

# Why do we Think Racially?

## Culture, Evolution, and Cognition

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### Abstract

Contemporary research on racial categorization is mostly encompassed by two research traditions—social constructionism and the cognitive-*cum*-evolutionary approach. Although both literatures have some plausible empirical evidence and some theoretical insights to contribute to a full understanding of racial categorization, there has been little contact between their proponents. In order to foster such contacts, we critically review both traditions, focusing particularly on the recent evolutionary/cognitive explanations of racial categorization. On the basis of this critical survey, we put forward a list of eleven requirements that a satisfactory theory of racial categorization should satisfy. We conclude that despite some decisive progress, we are still far from having a complete theory of why humans classify people on the basis of skin color, body appearance or hair style.

### Key Words

Racial categorization, racialism, social constructionism, cultural variation, cultural niches of concepts, evolutionary psychology, folk sociology, human kind module, coalitional module, ethnic cognition, ethnies, folk biology, psychological essentialism, cultural transmission.

### 1. Introduction

One of the most important challenges facing psychology of categorization is to explain why, of all the ways of dividing the world, we find some categories, but not others, natural. Psychologists usually underscore two kinds of causes: the nature of human cognition and the nature of the world itself (Malt, 1995). Social and cultural factors are usually thought of as

secondary, if at all mentioned.

The study of social categories, e.g., the category of teenagers (Hacking, 1999), highlights the shortcomings of this approach. It is difficult to account for these categories without paying attention to the social circumstances that surrounded their formation. For these categories, and plausibly for others too, social, cultural and psychological factors all have to be taken into consideration.

The study of concepts of races, e.g., BLACK<sup>1</sup>, WHITE etc., and of the concept of race itself, that is, how people conceptualize race membership, illustrates the need for a more integrative approach. As we will see, an integrative approach is required to explain the nature and origins of racialism —i.e., the fact that people classify humans on the basis of visible physical properties (skin color, body shape, height, hair appearance, etc.) and believe that this classification picks out meaningful, important biological kinds.<sup>2</sup> This integration has been hindered by the fact that the study of racialism is scattered over several fields, particularly history, anthropology, sociology and psychology. Moreover, researchers are often committed to different theoretical tenets. The contemporary research on racialism is mostly encompassed by two research traditions —social constructionism and the cognitive-*cum*-evolutionary approach. Most social constructionists believe that the concept of race is a pseudo-biological concept that results from some specific historical circumstances and that it has been used to justify the unequal treatment of specific groups of people. Proponents of the cognitive-*cum*-evolutionary approach believe rather that racialism results from the some specific cognitive system with a particular evolutionary history. Since the tenets of these two research traditions are often judged inconsistent, there has been little contact between their proponents. This is certainly unfortunate, for both literatures have plausible empirical evidence and theoretical insights to contribute to a full understanding of racialism.

Like others, we believe that time has come to bridge the gap between these two research traditions (Sperber, 1996; Faucher, 1999; Mallon and Stich, 2000; Fiske, 2000; Boyer, 2001a; Medin and Atran, 2004; Machery and Faucher, forthcoming). This article is a step in this direction. We review some recent and significant contributions to the contemporary literature

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<sup>1</sup> We use capital letters to name concepts.

<sup>2</sup> *Racialism* must be distinguished from *racism*, which adds value judgments (mostly negative, but sometimes positive) to racialism. In this article, we focus on racialism. Most social scientists focus on racism and take the existence of racial classifications for granted, without inquiring into their origin.

on racialism.<sup>3</sup> Thereby, we hope to stimulate research projects on racialism that would take into consideration both research traditions. We present the social constructionist approach and we discuss in more details three cognitive-*cum*-evolutionary theories. We underscore the empirical and theoretical problems of all current theories of racialism. On the basis of this critical survey, we put forward a list of eleven requirements that a satisfactory theory of racialism should satisfy. We conclude that despite some decisive progress, we are still far from having at our disposal a complete a satisfactory theory of why humans classify people on the basis of skin color, body appearance, and other physical properties.

## 1. Is Racialism a Mere Social Construct?

### 1.1. Racial Skepticism

A dominant view about races nowadays is the so-called social constructionist view. Like many scientists, social constructionists argue that the concept of race does not have any biological reality (e.g., Appiah 1996, 75). From the 70's on, it has been widely recognized that the biological concept of subspecies could not be applied to humans. First, there is more genetic variability within human racial groups than between them (Lewontin, 1972; Brown and Armelagos, 2001). Moreover, classifications based on different phenotypic traits (skin color, body shape, hair appearance...) usually cross-cut each other. Finally, these traits do not correlate in a systematic way with other biological characteristics (Diamond, 1994; but see the discussion in *Nature Genetics*, Supplement, November 2004). Hence, assigning an individual to a race does not buy the inferential power one is usually warranted to expect from a biological kind term.<sup>4</sup>

Social constructionists about race are not mere skeptics. They usually also underscore the instability and diversity of human beings' concepts of race.<sup>5</sup> For instance, Omi and Winant (2002) remark that an "effort must be made to understand race as *an unstable and 'decentered' complex of social meanings constantly being transformed by political struggle*" (123; our emphasis). Others suggest that the notion has been invented by a specific culture at

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<sup>3</sup> For the sake of space, we do not review the literature in social psychology that treats racial prejudice as a special kind of prejudice (Crandall and Eshleman, 2003) nor the literature that explains racial classification as a by-product of our perceptual categorization system (Aboud, 1988).

<sup>4</sup> If one gets any inferential power at all, this may be mostly because the concept of race "continues to play a fundamental role in structuring and representing the social world" (Omi and Winant, 2002, 124; see also Root, 2000, S269).

<sup>5</sup> In what follows, the term "race" is used to refer to the groups that are identified as racial by some society. Although there are no races, there are groups that are identified as races, e.g., Blacks, Whites etc.

a specific time, for instance during the late 15<sup>th</sup> century (Fredrickson, 2003). How should we understand such statements? A careful examination of social constructionism is in order.

## **1.2. Races are Interactive Kinds**

In this section and in the next one, we use some distinctions made by the philosopher Ian Hacking to clarify the social constructionist position about races.<sup>6</sup> Once these distinctions in place, it will be easier to identify the strengths and shortcomings of this approach.

Hacking defends a new brand of nominalism, called “dynamical nominalism”. This nominalism is more selective than its historical predecessors, for it applies only to kinds of human beings, the human kinds.<sup>7</sup> As Hacking puts it:

“I hold that strict nominalism is unintelligible for horses and planets. ... Gloves are something else: we manufacture them. I know not which came first, the thought or the mitten, but they evolved hand in hand. ... My claim about making up people is that in a few interesting respects multiple personalities (and much else) are more like gloves than like horses.” (1986, 229)

This claim draws on Hacking’s distinction between “indifferent kinds” and “interactive kinds”. Members of indifferent kinds, e.g., rocks, are not affected by the way we categorize them. On the contrary, we, human beings, react to the categories that are used to classify us. We care about and can be transformed by the way we are categorized. We are responsive to labels, concepts and beliefs about the kinds that are applied to us. In Hacking’s words, we are an interactive kind (e.g., Hacking 1999, 34).

For Hacking, races are among the paradigmatic human kinds (see also Root, 2000). For, as we saw, there is no fact of the matter that would define races independently of what we believe about them. Thus, the properties that characterize each race are created together with the concept that refers to it.

Hacking’s notion of interactive kind captures an important aspect of the social constructionist view of races. For social constructionists, when the concept of race is applied to us, it changes the way we think about ourselves and, as a result, what we do, what we learn and what we are. Thus, racial identities are constantly shaped by our concepts of and our beliefs about races. Omni and Winant call this phenomenon “racial subjection” (see also Holt, 1995; Appiah, 1996, 105; Mallon, forthcoming).

## **1.3. Races are Transient Kinds**

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<sup>6</sup> Hacking (1999) rejects the label “social constructionism.” We think however that Hacking captures the core insights of the social constructionist approach.

<sup>7</sup> Hacking (1995a) uses “human kind” to refer to the kinds picked out by social sciences. We use this expression in a more liberal way to designate any category intended to group humans. There is no reason to restrict the effects described by Hacking to the kinds used in the social sciences.

Hacking also draws a distinction between “transient” and “permanent” kinds. A kind is transient if its reality depends on a cultural niche, that is, on the ideas and social practices that are prevalent in a given society at a given time. The dependence is such that were the niche of a transient kind to disappear, the kind would disappear as well. Hacking suggests, for instance, that this happened with hysteria at the beginning of the 20<sup>th</sup> century. By contrast, the reality of permanent kinds—basically natural kinds, like tigers—is not dependent on any culture, even if the concepts that refer to them may vary across cultures (Hacking, 1999, chap. 4).

Human kinds depend typically on culture- and time-specific beliefs. Thus, they are typically transient kinds (Hacking, 1995a, 362). The notion of transient kind is useful to clarify an important aspect of the social constructionist view of race. Most scientists, social constructionist or not, recognize that human races are not natural kinds. In addition, social constructionists believe that races should be conceived as transient kinds. There are different ways of cashing out this idea, some more radical, some less.

Many constructionists insist on the cultural and historical differences between culture-specific and time-specific conceptualizations of race membership. Like other concepts of transient kinds, the way race is conceptualized—and, as a result, race itself—depends on specific cultural niches. For example, Pascoe (1996) argues that in the USA, a dichotomous conceptualization of race membership became prevalent after the abolition of slavery. In that view, race membership cannot be mixed or graded. The one drop of blood rule, according to which one is black if one of one’s ancestors was black, and the infamous miscegenation laws, forbidding inter-racial sex and marriage, illustrate this conceptualization. This conceptualization weakened in the fifties and sixties. Sociologists have also shown that nowadays more and more Americans use mixed racial categories to describe their racial membership (Skidmore, 1993; Aspinall, 2003). They propose that this evolution is related to new forms of immigration and to various social practices (e.g., writings emphasizing mixed racial identities; see Aspinall, 2003, 271). Many studies illustrate also the differences between culture-specific conceptualizations of race membership. A classic example is the difference between Brazilian and American concepts of race (Harris, 1963; see the nuanced review in Skidmore, 1993 and the critical discussion of Gil-White, 2001b).

We say that these social constructionist projects are moderate, for they claim only that the concept of race goes through many different elaborations. This is compatible with the idea that there is something common to these different elaborations. These commonalities could result from some aspect of human cognition. Moderate social constructionism is thus

consistent with the idea that because of some psychological disposition, humans tend to classify people into races when they meet other people with different phenotypes.

Some constructionists go further. They believe that the concept of race is a recent, Western invention. Many of them argue that there were no concepts such as WHITE PERSON or BLACK PERSON until theories of race appeared in Europe in the 18th (for a different origin, see Fredrickson, 2003). Greeks, for instance, might have divided people in some categories, but they relied on non-racial categories. We are told that they were indifferent to skin colors; instead, they were more preoccupied by geographic origin.<sup>8</sup>

Some have for instance argued that racialism results from the application of the principles of scientific biological classification to humans. During the 18<sup>th</sup> century, scientists like Linnaeus and Blumenbach developed the principles of biological classification. These principles were applied by scientists—biologists, geographers and, in the nineteenth century, anthropologists—to humans on the basis of their phenotypic properties (Gould, 1994). This is known as ‘scientific racialism’. Scientific racialism became part of the European culture as a justification for the colonization of the rest of the world.<sup>9</sup>

We say that this kind of constructionism is “radical,” since it affirms that the concept of race is exclusively the product of historical and cultural causes. It claims that humans do not tend to classify people into races when groups with different phenotypes meet, save for particular historical circumstances.

#### **1.4. Merits and Problems**

The social constructionist approach is obviously important. Constructionists have correctly insisted on the cultural aspect of humans’ concepts of race and how racialist classifications affect people. Some constructionists have illustrated the diversity of humans’ concepts of race. It is obviously important to distinguish between different time-specific and culture-specific conceptualizations of race, if only because they determine what kind of identity is available for individuals at a given time and place. Finally, they have shown that racialist distinctions have been used for social and political purposes.

However, the radical version of social constructionism is extremely problematic. According to this form of constructionism, it should not be the case that different cultures at different times have developed some racial classification. Hence, if something like the

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<sup>8</sup> See Banton, 1970, 18; Graves, 2001; Kamtekar, 2002; Ward, 2002; Fredrickson, 2003.

<sup>9</sup> Although we do not deny that the European 18<sup>th</sup> and 19<sup>th</sup> century conceptualization of race membership is specific, we reject below the idea that racialism is a mere invention of the 19<sup>th</sup> European century.

concept of race appears in many non-related cultures, the radical thesis is falsified. Now, contacts between groups that are characterized by different phenotypes are plausibly a relatively recent phenomenon. However, there is some historical evidence that when these contacts happen, humans tend to classify racially. For instance, around the 12<sup>th</sup> century, when contacts with foreigners became common, Chinese's color-consciousness increased strongly and the white skin of Occidentals, called "ash-white," was thought of as "the exteriorization of the demonological forces" (Dikötter, 1992, 13-14). Dikötter (1992, 17) notes also that Chinese had made the equation of black and slave at a quite early stage of their history. Moreover, Isaac (2004) has recently provided some convincing evidence that racialism and racism did also exist in Classical Greece and in Rome.

Moderate social constructionism has a different kind of problem. It has focused its attention on differences between cultures or times, but it has left unexplained the commonalities between culture-specific concepts of race (Machery and Faucher, forthcoming). Now, the content of human beings' folk concepts of race seems to be tightly constrained in some respects (Hirschfeld, 1996). Particularly, the social constructionist approach does not explain why races are cross-culturally thought of as biological kinds. Finally, moderate social constructionists illustrate the diversity between concepts of race, but fail to explain it.

There is a growing literature in evolutionary psychology and evolutionary anthropology that bears on these issues. Although no consensus has yet emerged, several recent proposals attempt to describe the cognitive mechanisms that produce the concept of race (Hirschfeld, 1996; Kurzban et al., 2001; Cosmides et al., 2003; Gil-White, 2001a,).

## **2. Is Racialism a Byproduct of a Human Kind Module?**

Before seeing the differences and limits of these evolutionary and cognitive hypotheses, we want to emphasize what they have in common. They all endorse the four following claims :

- *Racial skepticism: there are no races.*
- *Racialism does not result from domain-general, perceptual categorization system.*
- *Racialism results from a domain-specific cognitive system.* However, cognitive and evolutionary-minded scientists disagree on the nature of this system.

- *Racialism has not been selected*: it is a byproduct of a cognitive system that has been selected for other reasons.

We turn now to Lawrence Hirschfeld's research program.

### **2.1. The Nature of Racialism**

According to Hirschfeld (1996, 115; 1997; 2001, 111), young children, across cultures, believe that races are characterized by bundles of race-typical properties —e.g., phenotypic properties, like skin color, body appearance but also behavioral and psychological properties. Moreover, they essentialize races: they assume that races are defined by immutable, natural, and often unknown essences that are passed down from parents to children (Hirschfeld, 1996, 85-6). These essences explain why people possess the assumed race-typical properties. As a result, these race-typical properties are believed to be inherited and to be insensitive to people's rearing environment. Hirschfeld notices that this is in some respects similar to the way children think about animal species, although he argues that racial cognition is not derived from our biological cognition.

Essentialism fosters inductive generalizations (Hirschfeld, 1996, 13). People expect members of a given race to have many properties in common. As a result, they draw inductions from a limited number of instances. Properties that are true of most members of a race, say, poverty, can also be explained in racialist terms —as the natural effect of a hidden essence.

Children manifest this view of race early in their life (Hirschfeld, 1996, chap. 4). It does not result from their parents' explicit teaching. Most parents do not teach explicitly racialist distinctions. When they do, children's racialist attitudes tend not to reflect their parents' (Hirschfeld, 2001, 110; but see Crandall and Eshleman, 2003). Moreover, children do not acquire their concepts of races from people's physical appearances (Hirschfeld, 1996, chap. 6). Thus, their concepts are not derived from the domain-general, perceptual processing of categories. On the contrary, young children seem to rely on linguistic cues to form concepts of races. Hirschfeld concludes that racialism results from an *innate, domain-specific* and *universal* cognitive system.

### **2.2. The Human Kind Module**

Now, what is this cognitive system? According to Hirschfeld, human beings have evolved a folk sociology, also called the "human kind module" (1996, 196; 2001, 111; Sperber and

Hirschfeld, 2004, 44). Its proper domain<sup>10</sup> consists of the social groups that constitute a society. It includes kin-based groups and coalitions. Recently, Hirschfeld has emphasized coalitions among the proper stimuli of this module (2001, 113). He claims that coalitions are much more important in the human species than in any other animal species. Humans belong to an astonishing number of coalitions that cross-cut each other and that are very often shifting. This has created some evolutionary pressures for a cognitive system dedicated to track them (Hirschfeld, 1997, 75; 2001, 113).

This human kind module does not determine which groups, particularly which coalitions are relevant in a society. It interacts with specific cultural environments, in which some specific groups are salient. These culture-specific groups are essentialized (Hirschfeld, 1997, 78-79).

Thus, we are not innately predisposed to adopt racist classifications. However, in some societies, coalitions are formed on the basis of superficial phenotypic properties, for example skin color. In those societies, children pick out the groups that are formed on this basis, i.e., races, and conceptualize them in an essentialist manner. If such groups were not coalitions in our societies, children would not draw racist distinctions. Instead, they would pick out other coalitional groups. For example, Hirschfeld reports that Indian children essentialize and naturalize caste and occupation (1997, 86-87; 2001, 114).

### **2.3. Empirical Evidence**

Hirschfeld's theory is supported by several experiments (see Hirschfeld, 1996). We describe the two most important ones.<sup>11</sup>

In the first experiment (1996, chap. 4), children are presented with drawings that depict an adult and two children. In the first case, one child has the same skin color (black or white) as the adult, but a different body build, while the other child has the same body build as the adult, but a different skin color. In the second case, one child has the same skin color, while the other wears the same professional uniform as the adult (e.g., a police uniform). In the third case, one child has the same body build as the adult, while the other has the same uniform. Thus, three properties are contrasted, a racial characteristic, a physical characteristic and a

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<sup>10</sup> That is, the stimuli that the module have evolved to deal with. The *proper domain* of a module contrasts with its *actual domain*, that is, the stimuli that it deals with now, even if it has not evolved to do so (Sperber, 1996; Sperber and Hirschfeld, 2004).

<sup>11</sup> Hirschfeld emphasizes also the "switched at birth" experiment (1996, chap. 4). Since Gil-White's work is based on this experiment, we will present its structure in section 4.

profession. Some children are asked: (1) which of the comparison pictures was the target as a child? While others are asked (2) which of the comparison pictures was the target's child?.

For question (1), race is chosen over occupation and body build as a cue for identity across times (Hirschfeld, 1996, 97-101). Although younger children are less likely than older children to choose race over occupation and body build, three-year-olds choose race over body build significantly above chance, and four-year-olds' choice of race over occupation is also significantly above chance. The same pattern is found for question (2).

Hirschfeld concludes that even young preschoolers believe that a racial characteristic, skin color, is constant during growth and transmitted by descent (but see Solomon et al., 1996, 168). This is not the case for other properties, like body build and profession (Hirschfeld, 2001, 114-115). Since this kind of reasoning is assumed to be built on a belief in essences (Gelman and Wellman, 1991), Hirschfeld infers that children essentialize race membership: they believe that races are defined by essences transmitted by descent that cause the possession of the racial phenotypes.

The second experiment concerns the origin of the racialist classification (Hirschfeld, 1996, chap. 6). In the first part of the experiment, children are told a story about a child who has to buy a scarf for his mother. The child asks four adults for help. Each adult is described twice in terms of race, occupation and body type. Children are given a free recall test immediately afterward. The point is to see what kind of information has been encoded. The results show that even three-year-old children encode each of the dimensions (behavior, occupation, gender, race, body type). However, not all types of information are equally encoded. Four-year-old children encode occupation more than race, and race more than gender and body type.

These results are to be compared with those of the second part of the experiment. Children are shown a set of drawings that tell a story that is similar to the story used in the first part of the experiment. They are asked to describe the events portrayed by the drawings. Their memories of the story are also probed. The results are the following. When they describe the drawings, three-year-old and four-year-old children mention the characters' gender more than their profession. Race is rarely mentioned. In the recall task, children mostly mention the characters' behavior, their gender, and their clothes. Again, race is very rarely mentioned. Thus, both tasks reveal very few references to the characters' race. There was no age difference.

From both parts of the second experiment, Hirschfeld concludes that external or physical appearance is not a crucial component of children's initial racialist concepts. WHITE, BLACK, CHICANO etc., are not perceptual concepts. For, if they were, race membership would be visually salient. Race would be mentioned in a visual description task and in a visual memory task. This is not the case. On the contrary, race is a salient property in a verbal task.

Hirschfeld infers that concepts of races are not derived from the perceptual categorization system (1996, 157). Otherwise, the perceptual information would be encoded. Hirschfeld takes this to imply that racialist concepts and our conceptualization of race membership result from a domain-specific cognitive system that is preferentially triggered by verbal cues—the human kind module.

#### **2.4. Merits and Problems**

We view Hirschfeld's research as an important contribution to the understanding of racialism. He has provided a large set of data that have to be taken into account by any theory of racial cognition. He has also put forward some important theoretical points. Let's summarize quickly what has to be kept in mind :

- 1) In several respects, *people reason about races as they reason about animal species*.
- 2) *There is some evidence that children manifest this bias early* (as early as 3 years in some tasks).
- 3) Children's racialist cognition is *not derived from the domain-general categorization system that processes visual inputs*. The linguistic inputs may be crucial.
- 4) Points 1 to 3 suggest that racialism results from *some domain-specific cognitive system*.

Despite its importance, Hirschfeld's approach is nonetheless problematic. We focus first on some theoretical problems and then turn to some empirical ones.

The hypothesized human kind module is underspecified. It is unclear why our social cognition is similar in certain respect to our biological cognition. Moreover, it is unclear why not all social groups are thought of biologically, especially if racialism is a by-product of our folk sociology. Hirschfeld claims that this module picks out social groups that are salient in a given society (1996, 72, 196-197). However, there are plenty of salient social groups—e.g., neighborhoods—that are not thought of as animal species are. To counter this objection, Hirschfeld should say that this module picks out a specific kind of group. In more recent

articles, Hirschfeld has indeed suggested that the function of this module is to track coalitions (Hirschfeld, 2001). However, as we shall see in the discussion of Kurzban et al.'s similar proposal (section 3), this is not satisfactory. We will conclude that racialism results probably from another kind of cognitive system.

Second, Hirschfeld does not explain why race is conceptualized differently across cultures. He pays lip service to the project of integrating the social constructionist tradition with the cognitive-*cum*-evolutionary approach. However, in fact, little is done to really integrate the two perspectives.

Third, Hirschfeld's proposal is committed to the theory of psychological essentialism (Medin and Ortony, 1989; Gelman, 2003). According to this theory, people believe that many categories are characterized by an essence. Such a folk belief is supposed to explain several reasoning patterns, including category-based induction (Gelman and Markman, 1986) and a commitment to the transmission of properties by descent (Gelman and Wellman, 1991). We are skeptical. We doubt that most people believe in some inner, maybe unknown, property that defines the identity of categories and explains the possession of observable properties. People do not have to believe in essences in order to display the reasoning patterns mentioned above (Strevens, 2000, 2001; see the reply by Ahn et al., 2001). Thus, Hirschfeld's data show that races are thought of as animal species are. But this fails to entail that people are committed to essentialism.

We are also puzzled by some of Hirschfeld's experiments. Consider particularly the first experiment described above (1996, 102-107). Hirschfeld asks children whether a profession, which is symbolized by a professional outfit, is more likely to be transmitted by descent and to be constant over life than skin color or body build. We wonder how children understood this question (for an intriguing comment on children's answers, see Gil-White, 2001a, 548-549). Could they really believe that a child has a profession?

Second, we are astonished by the discrepancy between Hirschfeld's ambitious theory and his empirical evidence. More predictions should be derived from his theory and they should be submitted to more stringent tests involving various experimental paradigms. For example, Solomon et al. (1996) have provided some empirical evidence that before seven, children may not understand that skin color is inherited from one's biological parents. In their review, Crandall and Eshleman (2003) mention some research that is *prima facie* inconsistent with Hirschfeld's claim that children's racialism is not affected by explicit parental teaching. Thus, it seems too early to be fully convinced by Hirschfeld's empirical evidence. Moreover,

Hirschfeld claims that the hypothesized human kind module is universal. However, he provides little cross-cultural evidence to support this claim, relying instead on children from two industrial societies, France and the USA.

Third, in most experiments, not all children give the same answers. Consider, for example, the first experiment reported in section 2.2. Hirschfeld underscores the fact that around 80% of the seven-year-old children believe that a racial property, skin color, is more likely to be constant over life than profession. Thus, 20% of these children give the opposite answer. Hirschfeld does not say much about the minority answer, treating it in fact as noise. We feel that this approach is mistaken. Individual differences may provide some crucial information about the cognitive system that underlies racialism. Particularly, it could cast some light on the kind of inputs that affect its development—for example, on the importance and nature of the cultural inputs. Moreover, it is a crucial piece of evidence for evaluating claims about the innateness and evolved nature of cognitive systems. To be fair though, this way of proceeding is common to many developmental studies.

Hirschfeld's account has other problems. To anticipate, Hirschfeld does not explain why races are so often salient groups. Besides, we have strong doubts concerning his account of the evolution of racial cognition. Since Kurzban, Tooby and Cosmides' account suffers from the same problems, we will present them in the next section.

To conclude, we reject the claim that racialism results from the interaction between an essentialist folk sociology and the social structure of some societies. We also emphasize that more evidence is needed to fully support Hirschfeld's other points.

### **3. Are Races Mere Coalitions?**

#### **3.1. Races and Coalitions**

In two recent papers (Kurzban et al., 2001; Cosmides et al., 2003), Kurzban, Cosmides and Tooby have proposed an original hypothesis. Like Hirschfeld, they recognize that it is implausible to posit a race module. First, if there are no races, how could a mechanism specialize in tracking them have evolved? Second, given that during the evolution of our species, our ancestors had meager chance to meet people with a different skin color, “there could have been no selection for cognitive adaptations designed to preferentially encode such a dimension” (2001, 15387).

Instead, Kurzban et al. propose that racial categorization is a by-product of a cognitive system that evolved to detect coalitions and alliances. Since in multi-racial, nonintegrated

societies, races are coalitions, they are picked out by the coalitional mechanism. According to Kurzban et al., this mechanism has to be sensitive to patterns of cooperation and competition as well as to cues that predict group allegiances. The mechanism?) ought to pick up any observable feature (dress, badges, manner, dialect, skin color, etc.) that indicates allegiance. Moreover, since coalitions are not necessarily stable, we should be able to dynamically revise any coalitional identification.

On the basis of this hypothesis, Kurzban et al. predict that a “new social environment in which coalition is uncorrelated with race should weaken the preexisting weight given to race” (2001, 15389).

### **3.2. Empirical Evidence**

To test the prediction that a change in social environment would weaken the weight given to race as a cue to coalition, Kurzban et al. (2001) used the memory confusion protocol. This test is used to reveal which categories are used to categorize individuals. In the first part of the test, subjects are presented with sentences that are paired with pictures of the individuals who uttered them. Subjects are asked to form an impression of these speakers. In the second part, subjects are given a surprise recall task: they have to recall who said what. It is believed that misattribution reveals encoding. Subjects confuse the individuals that are classified in the same category more than those individuals that are sorted in different categories. For instance, if the subjects have classified individuals by gender during the first part of the task, they misattribute more often a sentence that a man said to another man than to a woman. The errors should be random for the categories that are not encoded. On previous experiments, it has been shown that race is spontaneously encoded by subjects and efforts to reduce this spontaneous encoding have been largely unsuccessful.

In Kurzban et al.’s first experiment (1), subjects are presented with 8 sentences paired with the pictures of 8 speakers. The pictures represent young men dressed identically. From the sentences, one can infer that they divide into two groups that have been involved in some kind of fight. Their ‘races’ (White and Afro-American) can be seen on the pictures. Subjects are given a surprise recall task, the pictures being still displayed in front of them. Kurzban et al. wanted to know whether subjects could encode the coalition membership solely on the basis of the content of the utterances (no visible cues was correlated with coalition membership). The second experiment (2) was identical to (1), except that Kurzban et al. used an arbitrary and non-permanent marker (the color of a tee-shirt) as a cue of allegiance. If races are mere coalitions, providing relevant coalitional information should decrease the reliance on race as a

proxy for coalitional affiliation. Thus, race encoding should decrease. Experiments (3) and (4) replicate experiments (1) and (2), except that the gender of the speakers varies, while race does not vary. The prediction is that gender should not be affected by coalition encoding.

Results of experiment (1) showed that subjects were encoding a new dimension — coalition. However, the effect of race was twice as large as the effect of coalition. On the contrary, in experiment (2), when coalitions are marked by visual cues, the effect of coalition encoding increased (more than 200%), while the effect of race decreased (roughly 25%). Coalition membership encoding was higher than race coalition. Finally, in experiments (3) and (4), the encoding of gender was not significantly affected when coalitions are marked by visual cues.

Kurzban et al. conclude from these studies that “the sensitivity of race to coalitional manipulation lends credence to the hypothesis that, to the human mind, *race is simply one historically contingent subtype of coalition*” (2001, 15391).

### **3.3. Merits and Problems**

Cosmides, Tooby and Kurzban’s result seems to be good news: racist classifications, on which racist cognition and behaviors depend, could disappear given some social re-engineering. We think that their results suggest that concepts of race can be used by an evolved cognitive system whose function is to track coalitions. Thus, it may be true that the extent to which people classify according to race is affected by the extent to which race is believed to be a proxy for coalition. Nonetheless, we remain unconvinced by their main claim that categorization by race is a byproduct of this system.

Their theory shares several problems with Hirschfeld’s. Kurzban and colleagues’ ambitious theory relies only on two experiments with American undergraduates.<sup>12</sup> No cross-cultural evidence is provided. Finally, they do not consider integrating their proposal with what we know about the cross-cultural diversity of the concepts of race.

Another shortcoming is that Kurzban and colleagues assume that races are coalitions (see also Hirschfeld, 2001). However, it is not clear that races are really cooperative groups (Gil-White, personal communication), contrary to nations or, sometimes, neighborhoods. Black slaves in the US came from various cultures in Africa. White Europeans who came to Japan

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<sup>12</sup> In reply, Kurzban (personal communication) emphasizes that his work is aimed at falsifying social psychologist’s tenet that race is automatically encoded. For this purpose, a single experiment is sufficient. This is certainly an important aspect of Kurzban et al. (2001) and Cosmides et al. (2003). However, both papers put forward a positive claim, namely that categorization by race is a byproduct of the coalitional cognitive system.

and China did not form a coalition either. Moreover, few people are putting themselves at risk for the benefit of the members of their race, suggesting that races are not thought of as coalitions. Racist White Frenchmen may be willing to help other White Frenchmen, not Whites at large. Kurzban and colleagues could however reply that this objection misses the point. The claim is that because members of a race *within a given society*, say Afro-Americans *in the USA*, form a cooperative group, people pay attention to racial membership. An individual uses race to categorize the individuals she meets, because *around her*, race is a cue to coalitional affiliation. The argument does not require Blacks at large to form a cooperative group.

Notice however that this reply takes for granted that in some societies, races are coalitions (Kurzban et al., 2001, 15388). However, as we saw in the first section, there is evidence that racialism has repeatedly appeared during human history when humans with different phenotypes have met. For the sake of consistency, Kurzban and colleagues would have to say that in all these cases, races were coalitions. However, this would suggest that skin-deep features (like skin color, body shape, hair appearance) bootstrap coalitional groups. And this fact would remain entirely unexplained by their theory. Hirschfeld's account faces a similar problem. Ironically, like the social constructionists, Kurzban, Cosmides and Tooby and Hirschfeld fail to explain the prevalence of racialism across cultures and times. This cross-cultural and cross-historical recurrence of racialism needs to be explained.

Another difficulty is raised by the evidence that children think spontaneously about races in a biological way (Hirschfeld, 1996). Kurzban, Tooby and Cosmides' hypothesis does not explain this phenomenon. For it is not the case that all coalitions are thought of as animal species are: firms, coalitions of nations, etc., are not thought of biologically.

Kurzban and colleagues could reply that races are thought of as coalitions *and* are thought of biologically. We pay attention to race, because they are coalitional groups, *and* we conceptualize them biologically. To evaluate this move, remember that what is at stake is the origins of the concept of race: Which system produces this concept? Kurzban and colleagues' experiments tentatively support the claim that concepts of races are used by a cognitive system that tracks coalitions. In societies where races happen to be very strong coalitions — which is arguably the case in many segments of the American society— racial membership may thus be used as a proxy for coalitional affiliation.

However, to support their claim that racial cognition is a byproduct of the coalitional system, what matters is *not* how people *use* their concepts of races. What matters is how race

membership is conceptualized. After all, it is plausible that this is determined by the cognitive system that produces the concept of race. However, Kurzban and colleagues have nothing to say about the biological content of humans' concepts of race. Thus, Kurzban, Tooby and Cosmides fail to address the relevant question for explaining the origins of racialism. As a result, their findings do not support their claim that racial cognition is a byproduct of an evolved coalitional system.

Finally, Hirschfeld's as well as Cosmides, Tooby and Kurzban's ultimate, evolutionary explanation of racial cognition is inadequate. Neither proposal considers the possibility that racialism could be a by-product of a cognitive system that would not be dedicated to small-scale social groups, but to a different type of social groups. Hirschfeld (2001, 112) even excludes this possibility. According to him, our ancestors lived in small, shifting coalitions. This is, however, an oversimplified view of the social life of our ancestors. It is important to distinguish different sorts of groups (Gil-White, 2001a). These different types of groups may have created different evolutionary pressures and may have selected for different cognitive mechanisms.

Race membership seems indeed different from coalition membership. During human evolution, small groups were probably labile; as a result, categorization within these groups would plausibly require a constant updating. Being a member of this kind of group would not be conceived as an inherent property. On the contrary, race membership is not conceived as labile, but as inherent.

We conclude that Kurzban and colleagues' and Hirschfeld's proposals are problematic. They assume that racial features bootstrap coalitional behaviors without explaining it. Kurzban and colleagues' empirical evidence plausibly shows that races are sometimes taken as proxy for coalitions. However, this falls short of showing that racial cognition is a byproduct of the hypothesized coalitional cognitive system. To explain where racialism comes from, the content of our concepts of race has to be the main focus of inquiry. Finally, Hirschfeld's and Kurzban et al.'s evolutionary hypotheses are unsatisfactory, for they fail to distinguish different kinds of groups that have raised specific evolutionary challenges during the evolution of human social cognition.

#### **4. Is Racialism a Byproduct of an Evolved Ethnic Cognitive System?**

##### **4.1. Ethnies are Not Mere Coalitions**

Many anthropologists, particularly Boyd, Richerson and their colleagues, have suggested that kin-based groups and coalitions are not the only evolutionary important social groups. Our ancestors have also belonged, for an evolutionary significant time, to larger groups, called ‘tribes’ or ‘ethnies’ (Richerson and Boyd, 1999; Boyd and Richerson, 2001, 2004).

The notion of ethnies used here picks out large groups that consist of several thousands of individuals—for instance, the Nuer in Sudan. Ethnies are divided into smaller units, sometimes called “bands.” They form cultural units. Many culturally transmitted norms, including norms of cooperation, are recognized by all the members of a given ethnies and these norms differ from the norms that prevail in other ethnies (Richerson and Boyd, 1998, 1999).<sup>13</sup> Few other properties are common to all ethnies (Knauff, 1991, 418). This type of social organization is specifically human. The first ethnies appear in the archaeological record 50 000 years ago (Klein, 1999) and may have existed earlier (but see Knauff, 1991, 392).<sup>14</sup>

Ethnies are also characterized by ethnic markers (Richerson and Boyd, 1999; McElreath et al., 2003). Coethnics use various symbolic signs, e.g., body paintings, clothes, jewels, accents etc., to signal their ethnic membership. These markers vary across ethnies. Signs that may have functioned as ethnic markers are well attested in Europe 40 000 years ago and may have existed much earlier in Africa (McBrearty and Brooks, 2000, 531).

It has been hypothesized that this form of social organization has created *sui generis* selective forces (Richerson and Boyd, 1998, 1999; Boyd and Richerson, 2001). According to Boyd and Richerson, our ancestors have evolved to be emotionally committed to the norms of their ethnies. Ethnies may thus have been an environment that produced new selective pressures. These pressures may have selected for an ethnic cognition beside our kin and coalitional cognition. Gil-White suggests that this is the key for understanding racial cognition.

#### **4.2. An Adaptive Scenario: Ethnic Cognition and the Exaptation of Human Folk Biology**

According to Gil-White, humans have evolved an ethnic cognitive system that is based on our folk biology (Gil-White, 1999, 2001a). That is, humans have evolved to think of ethnies as if they were biological species. Our evolved folk biology contains the innate knowledge

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<sup>13</sup> Of course, some norms are specific to sub-ethnic groups and others are common to several ethnies. Ethnies should not be thought of as homogenous, isolated groups that differ linguistically and culturally *in toto* from other ethnies (Richerson and Boyd, 1999).

<sup>14</sup> We will not review the evidence for this hypothesis (Bettinger, 1991, 203-205; Rodseth et al., 1991; Richerson and Boyd, 1998, 1999; Boyd and Richerson, 2001; Richerson et al., 2003, 369).

about biological species, including a belief in essences (2001a, 518, 524 sq.), and the reasoning biases that are applied to them (Atran, 1990; Medin and Atran, 1999, 2004).

Ethnies triggered our ancestors' folk biology, because they have several important characteristics in common with species. First, ethnies are characterized by clusters of stable, culturally transmitted behavioral norms, and norms tend to vary across ethnies (Henrich and Boyd, 1998). Thus, like conspecifics, coethnics behave similarly, and members of different ethnies behave differently, like members of different species (Gil-White, 2001a, 518-519). Besides, interactions across ethnic boundaries have a lower payoff than interactions within these boundaries, since social norms vary across ethnies. Our ancestors were probably sensitive to these costs (McElreath et al., 2003). Thus, norm boundaries tended to coincide with social interactions, particularly with mating preferences. As a result, endogamy and descent-based ethnic membership was probably prevalent (Gil-White, 2001a, 519). Finally, our ancestors tended to broadcast their ethnic membership. Parents and children usually display the same markers, which is similar to a species-specific morphology (Gil-White, 2001a, 519).

This application of our folk biology to ethnies is an exaptation (and not a misfiring): A higher reproductive success was conferred upon those individuals whose folk biology was easily triggered by ethnic markers. For thinking about ethnies as if they were species may be good epistemology—though it is certainly bad science: this belief fosters inductive generalizations on the basis of limited contacts. Since members of other ethnies have many behaviors in common, such wild generalizations may tend to be true (Gil-White, 2001a, 518, 530-532). If our ancestors occasionally interacted with members of other ethnies, this cheap learning strategy may have been adaptive. Moreover, a biological view of the ethnic world plausibly reduces the frequency of those interactions across ethnic boundaries whose success requires shared norms—particularly mating (Gil-White, 2001a, 532).<sup>15</sup>

According to Gil-White, races trigger by mistake our ethnic module. For the physical properties that define race membership are similar to some ethnic markers (Gil-White, 2001a, 533-534). Moreover, they are shared by parents and children, like ethnic markers.<sup>16</sup>

### **4.3. Empirical Evidence**

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<sup>15</sup> Of course, migrations, cultural influences, and economic exchanges occur between ethnies (e.g., McBrearty and Brooks, 2000, 513-517, 531). Interethnic alliances are also known. However, exchanges across ethnic boundaries are very different from exchanges between coethnics.

<sup>16</sup> Gil-White's theory also predicts that endogamous and descent-based groups will trigger this hypothesized ethnic cognitive system (Gil-White, 2001a, 547).

Gil-White studied Torguuds and Kazakhs. Both ethnies are semi-nomadic pastoralists, they have the same social standing and they live in the same environment, although they are territorially segregated. In both groups, children inherit their ethnicity from their father (Gil-White, 2001a, 522 sq.).

Gil-White (2001a, 522 sq.; 2002) relied on the switch-at-birth experiment that was developed by Gelman and Wellman (1991) and used by Hirschfeld (1996, chap. 4) and Solomon et al. (1996). Briefly put, subjects were told that a child, whose parents are Kazakh, is raised by Mongols (or vice-versa). Subjects do not know that the child's biological parents are Kazakh. They are asked what the ethnicity of the child is. The point is to determine whether the ethnic ascription is sensitive to the rearing environment or is transmitted by descent.

Roughly two-thirds of the subjects concluded that the child was Kazakh. Thus, a large majority of Gil-White's subjects expected ethnic membership to be impervious to the rearing environment. According to Gil-White, these cross-cultural results support the claim that human ethnic cognition is essentialist.<sup>17</sup>

Gil-White went further (2001a, 526; 2002). He tried to see whether people associate ethnic membership with the possession of an essence. As we saw, essentialist thinking posits that category members share a hidden essence that determines what they really are. Essentialists should thus deny that the child could ever become exactly like his adoptive parents. Most of the subjects who gave essentialist answers asserted that the child would be somewhat physically similar to and behave like a Mongol. More than half of them replied that the blood of the other ethnie could never be "erased". This is seen as confirming the essentialist prediction (2001a, 526). According to Gil-White, these replies show that descent-based ethnic membership is more than a mere labeling of one's ascent. It implies developing some bodily and behavioral properties of one's ethnic group and a limited influence of the rearing environment.

Moreover, in informal discussion, he discovered that some subjects who gave non-essentialist held some beliefs that were at odd with their explicit non-essentialist assertions (2001a, 526-529). For example, some claimed, on one hand, that the child would belong to his rearing ethnie and, on the other hand, that she would be unable to do some things that were

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<sup>17</sup> Scupin (personal communication) has run a similar experiment with university students from Thailand. The results are mixed. Scupin used two sets of questions. For the first set of questions, only 50% of the students gave essentialist answer in the switch-at-birth experiment.

characteristic of their rearing ethnies (e.g., sorcery). This second answer is taken to imply a commitment to essentialism.

Finally, Gil-White replaced ethnic names with the names of clans, i.e., sub-ethnic groups, in the questionnaire presented above (2001a, 529-530). Crucially, the answers differed markedly from the answers triggered by the ethnic questionnaire.

#### **4.4. Merits and Problems**

Gil-White's theory is not entirely new. He endorses the most convincing points of Hirschfeld's psychological account and Boyd and Richerson's picture of the evolution of human social behavior and cognition. However, to our knowledge, he is the first to synthesize these disparate ideas, to provide a rather compelling evolutionary hypothesis and to build a seductive explanation of racialism on this basis. We are convinced by many aspects of Gil-White's theory, particularly by the hypothesis of an evolved ethnic cognitive module. We also believe that he made a convincing case that this system underlies racialism. Nonetheless, several problems remain.

First, Gil-White's theory shares several problems with Hirschfeld's. He interprets the empirical evidence through the psychological essentialism framework, although a belief in essences is not necessary to explain the reasoning patterns he presents. Moreover, Gil-White's proposal does not cast much light on the interaction between culture and our evolved ethnic system. We also disagree with the way Gil-White deals with the diversity of people's answers to his questionnaire. He purports to explain away these differences, claiming that deep down, everybody is committed to a biological view of ethnic membership and that non-essentialist models are superimposed on this biological view. Since differences are explained away, no attempt is made to explain why some individuals would not conceptualize ethnic membership biologically. Gil-White certainly provides some circumstantial evidence that some non-essentialists believe that ethnic membership is an inherent, descent-based property. However, no systematic evidence is provided that *all* or even *most* non-essentialists share this belief. Given that many people deny having a biological view of ethnic membership, we feel that the evidence falls short of establishing Gil-White's bold claim.

Second, it has to be recognized that the evidence for Gil-White's proposal is slight. It is supported by Hirschfeld's developmental data and by his own anthropological data. However, it seems fair to say that the jury is still out. More cross-cultural data are needed (but see Scupin, ms). Gil-White (1999) has tested his hypothesis against the ethnographic record.

Particularly, he proposes that the evidence does not support the claim that in some cultures, people can change their ethnic and racial identity at will, which would falsify his views. However, this survey of the ethnographic record does not establish that people think about ethnic membership *biologically*. To support this idea, it must be shown cross-culturally that we reason similarly about species on the one hand, races and ethnies on the other.

Third, Gil-White proposes that our evolved folk biology is a skeletal commitment to essentialism that is filled in by culturally transmitted biological beliefs (Gil-White, 2001a, 551; personal communication). That is, children believe that species are characterized by an essence, but have no specific belief about the nature of this essence or about its transmission. Beliefs about these matters are learned. We agree with Gil-White that most folk biological beliefs are culturally transmitted.

There are two points of contention. First, there is some convincing evidence that we are disposed to think of species in a hierarchical way (Atran, 1990; Malt, 1995; Medin and Atran, 1999, 2004) and to reason about them in a peculiar way (for a general review, Medin and Atran, 1999, 2004). Correlatively, we may also have evolved to expect species-specific properties. But our evolved folk biology may consist of little more. Particularly, essentialism—that is, a belief in essences—may be culturally transmitted and culturally specific (but see Gelman, 2003; Medin and Atran, 2004). Like Hirschfeld (2001, 109), Gil-White may thus assume a folk biology whose evolved content is too rich.

Moreover, Gil-White suggests that we are predisposed to learn specific folk-biological beliefs, for example, the beliefs that conspecifics naturally mate with each other and that they engender conspecifics (Gil-White, 2001a, 551; personal communication). We are not convinced. For the adaptive function of these beliefs is far from obvious. Certainly, once animal domestication was included in humans' behavioral repertoire, these beliefs were useful. However, animal domestication is a very late phenomenon in human evolution. Thus, it is not clear that we have evolved to entertain them. Gil-white could reply that the universality of these beliefs supports his hypothesis. Not necessarily, however. Everybody believes that the sky is blue because it is a true belief that is easily learned by each individual. Similarly, universal folk biological beliefs may simply be true beliefs that are easily learned either by individuals or by cultures. There is no need to suppose that we have been disposed by design to learn them. Moreover, there is some cultural variation concerning some of these beliefs. In some cultures, people believe in the possibility of cross-ethnic fertile reproduction (Atran, personal communication).

Fourth, if ethnies and races are thought of as animal species, they are thought of as peculiar species. Interethnic reproduction (e.g., rapes during wars) has probably existed during human evolution and was common for known ethnies. Interracial marriages have been common during human history. Gil-White's proposal does not explain this fact (Astuti, 2001b; Boyer, 2001b). In reply, Gil-White (2001a, 550) suggests that when species are similar, e.g., donkeys and horses, we do not have the intuition that mating is impossible, simply that it is not natural. However, it is far from clear that during war between ethnies, raping women or kidnapping women in order to mate with them is spontaneously viewed as unnatural. Our folk biological view of species, our folk view of ethnies and our folk view of races may also differ in other respects. For example, we conceptualize species hierarchically (Atran, 1990; Medin and Atran, 2004). However, ethnies do not seem to be thought of as belonging to hierarchies. More should be said about the differences between these three folk theories.<sup>18</sup>

We conclude that Gil-White has shown that we plausibly evolved an ethnic cognitive system and that it underlies racialism. His views assume however an unlikely rich evolved folk biology. Finally, the integration of his approach with the social constructionist evidence remains to be done.

## 5. Conclusion

Most contemporary theories of racialism are inspired either by social constructionism or by a cognitive-*cum*-evolutionary approach. There has been little contact between proponents of these two approaches. To overcome the prevalent theoretical tribalism and inspire integrative theories of racialism, we have reviewed some significant contributions to the recent literature on racialism (see also Machery and Faucher, forthcoming).

We have first presented the theoretical tenets and some results of the social constructionist research tradition on racialism. The way people conceptualize race membership is strongly influenced by their cultural niche. We have however underscored that the similarities between culture-specific concepts of race remain unexplained by this approach. These similarities suggest that racialism results from a universal cognitive system. Three cognitive-*cum*-evolutionary theories were then reviewed: all see racialism as a byproduct of an evolved cognitive system. Despite several shortcomings, Hirschfeld's contribution to the

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<sup>18</sup> This fact is also problematic for Atran's view (Atran, 2001; see also Rothbart and Taylor, 1992). According to Atran, there is no need to posit any new cognitive system to explain racial cognition: races merely trigger our folk biology because of their perceptual properties. He would have to explain the differences between human racialist and biological cognitions. Positing an ethnic cognitive system may be instrumental in explaining these distinctions, even if this system is based on an exaptation of our folk biology.

understanding of racialism is important. Although more evidence is needed, he has made a convincing case that racialism results from a domain-specific cognitive system, that it develops early and that races are thought of in many respects as animal species are. However, we have rejected his human kind module and his evolutionary hypothesis. Kurzban, Tooby and Cosmides have shown that an evolved coalitional cognitive system may use concepts of races. However, we have rejected the claim that racialism results from this cognitive system. Finally, we have presented Gil-White's theory: humans have evolved an ethnic cognitive system and this system underlies racialism. Despite several shortcomings, we have underscored the merits of this proposal.

On the basis of this critical review, we can put forward eleven requisites for future theories of racialism. Some are uncontroversial, while others reflect our own theoretical commitments.

1. Races do not exist. Thus, there is no evolved module for racialism.
2. Racialism varies across cultures. A theory of racialism has to accommodate this diversity.
3. Classifications on the basis of phenotypic properties are similar all over the world. These similarities ought to be studied in more details by historians and anthropologists. A theory of racialism has to account for them.
4. The similarities suggest that racialism is the product of a universal cognitive system. Researchers have to specify precisely the cognitive mechanism(s) that underlies racialism.
5. To identify the origins of the concept of race, the cognitive system that produces the concept of race should be confused with the systems that use racial identification.
6. A theory of racialism should account for the evolution of this cognitive system. It should be consistent with the best paleoanthropological theories of the evolution of human social behavior.
7. Researchers should not interpret the empirical evidence through the controversial framework of psychological essentialism.
8. Researchers should not assume that our evolved folk theories, e.g., our evolved folk biology, are rich and rigid. Most of our folk beliefs are culturally transmitted.
9. Theories of racialism tend to be ambitious. In contrast, empirical evidence tends to be slight. Psychologists should derive many predictions from their theories. Various experimental paradigms should be used to test these predictions.

10. Cross-cultural data are needed to establish the universality of patterns of reasoning etc.

11. Psychologists should pay attention to individual differences. They may cast some light on the mechanisms that underlie racialism.

Although no current theory of racialism satisfies all these requirements, our review suggests that recent theories have significantly increased our understanding of racialism.<sup>19</sup>

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