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Stereotype Development and Formation

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Abstract

This chapter reviews research and theory on the social cognitive underpinnings of both stereotype development in children and stereotype formation among adults. Although research on these topics has developed largely independently from another, the two areas of research may inform one another in important ways. Toward this end, the authors have tried to draw attention to both similarities and differences in the ways that stereotypes form in these two contexts. Although children and adults appear to possess many of the same fundamental cognitive abilities that support categorization and stereotype formation, there are important differences in how the processes operate and in the important roles that social motives play among adults. In addressing these issues, focus will be placed on the concepts of essentialism, illusory correlation, and category accentuation. The authors believe that a more robust integration of these research topics would offer a rich source of progress in understanding stereotyping.

Key Words: stereotype development, stereotype formation, essentialism, illusory correlation, category accentuation

Stereotypes are the knowledge, beliefs, and expectations we hold about human groups (e.g., Hamilton & Sherman, 1994; Hamilton & Troler, 1986). The purpose of this chapter is to describe how stereotypes are formed. Toward this end, we describe both the development of stereotypes in children and the formation of novel stereotypes among adults. Given the social cognitive focus of this book, the primary emphasis will be on the cognitive processes that underlie stereotype formation.¹ An important foundational principle of the social cognitive approach is that stereotypes serve the same essential functions as other categorical knowledge in structuring and simplifying the vast quantities of things and people we encounter so that we may understand and navigate the world more effectively (Allport, 1954; Lippmann, 1922; Tajfel, 1969). As such, the cognitive processes that support stereotype formation are assumed to be largely the

same as those that contribute to the formation of all categorical knowledge. These basic processes are sufficient to produce stereotypic knowledge, even in the absence of important sociomotivational factors that encourage stereotyping.

However, there also are important differences between stereotypes and other kinds of categorical knowledge. Otherwise, there would be no reason to study stereotypes as a specialized form of knowledge. Most obviously, because stereotypes refer to categories of people, they are self-relevant and socially relevant in ways that most categories are not. Consequently, stereotype formation is influenced not only by motives of comprehension and efficiency but also by social motives, such as the desire to enhance feelings of self-worth (e.g., Fein & Spencer, 1997; Katz, 1960; Lippmann, 1922; Tajfel & Turner, 1986) and to explain and justify the social order (e.g., Allport, 1954; Eagly & Steffen,

1984; Fiske, Cuddy, Glick, & Xu, 2002; Hoffman & Hurst, 1990; Jost & Banaji, 1994; Lippmann, 1922). These motives certainly influence the circumstances under which people may be most likely to form stereotypes, the kinds of groups that are targeted for stereotyping, and the content of those stereotypes. These are all questions to which we will return below.

Stereotype Development in Children

Most of the empirical and theoretical work that social psychologists have done regarding "stereotype development" has tried to identify the most important factors that bring about the development of stereotypes in adults. Of course, to study stereotype development in adults, it is necessary to investigate such development for novel groups. Adults already have well-developed stereotypes of all the "important" social groups, such as gender, race, age, ethnicity, and religion. Thus, researchers typically present adult participants with information about what members of Group A and Group B are like, or what dot overestimators are like, or what the members of some hypothetical organization are like. By exploring the factors (e.g., group size, relations to the self, similarity to known groups) that most affect the impressions that form of these groups, researchers can draw conclusions about how stereotypes develop in terms of strength, valence, extremity, malleability, and.

Far less has been written in social psychology outlets regarding the development of stereotypes in young children—although, as we shall see, there are important exceptions. Importantly, even when social psychologists address the question of age-related changes in stereotype development, they rarely refer to the general cognitive development literature in order to gain an understanding of how the child's development of concepts or of categorization skills might inform us about whether the young child may or may not be capable of developing stereotypes of social groups, about how these stereotypes might change as the child ages, or about how these stereotypes held by children might be similar to or different from the stereotypes held by adults. The goal of this section will be to integrate knowledge of the development of the child's cognitive skills and cognitive processes with knowledge of social psychological aspects of child development to shed light on the social cognitive processes involved in age-related changes in stereotype development. Only by exploring stereotype development in young children can we answer important questions about

how stereotypes of important social groups, including race, gender, and ethnicity, initially develop.

The first part of this section will address general issues of cognitive development in children and will use this knowledge to draw conclusions about the possibilities, limitations, constraints, and changes in early stereotype development. Thus, a goal of this presentation will be to understand the development of basic cognitive processes that underlie the evolution of social categories in children, which allow for the development of stereotypes as children attach meaning to these categories. It is, of course, the act of categorization that is essential for the development of stereotypes. Much of this work has been done by cognitive developmental psychologists. The second part of this section will discuss research and theory that has directly investigated specific stereotypes and their development in children. Much of this work has been done by social psychologists.

How Children Think and How They Acquire Words, Concepts, and Categories

ASSOCIATIONIST VERSUS THEORY-BASED PROCESSES

As the young child acquires words and concepts, does the process involve the learning of observed or taught associations among objects, or are there also more top-down theory-based mechanisms at play? A related question is whether the young child's thinking is concrete in nature or whether the young child is capable of abstract thought. The answers to these questions are important because it is more likely that young children can think in more strongly stereotypic ways if they are capable of using conceptual processes and content, of thinking in a theory-based way, and of engaging in abstract thought as they learn about social categories. Of course, we are not asking whether only one of these processes, to the exclusion of the other, is involved in the child's acquisition of concepts. In fact, most cognitive developmental psychologists agree that these questions often present false either-or dichotomies. For example, Waxman and Gelman (2009) conclude that a child's thinking and knowledge are based on both perceptual and conceptual content, that such knowledge is derived from more than simple sensory input, that it is both associationist and theory-based, and that it is abstract as well as concrete.

What is the evidence that abstract and theory-based processes play a significant role in the child's development of concepts? Waxman and Gelman (2009) demonstrate that the young child is

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capable of attending to statistical regularities and has good computational resources and is tuned into different kinds of high-level related information. But more than this, they conclude that children have conceptual capacities that include the core knowledge of objects and that they have theories about the behavior of objects, including human objects. These conclusions have supplemented ideas of young children's cognitive capacities that were heavily associationist in nature (e.g., Robinson & Sloutsky, 2007; Sloutsky, Lo, & Fisher, 2001). Similarly, Keil, Smith, Simons, and Levin (1998) conclude that, in addition to an associationist component to their concepts, children also have an explanatory component that is based on rules and causal principles. Thus, similarity and explanatory aspects coexist in the concepts of very young children. Again, it is important that the child's conceptual capacities include an understanding of a core knowledge of objects and a theory about the behavior of these objects. These capacities allow for the development of strong and stable concepts and beliefs, including group stereotypes.

Another stereotype-relevant capacity that develops early in childhood involves rather complex face processing. Research suggests that very early visual preferences might relate to later social preferences. Even 3-month-olds attend to faces that match the gender of their primary caregiver (Quinn, Yahr, Kuhn, Slater, & Pascalis, 2002) or faces of a familiar racial group (Bar-Haim, Ziv, Lamy, & Hodes, 2006; Kelly et al., 2005). Surprisingly, even infants are capable of developing representations of prototypical faces (de Haan, Johnson, Maurer, & Perrett, 2001). Thus, face processing in infants shows gender and race preferences. Such capacities involving abstraction would certainly facilitate the development of stereotypes at early ages.

Finally, Platten, Hernik, Fonagy, and Fearon (2010) have outlined the development of other high-level cognitive capabilities in young children that would be extremely important for the development of stereotypes. First, there is evidence that even infants understand emotional expressions (Lappänen & Nelson, 2006; Young-Browne, Rosenfeld, & Horowitz, 1977). Importantly, infants also understand the valence of emotional expressions and use this understanding to determine their subsequent behaviors (Hornik & Gunnar, 1988; Sorce, Emde, Campos, & Klinnert, 1985). Thus, infants attach meaning to emotional expressions. Infants are also capable of social referencing, whereby they learn to trust a stranger who has a positive interaction with

their mother. Platten et al. (2010) conclude that such cognitive capacities allow infants to understand networks of trusted or distrusted individuals. The ability to represent social alliances is the beginning of the concepts of ingroup and outgroup and is a critical aspect of the development of stereotypes.

In short, very young children are clearly capable of using theory-based processes, of engaging in abstract thought, and of developing categories and beliefs in ways that involve conceptual processes and content. These capabilities strongly suggest that young children do not only "learn" stereotypes from adults in a straightforward associationist, imitative, or social learning way. Rather, stereotypes are also likely to develop in ways that are related to the conceptual and categorization abilities that develop in the young child and that are driven as much by the child's cognitive capacities as by the social environment. It is the early capacity for theory-based reasoning and abstract thinking that makes the development of stereotypes in young children natural and inevitable, often regardless of whether parents or peers actively teach or encourage stereotypic thinking.

ROLE OF LANGUAGE IN THE DEVELOPMENT OF CONCEPTS AND CATEGORIES IN CHILDREN

It has become clear in recent years that language plays a significant role in shaping human thought and experience. Although Whorf's (1956) strong form of the linguistic relativity principle (language determines thought and severely limits thought) is not generally accepted, the weak form of the principle (there are cross-linguistic differences in cognitive tendency) has much support. For example, Boroditsky, Schmidt, and Phillips (2003) investigated the effects of gendered articles on object perception. In languages in which the word "key" is masculine (e.g., German), keys are described as heavy and jagged. In languages in which the word "key" is feminine (e.g., Spanish), keys are described as golden and intricate. These kinds of language effects likely develop during childhood.

Language plays an important role in categorization, and of course, categorization is a fundamental aspect of stereotype development. As children learn and use language, do they develop categories and concepts that would facilitate the development of stereotypes? First, it is important to demonstrate the role of language in children's ability to learn categories. Waxman (2010; Waxman & Gelman, 2009) has been an important contributor to this issue. In her work, she shows that the naming of objects is

et al. (2010) conclude that these allow infants to understand or distrust individuals. The formation of social alliances is the beginning of ingroup and outgroup and is the development of stereotypes. Children are clearly capable of these processes, of engaging in the development of categories and of involving conceptual processes. These capabilities strongly suggest that not only "learn" stereotypes but also forward associationist, similarity. Rather, stereotypes are ways that are related to the cognitive abilities that develop that are driven as much by capacities as by the social environment. Capacity for theory-based thinking that makes theories in young children natural, regardless of whether parents encourage or discourage stereotypical

THE DEVELOPMENT OF CATEGORIES IN CHILDREN

In recent years that language is shaping human thought, Whorf's (1956) strong linguistic relativity principle (language severely limits thought) is a weak form of the principle. Linguistic differences in cognitive support. For example, Phillips (2003) investigated articles on object in which the word "key" (noun), keys are described as objects in which the word (verb), keys are described as actions. These kinds of language are important in cognitive childhood. An important role in categorization is a fundamental development. As children learn to develop categories and to date the development of an important to demonstrate the child's ability to learn categorization (Phillips & Gelman, 2009) is a contributor to this issue. In the naming of objects is

a critical aspect of the way in which children learn categories. When two objects share a label, children will group them together and say that they look alike. Thus, children's categories go beyond simple perceptual similarities. The fact that objects share a linguistic label (e.g., chair, girl, or black) is far more important to categorization than is mere physical similarity (Keil et al., 1998). This ability to group objects based on a common label means that children have the capacity for the development of strong and stable stereotypes. They do not simply categorize people into groups by physical similarity or associations. Rather, they look for a deeper common meaning for members of a category. It is important to note that cognitive developmental theorists are not simply saying that labels function through the formation of associative links between objects that share the same label; they are also saying that the existence of a shared label stimulates the young child to develop an understanding of why perceptually dissimilar objects might belong to the same category. It is this kind of theory-based reasoning that we claim is important for stereotype development in children.

As early as 9 months of age, children operate on the assumption that objects with the same label have the same properties, and they look for differences between objects that have distinct linguistic labels (Gelman, 2009). Importantly, Gelman and Heyman (1999) found that when 5-year-olds hear a person described by a novel label (e.g., carrot-eater), they judge this property to be very stable. Similar findings are reported for adults (Walton & Banaji, 2004).

With regard to social categories, labeling, as well as the inferential processes that follow from labeling, has many implications for children, including the establishment of ingroups and outgroups, stigmatization, and causal attributions. The effects again go well beyond simple associationist effects. Even if the labels are discrepant from the child's own experience or the appearance of an object, the child will use the labels to make inferences and look for underlying properties (Gelman & Markman, 1986; Jaswal, Lima, & Small, 2009). In short, children look for meaning and coherence for objects that share a category label, a process that allows for the development of strong and coherent categories. In addition, as children make inferences based on category labels, they then pass the inferences onto others. This ability is related to the child's ability to think in essentialist ways, a process that will be discussed in a subsequent section.

Waxman (2010) has investigated the role of naming specifically with regard to the development of racial and gender categories in preschool children. The children were shown a picture of a person (e.g., a white woman) and were told that she was good at a "zaggit" game. Children projected this ability onto other people in general. However, when the person was identified with a label as a member of a named, novel social category, the children projected the ability only to members of the same race-based or gender-based category. Thus, the labeling of social groups is likely to play a very important role not only in the development of these social categories but also in the projection of attributes from some members of the group to others, and this is another important factor in the development of strong, stable stereotypes. Bigler and Liben (2006) propose that the labeling of social groups leads to the development of stereotypes in children in a dose-dependent way. Because gender is labeled far more often than race for the child, Bigler and Liben (2006) conclude that gender stereotypes will be stronger for children than racial stereotypes, and this fits existing data that will be discussed in a subsequent section. Waxman (2010) concludes that, for children, naming has critical effects on categorization, on the deep conceptual organization of categories, and on inductive inferences based on category membership.

As we have seen, the linguistic relativity principle holds that language affects thought. In a recent demonstration of this kind of effect that has relevance for stereotyping, Percy, Sherman, Garcia-Marques, Mata, and Garcia-Marques (2009) investigated the effect of native-language adjective-noun word order on the category accessibility of nouns and adjectives. Nouns were more accessible for Portuguese speakers (for whom nouns precede adjectives) than for English speakers (for whom adjectives precede nouns). The reverse was true for the accessibility of adjectives. Given this result, Percy et al. (2009) speculate that these differences in native language word order might affect the development and strength of different stereotypes, even in young children. Consider the phrase "old woman" (literally "woman old" in Portuguese). The adjective indicating age has primacy in English, whereas the noun indicating gender has primacy in Portuguese. Perhaps, then, children in the United States develop stronger stereotypes of age, whereas Portuguese children develop stronger stereotypes of gender. The point is that different language patterns have different conceptual consequences and that stereotype

development in children might be very much linked to these differences in linguistic patterns.

Furthermore, it is extremely important that words are not simply associations for children. Rather, they are symbolic, they are linked to an abstract representation, and they allow for thinking that is guided by abstract conceptual knowledge (e.g., causality; Waxman & Gelman, 2009). In addition, even young children appreciate that there are different kinds of words (e.g., nouns vs. verbs; transitive vs. intransitive), and they learn words such as *almost*, *why*, *think*, and *cause*, all of which have no concrete aspects (Gelman & Bloom, 2000; Gopnik & Sobel, 2000; Oppen & Bulloch, 2007). Thus, concept learning in children is much more than simply mapping a word onto a perceptual unit. An example of this kind of abstract and referential thinking by very young children (18–24 months) is shown in an experiment by Preissler and Carey (2004). The infants were shown a picture of a novel object, labeled a “whisk.” They were then asked to extend the word to either another picture of a “whisk” or to an actual three-dimensional whisk. The infants almost never chose the photograph. Thus, even at 1½ years of age, children understand that words refer to real concepts, and they are not bound to photographic perceptual similarities.

DO CHILDREN THINK ABOUT OBJECTS AND CATEGORIES IN ESSENTIALIST WAYS?

What is psychological essentialism? According to Gelman (2003), essentialist thinking involves a conception of categories as having an underlying reality or a true nature that cannot be seen but that is what gives an object its identity. The consequences of essentialist thinking are that objects are believed to have an underlying, unchanging essence despite outward changes in appearance, that there are important nonobvious properties to category members, that knowing the category of the object allows inductive potential about object properties, that the nonobvious properties are causal for a variety of attributes of the object, and that there is a great deal of stability, a sharpness of boundaries, and an innate potential in category members. Thus, essentialist thinking serves several very important functions. It allows for the perception of stability and order in the environment; it allows one to assess causality easily; it allows a variety of inductive inferences to be made about category members; it allows us to recognize individuals and to gain cultural knowledge; it allows us to distinguish appearance from reality; and it allows us to make reasonable predictions

about people and objects. However, because of its rigidity and inevitability, essentialist thinking comes with a cost—differences among category members are relatively ignored, and inferences are applied too broadly. These advantages and disadvantages, of course, capture the important consequences of stereotypical thinking.

A key aspect of essentialist thinking is the conceptualization of objects as natural kinds, rather than as artifacts, and conceptualizing social categories as natural kinds is extremely important for stereotype development. This is because thinking of objects in natural-kind terms involves the development of inferences about the stable, underlying properties of objects in a category, including social categories. Rothbart and Taylor (1992) proposed that certain social categories are, in fact, likely to be represented as natural kinds. In particular, they contend that gender and race categories are treated as natural kinds, and thus strong and stable stereotypes of gender and race have developed.

If essentialist thinking is a critical or even a necessary component of stereotype development, it is, of course, important to determine whether young children are capable of essentialist thought. If they have this capacity and thus conceptualize the objects of a category as having stable, fixed underlying attributes, then it is likely that young children do hold strong stereotypes. We would argue that, in fact, it is essentialist thinking that plays a major role in children’s stereotype development. The simple answer to the question of whether young children are capable of essentialist thinking is “yes.” This development of essentialist thinking in young children is related to their cognitive abilities to think in theory-based ways and to think abstractly, as described earlier. Taylor, Rhodes, and Gelman (2009) conclude that psychological essentialism results from emerging cognitive biases that guide conceptual development even with little in the way of external input. Their research supports the conclusion that essentialist beliefs about social categories are not simply derived from essentialist beliefs about the biological world but rather are instantiated separately. Much theory and research in the cognitive development literature has been devoted to this issue, and it is beyond the scope of this chapter to provide a detailed review of this work. Thus, we shall simply give a brief overview of the work on essentialist thinking in children. However, the interested reader is referred to an excellent book on the topic, *The Essential Child* by Susan Gelman (2003).

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Here is a brief summary of what we know about
essentialist thinking in children:

1. Language plays an important role in the
development of essentialism in children (Gelman,
2009). Generic noun phrases (e.g., "boys play
with trucks," "polar bears live in the Arctic") are
especially important in the development of such
essentialist thinking (Gelman, 2009).

2. Essentialism emerges both from biases in
the child's thinking and cues in the environment
(Gelman, 2003). Essentialism is thus partly rooted
in the child's mind and not simply in the world,
the language, or the culture. However, children's
essentialist beliefs about gender and race also
reflect the effects of culture (Rhodes & Gelman,
2009). Rural/city differences and even parental
political affiliations affect the degree to which
different social categories are essentialized by
children. For example, rural children and children
of Republicans hold stronger essentialist beliefs
about race and gender, and these beliefs are stable
as the child ages.

3. Young children develop essentialist thinking
about social categories despite the fact that their
parents do not use essentialist terms very much in
talking to them. Children seem to use their own
cognitive biases as well as the generic noun phrases
that they hear (e.g., fish live in the water) and the
implicit cues of language use from their parents to
develop essentialist thinking about social categories
(Gelman, 2003). Gelman points out that the use of
generic noun phrases is especially important for the
child's development of essentialist thinking about
categories such as occupations and nationalities.

4. Like adult essentialist beliefs, when
children as young as 2½ years think about social
categories in an essentialist way, they reason about
nonobvious properties such as novel behaviors
and causal effects. They ignore physical features
in their reasoning, and they give privileged status
to things that are inside people. This is consistent
with the child's essentialist and theory-based beliefs
that causes are more important than effects and
that causes are often hidden. This focus on internal
and innate features allows very young children to
realize that a bird raised by an elephant would still
be a bird. [As an aside, perhaps because "Horton
Hatches an Egg" was the favorite story of one
of the authors, he failed to appreciate such an
essentialist belief until a rather late age.]

In short, based on research findings from many
laboratories, we can conclude that very young

children think about social categories in essential-
ist ways; that is, they conceive of these categories as
natural kinds. They not only learn how to categor-
ize social objects based on race, gender, age, and so
forth, but also learn the meaning of these categories.
We can further conclude that much of this early
cognitive development, because it involves making
inferences and developing explanatory principles, is
theory driven rather than associationist in nature.
Young children have domain-specific beliefs about
the objectivity and discreteness of social category
boundaries. Such essentialist thinking about social
categories by children means that they see an under-
lying stability to members of these categories, that
they view underlying and unseen internal properties
as key causes of category members' attributes, and
that they can make many inductive inferences and
predictions about category members. These are all
aspects of holding strong stereotypes of these social
categories. We should therefore conclude that young
children do have the capacity to hold stereotypes
that develop in concert with their more general cog-
nitive developmental tendencies. We shall address
the issue of the actual existence of strong group
stereotypes in children, rather than the capacity for
their development, in a subsequent section. We can-
not yet draw definitive conclusions about whether
the roots of essentialism are primarily biological,
evolutionary, social, or cultural, but it is fair to say
that all of these processes play a significant role.

A concept that is very much related to the
perception of essentialism in social groups is the
perception that social groups are entitative or
coherent. Because the perception of high entitativ-
ity in groups is strongly related to holding stereo-
types of those groups, it is important to investigate
whether young children do appreciate the concept
of group entitativity. As indicated earlier, Platten
et al. (2010) demonstrated that children as young
as 2 years old have the social cognitive abilities to
learn affiliations among people. They learn about
coalitions of people that are small and dynamic,
and in which membership has no obvious visible
cues. Platten et al. (2010) conclude that children
learn to perceive these affiliations by understanding
subtle social cues, nonverbal cues, and interpersonal
behaviors. Given that young children have this cog-
nitive capacity, one important question is whether
they are also sensitive to the degree of entitativity of
the various coalitions—that is, the degree to which
various coalitions have coherence, unity, organiza-
tion, and stability (Campbell, 1958; Hamilton &
Sherman, 1996).

The appreciation of entitativity is important for our purposes because Crawford, Sherman, and Hamilton (2002) showed that, when a group is perceived as highly entitative, the representation of that group involves an interchangeability of individual members and a loss of the individual identities of these members. Once any member is known to have a trait or attribute, that attribute is transferred to all other members of the group. Crawford et al. (2002) conclude that this interchangeability of individual group members is an important first step in the abstraction of a group stereotype. Thus, if young children do in fact appreciate the degree of entitativity of social groups, it makes it likely that they are also capable of developing stereotypes of these groups.

As already indicated, the concept of essentialism is very much related to the concept of entitativity (Yzerbyt, Judd, & Corneille, 2004). To the extent that one perceives that a category or group is essentialized or entitative, properties will easily spread from member to member. Shipley (2000) discusses a related concept, *entrenchment*, a term first introduced by Goodman (1955). Entrenchment refers to a readiness to make inductive inferences about a category and to perceive a coherence of category members. The greater the entrenchment of a category or its properties, the more likely it is that a property will be extended from one member of the category to all other members. Thus, entrenchment operates in much the same way as perceived entitativity. Shipley's research (2000) shows that entrenchment does characterize children's acquisition and use of category knowledge. She outlines the processes involved in children's acquisition of an entrenched category. Interestingly, when a category could be characterized as entrenched, Shipley (2000) found that children were more likely to transfer behaviors rather than appearance from member to member. Thus, if an animal acts like a tiger but looks like a camel, children as young as 3 years will identify it as a tiger. Shipley concludes that behavioral properties are entrenched more than physical appearance properties and are thus more likely to transfer from member to member and to be involved in inductive inferences about category members. This is important for stereotyping in that stereotypes of groups typically involve behaviors and traits more than mere physical attributes.

In what we believe is the only research to investigate entitativity perceptions in children, Svirydzenka, Sani, and Bennett (2010) asked whether children could discriminate different group types with

respect to perceived entitativity. Their 10-year-old participants rated 12 different groups on a number of properties, and they did a sorting task in which they were asked to divide the groups into different categories. Like adults, these children identified the four basic group types—intimacy groups, task groups, social categories, and loose associations. In addition, they saw the different group types as having different levels of entitativity, with intimacy and task groups having the highest perceived entitativity, and loose associations the lowest. Some of the more specific results of these studies seem to indicate that it would be easy for children to develop strong stereotypes of some of these groups. For example, similarity based on concrete appearance was important for perceived entitativity only for social categories (e.g., race, nationality). Given that social categories are large and diffuse and that there is often little interaction among group members, having perceived entitativity based on concrete similarities would allow strong stereotypes to develop for these kinds of social categories. In addition, another consequence of the capacity for representing groups in terms of perceived entitativity is that ingroup identification and outgroup threat are likely (Abelson, Dasgupta, Park, & Banaji, 1998). Of course, ingroup identification and outgroup threat play a very important role in stereotype development.

In the first section, we asked and answered questions about the young child's cognitive-developmental capabilities with regard to processes, concepts, and categories that would help us to understand whether and when a child should be able to develop stereotypes of social groups. Thus, we explored the general issue of whether children are capable of conceptual, theory-based, and abstract thinking. We also explored more specific questions about the child's cognitive capacities with regard to lexicalization, essentialist thinking, and an appreciation of the concept of group entitativity. We hope that addressing these questions helps us to draw conclusions about the processes by which the young child develops stereotypes. In the next section, we shall discuss research and theory that focuses directly on specific stereotypes that children are likely to hold and when these stereotypes develop. That is, we shall address the issue of the reality, rather than the capacity, of stereotypes in children. In addition, we shall refer to ideas about social psychological processes that are involved in stereotype development in children. We will also address the question of how these stereotypes are similar to or different from the stereotypes held by adults. Less attention will be paid in

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this section to the more general cognitive processes and principles through which a child's stereotypes develop, although we shall refer back to concepts and processes discussed in the first section when they are relevant.

Stereotypes in Children

DO CHILDREN HAVE SPECIFIC STEREOTYPES OF GROUPS? IF SO, HOW DO THEY LEARN THEM?

The answer to the first question is clearly "yes"—children do hold stereotypes of various social groups. A number of researchers have made it clear that children form stereotypes and that these stereotypes guide children's judgments about the attributes of individual group members (Aboud, 1988; Hirschfeld, 1995a, 1996; Rhodes & Gelman, 2008). With regard to negative associations to minority races, McGlothlin and Killen (2010) found that 7- to 10-year-old European American children from ethnically homogeneous schools showed negative associations to minority group members in their interpretations of ambiguous social situations and in their evaluations of cross-race friendship. Recent studies using the Implicit Association Test (IAT) with 6-year-olds demonstrated implicit race-based associations (Baron & Banaji, 2006; Dunham, Baron, & Banaji, 2006). Using both the IAT and an affective priming task, Degner and Wentura (2010) reported automatic activation of biased racial associations in young children with some indication that such activation increased linearly from 9 to 12 years of age. Degner and Wentura (2010) also conclude that stereotyping of racial categories and evaluations of these categories develop as early as 3 years of age. Bigler and Liben (2006) also conclude that, by age 5 years, children have many strong stereotypes about other social categories. We have already cited work by Gelman (2003) that has also concluded that young children are able to think in essentialist ways about social categories and that they treat certain social categories (especially gender, age, and race, but also occupation) as natural kinds.

Castelli and his colleagues have the most comprehensive program of research that investigates the stereotypes held by children. Castelli, Zogmeister, and Tomelleri (2009) explored the acquisition of racial stereotypes in 3- to 6-year-olds. Similar to the results of previous research (Aboud & Doyle, 1996; Davey, 1983), they found no relationship between the explicit attitudes of white parents and their children. However, Castelli et al. (2009) also explored the ability of parents' implicit racial attitudes to predict their children's playmate choices. Using the IAT,

they found that mothers' IAT scores regarding race, but not their scores on explicit measures, did in fact predict their children's playmate choices. Castelli and Carraro (2010) also investigated the role of implicit attitudes in children's stereotype development. It would be interesting to examine whether there is intergenerational transmission of implicit racial attitudes. In a recent study unrelated to stereotypes, Sherman et al. (2009) reported intergenerational transmission of implicit attitudes toward cigarette smoking from mothers to their children. The greater effect of mothers' as opposed to fathers' racial attitudes was also demonstrated by Castelli, Carraro, Tomelleri, and Amari (2007), who found that children's racial attitudes were shaped by their expectations about their mothers' racial attitudes and behaviors rather than their mothers' actual racial attitudes. The sensitivity of young children to the implicit racial attitudes of their mothers implies that children are more sensitive to the subtle behaviors and nonverbal responses of their mothers than to the mothers' overt verbal statements.

In support of preschool children's sensitivity to the nonverbal behaviors of adults regarding race, Castelli, DeDea, and Nesdale (2008) manipulated an adult model's verbal and nonverbal behaviors toward a black adult and found that children's attitudes toward the black target were shaped primarily by the model's nonverbal behaviors such as eye contact and distance. In addition, the effects then generalized to other black targets.

Other researchers have also investigated various underlying processes through which young children develop stereotypes. Platten et al. (2010) proposed that the early development of stereotypes in children is based on their social cognitive ability to appreciate social coalitions, and the processes that allow this to develop in the first two years of life. As discussed earlier, the abilities that make it possible for young children to understand coalitions include face recognition (which involves complex face processing), the discrimination of emotional face expressions, and social referencing (the extraction of relevant social information from emotional face expressions and the use of these to guide behavior). These abilities underlie the development of expectations about social alliances, even in infants, and the appreciation of these alliances is important to the development of stereotypes. In support of the notion that young children think in terms of alliances and coalitions, Castelli, DeAmicis, and Sherman (2007) reported that white preschool children showed clear preferences for other white children who played with a

white child as opposed to a black child. Thus, alliances are appreciated by young children based not only on race but also on behaviors and friendship patterns.

Bigler and Liben (2006, 2007) conclude that stereotypes develop during early childhood by age 4 years. In drawing conclusions about the causes of such development and about the processes involved, Bigler and Liben focus on social psychological processes and environmental controls rather than on the more basic cognitive processes that were discussed in the earlier section of this chapter. They label their approach to explaining children's stereotyping *developmental intergroup theory*. Bigler and Liben identify three basic processes of developmental intergroup theory. First is the establishment of the psychological salience of different person attributes. Bigler and Liben maintain that there are no necessarily privileged dimensions of salience, but rather that they are socially and culturally determined. Because group salience and attribute salience are so important to the development of stereotypes in children, Bigler and Liben conclude that children's stereotypes can be reduced by minimizing this salience. How does the child learn the important bases of categorization? In addition to perceived salience, by which attention is drawn to categories such as race, gender, and age, the environment also renders certain dimensions salient. Group size is important here, as is labeling. In addition, any environmental factors that lead to the segregation of groups (e.g., having separate bathrooms for boys and girls) are important and cause the child to think about the reasons for segregating groups. Once certain attributes are made salient, the child will use these dimensions to categorize individuals. This act of categorization is the first step toward stereotyping. Some of the processes involved here are internal to the child (e.g., essentialist thinking), some involve direct social learning in terms of labeling and interpersonal communication, some involve the child's encoding (veridical or not) of group-attribute covariation, and some involve nonverbal behaviors and cues.

DO THE STEREOTYPES THAT CHILDREN HAVE OF DIFFERENT SOCIAL GROUPS DIFFER IN LIKELIHOOD, STRENGTH, AND OTHER PROPERTIES?

With regard to gender versus race categorization and stereotyping in children, most of the literature suggests that gender is a very strong category even in very young children (Jacklin & Maccoby, 1978; Ruble, Martin, & Berenbaum, 2006). Gender

concepts are essentialist very early and very strongly. Interestingly, recent work (Halim, Ruble, & Amodio, 2011) suggests that developmental changes in social cognition and gender-related attitudes and beliefs between ages 3 to 6 and 7 to 10 years lead to shifts in gender identity and gender stereotypes for girls, but not for boys. One behavioral consequence of these shifts is that 3- to 6-year-old girls love pink, frilly dresses, whereas 7- to 10-year-old girls exhibit a great deal of "tomboyism."

According to Halim, Ruble, and Amodio (2011), two sets of social cognitive developmental changes underlie these shifts: First, the young girls begin to view social categories, including gender categories, from multiple perspectives. Thus, they begin to appreciate their low status and the advantages of masculinity. Second, they view gender stereotypes more complexly and more in terms of central traits such as competence rather than in terms of peripheral behaviors. They represent the attributes of boys and girls in more flexible terms. These developmental changes lead girls to re-evaluate themselves, their gender identity, and gender-typed behaviors. In short, the changes in gender stereotypes from ages 3 to 6 years to 7 to 10 years have important implications for the gender identities, self-concepts, and preferred behaviors of young girls.

A recent line of research has focused on the development of gender stereotypes that are held by children regarding the math abilities of boys and girls, as well as the extent to which such stereotypes undermine the actual math performance of young girls. Although gender differences in math performance have diminished in recent years (Hyde, Lindberg, Linn, Ellis, & Williams, 2008; Hyde & Mertz, 2009), the gender gap persists (Beilock, 2008). One explanation for gender differences in math performance is stereotype threat (Steele & Aronson, 1995). According to stereotype threat theory, female math performance is impaired, not because of poorer ability, but because girls and women feel anxious that their poor performance on a math test will confirm the negative stereotype associated with their group.

Such an explanation presupposes that gender stereotypes of math abilities exist in young children. Muzzatti and Agnoli (2007) reported such gender stereotypes in 8- to 12-year-old children, but not in younger children. However, others have reported lower math ability perceptions in girls as opposed to boys as early as first grade (Fredricks & Eccles, 2002; Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002). Importantly, and in support of a stereotype

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threat explanation for gender-based performance differences, Ambady, Shih, Kim, and Pittinsky (2001) found that math performance in young girls suffered only when gender identity was activated (see also Neuville & Croizet, 2007). More recently, Tomasetto, Alparone, and Cadinu (2011) observed math impairment for kindergarten to second-grade girls only when mothers, but not fathers, endorsed math gender stereotypes. Thus, it appears that young girls hold negative math stereotypes and that these stereotypes are in part transmitted through the beliefs of their mothers.

As indicated above, there has been some inconsistency in reports of when young girls develop gender stereotypes of their math abilities. Recently, Galdi, Cadinu, and Tomasetto (2011) investigated whether implicit math stereotypes existed in very young girls long before the emergence of explicitly measured stereotypes. Their research verified the existence of such embryonic implicit stereotypes for first-grade girls, but not boys, using the IAT. However, no such stereotypes were seen for young girls at the explicit level, where girls in fact felt that they were stronger at math than boys. A subsequent study showed that the math performance of these young girls was negatively affected by stereotype threat manipulations. Whereas gender is a strong category in young children ages 3 to 6 years (although the stereotype is more flexible in older children), race, on the other hand, may not be as important a category for young children. According to some theorists, race is not thought about by children in essentialist terms to the extent that gender is (Aboud, 2003; Kircher & Furby, 1971). Rhodes and Gelman (2009) supported this conclusion in a number of studies that were designed to examine children's essentialist thinking about animal categories, artifact categories, gender, and race. They told children (aged 4–6 years) that a visitor from another planet, where they do things differently from earth, was going to tell them things. The children had to decide whether the statements were wrong or whether they may be right. The visitor showed the children two objects from different categories (e.g., dog and cat; table and chair; black and white women; black male and black female). The visitor then showed the children a third object that actually matched one of the examples of the pair at a basic level. In some cases, the visitor from the other planet said that the new object matched the exemplar that did not fit what children might expect from their learned categories (e.g., a black goat was said to match a pink pig rather than a white goat; a black boy was said to match a white

boy rather than a different black boy). The important measure of category strength (essentialization) was the degree to which children rejected the non-fitting matches as wrong. For animals and gender, children reliably rejected as wrong the unexpected matches. These findings indicate that young children have essentialist, natural-kind views of these two categories. However, they did not reject the unexpected matches for race categories, indicating a less essentialized view of race. The gender results are consistent with results of previous research (Berndt & Heller, 1986; Rhodes & Gelman, 2008; Taylor, 1996). Similarly, Shutts, Banaji, and Spelke (2007) reported that preschoolers used gender and language, but not race, to make inferences about people's friends, toys, and activities.

Rhodes and Gelman (2009) conclude that distinct developmental processes underlie the acquisition of race and gender categories and the stereotyping of these categories. Such a conclusion is consistent with an evolution-based interpretation that the gender category is constrained by intuitive biases because of its evolutionary importance, whereas race categories and their stereotypes are based much more on social and cultural experiences, and would not have been present during the key epochs in which humans evolved because inter-group interaction was largely constrained to nearby groups with similar genotypic features (Cosmides, Tooby, & Kurzban, 2003).

Importantly, not all theory and research agrees with this conclusion about fundamental differences in children between racial and gender categories and stereotyping. Hirschfeld (1996; see also Gil-White, 2001) has argued that race is seen in essentialist terms even by very young children. He proposes that children have essentialized, domain-specific, sophisticated, theory-like reasoning about race that parallels, but is distinct from and not derived from, their understanding of biological categories. Hirschfeld (1995b) thus believes that young children have a biologically grounded understanding of race.

Hirschfeld (1995b) employed several unique methodologies in his work. In one method, children aged 3 to 7 years were shown triads of people. One was an adult of a particular race, occupation, and body build. The other two were children, each of whom shared two of the three properties with the adult. Thus, a black, stocky, adult policeman might be paired with a white, stocky, child "policeman" and a black, stocky, child "doctor." Participant children were asked which was the child of the adult or were asked which of the children is a picture of

the adult as a child. Findings from these and other measures indicated that young children's conceptual representation of race is theory-like. In a similar study, Hirschfeld (1995b) reports that children did not pair a black adult any more with a black car than with a white car, indicating that the racial (color) category was very specific to people.

In a different methodology, Hirschfeld (1995b) used a "switched at birth" story. Child participants were told that a baby was born to White parents but was raised by black parents, and they were asked about what the child would look like as an adult. Results indicated that children as young as 3 years viewed race as a stable and inherited property, and Hirschfeld concluded again that children have a biologically grounded model of race.

However, some of Hirschfeld's other work suggests that the story of racial versus gender stereotypes in children is more complicated and that his conclusion about the child's essentialist, biologically grounded view of race might be questioned. Hirschfeld (1996) is unique in exploring the phenomenon of hypodescent in young children, the association of individuals of mixed-race ancestry with the minority group (also referred to as the *one drop rule*). Because Hirschfeld believes that thinking about social categories in strongly essentialist ways is central to exhibiting judgments that show hypodescent, he asks whether some races have greater innate essential potential than others. First, Hirschfeld finds that older children and adults believe that mixed-race individuals have black facial features and that mixed-race individuals inherit the category identity of the minority parent. However, younger children, especially black children or white children who go to an integrated school, expect that mixed-race individuals have intermediate racial features. Rather than strong judgments showing hypodescent, young children seem to think that other children will resemble their mother more than their father. Whereas fifth graders and adults used race status significantly to predict the features of a mixed-race child, second graders used resemblance to mother more, regardless of whether the mother was the white or the black parent. In addition, with mixed-race parents, fifth graders tend to choose a black child as the likely offspring, whereas second graders do not. However, fifth graders do not show this tendency for animals that have a black and a white parent. Thus, by the fifth grade, children think differently about color in humans than about color in animals, and they view different races as having different innate potential, as they expect that the

physical features of the minority race will predominate. Hirschfeld's (1995a; 1996) conclusion from these studies is that race is invariably essentialized, even in young children. However, the bias that is a consequence of essentialist thinking can be altered by the child's social and cultural representations of race. Thus, there is both a social and a biological interpretation of race for children. Importantly, this view maintains that even young children have the capacity for making judgments marked by hypodescent. Nevertheless, the fact that judgments about race changed between the second and fifth grades indicates that race may not exist as a strongly essentialized category for very young children.

Kinzler, Shutts, and Correll (2010) have recently written an important paper that addresses the question of whether there are priorities in the social categories that children possess and thus differences in the stereotypes that they hold of these categories. Kinzler et al. (2010) reviewed the literature relevant to this issue for gender, race, age, and language groups, and they addressed the question from the points of view of social psychology, developmental psychology, and evolutionary psychology. They conclude that categorization and preferences based on gender emerge before categorization and preferences based on race. However, Kinzler et al. (2010) also report a number of findings that support priorities and categorization for race and age as well as gender. For example, face processing is tuned to dimensions of both race and gender in infants (Bar-Haim, Ziv, Lamy, & Hodes, 2006; Quinn, Yahr, Kuhn, Slater, & Pascalis, 2002). Infants even develop representations of prototypical faces (DeHaan et al., 2001). Kinzler et al. (2010) also added a fourth category, language, that seems to have a distinct priority in categorization. Newborns show a distinct preference to hear speech in their own language (Mehler et al., 1988). Children also show preferences for toys and foods offered by their native language speakers (Kinzler, Dupoux, & Spelke, 2007; Shutts, Kinzler, McKee, & Spelke, 2009). These studies, in fact, showed that preferences based on language are stronger than preferences based on race. As in the case of gender, language as a privileged social category may have an evolutionary basis (Cosmides et al., 2003).

DO CHILDREN'S STEREOTYPES DIFFER FROM THOSE OF ADULTS? IN WHAT WAYS?

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WHY DO THESE PRIORITIES DIFFER FROM OTHERS?

Children have the cogni-
tment of sophisticated
theory-based thinking,

for thinking in essentialist ways, and for perceiv-
ing the degree of entitativity of social groups. These
capacities allow for the development of stereotypes
in young children and underlie such development.
However, although both children and adults hold
stereotypes of the same social groups, it is not clear
that these stereotypes are the same for adults and
children in terms of strength, content, and muta-
bility. We shall thus address the issue of similarities
and differences in the stereotypes that are held by
children and adults. In the case of differences, we
shall explore the reasons for the differences in terms
of the cognitive capabilities that we have discussed.

One important way in which the catego-
ries and concepts of children differ from those of
adults is that children seem to generalize properties
across more members of a category. For example,
Hollander, Gelman, and Star (2002) gave children
and adults either generic questions (e.g., "What can
you tell me about dogs?") or "all" questions (e.g.,
"What can you tell me about all dogs?"). Whereas
adults included more properties for the "all" ques-
tion than for the generic question, children treated
the two questions equally. In other words, for chil-
dren, dogs equal all dogs. Shipley (2000) found that
young children showed greater entrenchment than
older children or adults for behavioral properties.
That is, 3-year-olds were very willing to make induc-
tive inferences about behaviors across members of a
category. This propensity should be associated with
strong stereotypes in young children. If all mem-
bers of a group engage in the same behaviors, the
members are interchangeable. Consistent with this
possibility, several researchers have reported that
children observe patterns of correlation between
social groups and properties and that they magnify
these observed correlations. As a result, the stereo-
types of social groups held by young children do
tend to be more rigid than those of older children
and adults (Berndt & Heller, 1986; Biernat, 1991;
Taylor, 1996; Taylor, Rhodes, & Gelman, 2009).
In addition, young children tend to make more
inductive inferences about traits and dispositions,
rather than perceptual resemblances, than do adults
(Gelman & Heyman, 1999; Heyman & Gelman,
2000).

Although children seem more willing to gener-
alize attributes across category members, they are
also more willing to accept novel instances (which
may differ from existing category members in cer-
tain ways) as members of the category. For example,
Heyman and Gelman (2000) found that children
were more prone than adults to give nativistic

accounts of traits and that children were overly ready
to see categories as essential, whereas adults viewed
the same categories in more nuanced ways. Again,
this difference suggests that young children may be
prone to hold stronger stereotypes than adults.

The fact that children accept novel instances
as category members more readily than do adults
means that the generalization gradients of children
(i.e., the likelihood of making the same response to
a new object as to existing category members) are
broader than the generalization gradients of adults.
That is, children tend to "smoosh" their categories
together, whereas adults show a greater tendency to
discriminate among categories. In Piaget's (1929,
1970) terms, this means that children are more likely
to assimilate new objects to an existing category
than to accommodate or change existing categories
in the light of novel objects. It would be interesting
to see whether, in terms of judgments and percep-
tions, children are generally more likely than adults
to show assimilation effects and less likely to show
contrast effects.

Finally, although we discussed earlier that chil-
dren perceive the same group types as do adults and
order these group types by perceived entitativity in
the same way as do adults, children and adults differ
in terms of the specific properties that they use to
determine perceptions of entitativity (Svirydzhenka
et al., 2010). Children tend to use the level of inter-
action of group members as the predominant factor
for perceived entitativity, whereas adults use group
importance and situational aspects of the group. In
addition, children's perceived entitativity is guided
more by concrete properties such as similarity and
group duration, whereas adults' perceived entitativ-
ity is guided by more abstract properties such as
shared beliefs and goals.

Summary of Stereotype Development in Children

We have presented theory and empirical research
that supports the ability of even very young children
to think in abstract terms, to engage in theory-based
reasoning, to be affected by conceptual as well as per-
ceptual factors, and to think in essentialist ways. We
have argued that these capacities are important for
stereotype development in that these cognitive abil-
ities underlie the development of strong and stable
category representations. Indeed, research indicates
that children develop stereotypes based on race, gen-
der, age, and language at a very young age (perhaps,
by the age of 3 years). Even infants show distinct
categorizations along these dimensions. There is

ongoing debate as to the primacy and dominance of these different stereotypes, with some researchers suggesting that gender stereotypes are particularly strong, and others disagreeing. Social influence from parents (mothers, in particular), developing conceptions of social coalitions, and category salience (e.g., from explicit labeling) contribute to the development of these stereotypes. Although there are significant similarities between adults and children in the ways in which they think about categories and concepts, and thus significant similarities in the stereotypes that they are likely to develop and express, there also are important differences. In general, children tend to hold stronger stereotypes than adults in that they apply their stereotypes to more members of a category, hold more rigid stereotypes, demonstrate greater inductive potential, and make fewer distinctions within categories than do adults.

Cognitive Processes in the Acquisition of Novel Group Stereotypes among Adults

We turn now to discuss the processes behind the formation of novel group stereotypes in adults. One of the difficulties in studying stereotype formation among adults is that adults already have well-developed stereotypes pertaining to the important dimensions of sex, race, and age. Indeed, to study stereotype formation among adults, it is necessary to confront participants with information about "blank" groups (e.g., Groups A and B), for which they possess no prior knowledge or expectations. Because the self is not a member of these groups, inferences about the groups also cannot be derived from self-knowledge.

One important variable in stereotype formation is the extent to which information about a novel group is encountered in a comparative intergroup context. The presence of a clear comparative standard when learning about a social group leads to the development of stronger stereotypes (Corneille & Judd, 1999; Eiser, 1971; Krueger & Rothbart, 1990; Queller, Schell, & Mason, 2006; Wyer, Sadler, & Judd, 2002). This is undoubtedly one reason why the vast majority of research on adult stereotype formation has presented information about two novel groups, which could be compared and contrasted. A key factor in this research is whether the two groups differ or not. In the latter case, people may perceive differences between the two groups that are illusory. In the former case, real differences between the groups are exaggerated in the formation of stereotypes. We will discuss each of these two contexts in turn.

Stereotype Development in the Absence of Group Differences: Illusory Correlation

Stereotypes are commonly conceived to derive from a "kernel of truth"—a valid difference upon which group perceptions are ultimately based (for relevant discussions, see Campbell, 1967; Kenny et al., 2007; Lee, Jussim, & McCauley, 1995; LeVine & Campbell, 1972; Swim, 1994; Terracciano et al., 2005). The particulars of such a metaphoric "grain" or "kernel" are relevant to note—the actual difference between groups might be tiny and its perception exaggerated, but at bottom such a difference is nonetheless ultimately perceived as the seed from which the stereotype emanates. Under a kernel-of-truth conceptualization, the inaccuracy of stereotypes mainly inheres in the overapplication or the exaggeration of an actual group difference, rather than in the possibility that the group difference itself might be totally illusory. As such, the mere existence of a stereotype is commonly taken as an indication that a group difference must exist.

Although stereotypes are not always unfounded, in this section we focus on those that clearly lack this kernel of truth. The notion of stereotype accuracy is a highly complex and controversial area of research (Judd & Park, 1993, 2005; Oakes & Reynolds, 1997), and there is even disagreement as to whether such accuracy is measurable or whether it should be a focus of research at all, particularly because of the challenges of identifying a "reality" criterion against which to measure stereotypic beliefs. Somewhat sidestepping these issues, we instead focus on the notion that a kernel of truth is not a necessary *precondition* to stereotype development, and that some stereotypes are indeed quite unfounded (e.g., LaPiere, 1936; Terracciano et al., 2005). Although often characterized otherwise, kernel-of-truth theorists as early as Campbell (1967) have submitted that "stereotypes can be completely false" (1967, p. 824). Even in more recent work on the "unbearable accuracy of stereotypes" (Jussim et al., 2009), it is acknowledged that some such perceptions are formed in the absence of a group difference. But how could a stereotype develop in the absence of a kernel of truth? Where but from some realistic basis could such a perception arise? Among the earliest research on how stereotypes can develop in the absence of an actual group difference is work on *illusory correlation* (see Chapman, 1967; Hamilton, 1981; Hamilton & Gifford, 1976; Stroessner & Plaks, 2001). In the pioneering work on the subject (Chapman, 1967), illusory correlation was defined somewhat more broadly than it is in social cognitive

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work today, and included any case in which the perceived correlation between two events is inaccurate. As such, the term could apply to the perception of weaker or stronger relationships than actually exist, as well as the perception of a relationship that is nonexistent. It is the latter case (i.e., a perceived but nonexistent relationship) that is typically meant by "illusory correlation" today, and upon which we will focus in this subsection.

It was Hamilton and Gifford (1976; see also Hamilton, 1981) who first had the groundbreaking idea of applying the notion of illusory correlation to the learning of group characteristics, as a possible mechanism by which stereotypes could form in the absence of an actual group difference. To do so, they constructed a paradigm in which members of novel groups were encountered, and group characteristics learned, over the course of an experiment. In the typical paradigm, participants were presented with a series of sentences describing members of a majority and minority group (e.g., "John, a member of Group A, is rarely late for work"). After the presentation of numerous such sentences describing members of both groups, participants made judgments about the groups' characteristics and guessed the group membership of novel targets based on their behaviors.

This work examined the possible role of illusory correlation in stereotype development through manipulation of the stimulus sentence content. The ratio of desirable to undesirable target behaviors was the same for the majority and minority groups, whereas the size of the groups and the incidence of each kind of behavior overall were systematically varied. For example, in one study (Hamilton & Gifford, 1976; Study 2), participants encountered twice as many members of a majority group (24) as members of a minority group (12). Undesirable and desirable target behaviors had the same ratio within each group—twice as many undesirable behaviors as desirable ones (16 and 8 for the majority group and 8 and 4 in the minority group, respectively), and thus undesirable behaviors (24) were relatively common, and desirable behaviors (12) were relatively rare.

Subsequent to the presentation of this information about the group members, participants encountered behaviors of unidentified targets and were asked to guess the group membership of each. Their judgments demonstrated that desirable behaviors (the less common type of behavior) were more likely to be attributed to the minority group, whereas undesirable behaviors (the more common type of

behavior) were more likely to be attributed to the majority group. Likewise, trait ratings of the groups demonstrated that the minority group was seen in a more positive light than the majority group. Thus, participants came to perceive a difference between groups on a dimension of behavior desirability that was illusory, associating the less common characteristic with the smaller group and the more common characteristic with the larger group. The trait ratings of the two groups were reversed when the majority behaviors were desirable and the minority were undesirable. In this case, desirable behaviors were more likely to be attributed to the majority group, and the minority group was seen in a less positive light (Hamilton & Gifford, 1976; Study 1). The importance of this work should not be understated because it constituted the first direct demonstration of the formation of stereotypes of two novel groups that were (in all aspects except their size) completely equivalent. In addition, these effects were obtained in the absence of any group conflict with the participants and could not be explained by social learning, ego justification, or sociofunctional accounts of stereotyping (see below). Instead, the results showed that stereotypes could be developed through strictly cognitive mechanisms, the normal processes through which people learn to associate attributes with category members.

Such illusory correlations can develop quickly, even after a single unusual behavior from a minority group member (Risen, Gilovich, & Dunning, 2007). Accounts of the phenomenon have explained the effect in terms of enhanced attention and memory for the most distinctive pairing (i.e., the pairing of the minority group and the rare trait; McConnell, Sherman, & Hamilton, 1994) or, conversely, in terms of enhanced memory for the most frequently encountered pairing (i.e., the pairing of the majority group and the common trait; Rothbart, 1981). Other accounts have argued that the perception of a group difference in such paradigms is not illusory at all, and that it is the absolute subtractive difference between the types of behavior performed by groups (i.e., common behaviors minus rare behaviors; constituting a greater difference for majority groups than minority groups) rather than the proportion that is encoded (McGarty, Haslam, Turner, & Oakes, 1993; Smith, 1991). Still other work has suggested that the mechanism for illusory correlation is regression to the mean through information loss, which results in overestimation of low-frequency events (because they are less likely to be learned, estimates regress toward the mean

frequency) and therefore an overestimation of the rarest instance: minority group members with rare traits (Fiedler, 1991; for reviews, see Sherman et al., 2009; Stroessner & Plaks, 2001). A more recent analysis recruiting attentional learning processes as the mechanism for illusory correlation effects (Sherman et al., 2009) will be discussed in greater detail below. Each of these explanations has received empirical support, suggesting that the effect is multiply determined.

Stereotype Development in the Presence of Group Differences: Accentuation

We now turn to the development of stereotypes among groups that actually differ on one or more dimensions. In this case, there are real differences between the groups, but those differences are accentuated through a number of psychological processes. These accentuation processes help to provide clear distinctions among categories and maximize their predictive power (e.g., Queller et al., 2006). Research on this topic was instigated by Tajfel's pioneering research on "mere categorization" effects, which showed that the division of graded stimuli into discrete categories leads to exaggerated perceptions of features of stimuli in the two categories, particularly at the category boundaries. In the classic example, the placement of a category boundary between lines of varying length caused the lines in the "long" category to be judged as longer and the lines in the "short" category to be judged as shorter than when no category boundary was provided (Tajfel & Wilkes, 1963). Categorization may exaggerate both perceived differences between categories and perceived similarities within categories (e.g., Queller et al., 2006). An important feature of this work is that accentuation occurs only for features that are correlated with the classification. Thus, simple categorization is not sufficient to produce category accentuation; there must be attributes that covary with the category distinction. Thus, in the classic line study (Tajfel & Wilkes, 1963), accentuation occurred when the short lines were labeled Category A and the long lines were labeled Category B. However, when the category labels were randomly assigned to lines, such that there was no systematic difference between the lengths of the lines in Categories A and B, no accentuation was observed.

Both the accentuation of between-category differences (e.g., Corneille & Judd, 1999; Eiser, 1971; Krueger & Rothbart, 1990; Queller et al., 2006) and within-category similarities (e.g., Krueger &

Clement, 1994; McGarty & Penny, 1988; McGarty & Turner, 1992) have been demonstrated in the perception of social groups, contributing to the formation of distinct group stereotypes. A variety of mechanisms have been shown to contribute to these accentuation effects. First, research shows that stereotypes are most likely to be formed around attributes for which intergroup differences are large and intragroup differences are small (Ford & Stangor, 1992). Traits that maximize differences between groups enhance the predictive power of social categorization to one of the two groups. Traits that maximize similarity within groups increase the inductive potential among members of a group; if all members of a group are alike, what holds for one group member holds for all group members. As detailed in Tajfel's original research, a second source of accentuation is that perceptions of individual group members may be biased by category boundaries. This effect is enhanced when the categories are given meaningful labels (e.g., Foroni & Rothbart, 2011). However, even when the objective nature of the exemplars prevents variation in their interpretation (e.g., the category members have fixed values, such as numbers or the presence vs. absence of a key feature), perceptions of the categories, as a whole, may still be accentuated. For example, category members who heighten between-category differences and within-category similarities may be attended to more carefully, given greater weight in judgments, or remembered more easily (Krueger & Rothbart, 1990; Krueger, Rothbart, & Sriram, 1989). Thus, perceptions of individual category members need not be exaggerated in order for category accentuation to occur.

Integrating Illusory Correlation and Category Accentuation

Research on illusory correlation and category accentuation has largely proceeded independently and, as we have seen, these effects have been explained by different mechanisms. Recently, Sherman and colleagues (Sherman et al., 2009) have attempted to integrate these phenomena into a common theoretical framework, showing that both can be explained by Kruschke's attention theory of category learning (1996, 2001, 2003). Attention theory assumes that people learn about frequent categories before they learn about infrequent ones, for the simple reason that, by definition, frequent category members are more numerous and more likely to be encountered. Once the features of the frequent category are learned, an efficient strategy for learning

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about other, rarer categories is to focus attention
on the features that best distinguish them from the
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quent category, are ignored as attention is turned
toward the features that best distinguish between
the unlearned and already learned categories. This
attention-shifting mechanism causes a stronger
association between the infrequent category and
its features than between the frequent category and
its features, and increases the weight given to infre-
quent category features in judgment (e.g., Kruschke,
1992; Nosofsky, 1986). The stronger association
between minority categories and their features leads
to a very important prediction—strong and stable
stereotypes will develop primarily for minority
groups. Empirical evidence in support of this pre-
diction and the attentional processes underlying the
effect were reported by Sherman et al. (2009). In
addition, because of the strong association between
minority groups and their features (both traits and
physical features), exemplars exhibiting a combina-
tion of those distinctive minority group features and
features of the frequent group will tend to be seen as
part of the infrequent group.

Thus, these attentional and categorization
mechanisms can account for hypodescent, the asso-
ciation of any individual of mixed-race ancestry
with the minority or socially subordinate group.
Halberstadt, Sherman, and Sherman (2011) dem-
onstrated hypodescent effects and supported the
attentional processes described above. In one study,
Chinese participants judged ambiguous Chinese/
white morphed faces to be white, whereas whites
judged the same ambiguous faces to be Chinese.
In another study, using all white faces, ambiguous
faces were more likely to be judged as a minority
face than as a majority face.

This basic model of category learning can account
for both illusory correlation and category accentua-
tion effects with the same mechanism. Regarding
illusory correlation, according to attention theory,
the majority group is learned before the minority
group because majority group members are more
prevalent among the stimuli. If negative behaviors
are more frequent than positive behaviors, then the
impression formed of the majority group will be
a negative one. Subsequently, in forming impres-
sions of the minority group, it must be the posi-
tive behaviors (the only remaining behaviors) that
distinguish it from the majority group, and these
positive features receive particularly close attention.

Thus, to distinguish the minority from the majority
group, perceivers focus attention on positive minor-
ity behaviors and form a more favorable impression
of that group. Sherman et al. (2009) provided strong
support for this account of illusory correlation.

Regarding category accentuation, the processes
of distinguishing two categories are very similar
in the attention theory model and as described in
accentuation research. Attention theory—like atten-
tion shifting processes are certainly consistent with
and may directly contribute to the findings that
people attend most carefully to category members
who heighten between-category differences and
within-category similarities, give those members
greater weight in judgments, and remember those
instances most easily (e.g., Krueger et al., 1989;
Krueger & Rothbart, 1990). The category dis-
crimination processes in attention theory also may
contribute to the biased perception of individual
category members, such that greater attention is
paid to features that assimilate them to their own
group and contrast them away from other cate-
gories (e.g., Tajfel & Wilkes, 1963). The major dif-
ference between attention theory and traditional
work on category accentuation is that attention
theory does not require that the two groups actually
differ from one another. Indeed, whether the two
groups are different (as in accentuation research) or
the same (as in illusory correlation) is irrelevant. All
that matters is that perceivers form an impression
of one of the groups first (e.g., owing to frequency of
exposure, group size, chance variation in exposure
to different groups). Having formed an impression
of one group, the attention-shifting mechanism of
attention theory then produces different stereotypes
of the two groups, with stronger stereotypes for the
minority group. The first group will be associated
with its most common attributes, and impressions
of the second group will form around those features
that most clearly differentiate it from the first cat-
egory. Thus, attention theory provides an account
not only of how groups are differentiated from one
another but of which particular features come to
characterize those groups.

Because children are capable of category forma-
tion based on these kinds of processes, it is certainly
feasible that stereotype development in children is
based on these cognitive mechanisms, although, to
our knowledge, no empirical work on the atten-
tion theory model has been done with children.
The fact that children do exhibit hypodescent in
their race judgments (Hirschfeld, 1996) and hold
more essentialized views of minority groups than

of majority groups (Gelman, 2003) is supportive of this possibility.

Summary

Research on stereotype formation among adults has largely relied on the use of blank categories in comparative intergroup contexts. Whereas one strong research tradition has focused on the processes that lead to the accentuation of real differences between groups, another prominent approach has examined the formation of stereotypes when groups do not, in fact, differ from one another (i.e., illusory correlation). Each of these approaches has produced a voluminous body of research, and each has led to the development of distinct process models to account for relevant results. Recently, Sherman et al. (2009) proposed a process model based on category learning research that is able to account for the development of group stereotypes both when groups actually differ and when they do not.

Motivational Factors in Stereotype Formation

To this point, our discussion has focused on the specific processes through which stereotypes are formed. Other important aspects of stereotype formation are related to the fundamental purposes for which stereotypes exist. Understanding why humans would create stereotypes in the first place can help to answer important questions about what kinds of groups are likely to elicit the formation of stereotypes and what the specific content of those stereotypes is likely to be. Addressing such functional questions also can shed further light on the cognitive processes that contribute to stereotype formation.

Historically, psychologists have identified three central motives for the construction of stereotypes (e.g., Ashmore & Del Boca, 1981): stereotypes are efficient, they promote feelings of self-worth, and they explain and justify the social structure.² These varied functions of stereotypes do not conflict with one another, and any given stereotype may serve multiple purposes. Indeed, the overdetermined nature of stereotypes is one reason why they are so prevalent and difficult to change. Although these three broad functions are not incompatible, they do offer distinct insights into the kinds of groups about which stereotypes will develop and the kinds of traits that will form the bases of those stereotypes. Although these motivations influence many aspects of social categorization, stereotype activation, and stereotype application, our discussion focuses specifically on stereotype formation.

Stereotypes Are Efficient

One important function of stereotypes is to promote cognitive economy (Allport, 1954; Lippmann, 1922; Tajfel, 1969). In this sense, stereotypes are formed for much the same reasons as all categorical knowledge. Given the vast quantities of information in the environment, it is impossible to form novel and unique impressions of all the things and people we encounter. Through categorization, we are able to treat members of a category as interchangeable, imposing structure on the world, and thus reducing the burden of information overload. Accordingly, stereotypes may be used to predict and understand the behavior of group members in the absence of any specific knowledge of them beyond the fact of their group membership. In this way, stereotypes are an efficient means of social perception, providing broadly applicable knowledge with relatively little effort in the way of information gathering. Thus, according to this perspective, the purpose of stereotyping is to structure and simplify the social world and provide an efficient guide for social perception and behavior.

Concerns for cognitive efficiency should lead to the formation of stereotypes that maximize the (subjective) predictive utility of social group membership. Stereotypes are efficient tools of prediction to the extent that they reflect distinct groups of people possessing distinct attributes. As such, stereotypes should form around groups whose members appear to behave differently from other people and whose behavior cannot be explained by existing knowledge. Stereotypes should also be more likely to form around groups that have been previously associated with other group differences (LePelley, Reimers, Beesley, Spears, & Murphy, 2010). In terms of content, stereotypes should form around traits that clearly distinguish the target group from other groups of people (McCauley, Stitt, & Segal, 1980; Sherman et al., 2009). Ideally, these stereotypes should maximize perceived differences among groups and minimize perceived differences within groups. Importantly, stereotypes need not be accurate to offer effective cognitive economy. Indeed, the point of cognitive economy is to surrender a certain degree of accurate social perception in return for quick and easy social perception.

To this point, all of the research we have described serves this comprehension efficiency function in one way or another. Our discussion of stereotype development among children focused on the cognitive and linguistic abilities necessary to develop functional categorical knowledge, including stereotypes. Social

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learning also plays a significant role in children's acquisition of stereotypes, as children look to their parents for cues about how to understand and organize the social world. Among young children learning stereotypes for the first time, motivational components of stereotyping such as the desire to enhance self-esteem or to explain or defend the social structure are minimized. Although young children may be concerned about feelings of self-worth, pursuing those feelings through intergroup comparison is a relatively sophisticated strategy, particularly to the extent that social categories are ill-defined and understood at younger ages. Although children are undoubtedly engaged in figuring out why different kinds of people do different things, they may be less likely to feel a strong need to explain and/or justify the social structure than do adults, who are active participants in society's prescribed roles. In any case, we are not aware of any research that has explicitly examined these sociomotivational concerns among children.³

As explained earlier, in order to study stereotype formation among adults, it is necessary to confront participants with novel, "blank" groups with which they have no prior experience. Although such groups are ideal for examining the operation of basic cognitive processes in stereotype formation, they strip away motivations to enhance self-esteem or explain/defend the social structure. Indeed, the research we have described on adult stereotype formation having to do with category accentuation and illusory correlation is specifically geared toward understanding how the pursuit of knowledge and structure promotes the formation of stereotypes in the absence of social motives.

COGNITIVE EFFICIENCY AND STEREOTYPE ABSTRACTION

Sherman's (1996) research similarly minimized social motivational components in order to examine the course of stereotype formation as group knowledge accumulates. This research showed that, in the early stages of learning about a social group, judgments of the group are based on information about particular group members because too few exemplars have been encountered to support the formation of an abstract stereotype of the group. However, with sufficient experience with group members (or secondhand accounts of their attributes), perceivers form abstract representations of the attributes that are stereotypical of the group. Once formed, these abstractions may be retrieved independently from group exemplars to make judgments about relevant features of the group.

Sherman has argued that the abstraction of group knowledge across time, situations, and individual group members is critical for cognitive efficiency (Sherman, 2001). There are two aspects to this efficiency. First, by capturing patterns of invariances in the environment, information that is learned from past experiences can be brought to bear on a wide variety of novel people and experiences. Thus, a novel group member's behavior may be understood (or misunderstood) in light of the abstract stereotypes that have been formed about that person's group. Based on abstract stereotypes, group members' behavior also can be predicted in novel situations and into the future. This is what Bruner (1957) referred to as "going beyond" the information given (p. 129), and this predictive power is an important factor in the development of abstract stereotypes.

The second reason that the development of abstractions is efficient has to do with the need for streamlined representations and cognitive processes. In the absence of such abstractions, broad social comprehension and prediction would be inhibited by the levels of temporal, spatial, and contextual detail preserved among known individual group members. The predictive power of a stereotype is enhanced to the extent that it aggregates across many experiences and group members. Aside from offering reliability, the development of abstractions is procedurally efficient. Although breadth of application across time, context, and targets may be achieved by retrieving the details of multiple individual group members and summarizing those details at the moment in which a summary is needed, it is more efficient to form, store, and maintain abstract stereotypes that can be easily activated and applied. Indeed, the retrieval and application of specific episodes is more easily disrupted than the application of stored abstract knowledge structures (e.g., Rothbart, Fulero, Jensen, Howard, & Birrell, 1978; Sherman & Bessenoff, 1999).

PERCEIVED GROUP COHERENCE AS A SOURCE OF EFFICIENCY

If stereotypes are efficient to the extent that they permit clear predictions about distinct groups of people possessing distinct attributes, then variables that increase the perceived coherence and uniformity of social groups should contribute to this efficiency and to the likelihood of stereotype formation. One such moderator is the extent to which social categories are viewed in essential terms. Categories high in essentialism are seen to share some underlying essence that gives rise to the perceivable features of

the category and membership in the category is seen as inalterable (Haslam, Bastian, Bain, & Kashima, 2006). Categories high in essentialism have more explanatory power than categories low in essentialism, owing to these characteristics. The high similarity between category members because of their shared underlying essence means that knowing the behavior or attitudes of one group member allows you to more accurately predict the behavior or attitudes of the group as a whole.

Additionally, the inalterability of the category membership means that if a person has the features of the category, then they are and will always be a member of the category, thus allowing people to make judgments about the person that should be stable over time. Thus, if a person believes that a category is high in essentialism, this comes with the assumption that there is high within-category similarity and that the category is highly distinct from other categories. As described when reviewing the literature on stereotype development in children, perceptions of group essence are a significant contributor to the formation of stereotypes. Similarly, research shows that perceptions of group essence increase the likelihood and extent of stereotype formation among adults. For example, Hoffman and Hurst (1990) showed that people formed stronger stereotypes when groups performing different social roles were described as belonging to separate species than when they were described as belonging to distinct subcultures of a single species. Likewise, Yzerbyt and Buidin (1998) showed that, when two groups were described as being genetically different from one another, initial differences between the groups on the dimension of sociability were accentuated compared with when the two groups were described as different in nonessential terms.

As with children, the extent to which groups are perceived as entitative also influences stereotype formation. Entitativity is the degree to which members of a group are seen as being a coherent social unit (Campbell, 1958), and judgments of entitativity are affected by a number of variables, such as group size, spatial proximity, amount of interaction between group members, similarity of group members, and the perception of common goals and outcomes among group members (Campbell, 1958; Lickel et al., 2000). Because members of entitative groups are seen as more similar to one another and as sharing similar goals to a greater extent than are members of nonentitative groups, perceivers should be more likely to generalize from one group member to another.

Evidence for this can be seen in the work of Park and Hastie (1987), who manipulated the variability of novel groups and found that participants were more likely to generalize from attributes of one group member to the rest of the group when the group possessed low variability. A stronger test of the link between entitativity and stereotyping was performed by Crawford, Sherman, and Hamilton (2002), who found that, when novel groups were described as high (vs. low) in entitativity, participants more readily transferred traits from one member of the group to all other group members.

Individual differences related to perceptions of group coherence also influence stereotype formation. For example, Levy, Stroessner, and Dweck (1998) found that *entity* theorists (who believe that people's traits are fixed and unchangeable) formed more extreme stereotypes of novel groups than did *incremental* theorists (who believe that people's traits are malleable). Likewise, individuals with a strong, more general motivation to simplify the world and perceive it as orderly and structured form novel stereotypes more readily than do those lacking this motivation (Schaller, Boyd, Yohannes, & O'Brien, 1995).

Stereotypes Promote a Sense of Self-Worth

A second functional framework suggests that the purpose of stereotypes is to protect and promote people's sense of ego and well-being (Lippmann, 1922). Early approaches in this vein were grounded heavily in Freudian psychology. Specifically, stereotypes were thought to be recruited to aid in the resolution of psychological conflicts stemming from childhood experiences and rooted in unconscious sexual and aggressive drives (e.g., Billig, 1976). According to this view, aggressive instincts are displaced from unacceptable outlets and applied to relatively powerless target groups, a process of scapegoating. Stereotypic beliefs are projections that justify hostility toward these powerless groups. These processes defend the ego from intrapsychic threats (e.g., Katz, 1960). Early theories from this perspective suggested that stereotyping is limited primarily to troubled individuals with unresolved psychological problems (e.g., Adorno, Frenkel-Brunswick, Levinson, & Sanford, 1950). More recently, ego defense has been viewed as (and shown to be) a more general motive that promotes stereotyping among psychologically healthy people when the sense of self is threatened (e.g., Fein & Spencer, 1997; Tajfel & Turner, 1986).

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Concerns for self-esteem should lead to the formation of stereotypes that permit a favorable comparison to one's ingroup. Low-status groups should be particularly appealing for stereotyping, according to this perspective. The content of stereotypes should be primarily negative or at least negative in comparison to the ingroup.

Evidence for the role of ego enhancement in stereotype formation was provided by Schaller and Maass (1989), who showed that the standard illusory correlation effect is eliminated when participants are assigned to be members of either the majority or minority group. When participants belonged to one of the two groups, rather than form illusory correlations, they generally viewed their own group more favorably, regardless of how the groups were described.

The paradigm that has been applied most frequently to examine this motive in the formation of group impressions is the *minimal group paradigm*. In this procedure, participants learn that they are members of a meaningless group (e.g., "overestimators") and an equally meaningless outgroup is made salient (e.g., "underestimators"). Participants do not know any members of the two groups, do not interact with members of the groups, and have no expectations of future interactions with members of the groups. Following group assignment, participants are asked to make a variety of judgments about the groups and/or are asked to distribute resources to the groups. Based solely on this differentiation, people form more positive perceptions of the ingroup than the outgroup (Brewer & Brown, 1998; DiDonato, Ullrich, & Krueger, 2011; Gaertner & Insko, 2000; Miller, Maner, & Becker, 2010; Paladino & Castelli, 2008; Rubini, Moscatelli, & Palmonari, 2007; Tajfel et al., 1971). They evaluate ingroup members more positively on desirable trait dimensions (Blanz, Mummendey, & Otten, 1995), and they form abstract positive impressions of ingroups and abstract negative impressions of outgroups more readily than negative impressions of ingroups and positive impressions of outgroups (Sherman, Klein, Laskey, & Wyer, 1998). Finally, they show enhanced memory of positive ingroup behaviors and negative outgroup behaviors (Howard & Rothbart, 1980).

Given the presence of the self in the ingroup, these intergroup distinctions may serve ego enhancement motives (for a review, see Abrams & Hogg, 1988). That is, once participants are assigned a group identity, they are motivated to view that identity favorably (e.g., Tajfel & Turner, 1986). Given the minimal nature of the groups, the only means

to positively differentiate the ingroup is to form a more favorable impression of that group.

Stereotypes Explain and Promote Social Structure

The third broad motivational framework suggests that stereotypes serve important sociofunctional needs such as codifying, prescribing, and justifying the social roles of different groups (Allport, 1954; Lippmann, 1922). This approach encompasses a number of influential theories and research programs that will be described below. Although these theories encompass a broad range of motives and stereotyping phenomena, they all suggest that the groups most likely to be stereotyped are those that fulfill distinct and important roles within a society, particularly if those roles imply a threat to the ingroup. They also share the expectation that stereotypes will form along dimensions that explain and justify these social roles.⁴

ROLE THEORY

One of the most prominent sociofunctional theories is role theory (e.g., Eagly, 1987). According to role theory, stereotypes form to explain why particular groups occupy particular social roles. Thus, women may be stereotyped as communal because, historically, they have filled the role of primary caregiver to children (e.g., Eagly & Steffen, 1984). Similarly, stereotypes of black people as lazy or Jewish people as greedy reflect historical roles forced upon members of these groups. Once developed, of course, stereotypes do not merely characterize group members but also prescribe what sorts of roles are fitting and acceptable. In their ingenious study, Hoffman and Hurst (1990) provided information to participants about two novel groups, the Orinthians and the Ackmians. Participants were found to infer dispositional qualities from the groups' societal roles, such that masculine roles led to inferences such as "ambitious" and "assertive," whereas feminine roles led to inferences that targets were "affectionate" and "emotional," even though the personalities of members of the two groups did not differ. A related process of misattribution that can lead to unfounded stereotypes is the tendency to confuse observable with inferred group differences (see Campbell, 1967; Rothbart, 1981). For example, it may be that, for a variety of reasons, children who have recently immigrated to a new country initially have more difficulty in school than their native-born peers (i.e., a measurable group difference in grades between the two populations of children). Such observed differences

can sometimes lead to unfounded inferences about the causal explanations of such differences (e.g., that these children score lower because immigrants are of lower intelligence). These inferences are then easily confused with the measurable group difference upon which the inference was ultimately based. In other words, although there may be an identifiable difference on one domain (e.g., unemployment of group members), an inference takes place about the cause of that difference that leads to the illusory perception of a difference on another domain (e.g., laziness of group members). As such, to the extent that the causal inference is erroneous, an unfounded stereotype can develop.

Schaller (1992) experimentally demonstrated just such a misattribution process. In one study, participants observed members of two groups solving easy or difficult anagrams. In total, one group (Group A) solved more anagrams (15/25) than the other group (Group B; 10/25). However, Group A was given more easy (20 vs. 5) and fewer hard (5 vs. 20) anagrams to solve than Group B. In fact, Group B solved a greater percentage of the easy anagrams (5/5 vs. 15/20) and a greater percentage of the hard anagrams (5/20 vs. 0/5) than Group A. Nevertheless, participants judged Group A to be more intelligent based on the overall number of anagrams solved. Thus, participants were not able to take into account the different constraints (or roles) placed on the two groups. One might view this as a group-level fundamental attribution error (Jones & Harris, 1967) that can explain role-based misattributions, as well.

REALISTIC CONFLICTS AND THREATS

Stereotypes also develop to describe the functional and structural relationships among groups. Realistic conflict theory (Jackson, 1993; Sherif, Harvey, White, Hood, & Sherif, 1961; Stephan, Ybarra, & Morrison, 2009) proposed that real competition between groups for desired resources produces a need to favor the ingroup and protect it from harm. This ingroup bias may take the form of negative attitudes and stereotypes about outgroups.

More recent variations of this basic idea have made far more specific predictions regarding the types of groups that are likely to be stereotyped and the specific traits that are likely to be included in those stereotypes. A number of researchers have argued from an evolutionary perspective that reactions to outgroups, including stereotypes, should reflect the specific threats posed by those groups. For example, groups perceived as immediate threats

to physical safety may be stereotyped as dangerous and may be feared, whereas groups perceived as threats to introduce disease may be stereotyped as dirty and induce disgust (e.g., Cottrell & Neuberg, 2005; Schaller, Park, & Faulkner, 2003; see Mackie, Dèvos, & Smith, 2000 for a similar approach that does not originate in evolutionary ideas, *per se*). Consistent with this idea, Schaller and his colleagues have shown that people who are particularly concerned about specific types of threat (e.g., physical injury or disease) are particularly likely to endorse stereotypes of groups perceived as imposing those threats. Moreover, situations that increase the accessibility of different kinds of threats increase the activation and application of stereotypes pertaining to those threats. Thus, this perspective predicts that, when an outgroup is first perceived as posing a particular threat, then an appropriate stereotype will form that reflects the nature of that threat.

Other researchers have focused more on the structural relations among groups in a social hierarchy. Fiske and colleagues have argued that status and competition configurations among groups are particularly important in the formation of stereotypes along the dimensions of warmth and competence (e.g., Fiske, Cuddy, Glick, & Xu, 2002). Ingroups and close allies are perceived to have high status but are not perceived to be competitive, resulting in stereotypes of these groups as competent and warm. Outgroups that have high status and are perceived as competitive (e.g., Asians, Jews, feminists) are stereotyped as competent and cold, and induce jealousy. Outgroups that have low status but are perceived as noncompetitive (e.g., elderly people, disabled people) are stereotyped as warm and incompetent, and induce pity. Finally, outgroups that are low in status but are perceived as competitive (e.g., welfare recipients) are stereotyped as incompetent and cold, and induce anger. From this perspective, stereotypes form as a functional reaction to sociostructural relationships among groups and the threats posed as a result of those structural relationships.

SYSTEM JUSTIFICATION

A third important sociofunctional theory emphasizes that stereotypes do not simply describe social roles and structural relationships among groups but also justify them in order to explain the social order and to promote favorable attitudes toward it (e.g., Hoffman & Hurst, 1990; Jost & Banaji, 1994). Much of the research on this topic has highlighted the need to justify status differences among social groups, and stereotypes are one

stereotyped as dangerous whereas groups perceived as safe may be stereotyped as dangerous (e.g., Cottrell & Neuberg, 2003; see Mackie, 2003). A similar approach that has been used to study evolutionary ideas, per se) (e.g., Schaller and his colleagues) is to study people who are particularly vulnerable to specific types of threat (e.g., physical threat) and are particularly likely to be stereotyped as imposing situations that increase the severity of threats increase the formation of stereotypes pertaining to that threat. This perspective predicts that groups perceived as posing a particular threat will be stereotyped as posing that threat.

Research has focused more on the status of groups in a social hierarchy. As argued by Turner et al. (1984), status and power among groups are particularly important in the formation of stereotypes of groups (e.g., competence and warmth; Turner & Xu, 2002). Groups that are perceived to have high status but are perceived as being less competent, resulting in stereotypes of being cold, less competent and warm. Groups that are low in status and are perceived as being less competent (e.g., feminists) are stereotyped as being cold, less competent, and induce jealousy. Groups that are perceived as being less competent but are perceived as being more competent (e.g., disabled people, disabled people, and incompetent groups) are stereotyped as being cold, less competent, and incompetent. Groups that are low in status and are perceived as being less competent (e.g., welfare recipients) are stereotyped as being cold, less competent, and incompetent. From this perspective, stereotypes of groups are related to sociostructural relationships and the threats posed as a result of these relationships.

Functional theory does not simply describe relationships among groups in order to explain the formation of favorable attitudes (e.g., Turner, 1990; Jost & Turner, 1990). Research on this topic has shown that stereotypes justify status differences and stereotypes are one

prominent tool for such justification. For example, people may develop a stereotype that a low-status group is lazy, not because of any demonstrable difference between groups for this trait, but rather because the perception of the group as lazy helps to make sense of and justify the group's poverty. Such processes can also lead to the formation of complementary stereotypes (Kay & Jost, 2003). Such stereotypes (e.g., "poor but happy") are theorized to emanate not from actual differences between groups, but rather from the need to resolve the tension created by intergroup inequalities. Thus, one may develop the perception that poor people are lazy (serving to justify and explain their plight) but also happy (serving to alleviate tension and anxiety about the distribution of resources between groups). Tendencies for group perceptions to form in the service of the social system can be particularly conflictual for members of stigmatized groups, who, despite their own self-interests, tend to endorse similar negative ingroup perceptions as those who occupy dominant societal roles (Jost et al., 2004). In this manner, negative (and unfounded) stereotypes not only may form for outgroups but also may even be held by members of stigmatized groups themselves.

Summary

Clearly, motivations play a critical role in stereotype formation. They influence which groups are selected for stereotyping and which traits are selected for stereotypes, and they influence the cognitive processes through which stereotype formation occurs. To date, the vast majority of research on stereotype development and formation has restricted motivations to those related to efficient comprehension and prediction of the social world. In part, this is a result of the diminished importance of self-related and social motives among children and of the necessity of using novel, blank groups to study stereotype formation among adults. However, there are excellent examples of research on stereotype formation that have examined the role of noncognitive motives in stereotype formation, and it is clear that such questions are not impossible to study. Clearly, this should be one important direction for future research, both in the development of stereotypes among children and in stereotype formation among adults. Another important goal for future research should be to integrate research on different motivational components of stereotyping, including tests of the joint and interactive influences of simultaneously relevant motives.

Conclusion

The purpose of this chapter was to review research on both stereotype development among children and stereotype formation among adults. To our knowledge, this is the first time these two literatures have been examined together. We have tried to draw attention to both similarities and differences in the ways that stereotypes form in these two contexts, in the hope that the two literatures may inform one another. Theoretically, one might expect the process of stereotype formation to proceed in similar ways for children and adults. However, although children and adults appear to possess many of the same fundamental cognitive abilities that support categorization and stereotype formation, direct comparisons remain difficult. This difficulty stems from pragmatic obstacles in measuring stereotyping among children and in examining stereotypes among adults that are more consequential than blank stereotypes about novel groups. Moreover, although many fundamental cognitive processes may be present in both children and adults, there also are important differences in how the processes operate, and in the important roles that motives to promote self-esteem and system stability play among adults. We conclude that progress is being made; however, a critical challenge for future research will be to better integrate research on stereotype development among children and stereotype formation among adults, in terms of both the cognitive processes that produce stereotypes and the motives that influence people to stereotype in the first place. Although difficult, a more robust integration would surely offer a rich source of progress in understanding stereotyping.

Notes

1. Whereas stereotypes reflect knowledge of social groups, prejudice reflects evaluations of those groups. In this chapter, we will focus, specifically, on stereotypes.

2. A fourth, overarching motive is to understand the people and events we experience so that we may feel safe and in control of our lives. A great variety of constructs have described how this motive may relate to stereotyping, including the search for meaning (Greenberg & Kosloff, 2008; Heine, Proulx, & Vohs, 2006), certainty (Grieve & Hogg, 1999), closure (Kruglanski & Webster, 1996), structure (Schaller, Boyd, Johannes, & O'Brien, 1995), and societal order (Adorno et al., 1950; Pratto, Sidanius, Stallworth, & Malle, 1994), to name but a few. Importantly, this motive may be pursued via any of the three primary orientations in stereotyping research: using stereotypes to organize the social world in an efficient way, using stereotypes to boost self-esteem, and using stereotypes to describe, explain, and justify the social structure. Each of these motives may serve the larger goal of offering feelings of safety, control, and coherence.

3. One important social motive that certainly affects stereotype development among children is the motive to belong and its attendant influence on conformity. Thus, sometimes children adopt stereotypes in order to be accepted by family and friends. A detailed discussion of this process is beyond the scope of this chapter.

4. Social learning and conformity are usually cited as additional important components of this approach to stereotyping. Although these processes are undoubtedly critical in the adoption of stereotypes by group members, they presuppose the existence of stereotypes. That is, these processes describe how stereotypes spread, but do not describe why people create stereotypes in the first place.

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