasgow has overlooked other CS definitions that focus solely or primarily on genealogy. The *Oxford English Dictionary*, for example, identifies two dominant, yet distinct, meanings: (A) "A group of persons, animals, or plants, connected by common descent," and (B) "A group or class of persons, animals, or things, having some common features." Moreover according to some historians, these two definitions have been at work in science and CS throughout much of the term's history.[12] For instance, races are defined solely in terms of ancestry in the debate over polygenesis versus monogenesis. Ancestry is also central to the one drop rule, or any other definition that uses blood lines for individuating races. Today the one drop rule has been discredited, but ancestry remains central to some CS notions of race. For example, it is often part of CS that two individuals are members of race *R* if their parents are members of *R*.[13] Finally, Glasgow himself provides examples of folk conceptions that rely on genealogy alone. He cites two distinct legal definitions—one defines 'race' in terms of morphology, the other defines 'race' in terms of descent—and also mentions an argument for the view that, in the U.S., CS conceptions of race are best captured in terms of origins (459–61, notes 11 and 16).[14]

Glasgow needs to explain why, when assessing CRC, we should privilege CS conceptions that rely on morphology over those that rely on ancestry. Glasgow might respond that most genealogical definitions implicitly rely on morphology since they require an independent way to identify the race of one's ancestors (460, note 11). Yet, this type of response will not work. There are other independent criteria, such as geographic origins, for determining the race of one's ancestors. To call someone 'black', for example, is to say that her ancestors

[12] Banton and Harwood, pp. 13–42; Goldberg.

[13] Kitcher, "Race"; Michael Hardimon, "The Ordinary Concept of Race," this JOURNAL, C, 9 (September 2003): 437–55.

[14] Though Glasgow adds that the groups identified differ from cladistic races because they include some ethnic and national groups, the reader should be aware that, according to many scholars, ethnic and national groups are not racial groups. See, for example, Goldberg; Michael Omi and Howard Winant, *Racial Formation in the United States*, Second Edition (New York: Routledge, 1994).

come from Africa. Indeed, geographic origins are an important part of CRC. Recall that cladistic races are monophyletic groups of breeding populations, where a breeding population is defined in terms of reasonable reproductive isolation and geographic location. Furthermore contrary to Glasgow's suggestion, overt morphology is not irrelevant to genealogical definitions of race (CS or cladistic). It is often a part of CS that skin color and other overt characteristics are a *heuristic* for identifying racial ancestry. Many Americans presume, for example, that someone with dark skin, has ancestral origins in Africa. Likewise, as I have argued elsewhere, phenotypic and genetic similarity may not *define* cladistic races, but it is used as *evidence* for race membership.[15] Moreover, there is often considerable agreement between classifications based solely on similarity and those based on genealogy alone. Nonetheless when the two disagree, CRC favors the genealogical classification scheme.

Not only does Glasgow overlook folk conceptions based solely on ancestry; he also wrongly assumes that the history of intellectual theorizing is irrelevant to understanding the meaning of 'race' (459, note 9). Yet, if we examine this history, we can see that CRC fits squarely within this tradition. The geographical subspecies concept, which defines races as geographically localized phenotypically or genetically distinct breeding populations, was the dominant biological race concept until fairly recently. While this definition has been rejected, several revised definitions have been proposed, all of which define 'race' genealogically.[16] Additionally, many theorists who reject the biological reality of race often accept the legitimacy of genealogical definitions. What they argue instead is that, although nonhuman races (defined genealogically) may exist, no such populations exist in humans.[17]

Because Glasgow brackets the intellectual history of race, the fact that CRC agrees with it might seem irrelevant. Yet Glasgow provides no justification for disregarding this history, and there are good reasons to take it seriously. Understanding a term involves grasping what most competent speakers mean when they use that term. Depending on one's theory of meaning, this can be done descriptively, referentially, or both. Either way, scholars often use intellectual history as an indicator of the CS meaning of 'race.'[18] One reason is that it is often

[15] Andreasen, "Race," and "Cladistic Race Concept."

[16] See note 6.

[17] Lewontin, "Apportionment"; Appiah, pp. 71–74. See Andreasen, "New Perspective," "Race," and "Cladistic Race Concept" for some responses.

[18] See note 1. See also Appiah.

a part of CS that 'race' is a biological kind term. Furthermore, although the CS and scientific histories of 'race' may be somewhat distinct, they are not completely autonomous. When providing biological definitions of 'race', scientists often use CS as a starting point. Likewise, CS conceptions of race have been greatly influenced by science.

Now let us turn to Glasgow's extensional mismatch argument. My main objection here is that the CS extension of 'race' is not as clear-cut as Glasgow makes it seem. He maintains that CS recognizes a minimum of three races (Africans, Asians, and Caucasians) and sometimes recognizes five (by adding Native Americans and Latinos). According to some scholars, however, there is significant confusion within CS over how many races there are and who belongs to what race.[19] Americans have shown uncertainty, for example, over whether certain ethnic or national groups (for example, Mexicans, Latinos, Jews, Filipinos, the Irish) are races. Additionally, the racial categories identified by the U.S. census have changed significantly over time. I have discussed several examples of such changes elsewhere and others are discussed below.[20] Finally, as Glasgow himself acknowledges, the intellectual history of race reveals some uncertainty over the extension of 'race' (459, note 9). In terms of numbers, the lists have varied from as few as three to as many as eighty. There is also significant variability in the racial groups identified. The point of these examples is not to argue for extensional agreement between CRC and CS, at least not yet. My point is that we need an argument as to why we should prefer the classification scheme specified Glasgow over others that have been proposed.

As with his intensional mismatch argument, Glasgow's selective story about the extension of 'race' results in an overstatement of the divergence between CS and CRC. For instance, Glasgow maintains that CRC is committed to the existence of nine races, whereas folk conceptions typically recognize five or less. The accuracy of this claim, however, is called into question once we consider the U.S. census and the intellectual history of race. At different times, the census has recognized between three and eight racial categories. And, as just noted, the intellectual history of 'race' shows significantly more variation. Even if this were not so, I am not committed to there being nine races. What I maintain is that there is a nested hierarchy of

[19] Omi and Winant; Smedley; Goldberg; Lawrence Wright, "One Drop of Blood," *The New Yorker* (July 25, 1994): 46–55.

[20] Andreasen, "Cladistic Race Concept."

cladistic races. Assuming the accuracy of the diagram depicted in figure 2, there are five major races (Africans, Caucasians, NE Asians, SE Asians and Pacific Islanders, and Native Americans) as well as subraces within these groups. Moreover, when we compare the cladistic races listed above to those identified by the 2000 census and directive 15 (American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White), we see a good deal of agreement.[21] These sources also recognize subraces similar to those recognized by CRC.

Now I will respond to Glasgow's worry that cladistic races cross-classify CS racial groupings. Let me begin by reminding the reader that the reconstruction of human evolution is still underway. The branching diagram depicted in figure 2 provides an example of a phylogeny that could be used to identify cladistic races, but CRC does not depend on the accuracy of this tree. In fact, other research groups have provided phylogenies that result in little to no cross-classification.[22] Yet, I continue to maintain that some cross-classification is not a problem for my view. One reason is that differing folk conceptions of 'race' sometimes cross-classify one another as well.[23] When we consider changes in the way the U.S. government has classified by race, we see some examples. Take revisions to the U.S. census, for example. In 1980, Asian Indians were removed from 'Caucasian' and were placed in the 'Asian' category. In 2000, Native Hawaiians and Pacific Islanders were removed from the 'Asian' category and were given independent racial status. These examples illustrate that, as with CRC, there is sometimes disagreement within CS over who counts as Asian. Another example comes from the Equal Employment Opportunity Commission, which treats North Africans as 'white', though many Americans would designate them 'black'. Finally, as I argue below, there are many other examples of cross-classification between the scientific and CS meanings of NK terms.

I take myself to have established reasonable overlap between CRC and CS conceptions of race. Given Glasgow's assertion that minor revisions in meaning are allowable, this is sufficient to show that CRC is legitimately a theory about race. Nonetheless, because I maintain that some divergence is possible, I will now argue that in the face of divergence, we should still call cladistic races 'races'.

[21] Directive 15 aims to standardize the collection of racial data among federal agencies.

[22] Andreasen, "New Perspective."

[23] Andreasen, "Cladistic Race Concept."

III

Ultimately, the disagreement between Glasgow and myself is over how meaning gets settled in the first place. When scientists and layfolk disagree, who decides the meaning of NK terms? Who decides the meaning of 'race'? In response to the latter question, Glasgow defends the authority of CS and argues that scientists are not the arbiters of the meaning of 'race'. I, however, have previously argued that we need not reject CRC simply because it deviates somewhat from CS.[24] In this paper, I take a stronger stance. I argue for the relative autonomy of the scientific and folk meanings of 'race'.

Let us begin with my claim that we need not reject CRC because it deviates somewhat from CS. Elsewhere I used the causal theory of reference as well as examples from the history of science to support my point.[25] According to the causal theory, the extension of a NK term is fixed in a baptismal procedure. The kind is then defined by its underlying nature. Since ordinary speakers need not know the underlying nature, they can be competent users of a NK term even if they have mistaken beliefs about the nature of the kind. I also argued that my point does not depend upon the causal theory. The history of science also provides examples of divergence between science and CS over the meaning of NK terms: it is (has been) a part of CS that glass is a solid, whales are fish, bats are birds, species have essences, and the heavenly bodies are immutable. In science, however, glass is a liquid, whales and bats are mammals, species are lineages, and the heavenly bodies are changeable. In such cases, people seldom conclude that the kind does not exist, nor do they request that science be revised to fit CS.

Glasgow rejects my arguments and ultimately argues for privileging CS over science. He begins by claiming that minor revisions in meaning are allowable, but when scientific meaning deviates too far from CS, we are no longer talking about 'race'. Glasgow's intensional and extensional mismatch arguments are meant to show that CRC does indeed deviate too far. He then responds to my history of science analogy by arguing that there are important differences between CRC and the examples listed above. Using 'whale' as an example, he states that the disagreement between scientists and layfolk is over how to classify one anomalous species in an otherwise fixed classification scheme. When it comes to 'race', however, he maintains that CRC

[24] Andreasen, "Race."
[25] Andreasen, "Race."

involves a "wholesale reshuffling" of the classification scheme itself as well as disagreement over its underlying definition (463).

Second, Glasgow considers what he takes to be the main alternative, namely, the semantic deference to science. He argues that when determining the meaning of NK terms, we give preference to experts over CS only under certain conditions: (A) experts must have an agreed upon definition of a term, and (B) scientific categories must overlap reasonably with CS categories. He adds that CRC fails to meet both conditions. Scientists not only disagree over how to define 'race'; they disagree on whether race is a good taxonomic category in the first place. Moreover, the races identified by the cladistic view fail to pick out reasonably overlapping objects with those identified in CS. Indeed, Glasgow maintains that CRC requires derigidifying 'race'. The races that I identify, which he takes to be the lineages depicted in figure 2, are, on his view, not the ones that were baptized (African, Asian, and Caucasian).

There are a number of problems with Glasgow's argument. First, it relies on his intensional and extensional mismatch arguments which, as I argued, overstate the divergence between CS and CRC. Second, though I am not defending semantic deference to science, there are problems with Glasgow's conditions. Take condition A. Disagreement amongst scientists should not be a problem for semantic deference, provided that there is a fact of the matter about the nature of the kind. And, of course, some experts may know the true nature, even if they fail to agree. Furthermore, reliance on this condition results in a double standard. On Glasgow's view, failure to meet condition A is sufficient for giving priority to CS conceptions of race, but as noted above CS is no different from science when it comes to confusion over the meaning of 'race'.

My objection to the second condition is not with the condition itself, but with Glasgow's application of it. Specifically, because the origins of the race concept are obscure, Glasgow's claim that CRC requires derigidifying 'race' should not be accepted uncritically. Historians disagree, for example, whether 'race' has Arabic, Latin, or German origins; they also disagree over the date of origin.[26] Indeed, most historians hold that 'race' is a hazy concept that has assumed a diversity of meanings (for example, breed or stock of animals; species or kind of animal; tribe; clan; group of people who share a common ancestor; group of people who share common physical features). It is likely

[26] See note 1.

that we do not know enough about the history of 'race' to know what was in the minds of speakers during the baptismal procedure.

I also object to the conclusion that Glasgow draws from a term's failure to meet the second condition. Glasgow maintains that if the extension of a NK term fails to overlap reasonably with the object(s) identified in CS, we ought to reject the NK term as nonreferring. But as my history of science examples illustrate, sometimes when there is disagreement over the extension of a NK term, people accept divergence between science and CS. Though Glasgow has a response to this point—that my history of science analogy is tenuous—his response is problematic. As already argued, there is no reason to accept his claim that CRC involves a "wholesale reshuffling" of CS racial categories. Additionally, he bases his argument on the category 'whale' when he should be focusing on 'mammal'. Once we correct for this error, the analogy is stronger than Glasgow recognizes. Not only is there disagreement between science and CS over the extension of 'mammal' (bats, dolphins, whales, and platypuses are a few examples of species that layfolk would not normally count as mammals); there is also disagreement over the definition of the term. As with any taxonomic category, most systematists would define 'mammal' in terms of common ancestry. Layfolk, however, typically use similarity as the basis of biological classification schemes.[27] Finally, Glasgow's argument for a disanalogy relies on a single example. Even if he were correct, as I argue below, there are many other examples of extensional disagreement (without revision) between scientific and CS uses of biological kind terms.

Before turning to this point, I would like to raise another objection. Glasgow considers two answers to our question about meaning: when scientists and layfolk disagree over the meaning of NK terms, we can privilege CS over science, or we can privilege science over CS. As we have seen, Glasgow defends the first option; he takes me to be defending the second (463–69). Not only is this a misrepresentation of my view; Glasgow has overlooked a third option. I have not argued for revision to the CS meaning of 'race'. What I argued is that 'race' is ambiguous between its scientific and CS meanings (with reasonable overlap between the two).[28] Implicit, though not directly argued for, was the idea that these meanings are relatively autonomous. I will develop this argument momentarily. For now let me stress that by

[27] Scott Atran, *Cognitive Foundations of Natural History* (New York: Cambridge, 1990).
[28] Andreasen, "Race," pp. S661–65.

overlooking this option, Glasgow's argument does not apply to my view.

Glasgow's misrepresentation of my view might be due to my reliance on the causal theory of reference, so let me clarify the role that it is supposed to play. To do so, we must take a closer look at the ambiguity of 'race'. Elsewhere, I argued that the term currently functions differently in science and CS. In science, race is a taxonomic category that helps to explain patterns of migration, reaction to adaptive pressures, and the history of human evolution.[29] In CS, race helps to explain human social relations, racist beliefs and practices, and the like. Because its explanatory role is different in each case, 'race' has come to function as a NK term in one context and a social kind term in another. Its meaning as a NK term is given by science; its meaning as a social kind term is given by CS. Since there is significant overlap between these uses, both deserve the label 'race'. Returning to the causal theory, it tells us that when scientific and folk meanings of NK terms diverge, we need not revise science to fit CS. What it says about social kind terms is an open question.

Now I will develop my argument for the relative autonomy of scientific and CS conceptions of 'race'. As John Dupré and Scott Atran have argued, divergence between folk biological and systematic categories is not uncommon.[30] Take the term 'lily', for example. In science, 'lily' refers to numerous genera that make up the lily family, including many species that would not normally be recognized as lilies (for example, some tulips, onions, and garlics). Dupré and Atran offer many other examples of this sort. They add that in such cases, there is often no revision (nor any expectation of revision) to science or CS. This alone provides reason to accept divergence, without revision, between the CS and scientific meanings of 'race'.

A further argument can be advanced as well. According to Atran and Dupré, divergence among systematic and folk biological categories occurs for good reasons. To see why this is so, let us consider the history of systematic biology. Within systematics, taxa were originally defined in terms of similarity; examples include essentialism and pheneticism. This practice was eventually superseded by phylogenetic classification, partly because lineages play an important role in evolutionary theorizing. Ordinary language, however, did not follow suit. Many folk biological categories are based solely on observable properties, partly because they are useful for explaining the readily observ-

[29] See note 6.
[30] See Atran; Dupré, *The Disorder of Things* (Cambridge: Harvard, 1993).

able world.[31] Since classification schemes based on similarity sometimes disagree with those based on ancestry, the result is some divergence between science and CS. Moreover, since folk biological and systematic classification schemes serve different functions (explaining the observable world versus explaining evolutionary phenomena), there is no reason to expect convergence. This brief history is important because it parallels what I have said about race.[32] Biological races were originally defined in terms of similarity. Examples include the typological and geographical race concepts. These definitions have been rejected, but there is no reason to stop short of a genealogical definition of 'race'. Also, since these conceptions serve distinct functions, they can coexist in relative harmony.

IV

Glasgow asks for an argument to show that cladistic races are more like whales (or mammals) than like witchcraft. I take the above considerations to meet this challenge. Not only is there reasonable overlap between CRC and CS conceptions of race; some divergence is not a reason to deny that cladistic races exist. Cladistic races are indeed more real than witchcraft.

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[31] See Atran.
[32] See Andreasen, "New Perspective," and "Race."