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Carving Up the Social World with Generics

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Introduction

Generics are sentences such as "tigers are striped," "lions have manes," and "mosquitoes carry West Nile virus." Generics express generalizations, but unlike quantified statements, generics do not carry information about how many members of the kind or category have the property. For example, if asked "how many ravens are black?" one could reply "all [or some, or most, etc] ravens are black," but one cannot felicitously reply with the generic "ravens are black" (Carlson 1977). Generics have long been the subject of considerable discussion in linguistics and philosophy, as they, unlike quantified statements, are extremely difficult to analyze truth conditionally (e.g., Carlson, 1977; Carlson and Pelletier, 1995; Cohen, 1996, 2004; Greenberg, 2003; Lawler, 1973; Leslie, 2007, 2008; Pelletier and Asher, 1997). As a simple illustration of part of the difficulty, consider the generics "lions have manes" and "lions are male"—the former would seem true, while the latter is false, even though of course it is only ever male lions that have manes. Similarly, we might note that "mosquitoes carry West Nile virus" is true, while "books are paperbacks" is false, even though over eighty percent of books are paperbacks, yet only one percent of mosquitoes carry West Nile virus.

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This chapter is not, however, concerned with the truth-conditions of generics, but rather with the effects of generic language on social cognition, with a particular eye to its effects on young children. Generics are very frequent in parent–child conversations, and are an important means by which information is communicated throughout development (Gelman, 2003). Recent findings suggest that generics are also a significant source of social information for children—but this information is all too often not the sort one would wish to communicate to one's children. In particular, generic language may be implicated in the transmission of beliefs that form the backbone of social prejudice, and may also lead children to adopt detrimental conceptions of abilities, which hamper both their motivation and their interest in a range of activities.

Generics as default generalizations

Why are generics an important source of information for children? As noted briefly above, generics are truth-conditionally more complex than quantified statements; one might naturally think that generics would be too difficult for children to understand. Perhaps, like certain other complex and sophisticated constructions, generic acquisition would occur only quite late in development. As it turns out, however, generics are quite easy for young children to acquire and process. They are readily produced and understood by preschool-aged children, and the data collected to date suggest that these young children have a remarkably adult-like understanding of generics. For example, preschoolers who know that only "boy" lions have manes will accept "lions have manes" but reject "lions are boys"—despite implicitly understanding that there are at least as many "boy" lions as there are maned lions (Brandone et al., 2012; for a review, see Leslie, 2012).

If anything, generics appear to be easier for young children to acquire and process than quantified statements. Several studies indicate that children have considerable difficulty processing category-wide quantified generalizations such as "all girls have curly hair" or "some flowers are blue." Intriguingly, when preschoolers are confronted with such quantified statements, they do not simply provide random, incorrect answers, instead it appears that *they treat them as though they were generics*. That is, preschool children not only consistently evaluate generics just as adults do, they also evaluate kind-wide quantified statements as generics (Hollander et al., 2002; Leslie and Gelman, 2012; Tardif et al., 2011; for a

detailed review, see Leslie, 2012). In addition to English-speaking children, such findings have also been documented among Mandarin Chinese- and Quechua-speaking children (Mannheim et al., 2011; Tardif et al., 2011). Adults also display this tendency under certain circumstances—for example, accepting universally quantified statements despite knowing that there are exceptions (e.g. agreeing to "all ducks lay eggs"; Leslie et al., 2011; Meyer et al., 2011). Further, both preschoolers and adults show a robust tendency to recall quantified statements as generics (Leslie and Gelman, 2012).

How might these results be explained? It is not clear on the face of it what one should make of the fact that these truth-conditionally puzzling statements are apparently so easily processed by young children—considerably more easily, it would seem, than their quantified counterparts. In Leslie (2007, 2008) I proposed these results could be explained (or rather at that time, I predicted these results, with the exception of the earlier data in Hollander et al., 2002, which was of course an inspiration for the hypothesis) if we suppose that generic sentences are language's way of letting us give voice to cognitively fundamental generalizations. We observe that infants in their first year of life are able to form general judgments about categories, that is, to form expectations concerning the properties of as- yet-unencountered instances of the category (see e.g. Baldwin et al., 1993). These general judgments formed by the preverbal infant—we might naturally term these generalizations *cognitively fundamental generalizations*—represent our most basic form of generalizing, one which we exploit from our earliest days. When we grow up to learn our native language, it is natural to suppose that this language will provide us with some means of giving voice to these generalizations. The hypothesis of Leslie (2007, 2008) is that generic sentences are precisely this means of giving voice to our cognitively fundamental generalizations.

If the cognitive system has a basic, default way of forming general judgments then it may sometimes fall back on this means of generalizing when asked to process a more taxing and sophisticated generalization; on this hypothesis, quantified statements are precisely this, namely more taxing and sophisticated generalizations. Thus, if generics do articulate cognitively fundamental generalizations, it is easy to understand why both adults and children show a tendency to "default" to the generic when asked to consider quantified statements. Most importantly for the

purposes of this chapter, the hypothesis serves to explain why generics play such an important role in the transmission of beliefs from adults to children, and thus why hearing generic language may potentially have a profound effect on how children understand the social world around them.

The Cultural Transmission of Social Essentialism

From the preschool years onwards, we tend to manifest a set of beliefs which psychologists term *essentialist beliefs*. (This essentialism is not the same as what philosophers tend to mean by "essentialism"; for a detailed comparison, see Leslie, 2013, where the psychological notion is dubbed "quintessentialism.") That is, we believe, implicitly or explicitly, that each animate individual has an underlying nature or essence—an almost substance-like entity that pervades its insides, and which causally grounds its more stable and enduring properties. Further, we believe that certain kinds "carve essence at its joints"—that is, certain kinds (e.g., animal kinds) pick up on genuine differences and similarities in the essences of individuals. Thus we believe that the kind *tiger* picks out individuals with highly similar essences, and these shared essences explain why tigers share so many outwardly observable properties, such as having stripes and tails and being ferocious (see Gelman, 2003; Leslie, 2013 for more details).

Such beliefs have been most extensively studied in the biological domain, yet they can also be found in the social realm. That is, some social categories are also essentialized, meaning that people believe that members of these categories share a fundamental nature that grounds a range of common properties (e.g., Gelman, 2003; Hirschfeld, 1996; Meyer et al., 2013; Prentice and Miller, 2007; Rhodes and Gelman, 2009; Rothbart and Taylor, 1992). For example, gender categories are essentialized from a young age, with people believing that there are deep, inherent, fundamental differences between men and women.

Importantly, essentialized social categories are more likely to be the targets of sustained and virulent prejudiced attitudes (see e.g. Haslam

et al., 2000, 2002),[1] and Keller (2005) offers experimental evidence that suggests there may indeed be a causal link between essentialist beliefs and prejudice. Relatedly, essentialized groups tend to be more susceptible to stereotyping (e.g., Bastian and Haslam, 2006; Prentice and Miller, 2006, 2007; Williams and Eberhardt, 2008; Yzerbyt et al., 2001). (Interestingly, the very nature of generic generalizations may point to one explanatory factor here. Consider the generalizations *mosquitoes carry West Nile virus*, *sharks attack swimmers*, *pitbulls maul children, ticks carry Lyme disease*, and so on. These generics are accepted even though very few members of the kind have the property in question—because, I would argue, the property is striking, it makes its bearers dangerous, and hence the sort of thing we would wish to avoid. If we essentialize a kind, and its members that manifest such a property, this may suffice for us to generalize the property to the kind. Consider then pernicious social generalizations such as *Muslims are terrorists* and *blacks are rapists*—do they not have the same character? For more discussion, see Leslie, forthcoming.)

Generics and social essentialism

In light of the foregoing, it would seem important to understand the factors that lead us to essentialize certain social categories.[2] We can note that only *some* social categories are seen through an essentialist lens—while race and gender categories are consistently seen this way, professional kinds and sports teams, for example, are not usually essentialized.

[1] An apparent exception to this generalization concerns groups such as homosexuals, and certain categories of mental illness, where believing in a natural/biological basis for group membership tends to correlate negatively with prejudice. That is, people who view homosexuality as a chosen lifestyle tend to exhibit more prejudice than people who understand it to be something biologically based and beyond the individual's control (Haslam and Levy, 2006). However, such examples are clearly complex, since anti-homosexual prejudice generally involves more than viewing it as simply a choice—it involves viewing it as a *morally and/or socially objectionable* choice. That is, if one assumes that something is morally and/or socially objectionable, then believing it to be grounded in biology works to *absolve the individual of responsibility*, thereby, presumably, somewhat reducing one's prejudice or at least some of its expressions. The existence of these more complex patterns of prejudiced thinking, however, do not undermine the basic point here.

[2] A more general question is why we essentialize *any* categories whatsoever, including animal categories. That is, why do we have a tendency from such a young age to view some categories in this way? For discussion of this question see Gelman (2003) and Cimpian and Salomon (forthcoming).

Furthermore, there is considerable cultural and historical variation in which social kinds are essentialized. For example, the different castes in India have traditionally been seen as highly essentialized, especially by members of the upper castes (Mahalingam, 2007; Mahalingam and Rodriguez, 2006). The Ancient Greeks are often said to have believed that there were two fundamental kinds of human beings: Greeks and Barbarians, each endowed with their own distinctive natures. We might suppose that class in English society has, at least until very recently, been essentialized, and certainly medieval European notions of the Great Chain of Being involved highly essentialist ways of thinking about the different strata of society. (Nobles supposedly manifested an inner superiority, the clergy had a distinctive ontological status, monarchs were infused with a divine right to rule, and rebellious peasants were often said to be going against *nature itself*.) Recent work has also found that children growing up in politically conservative communities in the United States have more essentialist beliefs about race than children growing up in more politically liberal communities (Rhodes and Gelman, 2009). Likewise, within Israel, essentialist beliefs about ethnicity are more common in religious communities than in secular communities (Diesendruck and Haber, 2009).

It would thus seem that, while animal kinds are consistently and uniformly essentialized (Gelman, 2003), social kinds are not. Instead, at some point in their development, children come to single out certain social groups as objects of essentialist beliefs. We might also note that these groups tend to be precisely the ones that are essentialized by adults in the child's community, which suggests that there must be some mechanism by which social essentialist beliefs are transmitted across generations—some forms of cultural input that lead young children to view some social groupings as reflecting deep, meaningful, and natural distinctions between people.

Marjorie Rhodes and I hypothesized that generic language may be one such form of cultural input; and hence that hearing generic language about a diverse, novel social group would lead children to essentialize that group; and further that parents would produce more generic language when speaking to their children about a social group that they themselves essentialize. (To be clear, this is not to say that there could not be other means by which essentialist beliefs are handed down, only that generic language is one such means.) In the case of animal kinds, Gelman

and colleagues (2010) found that hearing generic language about a novel animal kind led both preschool children and adults to essentialize the animal kind more than they otherwise would. However, this leaves open the question of whether the same effects would be found in the case of social groups. Children quickly form essentialist beliefs about animal kinds anyway, even in the absence of any particular linguistic input (see e.g. Gelman, 2003), and furthermore animal kinds are not *selectively* essentialized (e.g., we do not essentialize *tigers* but not *lions*). Thus, hearing generic language might serve only to speed up the acquisition of essentialist beliefs that would have formed anyway, rather than working to instill selective essentialist beliefs in the first place.

To test whether generic language might have direct selective effects in the case of social groups, Marjorie Rhodes, Christina Tworek and I created a picture book that depicted a group of imaginary people—the Zarpies—who were diverse for race, ethnicity, gender, and age; the group thus could not be mapped on to any familiar, essentialized social group (Rhodes et al., 2012). Each page of the picture book showed a single individual displaying a notable trait (e.g. striped hair) or performing a novel activity (e.g. eating flowers). The accompanying text involved either bare plural generics ("Zarpies eat flowers"), indefinite singular generics ("A Zarpie eats flowers"), specific language with a group label ("This Zarpie eats flowers"), or specific language with no label ("This one eats flowers").[3]

Our participants included both four-year-olds and adults, and after they had read the picture book several times, they were given a battery of tests designed to assess the extent to which they essentialized Zarpies. For example, one set of test questions involved "switched-at-birth" tasks,

[3] Quantified statements were not included as a point of comparison for several reasons. Firstly, parents rarely spontaneously produce kind-wide quantified statements when talking to young children (Gelman, 2003), so it is unlikely that quantified statements *actually* serve as a mechanism by which social essentialist beliefs are passed along, even if they potentially could be used to do this. Secondly, any finding that suggests that hearing quantified statements leads children to essentialize would have to be understood in light of the fact that young children (and adults) interpret and recall quantified statements as generics (e.g., Hollander et al., 2002; Leslie and Gelman, 2012; Leslie et al., 2011; Mannheim et al., 2011; Tardif et al., 2011). Thus, it is very likely that hearing quantified statements would have similar effects to hearing generic statements, but this would be because the quantified statement would be laid down in memory as a generic (Leslie and Gelman, 2012), and so would function in the same way. Thus one would expect that, if generics induce essentialist beliefs, so will quantified statements, but this in itself may not be a particularly interesting fact.

where participants were asked to judge, e.g., whether a baby born to a Zarpie mother (who eats flowers) but raised from birth by a non-Zarpie mother (who eats crackers) would grow up to eat flowers or crackers. Responding that the baby would grow up to eat flowers despite being raised by non-Zarpies would indicate essentialist beliefs about Zarpies. It is important to note that this question, like the others we used, is a very strong test for essentialism, since there is surely a default assumption that people will generally prefer crackers to flowers as things to eat.

Our results indicate that hearing generic language—in either bare plural or indefinite singular form—leads both children and adults to essentialize even a wholly novel and diverse social group. If participants heard only *specific* language about the group, they showed little or no inclination to essentialize; however, if they heard *generic* language, they showed a marked increase in their tendency to essentialize. (For our four-year-old participants, this tendency emerged both on the basis of only reading the picture book twice prior to testing (Study 2), and on the basis of memory, having read the picture book four times over the course of a week (Study 1); thus the effects of generics emerge rapidly, but also remain over time.)

However, if generic language is to be a means by which social essentialist beliefs are transmitted, one would expect not only the above findings, but also that parents should *produce* more generic language themselves if they essentialize a social group. To test this, we recruited parent–child duos, and presented half the parents with a paragraph designed to lead them to form essentialist beliefs about Zarpies. This paragraph emphasized that Zarpies were very different from other groups of people, but did not mention anything about Zarpies being similar to each other. The other half of the parents were given a paragraph that explained how Zarpies were very similar to other social groups. (A separate group of adults were tested to confirm that these two paragraphs did indeed lead to different levels of essentialist belief about Zarpies.) The parents were then given a version of the original picture book, with no text in it, and were asked to talk through the book with their children. As we predicted, parents who read the essentialist paragraph were significantly more likely to produce generics about Zarpies than the parents who read the non-essentialist paragraph. (Parents very occasionally produce universally quantified statements;

however, the (low) rate at which they did so did not differ depending on whether they themselves essentialized Zarpies or not, which further suggests that quantified statements are not, in fact, a significant factor in the transmission of social essentialist beliefs.)

Generics, essence, and explanation

Our findings suggest that it is by using generic language that parents pass on their essentialist beliefs to children (Rhodes et al., 2012). One question is why generic language might serve this purpose—why, for example, does hearing generics lead children to essentialize even very diverse, novel groups? A possible answer is suggested in work conducted by Andrei Cimpian and his colleagues. Cimpian and Markman (2009, 2011) told young children novel facts about familiar, essentialized kinds—both natural and social—or specific members thereof, and then asked children to explain why they thought these facts obtained. The facts were either presented in specific form (e.g. "this butterfly has dust on her wings") or generic form (e.g. "butterflies have dust on their wings"). When asked to explain generic facts, children spontaneously offered kind-based, inherent explanations (e.g. "they need the dust so they can fly"), but when asked to explain the specific facts, they offered more incidental, extrinsically-based explanations (e.g. "she flew through a dusty room"). This suggests that young children expect that generic facts obtain because of common intrinsic features of the members of the kind (Cimpian and Markman, 2009, 2011; see also Cimpian and Erickson, 2012). Thus, if children hear a series of generics about a kind as in Rhodes et al. (2012), it would seem likely that they would come to assume that the members of the kind share a range of deep, non-obvious, inherent similarities, and thereby come to essentialize the kind.[4]

It should be noted that the semantic truth-conditional profile of generics does not seem to *require* that there be an inherent, kind-based explanation for the holding of a generic fact. For example, generics such as "barns are red" and "dogs wear collars" arguably would seem to be

[4] As noted above, to the extent that children understand kind-wide quantified statements, those statements could well have the same effect and for the same reason; indeed Cimpian and Erickson (2012) found similar effects when children were presented with facts quantified by "most." However, as the authors note, this finding should again be interpreted in light of the fact that young children understand and remember kind-wide quantified statements as generics (Hollander et al., 2002; Leslie and Gelman, 2012; Tardif et al., 2011).

true generics, even though these generalizations hold because of extrinsic, circumstantial factors, rather than because of something in the nature of the kinds in question. Thus, the data of Cimpian and his colleagues do not reflect that children are appreciating a semantic entailment of the generic, but rather that children are drawing more complex, defeasible inferences. One hypothesis that fits the available data nicely is that, by default, i.e. absent information to the contrary, we understand generics to express generalizations that hold because of common, inherent features of the members of the kind.

Sally Haslanger (2011), as I read her, puts forward precisely this hypothesis. In particular, she discusses claims such as "women are submissive," and makes the intriguing observation that such a claim could be *true* but still objectionable. Suppose, for example, that society punishes assertiveness in women to such an extent that they rarely, if ever, are other than perfectly submissive. It would be hard to argue that the generic "women are submissive" is then false, but there nonetheless would seem to be something damaging about asserting it. Haslanger proposes that the damage comes, at least in part, from our tendency to suppose that generic generalizations obtain because of inherent features of the kind in question. That is, even if "women are submissive" is made true by purely external sociological factors, it still may by default communicate that *there is something in the nature of women* that makes them submissive. That is, it may reinforce essentialist beliefs about women, and further communicate that this shared essence causes women to be submissive.

This is not, of course, to say that we *invariably must* interpret "women are submissive" in this way—it would still be *possible* to interpret it more along the lines of "barns are red," where the essentialist interpretation is blocked by worldly knowledge. The hypothesis under consideration is instead that we need to have specific worldly knowledge to block such an interpretation; absent that, we will likely understand a generic generalization to be supported by underlying essentialist facts. It is therefore particularly intriguing to consider Haslanger's hypothesis in light of developmental data, since adults are more likely than preschoolers to have the requisite worldly knowledge that blocks such interpretations. The data from Rhodes et al. are notable in this respect. We introduced an entirely novel social group to four-year-old children with fairly minimal information; yet hearing this social group described

in generic terms led these children to suppose that traits such as *liking to eat flowers* may be heritable, innate, and non-socially determined among the members of this group. (And perhaps even more dramatically, the adults in our study formed the same beliefs about the group as did the four-year-olds—despite having more worldly knowledge at their disposal, which could have served to block the relevant interpretation.)

The insidious generic

It is worth reflecting on the subtle nature of the mechanism by which social essentialist beliefs are transmitted. The parents who participated in our third study—in which parents read a paragraph that led them to hold more or less essentialist beliefs about Zarpies, before talking through a wordless picture book with their children—were surely not *consciously aware* that their essentialist beliefs were leading them to produce more generic language than they otherwise would. As far as they were concerned, they read a paragraph about some group called "Zarpies," and then talked through a wordless picture book with their children. Having personally coded the transcripts, I found it clear that the parents were really only concerned with keeping their children entertained and with completing the task. Very few parents took the specifically pedagogical attitude of trying to impart information about Zarpies—and why would they, since our Zarpies were clearly a made-up group? The overall sense one gets from the transcribed conversations is that the parents were trying to complete the task without boring their children, so that they could move on to other things. Yet our simple manipulation of essentialist beliefs led parents to more than double their number of generic utterances.

Consider, then, a parent who is actively seeking *not* to impart social essentialist beliefs to his or her child. The mechanism of generic language is so subtle that this parent might nonetheless utter enough generics to instill such beliefs. A parent who is committed to teaching her child that gender differences are not deep or natural might nonetheless have enough seemingly innocuous conversations about *boys* and *girls* that the child may come to rapidly essentialize gender (see Gelman et al., 2004, for similar observations). Very young children are adept at (subpersonally) tracking probabilistic information, and so even fairly small elevations in the frequency with which generics are uttered in relation to a given social group may well suffice to induce essentialist beliefs—even

if these small elevations are too subtle for the parents themselves to be able to consciously monitor or even notice.

These findings also bear on just how information is communicated in a conversational setting. Since we are dealing here with four-year-old children, the prospects of a parent succeeding at *explicitly* communicating essentialist beliefs—i.e., by spelling them out—are fairly low. After all, an explicit formulation of essentialism may not be readily comprehensible to children at this age: "there's something deep and inherent in Zarpies that makes them all alike." Minimally, such statements are effectively never found in parent-child conversations, even about animal kinds (Gelman, 2003). Generic language may thus provide a vehicle whereby beliefs are communicated without ever being explicitly formulated—perhaps even at an age when *the consciously accessible conceptual resources are not even able to explicitly entertain the communicated belief*. However implicit and inchoate the essentialist beliefs may be, the seemingly mundane generic sentence is able to communicate them quite effectively.

Generics and Conceptions of Abilities

Thus far we have considered essentialist beliefs about social groups, i.e., that certain groups of people share fundamental, inherent natures which ground a range of shared features. Of course, only certain features are candidates to be grounded in a person's essence; such features must be stable, enduring traits—not mercurial, fleeting, or environmentally determined. Thus, just as we might ask what leads us to conceive of a social group as sharing an essence, we can also ask what leads us to think of a given feature as fixed, inherent, or natural. Beliefs about intellectual abilities are an interesting example in this regard, as these abilities can be understood as malleable and highly responsive to circumstance, or, alternatively, as stable and unchanging, and thus essentializable.

Let us begin by considering the question, what does it take to be good at a particular fairly demanding activity—say an intellectual activity, such as doing math? One answer might be that it takes hard work, patience, and dedication. Even if one is initially stumped by mathematics, with enough energy and commitment, one can come to excel at it. Let us call someone who gives such an answer an *incremental theorist*, thereby reflecting her belief that the ability in question can be

incrementally acquired and improved through focus, dedication, and practice. The contrasting answer is that to be good at a particular fairly demanding activity it takes natural, inherent talent—something that is fixed and unchangeable, perhaps grounded in one's essence. One either "has it" or one doesn't—mathematical ability is a gift, and hard work in the absence of this gift will be largely futile. In accord with the psychological literature, let us call someone who believes this an *entity theorist*, to reflect her conception of ability as a fixed, stable entity—something inherent that is either possessed or lacked. (These two answers form a spectrum, of course, but for simplicity of discussion, I will speak as though they form instead a dichotomy.)

A considerable body of evidence in psychology, collected by Carol Dweck and her colleagues, suggests that it is quite detrimental to performance to be an entity theorist (see Dweck, 1999, 2006 for reviews). That is, across many diverse experimental and real-world conditions, incremental theorists fare far better than entity theorists. In one concrete illustration, Lisa Blackwell, Kali Trzesniewski, and Carol Dweck (2007) examined children who were undergoing the transition from elementary school to middle school. This is a period of time in which students' grades drop precipitously, and students across the board struggle to keep up with new academic and social challenges. The researchers found, however, that the statistical drop in academic performance was in fact driven by students who were "entity theorists"—students who held the incremental view did not see their grades plummet. They then went on to randomly divide another set of middle-schoolers into two groups. Both groups were given a supplemental course in which they learned about the brain, and also learned practical study skills. The two groups had exactly the same lessons except for one class. In this one class, the control group was taught about memory, and learned some mnemonic skills, while the other group was effectively taught to hold an incremental theory of ability. That is, they had a lesson on how the brain forms new connections as one learns, and that learning thus makes one smarter; they were told that the brain is like a muscle—responsive to effort and training. The students in this second group, but not the ones in the control group, showed notably more improvement in their grades and their general academic performance.

This is but one of many empirical demonstrations that people fare better when they hold an incremental rather than an entity theory of

ability. Similar effects have been documented among younger children and among adults, and also among otherwise higher-achieving and lower-achieving individuals; the effects robustly persist whether or not the relevant beliefs were experimentally induced or were held as preconceived notions. At least some of the explanation of these effects would seem to come from differential reactions to failures. If an incremental theorist fails at a given task, her characteristic response will be that she needs to work harder so as to succeed next time. An entity theorist, however, will characteristically take failure to indicate that she doesn't "have what it takes," and so hard work would only be a waste of time! Failure for an entity theorist is thus much more distressing and anxiety-producing—it is not something to be easily overcome, a mere temporary obstacle, but rather the crushing "realization" that one does not have requisite gift. Correspondingly, entity theorists tend to prefer easier tasks where the chances of failure are low, and where they are more likely to receive validation, whereas incremental theorists are more likely to seek out challenges so that they can improve their abilities. In general, holding an entity theory is associated with higher levels of anxiety—since failure would be crushingly diagnostic of one's inherent shortcomings—and this anxiety itself acts to impair performance (Dweck, 1999, 2006, and references therein).

In light of this, it is important to understand what might lead children to initially form an entity theory rather than to adopt an incremental view. At least part of the explanation would seem to be due to the sort of praise to which young children are exposed. Suppose a preschooler paints an excellent picture—one might praise her by saying "that's a great painting," or by saying "you're a great painter." The former manner of praise is focused on the result, while the latter is focused on the individual—perhaps subtly communicating that the relevant locus of praise is a stable and inherent trait, of the sort that lends itself to entity theoretic thinking. Indeed, recent evidence suggests that children who are praised in this "person-directed" way manifest the same sort of demotivation, distress, and helplessness in the face of subsequent challenges that is characteristic of the entity theorist (Cimpian et al., 2007; see also Kamins and Dweck, 1999; Mueller and Dweck, 1998).

The nature of praise may not be the only factor that encourages entity theoretic thinking, however. As noted above, when children are asked to explain a generic fact, they tend to appeal to inherent traits shared by

members of the kind; these findings also extend to generics that pertain to abilities. That is, if children are told, e.g., "boys are really good at a game called 'gorp'," and asked to explain why they think this might be so, they tend to offer explanations such as "maybe because they're tougher than girls," or "because they're smart." In contrast, when they are asked to explain why a particular boy or girl had the property, they tend to offer more effort-based explanations, such as "because she took ballet class and then she practiced a lot, so then she got really good at it." The same effects were found if children were asked directly whether they thought the fact (individual or generic) obtained because the relevant individual(s) "have to practice this game," or were rather "just good at it." Children who were presented with generic facts tended to downplay the importance of effort and practice, and instead preferred more "gift-based" explanations (Cimpian and Markman, 2011).[5]

The heart of entity theoretic thinking is explaining abilities and success at a given task by reference to stable and fixed traits, rather than by reference to effort and dedication—but this would seem to be precisely what children do when they hear such matters described with generic language. Even though these preschool-aged children often gave effort-based explanations for *a given individual's* successes and abilities, when instead they heard such attributions made in generic terms, they adopted more entity-theoretic, essentialist explanations. This suggests that hearing generic language ascribing achievements and abilities to social groups may lead children to adopt a more entity theoretic perspective on the relevant abilities.

An even more dramatic illustration of the power of generic language concerning abilities is found in a very recent study, again by Cimpian and his colleagues (Cimpian, Bian, and Sutherland, forthcoming). In this study, preschoolers were asked a series of questions about familiar abilities, questions that were either in generic or individual form. In particular, they were either asked questions such as "are girls good at

[5] Interestingly, these effects were not found when children were asked to consider social groups about which they did not have pre-existing essentialist beliefs (boy/girls at a different school). However, the results of Rhodes et al. (2012) suggest that this could potentially be due to the fact that children only heard a small number of generics concerning this social group—it is possible that, had children heard more extensive generic input about these boys and girls at a different school, they may have again come to think of the ascribed abilities in more entity-theoretic terms.

drawing?" or questions about a particular friend of theirs, e.g. "is Hannah good at drawing?". Thus, children were never actually *told* anything about group or individual abilities; they were simply asked to consider these questions. Children in both conditions (i.e. generic vs. individual) were then told that a particular individual is a good at a *novel* activity (e.g. "this girl is good at a game called 'gorp'"). The children were asked questions that examined whether they thought that this individual needed to practice to be good at gorp, or whether they though he/she was "just good" at it—that is, the extent to which they held entity vs. incremental conceptions of what it takes to excel at this unfamiliar game. Strikingly, children who had previously answered questions concerning the abilities of groups, rather than individuals, placed much less emphasis on practice, and tended instead to suppose the individual had an effort-independent gift. Thus, simply *considering* generic questions about *familiar* abilities led children to adopt entity-theoretic conceptions of a novel ability.

Stereotype threat

Suppose you are a member of a group that is associated through cultural stereotypes with subpar performance at a particular activity—in the way that, say, women are often stereotyped as being less good at math than men. A robust and extensively documented phenomenon, known as *stereotype threat*, is that where there is common knowledge of the stereotype, one's performance at that activity will be degraded if one's membership in this group is made salient, even in a subtle way. For example, if women are asked to identify their gender prior to taking a math exam (as has traditionally been the case with the SATs and GREs, for example), they will perform less well on the exam than they would have had gender membership not been made salient (see e.g. Ambady et al., 2001; Aronson et al., 2002; Good et al., 2003; Steele and Aronson, 1995; Steele, 2010; and many others). Membership in the stereotyped group can be made salient in the most subtle of ways—checking a box on a form, or even just being in an environment with subtle cues that make gender or other group membership salient (e.g., there being a poster in the room that says "Math: Got Women?"). Understanding stereotype threat is important for a range of reasons—for example, in many academic contexts where gender gaps are found, gender membership is made subtly salient (such as being asked to identify as a man or

woman in the course of the SATs), raising the question of how much of these putative gender gaps are due simply to stereotype threat. Further, stereotype threat is in many respects a self-reinforcing phenomenon—awareness of the cultural stereotype leads women to perform less well in mathematics, which then seems to vindicate the stereotype. (For discussions of how stereotype threat may impact women's representation and performance in philosophy, see Haslanger, 2008; Saul, forthcoming.)

What if one is a member of a group that is *positively* stereotyped with respect to the relevant ability? For example, if one is again taking a math test, and one is reminded that one is Asian, how does the stereotype that Asians are good at math affect one's performance? Here, the results are more subtle, and they suggest that the manner in which one's group membership is highlighted is important. If one's Asian heritage is *subtly* highlighted (e.g. by checking a box to identity one's race/ethnicity), then one's performance may well be *improved* relative to how one would otherwise perform (see e.g. Ambady et al., 2001; Shih et al., 2002). If, however, the stereotype is activated in a blatant and direct manner—e.g., if Asian-Americans are told that the test they are taking is to be used to confirm that Asians really are good at math—then performance may be impaired (Brown and Josephs, 1999; Cheryan and Bodenhausen, 2000; Shih et al., 2002).

The precise psychological mechanisms—which are likely myriad—by which stereotype threat operates have not yet been fully identified; however, a range of results suggests that stereotype threat may operate in part (though surely only in part) by invoking the characteristic effects of holding an entity theory of the ability whose manifestation is being evaluated. For example, people who hold, or are taught, strongly incremental views about the relevant abilities are less susceptible to stereotype threat (e.g., Aronson et al., 2002; Dweck, 2006; Good et al., 2003), and conversely, women who are told that gender gaps in math performance are biologically based exhibit impaired mathematical performance (Dar-Nimrod and Heine, 2006). Further, if stereotype threat is in part caused by precipitating the typical effects of holding an entity theory, this would explain why performance can be hampered by being blatantly reminded that one is a member of a *positively* stereotyped group. Since holding an entity theory leads in general to impaired performance (due, among other things, to anxiety about whether one actually *has* the entity), members of even positively stereotyped groups

would be expected to show worse performance if entity-theoretic thinking is activated in a given context.

Since generics concerning abilities provoke entity-theoretic thinking, the question arises whether hearing generics concerning the abilities of groups can induce stereotype threat—perhaps even concerning a wholly novel ability, about which one has no prior beliefs. Cimpian and his colleagues tested precisely this hypothesis. Suppose children are introduced to a novel game, and are either told that girls (or boys) are good at the game, or told that an individual girl (or boy) is good at the game. How might the difference between generic vs. individual language here affect both children's interest and motivation regarding the game and their ability to successfully play the game? The experimenters found that children who heard generic language showed significantly lower motivation, less interest, and impaired performance. This was especially so after children faced challenges in the course of the game or received any negative feedback on their performance (Cimpian, 2010; Cimpian et al., 2012).

Notably, these results held regardless of whether children heard a generic concerning their own gender—that is, children displayed lower motivation and worse performance even when they heard that their own gender was *good* at the game. This again reflects the insidious nature of generics. Suppose a parent decides actively to combat stereotypes associating girls and women with poor mathematical ability by telling her daughter "girls are really good at math!" Such a parent might think that she will thereby insulate her daughter against stereotype threat in the mathematical context—that her utterance will motivate her daughter to work hard at math, and will reduce her stereotype-based anxiety about math performance, thereby leading her to do better in mathematics. The results discussed here, however, suggest that the parent's utterance may instead have the opposite effect and activate entity-theoretic thinking, with all its concomitant difficulties.

Conclusion

Perhaps this chapter should have been titled "Generics: Just don't use them!" Certainly, the empirical evidence suggests that, especially in conversation with young children, generics have a range of detrimental effects—effect that range from laying the foundations of prejudice to

inducing detrimental entity-theoretic conceptions of ability. Should we not simply try to excise them from our linguistic repertoire?

The simple answer, of course, is "yes"—it would seem to be potentially very beneficial to cease to use generic language, particularly in conversation with children. Certainly, one should strive to monitor one's use of generics, at least those governing social groups. The difficulty of trying to eliminate them from our repertoire altogether should not be underestimated, however. As noted at the beginning of this chapter, it seems that generics are our way of articulating our most basic generalizations, and so in this way they reflect something very fundamental in our outlook. To try to excise them from our conversations would thus be, admittedly, a daunting task.

To make matters worse, it is not as though one could simply switch to using quantificational language. Category-wide statements that are quantified by "all" and "most" are frequently remembered and interpreted as generics, even by adults (Leslie and Gelman, 2012; Leslie et al., 2011). In the case of young children, this phenomenon becomes even more dramatic. English-speaking three-year-olds interpret and recall even statements quantified with "some" as generics (Hollander et al., 2002; Leslie and Gelman, 2012; Tardif et al., 2011); and four-year old children whose native languages are less explicit in certain respects than English still interpret "some"-statements as generics (Mannheim et al., 2011; Tardif et al., 2011). Thus, when speaking to very young children, one cannot even rely on the more conservative "some" to avoid communicating something generic.

Consider also the ambiguous statement "they are good at math," said while pointing at a small group of girls—this *could* be interpreted as a communicating a generic (e.g., "girls are good at math"), but one would naturally think that it is more readily understood as meaning that *those particular girls* in the demonstrated group are good at math. Since this would seem to be the more natural interpretation, especially when the utterance is accompanied by a pointing gesture, this might seem to be a safe form of utterance—not one that will carry the negative effects of generic language. However, recent data suggests that preschoolers do not agree that this is the most natural interpretation of such an utterance! Such ambiguous statements strike adults, but not preschoolers, as likely being about the specific group—preschoolers instead overwhelmingly seem to interpret such utterances as generics (Meyer and Baldwin,

2013). Young children appear to be quite eager to assign generic interpretations, as it were, and so adults may inadvertently communicate generic information even when they explicitly intend otherwise.

None of this is to say that it is not worth trying to limit one's use of generics. However, there are no easy substitutions that will not themselves be assigned generic interpretations. The real issue, I submit, is that adults have certain ways of carving up the social world, and these ways are very salient to us. To the extent that our ways of thinking and speaking are shaped by this, children will find a way to glean the relevant information from our utterances, so as to "sync up" with the adults in their community as quickly as possible. The partial but helpful solutions may then not only lie with working to reduce our use of generic language, but also with striving to step outside of the reflex ways in which we, as adults, carve up the social world.

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