CHAPTER EIGHT

Children's understanding of racial groups

Lawrence A. Hirschfeld

Research in psychology exploring children's understanding of race is principally concerned with the development of racial prejudice, and, particularly in the last decades, with the cognitive processes (like stereotyping, illusory correlation, etc.) that give rise to it. Less effort has been invested in exploring the development of the *concept* of race-the idea that human beings can be exhaustively partitioned into natural categories grounded in inherited biological differences. Several factors have contributed. Racial prejudice plays a crucial role in the organisation of political-economic life and is central to analyses of the nature and scope of social, economic, and psychological inequity. This in itself would doubtless privilege the study of racism as a political belief system over the study of race as a cognitive category.

There is, however, a less obvious factor contributing to this division of research labour; namely, an assumption that racism poses a genuine intellectual and social problem, whereas the concept of race does not. Understanding the causes of racism is not self-evident. After all, societies are not *necessarily* racist, and there is great concern with identifying the factors that determine its emergence and maintenance. Indeed, much study of racism is explicitly concerned with understanding prejudice in order to reduce or eliminate it. In contrast, race as a concept is viewed as essentially a transparent consequence of biological diversity.

The view that racial categories are “easy” to learn follows from what might be termed a “realist” perspective on race widely held among psychologists. On this view, the concept of race is directly derived from readily discernible biological variation, the recognition of which requires relatively low-level processes (a general propensity to categorise coupled with a device for recognising general patterns of perceptual similarity). Race, in short, is what the anthropologist Brent Berlin (1992) says, with reference to nonhuman biological variation, something that “cries out” to be named.

This is not to suggest that the formation of race concepts and race prejudice are considered to be independent phenomena. Since Allport's (1954) classic work, the dominant view seeks to explain racial prejudice as a function of the normal cognitive processes linked to concept or category formation. Prejudice is the regrettable precipitate of the processes of category formation when those processes are applied to person categories. Racial and other social categories are cognitively organised in the same way as object categories. People, in Allport's view (1954, p. 17), “slip so easily into ethnic prejudice” because the vagaries of “natural and common” processes of categorisation in themselves produce bias. For example, the tendency to reduce perceived differences among category members and amplify perceived differences between members of different categories applies both to chromatic colour categories (Kempton & Kay, 1984) and to social colour categories (Sporer, 2001). In short, learning about race is like learning about chairs or ducks, and the way that these categories are formed underlies the emergence of virtually all social prejudice. The overwhelming bulk of subsequent work in psychology has endorsed this domain-general cognitive framework (Hamilton & Trolier, 1986; Hilton & Von Hippel, 1996; Taylor & Fiske, 1978).

In this chapter, I will argue that none of these assumptions is warranted. Instead, I propose that the development of the concept of race is the product of a singular and specialised

knowledge structure. Prejudice is less an accidental consequence of general category formation than the conceptual "politics" of this singular and specialised knowledge structure. Prejudice is tethered to race because of the very peculiar nature of racial categories.

THE PROBLEM OF COGNITIVE ARCHITECTURE

The view that racial categories emerge through lower-order cognitive processes that apply to all perceptually based categories is difficult to reconcile with recent work on cognitive architecture. Research from several traditions in cognitive science has converged on a view that the mind is not a general processing device (see Hirschfeld & Gelman, 1994, for a review). This reappraisal of cognitive architecture was in part motivated by problems with the claim that a general notion of similarity is sufficient to account for judgements of similitude (Medin, Goldstone, & Gentner, 1990). The mind is composed of an amalgam of cognitive abilities specialised to handle specific types of information that define specific kinds of similarity. Special-purpose cognitive mechanisms are triggered by specific environmental conditions, sensitive to a specific range of input, and yield a specific kind of output.

To illustrate, it is now widely accepted that common sense (or naïve) psychology and common sense (or folk) biology are special-purpose cognitive mechanisms. Much evidence indicates that the human mind is organised (and likely to be preorganised) to interpret and predict behaviour that is motivated by mental states such as beliefs and desires, which are not directly observable (e.g., that Joe carries an umbrella on a sunny day because he believes that it will in fact rain that day and he desires not to get wet) (Baron-Cohen, 1996; Leslie, 1994). Similarly, the mind is disposed to sort nonhuman living things into nested hierarchies that support inferences about, among other things, the behaviours of nonhuman living things that go far beyond the information given (e.g., that a three-legged, albino tiger is still a tiger, and hence will act like a tiger, by virtue of a hidden intrinsic nature) (Atran, 1990; Carey, 1985; Gelman, 1989; Hatano & Inagaki, 1994).

Humans also interpret behaviour in terms of aggregate-level phenomena. For example, we anticipate that an individual's action (say, choosing which public bathroom to use) is motivated by the social group to which he or she belongs (in this case, his or her gender). Curious, as self-evident as this seems, only limited research has explored the cognitive mechanisms that support this sort of expectation. Humans invest massive cognitive effort in organising and interpreting their interactions with other humans. Plausibly, people spend more time talking and thinking about other humans than any other single dimension of the world (there is, of course, considerable variation in how people interpret others' speech and actions, a piece of conventional wisdom to cultural anthropologists, but increasingly to psychologists as well: Markus & Kitayama, 1991; Nisbett, Peng, Choi, & Norenzayan, 2001).

People attend closely to others as members of groups, analyse their behaviour in relationship to the behaviour of others in the same group, and seek information about others by listening to what people *say* about social groups and their interrelationships. Indeed, these group-based interpretations are often in "competition" with mental-state-based interpretations, and they frequently trump them. A prejudiced person expects a member of one race to be incompetent in some domain in virtue of expectations about members of that race rather than expectations derived from that person's individual properties. Our expectations about how a grocery store cashier will behave is similarly based on our expectations about social roles and the behaviours that flow from them, not on expectations, say, about how that individual happens to feel that day.

Social-group-based reasoning requires proficiency in identifying which group affiliations are relevant in a given context. This is not a trivial task given the multitude of groups to which each individual belongs. In virtually all human societies, individuals are members of many groups, and these groups often have competing interests. As a consequence, in any particular situation, an individual has several groups to which an attribution of membership can be made. A major cognitive and social task is to determine which affiliations and allegiances are relevant. Unlike mental states, for which a limited but highly informative and universal facial and behavioural "vocabulary" exists (Ekman, 1984), group affiliation and allegiance are not always clearly signalled. Perceptual cues are often thought to make group affiliation blatant-particularly for those groups that are precociously grasped, like race and gender. Still, it has long been acknowledged that perceptual evidence for the social *groups* themselves (as opposed to their members) is scarce (Asch, 1952). Moreover, arguably the earliest emerging social groups recognised by the child have few if any obvious perceptual correlates, namely kinfolk (Hirschfeld, 1989) (in spite of claims that young children initially focus on groups that are perceptually easy to distinguish).

Despite this challenge, strikingly, people are able to make fairly accurate social interpretations. Admittedly, mistakes-misattributions-occur. There are at least two errors possible when parsing a social situation. The first is misidentifying the group to which an individual belongs. The second is misidentifying the particular group affiliation relevant to an individual in a particular context. Both types of error are attention-demanding, most probably because both types are infrequent. The cultural cost of misattributions seem disproportionately linked to errors of the first type. There is a major genre in American literature and film, for instance, that treats racial misattributions as particularly anxiety-provoking and of great cultural concern (Hirschfeld, 2000). The fear that a (minority) individual is mistaken for a (majority) individual has occupied Americans (actually virtually all colonial administrations) from the earliest settlements in the New World (Stoler, 1995). Indeed, there is a complex-and shifting-set of cultural rules whose purpose is precisely to unambiguously resolve cases of ambiguous racial identity (Hirschfeld, 1995).

THE DEVELOPMENT OF SOCIAL CATEGORIES

Because of the centrality of these tasks for human social life, the degree of cognitive demand required to meet them, and the prevalence of specialised cognitive capacities associated with other structurally similar tasks, I contend that it is plausible, if not likely, that reasoning about a specific range of human categories, of which race is one, is governed by a special-purpose cognitive device. The remainder of this chapter outlines this hypothesis, puts it in context of what we now know about cognitive architecture, and presents evidence supporting this possibility.

For a child to understand society she must be able to identify and reason appropriately about social entities. Clearly social knowledge accumulates with experience. Nonetheless, children begin life with significant foundational (if rudimentary) and dedicated capacities for identifying and reasoning about social entities. The concept of *person* is a cognitive primitive, and by extension a social primitive (Bonatti, Frot, Zangl, & Mehler, 2002; G. Miller & Johnson-Laird, 1976). Infants are also endowed with capacities that permit them to track specific individuals by discriminating over faces and voices. They exploit this information to draw nondemonstrative inferences about individuals (e.g., as means of identifying a person's mood, intentions, etc.) (Baron-Cohen, 1996). They can also use these skills to recognise individuals as tokens of types of relationships (Bowlby, 1958), and display rudimentary

understanding of the intentions of other people (Woodward, Sommerville, & Guajardo, 2001). Further, they can use this knowledge to accrue new knowledge (as, e.g., when they use speaker's gaze to identify the reference of an unfamiliar word; Baldwin, 1991).

Infants and young children are also capable of gaining information about social aggregates. Consider early expectations about language. Neonates discriminate between mother's native language and speech in another language, even when mother's native language is spoken by an unfamiliar person (Mehler, Jusczyk, Lambertz, Halsted, Bertoncini, & Amiel-Tison, 1988), suggesting that a specific language is treated from the outset as a property of a group of people. Experience with multiple languages is not needed to trigger this expectation. Infants living in monolingual environments also give evidence of conceptualising language as an aggregate phenomenon. For example, with age, the infant's ability to discriminate between phonetic variation narrows (Grieser & Kuhl, 1989). The language-learner also needs to narrowly discriminate speech sounds to the point of recognising, and at times rejecting, information about the phonetic properties of intra-language accent. When children of non-native speaking parents, for example, develop native speaker accents, they are evidently showing sensitivity to a broader speech community rather than a local family environment. There are potentially several ways to account for this, but all turn on the language learner's capacity to attend less to frequency of input and more to the social boundaries (and social nature) of input. Somehow the language-learning child “weighs” linguistic evidence that presupposes that language is a population-based phenomena (Hirschfeld & Gelman, 1994).

Aggregates, of course, are composed of individuals. It is possible that the child's knowledge of aggregates is simply an extension of her knowledge of individuals. There is reason to be sceptical of this hypothesis. Many adult folk expectations about group membership and behaviour suggest that an adequate knowledge of aggregates cannot be adduced from knowledge of the individual persons who compose them (Hirschfeld, 2001). (Whether this represents an ontological truth-i.e., that aggregates are really greater than the sum of their parts-is beside the point of this discussion: people *believe* that there are aggregate social entities, knowledge of which is not adduceable from knowledge of individuals. Similarly there are aggregates-corporations-that are held to be responsible independent of attributions of malfeasance by identifiable individuals.) Aggregates sharing these sorts of properties with individuals (especially aggregates to which intentions are attributed) have a special kind of identity independent of their members' identities, a quality that is highlighted when they are referred to as “moral individuals”.

Intention-bearing aggregates are attributed with singular physical as well as conceptual properties. Yet coming to recognise and adequately characterise these aggregations is plausibly a more difficult task than coming to recognise and characterise individuals. Unlike individuals-who are bounded in both space and time, who move as a single unit, and who are identifiable by constellations of properties that are the product of a shared genome-aggregations are seldom encountered in ways that render their membership perceptually obvious (Asch, 1952). Nonetheless, adults readily ascribe properties to groups and conceptualise them as entities (Yzerbyt, Rogier, & Fiske, 1998).

Even young children do this. In a recent unpublished study, Michael Baran, Paul Bloom, Susan Gelman and I, adapting the task used by Heider and Simmel (1944) in their classic study, showed 5-year-olds a video depicting the movement of three groups, each group composed of collections with a distinct geometric shape and distinct colour. Children were asked to describe the movements of the objects depicted, each group of which moved

independently. Children readily attributed intentions to the objects depicted in the video, as had adults in an earlier study by Bloom and Veres (1999). Intriguingly, all children in our study used both plural and singular terms to refer to the objects, suggesting either very loose language or some conceptual distinction between instances in which singular referring terms versus plural referring terms were employed. We found that their use of number was associated with attributions of intentionality. Singular terms were used reliably more often when intentions were ascribed to the groups, and plural terms when nonintentional language was used. Thus, when the objects were interpreted as moving in an intentional manner, the group was conceptualised as a single entity. In contrast, when intentions were not ascribed to the objects, the individual members of each group were conceptualised as distinct entities or units. Evidently children conceptually distinguish between aggregates that are mere collections and those that they interpret as "moral individuals" with intentionality.

EMBODIED SOCIAL CATEGORIES

Not all groups are equally informative about their members, nor are all groups equally informative in parsing social situations. Individuals belong to multiple aggregations, each of which has different (and frequently competing) relevance depending on environmental conditions. At any given moment what an individual does may be contingent on the person being a friend, a colleague, or a token of an ethnic or gender type. Which of these underlies their behaviour requires considerable interpretive skills (as anyone who has participated in a faculty meeting knows). One way to manage this problem is to reduce the relative contribution that membership in different groups makes in interpreting an individual's behaviour. For instance, in a particular situation, an individual's behaviour might be interpretable as a function of that individual's membership in two different groups (say, race or occupation). If membership in one of these groups is reliably more important in governing behaviour, cognitive demand is reduced (since one membership can essentially be discounted as a causal factor underlying behaviour). Thus, for most Americans, race is unfortunately thought to be more crucial than occupation, as most minorities who have applied for a mortgage can attest.

Not all groups are conceptually equivalent. Membership in some is more constant *and* more relevant across time, place, and context. Membership in some-e.g., race and gender-carry substantial inductive potential (i.e., support a large number of inferences beyond the information immediately available), whereas membership in other groups does not-e.g., occupation or height. A parallel exists with the varied ways we conceptualise non-human living things. The same creature conceptualised as a member of a species-a dog-has more inductive potential than when it is seen as a member of an artifact category-a pet. Knowing that one dog barks is sufficient evidence for a young child to believe that all dogs bark; knowing that one dog makes a good house pet is not good evidence that all dogs make good house pets. In social categorisation, gender, race (in North America and Northern Europe), and age have great inductive potential. Knowing that someone is a woman, Asian, or elderly is informative in many circumstances and supports a broad range of inferences about how he or she behaves and or what he or she believes.

The enormous literature on stereotyping-stereotypes being by definition inferences beyond the information given-provide massive evidence of this (Hamilton & Trolier, 1986; Hilton & Von Hippel, 1996). Curiously, although this empirical support is massive, it is implicit. As noted earlier, most literature in psychology assumes that all social group categories are formed in the same way and have the same conceptual properties. I contend here that this is not the case,

that social group categories have very different conceptual properties. The empirical literature supports this precisely because it almost always uses social group categories that bear great inductive potential (particularly race and gender) (Hirschfeld, 1996).

Gender and race (as well as age) are all of a type. All are embodied (or putatively so). (This varies in degree from culture to culture. Race is not relevant in South Asia, where, for example, occupation is thought to be embodied in caste. In contrast, occupation is not thought to be embodied in North America: Hirschfeld, 1995.) All three categories-all three bases for aggregation-are associated with a density of correlated properties that are a product of each group's "genome-equivalent". There is a sizeable literature on how children come to grasp embodied groups. Most researchers have assumed that race and gender are precociously grasped because children find it easy to recognise tokens of embodied types-all members supposedly share a number of physical properties. Physical properties, however, need not be embodied in a perceptually obvious way. They may be inscribed corporeally in some hidden or underlying fashion. Gender, for example, is signalled by dress, preference, and behaviour, hence it is unsurprising that children discriminate between men and women in early infancy (Leinbach & Fagot, 1993; C.L. Miller, 1983). More strikingly, young children's *reasoning* about gender seems to depend on knowledge not of noncorporeal outward appearance, but typically hidden differences in genitalia (Bem, 1989).

THE EMERGENCE OF RACIAL THINKING

Race, while perhaps not so redundantly marked as gender, is nonetheless thought to be patently obvious, literally as plain as the nose on one's face. By the time children enter school they clearly notice the race of others and use race as a basis for further inference (Aboud, 1988; Katz, 1983; Van Ausdale & Feagin, 1996). Race awareness undergoes a singular developmental pattern. Categorical discrimination appears at the same time as the predilection to socially discriminate. By early school age, children show sensitivity to racial differences, the principal evidence of which are practices of racial inclusion and exclusion. This is a singular pattern of development in that most aggregates that become targets of stereotyping and prejudice are categorically recognised before stereotypes about them crystallise. Other embodied social differences-e.g., gender, age, and even language spoken-are reliability discriminated before they become the targets of biased judgements and practices of inclusion and exclusion. Infants, for example, discriminate people by gender long before they develop gender stereotypes (Katz, 1983). Similarly, as noted earlier, neonate can distinguish between languages long before the language someone speaks becomes the basis for prejudice.

The developmental pattern of the concept of race is actually more curious still. It is less the exception to the rule as its inverse. In proposing that the categorical discrimination of race and practices of racial social discrimination emerge simultaneously, I did not faithfully convey the developmental course of the race concept, which is based on what can be inferred from observations of the everyday lives of children. If we rely on naturalistic observation, social and categorical discrimination come to shape children's behaviour at the same time. Experimental evidence, however, indicates that children as young as 3 years of age are stridently prejudiced in the way they think about members of other races. Yet their everyday behaviour gives no evidence of this. Why this is so reveals the very specific nature of racial thinking.

The appearance of race

Race “appears” in two distinct fashions, first as a category in one putatively natural partitioning of the human population, and second as a belief *about* outward appearances linked to the system of partition. On a realist interpretation of race, these two are contingent. Thus, for example, the development of racial categories has virtually universally been attributed to the act of sorting people into categories based on the way they look (for a review of the literature, see Hirschfeld, 1996). Race as a category, on this view, is psychologically relevant because it is physically striking, and physically striking phenomena are attention-demanding.

The notion that race categories are fundamentally derived from visual information plays a central role in explaining the move from the concept of race to racial bias. Hamilton and Sherman (1996), for example, had adult subjects read statements that identified an individual with a group and described that individual as acting in a desirable or undesirable way. There were fewer vignettes about minority group members than majority group members, although the proportion of desirable and undesirable behaviours was the same for both groups. Nonetheless, when asked to match individuals to behaviours, subjects judged members of the minority group as having performed proportionately more undesirable actions than had actually been depicted in the vignettes. Hamilton explained the results in terms of information processing: Undesirable behaviours are more attention-demanding than desirable behaviours and minority individuals are more attention-demanding than majority individuals *because of their appearance, even though the stimuli were not visual*. In brief, subjects over-attribute undesirable traits to members of minority populations-that is, they exhibit prejudice-simply because they link two attention-demanding qualities, group membership and relative desirability of behaviour.

If racial group membership is easily distinguishable by virtue of outward appearance, and appearance powerfully affects information processing, it seems plausible to suppose that the perceptual factors are important to category *development*. Yet the relationship between visual information, category formation, and the emergence of prejudice suggest a considerably more complex structure. First, young children are typically inconsistent in sorting people into “appropriate” racial categories. Racial misidentifications-assigning a child, frequently oneself, to an “inappropriate” racial category-are common (Clark & Clark, 1950; Cross, 1991). It is not until elementary school that children's sorting people by race becomes reliable. It is also in elementary school that race begins to play an important role in shaping everyday social interaction, closely predicting patterns of social inclusion and exclusion. In contrast, during the pre-school years race plays little role in predicting playmate choice (Williams & Morland, 1976).

Curiously, this “colour-blind” pattern of playmate choice is not accompanied by “colour-blind” attitudes toward members of other races. By 3 years of age, children display marked bias in their interpretation of hypothetical situations. The methods used to assess pre-schooler prejudice vary, from the early doll studies of the Clarks (Clark & Clark, 1950) to more recent studies of Aboud and others (Aboud, 1988). All share a common format, however: Children are told about a child or adult who performs a particular act that is either positive (“a child finds a lost wallet and returns it to the owner”) or negative (“one child can't spell his name”). Subjects are then asked which of two persons, one black the other white, fits the description best. Using a fairly conservative metric, Williams and Morland (1976) propose that a child shows clear bias if his or her judgements are prejudiced on at least 17 of 24 items (i.e., they select the majority child when asked about positive events and the minority child when asked

about negative events). Summarising the results of several studies, Williams and Morland found that 72% of tested children were clearly biased.

These results are surprising. If nearly three-quarters of 3- and 4-year-olds hold clearly biased racial attitudes, why don't they "act" on these attitudes? Even accepting that attitude and behaviour are only indirectly associated, during the pre-school years children are not using race as a factor in social inclusion and exclusion, as older children are (Killen, Lee Kim, McGlothlin, & Stangor, 2003). Why, then, do even young preschoolers appear to endorse strident racial bias? The answer, I suggest, lies in the assumption that the input modality of information relevant to attitudes and the input modality of information relevant to behaviour are the same. If, instead, children are relying on one kind of input in finding targets for prejudice and another in determining with whom they play, differences in attitude and behaviour could easily be explained.

Several years ago I put the question to test, specifically by investigating what modality of information is relevant to the formation of racial and other social categories (Hirschfeld, 1993). Three- and 4-year-old French children were assigned to one of two conditions: Half listened to a narrative in which the characters' race, occupation, body build and gender were mentioned (although none of these dimensions was important to the narrative's plot). The other half viewed a cartoon story book in which the same social attributes and same narrative plot were visually depicted. After listening to the verbal story or viewing the cartoon story book version, children were asked to recall the story. The study's logic was straightforward. Children's memory for social information should reflect the kind of input to which they attended. If children relied on the same kinds of input in their representations of race, then their retelling of the story in both conditions should be largely the same. If they relied on different kinds of input, then their recall of the story should reflect these differences. We found that there were significant differences in the verbal and visual conditions. In the verbal condition, race was a highly salient category: Both younger and older preschoolers recalled the race of the characters in the story. In the visual condition, in which the standard view might predict high rates of recall, the character's race was almost never mentioned. Older pre-schoolers actually remembered nonracial physical features more than they remembered racial ones. What can be inferred from these findings? First, in building mental representations of race, 3- and 4-year-olds concentrate their attention on verbal information, not information about physical appearances.

Children are clearly curious about the elements that constitute the social world. Not surprisingly, in both conditions children were able to recall a good deal of information about the gender, occupation, and mood of each character. Young children are also curious about race, as the prejudice studies demonstrate. They are, however, unsure of physical properties diagnostic of race. Instead, they attend more to verbal information in building a catalogue of relevant group differences and use this information to interpret behaviour. Knowing that someone is a member of a minority race-knowing the appropriate linguistic *term* for a minority race-warrants using that information to infer behaviour under conditions of considerable doubt, under conditions in which the *only* thing the child knows is the individual's race. This categorical information is more crucial than information about the specific physical features associated with each race. (It is important to stress that children associate race with physical differences from the outset. What is relevant here is that they appear not to be concerned with what the specific physical differences actually are. Shown pictures depicting people who exhibit embodied differences, they tether these differences to negative attitudes. This is the only physical information with which they are presented. In

everyday life, however, people vary on many dimensions, and the information sufficient to link a distinctively unusual person with a racial attitude is no longer possible; at least not until children set for themselves the task of identifying the relevant physical differences associated with race, something they do toward the end of their fifth year.)

RACE AND REALITY

As I suggested earlier, it is widely believed that race is one of several embodied social categories. On this view, race captures actual and perceptually discriminable discontinuities in corporeal appearance. A developmental consequence is that children recognise these discontinuities as relying on relatively lower-order perceptual processes such as colour, shape, and texture perception. The child attends to little more than (skin and hair) colour, (nose and lips) shape, and (hair) texture in order to sort people into racial categories. Reasoning about race is initially similarly concerned with surface appearances.

Understanding how the child discovers and represents race is interesting to the extent that it is informative of a developmental process from initial states to some adult endpoint. In the overwhelming bulk of studies, the adult endpoint is assumed to be the realist view that humans are partitioned into natural groupings, readily discriminated by visual cues. It is this adult belief system that a developmental account needs to explain. Because the realist view represents the principal, if often tacit, interpretation of the phenomenon under scrutiny, it is important to be sure that this view adequately captures the adult belief system-and the phenomenon that the adult belief system is meant to reflect. As self-evident as the realist view is assumed to be among researchers in psychology, it may not in fact be the case. Indeed, I argue that the realist view is not an adequate account of the adult belief system, rather, it is a (folk) belief about the adult (folk) belief system.

Specific claims about outward appearance, in fact, are neither the only nor the most important attributes of racial thinking. For adults in North America and Northern Europe, the concept of race includes a corollary belief about unseen or inner traits as well as outward appearance. In many ways, it is this account of inner traits that makes race both a powerful concept politically and an inferentially potent one conceptually. Consider biomedical research and clinical practice. In both, race is frequently used explicitly in compiling risk factors to disease (hypertension, prostate cancer, sickle-cell anaemia, etc.) and serves implicitly to explain them. The logic of this analytic strategy rests on the frequently observed statistical association of race, presumably as a physically apparent category, and disease. Being a member of a race that *looks* a certain way is in fact linked to the way that person is internally constituted. Still, individuals whose membership in a particular race is determined genealogically rather than by induction from appearances are considered to be as susceptible to a (putatively) race-related disorder as someone whose appearance accords more closely to racial "prototypes".

This expectation can be derived from a constellation of claims that are central to the concept of race. The adult folk belief system comprises three related propositions: the belief (1) that humans can be partitioned into discrete groupings based on their physical constitution, (2) that "physical constitution" includes clusters of enduring traits in outward appearance as well as clusters of enduring nonobvious or inner traits, and (3) that these outward and inner clusters of traits are the product a single causal relation involving attribution of an inner, heritable essence specific to each racial group. Nothing in this characterisation seems self-evidently controversial. Controversy arises around which particular nonobvious traits are causally linked to race (i.e., whether the claim is that members of one race are cognitively inferior to

other races versus whether the claim is that members of one race are more likely to have a genetic disposition for hypertension).

Unfortunately the characterisation misrepresents the scope and nature of population differences; ultimately this misrepresentation has important consequences for the nature and course of development of racial cognitions and, hence, any account of them. The first and most fundamental inaccuracy is that, contrary to a realist account, human biological variation is not captured by *any* known system of racial thinking. Indeed, worldwide there are almost as many systems of racial categorisation as there are cultural traditions that include them. Moreover, there are massive differences between them. A further complication is that biological variation in outward appearances diagnostic of race typically are a function of adaptations to climatic variation. Consequently these differences are literally on the surface. There simply are no consistent inner correlates to racial categories (Marks, 1995). From the viewpoint of a particular system of racial categorisation, like those found in North America and Northern Europe, the categories seem to reliably pick out differences in appearance. To some extent this is true even from a perspective outside the system of categorisation, but only if we are concerned to link racial categories to differences in appearance as opposed to biological relevant differences in type. Social factors, like marriage laws that kept members of different racial categories from *marrying,* contribute to our common sense perception of race as readily apparent. It should be noted, however, that marriage laws do not govern *mating,* so that even in societies in which social factors come to bear, they do not ensure reliable biological differences.

Why, then, do differences in susceptibility to disease seem to map onto racial categories? Surely such mappings suggest some reliable link between these categories, outward appearance, and nonobvious inner phenomena. The problem is that the apparently reliable link between biomedical conditions, such as differential risk of various diseases, reflect differences in the distribution of properties derived from populations of origin. These population differences are subsumed, typically haphazardly, under racial categories. Accordingly, because differential susceptibility to disease is linked to population of origin, and population of origin is in turn linked to particular racial categories, a statistical association between race and epidemiological consideration emerges. But the population and the racial category are virtually never coterminous. Indeed, racial categories typically (and massively) overdetermine epidemiological patterns of disease susceptibility.

Since this might seem counter-intuitive, at least from a viewpoint grounded within a system of racial thought, consider a specific case. Sickle-cell anaemia is a genetically determined malady generally described in Western medical literature as a racially varying susceptibility. Blacks are considerably more susceptible to the disease than whites. Biomedical researchers have long “recognised” that sickle-cell anaemia is higher among American blacks than American whites. However, this effect is not as direct-or causal-as biomedical researchers suggest. Rather it is largely carried by the fact that rates of sickle-cell anaemia are higher among descendants of a population originally from Central Africa that is largely subsumed under the category of American blacks. Still, most American blacks are not descendants of this population. The relationship between American blacks and higher rates of sickle-cell anaemia is, in fact, a function of a social system of classification, not of population dynamics. If a greater percentage of American whites were descendants of Sardinian immigrants, among whom rates of sickle-cell anaemia are also high, there might well be no difference in susceptibility to the disorder between American blacks and American whites. There are a proportionally higher percentage of individuals descended from Central African populations

among American blacks then there are individuals descended from Sardinia among American whites. Hence the association to race in one case, and a lack of one in the other. Still, at the turn of the 20th century, Southern and Eastern Europeans were not considered white in America. Had rates of sickle-cell anaemia been compiled then, the association between race (Southern Europeans) and the distribution of this disease would have been as “reliable” as that found among blacks and sickle-cell anaemia now.

Supposed perceptual differences seem to follow from particular systems of racial thinking rather than racial thinking following from perceptible difference. Before the collapse of apartheid, the South African government maintained racial identity courts to which one could petition to change racial assignment. These courts regularly made determinations that left full siblings or parents and children no longer classified as members of the same race. Such paradoxes are not limited to the especially well-codified (and hence open to more obvious inconsistencies) South African system of racial thought. In a fascinating account, the historian Linda Gordon describes how a group of “nonwhite” Irish children left New York by train in the early decades of the 20th century, yet arrived “white” a few days later in Arizona (Gordon, 1999).

Realism and development

What developmental consequences does all this have? According to the standard view, early representations of race are driven by surface differences in appearance. These differences are interpreted as superficial; i.e., they are interpreted solely in terms of their outward, surface properties. Young children are thought to form racial categories much as they form other object categories, on the basis of like-goes-with-like. Pre-school-age children, on the standard account, would not grasp racial constancy-would not understand that a person's race does not change over time-because they would not grasp that race is a function of family biological background. Several studies have lent support to this view. In one, kindergarteners (5-year-olds) and third graders (approximately 8 years old) were asked what would happen if a familiar child were made up to look as if he had changed race (e.g., if a white child was made to look like an Inuit child). Unlike third graders, kindergartners reasoned that the person's race had changed (Aboud, 1988). Semaj (1980), using a similar protocol, found that 4-year-olds expected that a black child made up to look white had become white. These results are interpreted as evidence that children, unlike adults, do not conceive of race as embodied, as a function of biological or corporeal nature.

If this were an accurate account, it would raise an important cross-domain question. Young children, for instance, readily grasp the deep natures of the relationship between members of categories that at first blush seem much like race, such as nonhuman living things (Gelman, 1989). Why would similar adult-like beliefs be absent in a domain of knowledge at the core of children's social reasoning? After all, from the literature on young children's racial attitudes we know that children use race as a basis for going far beyond the information given, a pattern of reasoning not at all consistent with the idea that these children conceive of race as a superficial attribute. To better appreciate this conundrum, consider young children's reasoning about gender. As in the literature on race, it has been widely accepted that pre-schoolers do not grasp gender constancy. Support came from studies using manipulations similar to those used by Aboud and Semaj. More recent studies, however, have convincingly demonstrated that 4-year-olds have an adult-like grasp of gender constancy (Gelman & Taylor, 2000). Pre-schoolers' beliefs about gender are not simply derived from outward cues, but rather in a notion of embodied but hidden physical properties. Bem (1989), for example, found that those

pre-schoolers who grasped gender constancy, as assessed on traditional measures, had domain-specific knowledge that the genitalia constitute the defining attributes of male and female.

Gender is not the only phenomenon in which pre-schoolers demonstrate a more adult-like understanding of constancy. Similar results obtain for species constancy. Even very young children expect that a creature's species and its inherent nature are constant and more informative of that nature than surface-level similarities (Gelman, 1988; Gelman & Coley, 1990). Gelman and Wellman (1991) found that species-typical properties are conserved even when a creature is raised among members of a species whose species-typical properties are quite different. Children also grasp that creatures that change radically in appearance during development (e.g., tadpole to frog or caterpillar to moth) remain the same kind of creature. Pre-schoolers also expect that internal bodily functions, such as digestion, are involuntary (Hatano & Inagaki, 1994).

This constellation of expectations is consistent with a more explicitly articulated adult belief that a creature's specific kind and inherent nature are causally linked to a species or gender essence that is unseen but that governs the development of and inherent nature of all tokens of the kind. Atran and his colleagues (Atran, 1990, 1995; Bailenson, Shum, Atran, Medin, & Coley, 2002) provide considerable cross-cultural evidence that this constellation of beliefs is universal in both adults' and children's thought. Other work suggests that species essence is conceived as both hidden *and* particulate, fixed at birth when it is transmitted from mother to foetus during pregnancy (Springer, 1996). Perhaps most strikingly, children's expectations about essences seem to develop largely on their own, and are not dependent on adult tuition (Gelman, Coley, Rosengren, Hartman, & Pappas, 1998).

Much of this research construes children's and adults' beliefs about embodiment, constancy, and inherent nature as part of complex knowledge structures best characterised as folk theories (sometimes called lay theories or naïve theories). Folk theories, unlike scientific theories, are resistant to change. But like scientific theories, these theories function to channel attention toward particular kinds of phenomena, to favour a particular range of causal explanation, and to recognize a set of concepts that link the phenomena to relations in the world that affect them. Standard accounts of race treat children's beliefs as limited to surface-level explanations. But increasingly, research indicates that race can also be understood in terms of a folk theory endorsed even by young children. Hamilton and Trolier (1986) define stereotype as “a knowledge structure containing a perceiver's beliefs about the characteristics and behaviors of a particular social group” (p. 137). Young pre-schoolers' racial prejudice and gender stereotypes fit this description well. The ready use of these biases and stereotypes indicate that pre-school children's representation are consistent with one aspect of the adult folk theory of race; viz. that race has great inductive potential.

Studies that I have conducted demonstrate that much of the adult racial belief system is also shared by young children. One reason that this is not revealed in earlier research is a task demand of the most common paradigm used to access children's understanding of racial constancy. Recall that in both Aboud's and Semaj's studies, children were asked about abrupt and contrived changes in a child's appearance, about which the experimenter asked counterintuitive questions. The most rudimentary form of object constancy, which even infants grasp, would predict that a person remains that person from one moment to the next under pretty much all states of affairs. If the experimenter asks a young child whether a person remains a particular person from one moment to the next, the question is arguably

leading. Why would the experimenter ask it, if the answer isn't derived from deeply grounded common sense? To avoid this potential problem, when I explored young children's grasp of racial constancy, I asked about changes over time that are accompanied by other dramatic bodily changes: Specifically, changes that accompany growth and inheritance. With age, a person's body changes dramatically, although identity does not. Similarly, a child resembles his or her parents but not exactly. Would young children interpret race such that it is not constant over these changes?

I found that the answer is no. In contrast to the standard account, even 3-year-olds believe that race, unlike many other social categories, is fixed-at-birth, impervious to environmental influences, immalleable over the lifespan, inherited, and essentialised (Hirschfeld, 1996). In sum, children clearly believe that humans can be sorted into distinct types on the basis of their concrete, observable constitution. Like adults, they interpret "observable constitution" as embodied, natural, enduring, and a function of unseen and inner qualities. They also understand that race is an explanation of how observable properties in appearance and behaviour are linked to this embodied, incorrigible nature. Race is neither a catalogue of surface differences in appearances nor a catalogue of differences in behaviours. Race is a theory of difference, a theory of behaviour, that *interprets* differences in appearance and behaviour.

I am proposing here that race and gender are singular social categories by virtue of the inherent underlying natures that children and adults attribute to them. There is an alternate explanation of the pattern of racial and gender reasoning I've described. It is possible that children attribute nonobviously derived inherent natures to *all* social categories. Admittedly this would stand the standard view on its head, suggesting that preschoolers are not mistaken in thinking that all social categories are a function of surface-level phenomena; rather, they are mistaken in thinking that all social categories have underlying essential natures. Young children's reasoning would thus not reflect a naïve nurture strategy, as the standard view holds, but a naïve nativist one.

This possibility can be ruled out by earlier studies that I conducted. In them I found that pre-schoolers do not treat all social categories alike either in terms of how they are encoded or how they are reasoned about. For example, in one story-recall study, 3- and 4-year-olds revealed good memory for visually marked social categories like gender and occupation but not for race, an equally visually marked social category (Hirschfeld, 1993). In a switched-at-birth study exploring children's reasoning, 4-year-olds expected a black couple's child to be black even if he were raised by a white couple. Another group of 3- and 4-year-olds similarly expected a hefty couple's child to be hefty even if he were raised by wiry adoptive parents. Thus, pre-schoolers endorse a nativist interpretation of race and physique. However, when a third group of children were given a task in which race and physique were crossed, and asked to choose between a hefty white child and a wiry black child, even 3-year-olds reasoned that a hefty, black couple's child would be black and wiry, not white and hefty (Hirschfeld, 1995). This implies that even if children are nativist about other social categories, they distinguish the extent to which different embodied social categories are malleable.

CONCLUSION

Each chapter in this volume examines how children come to understand different aspects of different social entities. This chapter's goal is to explicate how children's concept of race develops. A good deal of effort was devoted to explicating the peculiar and typically

unappreciated nature of the adult concept of race, in particular to the mistakenly realist perspective that has predominated in the vast psychological literature on race and racism. By doing this, I hope to have shown that the task of acquiring an understanding of the adult concept is a major cognitive challenge. Children could come to understand race via processes of empirical generalisation, in which they use a strategy of identifying similarities in outward appearance and assigning certain patterns of appearance to racial categories. I have tried to show that there is little evidence to support this view. Children do not learn about race because it is so evident; they learn that it is supposed to be so evident because it is governed by hidden but crucial processes.

I have further suggested that the young child's expectations about race, virtually from the outset, are surprisingly theory-like and adult-like. Like adults, they see race as emerging from hidden essences that govern development, conserve identity across substantial perceptual transformations, across important variation in conditions of the environment, and across generations. This cluster of beliefs is the product of elaborate knowledge structure. Clearly this knowledge structure changes over time; this is a developmental process. Importantly, however, the development is not, as is typically believed, from simple to complex, from fragmentary to consolidated, from immature to mature. Like several domains of thought-naïve psychology and naive mechanics being uncontroversial examples-children's understanding of race seems to be shaped by a preorganised and special-purpose programme of learning (Carey & Spelke, 1994).

I propose that there is a dedicated cognitive device that identifies and treats some social categories in a very specific way: It construes them as embodied and natural (more accurately controlled by natural processes). Race, I contend, is a product of a core domain-specific competency, which elsewhere I have described as folk sociology (Hirschfeld, 1996). The race concept is not the only expression of this competency: Categories of kinship, gender, caste, age-grades, and certain construals of class are all expressions of a folk sociology device. Interested readers can consult other material to learn more about folk sociology, but one of its further properties is that it is a programme to acquire knowledge. This acquisition process is not independent of the environment in which it operates. Race is not an inevitable “discovery” of the mind any more than it is an inevitable “discovery” of biology. The race concept is acquired in cultural environments in which race is an ambient belief. In other cultural environments, other concepts are ambient, and hence acquired (expressed through folk sociology). In South Asia race is not a relevant (nor recognised) embodied and natural dimension of the social world, but “occupation”, in the guise of caste, is. I would argue, however, that cultural variation in social categories types is far from unlimited. Race and caste are very “easy” to learn in that they resonate with domain-specific susceptibilities. They are, in Sperber's (1990) sense, “catchy”.

How so? Let me close by citing another recent, unpublished study. In earlier work I found that 3-year-olds are as willing to naturalise occupation as race, whereas 4-year-olds are not (Hirschfeld, 1995). I concluded that 3-year-olds are still in the throes of “parsing” the social environment for embodied and natural categories. Because this parsing is fragmentary and tentative, occupation is not yet “ruled out” as a relevant embodied and natural category. Still, as South Asia reminds us, occupation is eminently naturaliseable when provided with the necessary cultural support.

Susan Gelman and I wondered if there were other cultural possibilities that young children might be open to that were not supported by environment and hence were endorsed only

briefly. Several cultural traditions, including Renaissance and later late-colonial Europe, held that children could develop embodied properties naturally but not through procreation. Specifically, it has been claimed that children can develop physical and behavioural qualities as a result of being wet-nursed. Gelman and I presented American pre-schoolers with a task that assessed whether they too might entertain this notion, even though it is obviously not supported by contemporary American culture. We used a switched-at-birth task with two conditions: In the first, children were told about an adoptive mother who bottle-fed her adopted child, and in the second, about an adoptive mother who breast-fed her adopted child. We found that 4-year-old children in the breast-fed condition were more likely to reason that the adopted child would share physical properties with the adoptive mother than were children in the bottle-fed condition, suggesting that they were open to endorsing a theory of natural reproduction unsupported by their particular culture but supported by others. In contrast, there was no condition effect among 5-year-olds, suggesting that this cultural possibility was foreclosed.

In sum, I suggest that asking about how children come to understand race may not be the optimal question. Rather, it may be more informative to ask how children come to understand the class of social entities of which race is one culturally specific token.