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Building a Better Bridge

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An essential developmental task facing infants and young children from across the world's communities is to identify key individuals (e.g., their family pet, a favorite sippy cup), to form *concepts* that capture commonalities among the individuals they encounter (e.g., dog, cup), and to learn *words* to express them (e.g., “Magic,” “dog,” “cup”). There is now considerable evidence that even before infants take their first steps, their conceptual and linguistic systems are powerfully linked. What this means is that the concepts infants form are shaped not only by the objects they encounter and events they witness but also by the words that accompany them.

Most of the developmental evidence documenting this link between naming and concepts derives from investigations focused on categories of *objects* (e.g., dog, animal). More recently, researchers have considered the role of language in young children's categorization and reasoning about *people*. This work, which has revealed some intriguing parallels that showcase the power of language—and naming in particular—in the early establishment and use of social categories and object categories alike, provides a strong initial footing as we begin to build a bridge that will bring fundamental issues in object categorization into serious contact with issues in social categorization. At the same time, however, it is now apparent that the current blueprint for this bridge is far too narrow. If we are to build a bridge that is sufficiently strong to describe, predict, and explain the development of social categories like those based on race, ethnicity, or gender; how these are shaped by experience; and how they gain inductive force, it is essential that we broaden its footings to include infants and young children raised in a more diverse set of circumstances that reflect more fully the range of human social experience.

WORDS AND OBJECT CATEGORIES

The developmental evidence on naming and object categorization reveals that from infancy, naming has powerful conceptual consequences (see Waxman and Gelman, 2009 for a brief review). In the eloquent words of Roger Brown (1958), words serve as invitations to form categories. Recent work reveals that even before they begin to produce any words on their own, naming facilitates the formation of object categories and supports the use of these categories in reasoning about objects. For example, Waxman and Markow (1995) presented infants with several distinctly *different* toy objects (e.g., a dog, a duck, a bird), all members of the *same* object category (e.g., animal). Infants' ability to detect the category-based commonality among these individuals was influenced powerfully by naming. All infants saw the very same sets of objects; for all infants, an experimenter called attention to each object as she offered it to the infant. For infants in the No Word control condition, she said, “See what I have?” But for infants in the Word condition, she introduced each object in conjunction with the same novel word (e.g., “See the *fauna*?”). Infants in the Word condition detected the commonality among the distinct individuals; those in the No Word condition did not. This facilitative effect of words has now been documented in infants as young as 3 and 6 months of age.

Moreover, this “invitation” has considerable conceptual force, directing infants' subsequent attention to new objects, even if they have yet to be named. In addition, providing a category name promotes infants' and young children's *use* of that category as an inductive base. For example, if they discover a new property of one individual (e.g., it makes a particular noise when it is shaken), they are more likely to expect that this property will also be true of another member of the category,

if that category has been named (Graham, Kilbreath, & Welder, 2004).

IMPLICATIONS FOR SOCIAL CATEGORIES

Of course, fundamental cognitive processes like categorization and inductive inference are not engaged uniquely by *objects*. We also make strong and abiding inferences about *people*. From a developmental perspective, the key question is how these social categories develop and whether they have the inductive strength to guide children's expectations about the behaviors and intentions of others. This is especially compelling because it is clear that the content of our social categories, especially those based on race and ethnicity, are not innately given but are instead social constructions tuned by experience and learning. In fact, although the belief that the social world is comprised of distinct *kinds of people*, partitioned on the basis of race and ethnicity, enjoys scant scientific support, it is held deeply and universally and carries serious consequences: Racial and ethnic categories function essentially as "natural kinds," and like other natural kinds, they support strong inferences about members of those categories, including inferences about the capacities, intentions, and behaviors of individuals that we will never encounter in our direct experience.

How do these socially constructed social categories develop? Does naming promote the establishment of social categories and support their use, for better or worse, as an inductive base? Certainly, this claim has been with respect to adults. As Gordon Allport observed, category labels "act as shrieking sirens...deafening us to all finer discriminations that we might otherwise perceive" (Allport, 1954, p. 179). Although it is unlikely that category labels deafen us entirely to distinctions among individuals, the power of social category names cannot be denied.

But what about young children? We know that infants and preschool-aged children *notice* a range of physical features that will become correlated with social categories (e.g., skin color, hair length, native language, type of dress) and use these features to distinguish between individuals. Importantly, however, there is little evidence that they *use* physical features like these to predict the behaviors of others—unless social categories are highlighted explicitly (Patterson & Bigler, 2006).

This raises a chorus of crucial questions. How, in the natural course of development, do social categories like these become highlighted? How

do children move beyond noticing that individual people vary along certain dimensions (e.g., skin color, native language, or accent) and begin to establish distinct *kinds of people*? How do these social categories gain inductive force?

WORDS AND SOCIAL CATEGORIES

Together with others in the field, I have recently begun to address these questions (Waxman, 2010). To do so, I have adapted a standard cognitive task—the "category-based induction" task—to examine how 3- and 4-year-olds establish categories of *people* and use these categories to support inferences about others. In this task, an experiment introduces a child to a picture of one individual (e.g., a White woman). Children complete this task with a range of different individuals (e.g., a White woman, a Black man, etc.). She then teaches the child a novel property of that individual—one that cannot be observed from perceptual inspection (e.g., "See this one? This one loves to play a game called *zaggit*").¹ We then ask how broadly the child is willing to extend that property to other individuals.

On the one hand, the results are reassuring: Children overwhelmingly used the broad category *person* as an inductive base. They judged that the novel property could be extended equally to other people, regardless of their race or gender. (Children did not tend to extend the property to nonhuman animals or artifacts.) This tells us that in the absence of evidence to do otherwise, preschoolers use the broad category *people* to guide their expectations about the behaviors and dispositions of others.

But how do children begin to partition this broad and inductively rich category into distinct *kinds of people*? Here, we found a powerful role for naming: Providing a novel category name for the target individual highlighted that individual's membership within a distinct *kind of person* (based on race or gender) and licensed the use of that *kind of person* as an inductive base when reasoning about the preferences of others. More specifically, we found that if we introduced the target individual (e.g., a White woman) as a member of a named social category (e.g., "This

¹ We introduced novel properties because if we had introduced familiar properties (e.g., likes to eat *ice cream*), children's performance might very well have been influenced by their existing expectations and observations (e.g., that most people, and even some non-human animals, like to eat ice cream).

one is a *Wayshan*)², they no longer extended the property (e.g., “loves to play a game called *zaggit*”) equally across all people. Instead, they were now *more likely* to extend it to other individuals from the same social category (either race or gender) as the target individual. Importantly, although in this task *only* the target individual was named, although the novel name was applied only to a single individual (the target), the influence of this name extended beyond that individual. It guided children’s expectations of other—and unnamed—individuals presented at test.

What this suggests is that naming is instrumental in the establishment and use of social categories (e.g., Diesendruck & HaLevi, 2006; Patterson & Bigler, 2006; Rhodes & Gelman, 2009). Naming supports the belief that social categories are natural kinds, and that individual members of these kinds have commonalities that surpass our direct observation.

BUILDING THE BRIDGE

This work, together with other work in this volume, reveals fundamental parallels underlying the establishment of *kinds of objects* and *kinds of people*. In particular, category naming appears to provide key structural support for connecting the rich research traditions in our categorization and reasoning about *objects* and about *people*. However, the bridge is still shaky, not only because construction has only recently begun but, more important, because its grounding is precipitously narrow. After all, the social categories that we form, and the inductive potential that these categories ultimately hold, are highly inflected by our experience with members of our own social group and others. This includes our direct interactions, observed interactions, and the information that we glean from the comments and behaviors of others. Because the breadth of social experiences available within different communities varies widely, and because the social categories we form are shaped by this kind of experience, it is surprising to find that with only a few noteworthy exceptions, the bridge that we are currently building rests predominantly upon evidence from White children raised by White, middle-class parents in predominantly White, urban, Western communities.

² We introduced novel words (e.g., “*Wayshan*”) because, by definition, these have no a priori meaning for the child and therefore permit us to examine the effects of naming, independent of any potential confounds related to their familiarity with known social category names.

If our goal is to build a bridge that is sufficiently strong to describe, predict, and explain the origins of social categories like race and ethnicity, how these are shaped by experience, and how they gain inductive force, we must consider the developmental trajectories of infants and young children raised in a more diverse set of circumstances that reflect more fully the range of human social experience. Therefore, in what follows, I outline several issues that underscore the importance of broadening the empirical base.

CHILDREN WHO ARE MEMBERS OF MINORITY GROUPS MAY ESTABLISH CATEGORIES BASED ON RACE OR ETHNICITY EARLIER THAN THOSE FROM THE MAJORITY

The existing evidence suggests that social categories based on race and ethnicity may emerge later than those based on gender (Rhodes & Gelman, 2009; Waxman, 2010). However, this developmental pattern may be a consequence of the fact that the developmental evidence thus far involves predominantly members of the majority culture. It is quite plausible that, by dint of their experience, children from minority groups will establish racial and ethnic categories earlier than their majority-culture counterparts, especially because the contrast (both implicit and explicit) between their own in-group and the majority is likely more tangible, and the consequences of category membership more apparent.

VARIATIONS IN EXPERIENCE MAY MATTER MORE IN CARVING OUT SOCIAL CATEGORIES BASED ON RACE AND ETHNICITY THAN THOSE BASED ON GENDER

Across cultures, categories based on race, ethnicity, and gender are tenaciously held and readily imbued with inductive force. But variations in experience may matter more for racial and ethnic categories than for gender categories. In contrast to the convergence in gender categorization across cultures (male vs. female), there is considerable variation in the particular racial and ethnic categories identified within a culture, and variation in the criteria for membership in those categories. For example, the “one-drop rule” was accepted as the criterion for classifying an individual as African American in some—but not all—US states; the federal criterion for classifying

an individual as a Menominee Indian is currently 25% Menominee blood ancestry.

From a developmental perspective, gender-based distinctions may emerge early for several different *kinds* of reasons. First, consider experience. With rare exception, infants and young children observe and interact with both males and females on a daily basis. But their exposure to members of distinct racial and ethnic groups varies widely. Some children grow up with little or no firsthand exposure to members of racial or ethnic groups other than their own. Others are raised in more diverse communities; in some diverse communities, individuals from different racial groups participate jointly in the social milieu, but in others, children are exposed to individuals from different racial groups within the context of sharply segregated communities. This variation in experience is likely to have significant impact on the social categories children carve out and the valence that these will hold.

Second, at least some of the consequences of gender category assignment are quite explicit (e.g., gender-specific initiations in traditional cultures; gender-specific restrooms, toys, clothing, and behavioral norms in the Western industrialized world). Third, there are cognitive factors that favor the acquisition of binary distinctions (like gender) over graded distinctions (like race and ethnicity) within categories. Finally, we name the gender-based categories ubiquitously in the input to young children, mentioning gender categories like “boy” and “girl” more explicitly—and less self-consciously—than racial- or ethnic-based distinctions. For example, teachers typically address their classrooms using gender names (“Boys and girls, I want you line up quietly for gym”). In contrast, there is a clear prohibition against invoking racial or ethnic names in such circumstances (“Whites, Blacks, Hispanics, and Asians, please settle down”). The same is true in addressing adults (e.g., “Men and women of the Class of 2013”).

WHAT IS THE SCOPE OF CHILDREN’S INITIAL RACIAL AND ETHNIC CATEGORIES, AND HOW ARE THESE SHAPED BY EXPERIENCE?

Do children initially make a binary partition, distinguishing their own “in-group” from all others? For example, do White children use “non-White” as an inductive base, grouping together individuals that are Black, Hispanic, Asian, or Native American, or do they carve out more specific categories? How is this process mediated by

membership in a racial minority? For example, do Native American children in the United States initially make a binary distinction (native or non-native), or do they initially carve out more specific groupings among nonnative individuals? Also at issue is whether children, like adults, make finer partitions within their “own” social category than in others. Such distinctions are, of course, shaped by experience. For example, in New York City, and particularly in the Black community, a distinction is drawn between Blacks of African versus Caribbean descent, but this distinction is barely noticed in most White communities. This raises the question of how factors such as native language, dialect, or behavioral practices contribute to the establishment of such distinctions.

HOW DO CHILDREN INTEGRATE THE RANGE OF CORRELATED CHARACTERISTICS THAT CONSTITUTE SOCIAL CATEGORY MEMBERSHIP?

Researchers have tended to focus on a single physical feature (e.g., skin color, native language). Infants become sensitive to features like these early, and their sensitivity is tuned by their experience (Kinzler, Shutts, Dejesus, & Spelke, 2009; Sangrigoli & de Schonen, 2004). But although physical features like these may serve as entry points, the racial and ethnic categories that we ultimately form tend not to be reduced to such features alone. Instead, in the natural course of social experience, variations in physical features, coupled with variation in native language, dialect or speech register, and cultural practices, are all part and parcel of the “diversity” experience. How do these come together as children carve out distinct *kinds of people* and their valences?

HOW DO WE DECIDE WHICH CATEGORY SERVES AS THE APPROPRIATE INDUCTIVE BASE?

If any individual is a member of many social categories (e.g., woman, African American, physician, grandmother), then how do we determine the range of extension for a given property applied to a given individual? The answer will likely depend upon the property in question, the social category in question, and the child’s experiences with a range of social groups.

In closing, the object categories and social categories that children carve out, and the inductive power with which they are imbued, are shaped

not only by the diversity of objects and people that they observe but by how these are marked in their language. This finding, coupled with other work reported in this volume, begins to connect decades of work in cognitive and social development. But the bridge that we are now building is precarious: It rests on far too narrow an empirical base. To advance our theories of development and to promote positive social and educational outcomes for children growing up in the diverse kinds of social environments that constitute the human experience, we must now revise the blueprint to rest upon a broader set of footings.

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