The Spanish *Ser*/*Estar* Distinction in Bilingual Children’s Reasoning About Human Psychological Characteristics

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Children’s reasoning about the stability of human psychological characteristics was investigated in relation to the obligatory distinction between the Spanish verb forms *ser* and *estar* (which convey different information about the stability of characteristics) and the corresponding English form *to be*. Participants (85 bilingual children, ages 6 to 10 years) were interviewed to determine (a) whether the *ser*/*estar* distinction is relevant to reasoning about the stability of human characteristics and (b) whether beliefs about the stability of psychological characteristics relate to differences in the use of *ser* and *estar* to describe and explain social events. Children treated *ser* and *to be* as more likely than *estar* to convey the stability of psychological characteristics. Children who tended to endorse stable views of psychological characteristics were especially likely to use the *ser* form in their descriptions and explanations.

One challenge children face in learning about the social world is determining which psychological characteristics are relatively stable and fundamental and which are not. This determination has important implications for social interaction and achievement motivation (Camhy & Ruble, 1994; Dweck, 1999; Giles & Heyman, 2001; Heyman, Dweck, & Cain, 1992; Rhodes, Jones, & Wade, 1988). For instance, children who view traits as stable over time tend to make negative global evaluations based on limited evidence and to deemphasize processes that might lead to different future outcomes or to the development of more favorable traits (Heyman & Dweck, 1998).

An understanding of children’s reasoning about the stability of psychological characteristics can also shed light on their naive theories of psychology (Bales & Sera, 1995; Heyman, 2001; Heyman & Gelman, 2000a, 2000c; Maas, Marecek, & Travers, 1978). One critical issue in this regard concerns the source of children’s beliefs about the stability of psychological characteristics. A number of researchers have suggested that these beliefs may be part of a broader understanding of people that is grounded in essentialist reasoning (Gelman, 1992; Hirschfeld, 1996). Essentialist reasoning is defined as a tendency to believe that things have natures or underlying essences that make them what they are (see Medin, 1989). Essences are believed to have intrinsic causal powers in that they determine superficial features. Thus, if two entities are believed to share the same essence, one might expect them also to share many superficial features, such as appearance and behavior. There is evidence that young children often rely on essentialist reasoning in the biological domain (see Gelman, Coley, & Gottfried, 1994, and Gelman & Diesendruck, 1999, for reviews). It has also been argued that children hold essentialist beliefs about social categories such as gender (Taylor, 1996) and race (Hirschfeld, 1995).

Why might children use essentialist reasoning when thinking about psychological characteristics? One possibility is that children have a specific competence for reasoning about the social world that includes essentialist beliefs (Hirschfeld, 1996). A second possibility is that children extend essentialist beliefs about biological categories to social and psychological categories (Atran, 1990). A third possibility is that essentialist thinking is not limited to a specific domain and is promoted by particular cultural inputs (Sperber, 1996). According to each of these perspectives, especially that of Sperber, the language that is used to refer to the social world can play a key role in the development of children’s beliefs about people. Drawing from these accounts of essentialist social reasoning, the present research examines the relation between language and children’s beliefs about the stability of psychological characteristics.1

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children to make different inferences about the stability of the behavior. The present research also investigates the complementary possibility that the way children use language is influenced by their beliefs about the stability of psychological traits.

To investigate these possibilities, the present study takes advantage of a linguistic distinction that is present in Spanish but not in English: the distinction between the verb forms *ser* and *estar*, which correspond to the English form *to be*. *Estar* is generally used with temporary properties, both psychological and nonpsychological, and *ser* is used with permanent properties\(^2\) (see Sera, Bales, & del Castillo Pintado, 1997, and Silva-Corvalán, 1986, for further discussion). For example, one might convey that Carlos has a stable attribute of distractibility by saying “Carlos es distraído” (i.e., inflecting the verb *ser*) and that Carlos is exhibiting distractibility at the moment by saying “Carlos está distraído” (i.e., inflecting the verb *estar*). It seems plausible that children might make use of the *ser/estar* distinction to make inferences about the nature of the characteristic in question. Specifically, children who hear the first description of Carlos might be more likely to infer that Carlos will be distractible in the future and in different contexts than might children who hear the second description.

Consistent with this possibility is evidence that even preschool-age children use *ser* and *estar* contrastively (Sera, 1992, Study 1). For example, they consistently use the *ser* form with certain adjectives and the *estar* form with others. Also consistent with this possibility is evidence that adults treat adjectives that convey information about the shape (e.g., *redondo*, which means round), size (e.g., *grande*, which means big), color (e.g., *amarillo*, which means yellow), and texture (e.g., *peludo*, which means furry) of objects as more fundamental in defining a category when the *ser* form is used than when the *estar* form is used (Sera, 1992, Study 2). There is also evidence that the *ser/estar* distinction has implications for children’s reasoning on appearance–reality tasks. On these tasks, children are presented with stimuli that pose a conflict between the way something appears and what it really is (Flavell, 1986). In a series of studies, Sera et al. (1997) presented between the way something appears and what it really is (Flavell, 1986). In a series of studies, Sera et al. (1997) presented appearance–reality tasks to 3–5-year-old Spanish speakers, 3–5-year-old English speakers, and 3–7-year-old bilingual Spanish and English speakers. In the Spanish version of the task, the *estar* form was used for the appearance questions, and the *ser* form was used for the reality questions. Children performed equally well in Spanish and English when identifying apparent properties, but children performed better in Spanish when identifying real properties. These results suggest that the *ser* form conveys information about what something really is and constitutes a source of information that has no correlate in English.

Although children’s use of the *ser/estar* distinction in their reasoning about the stability of human characteristics has not been addressed in prior research, there is evidence that children as young as 5 years of age are sensitive to some linguistic cues when making these types of inferences. Gelman and Heyman (1999) tested the effects of novel nominalized phrases on children’s inferences about people. Five- and 7-year-olds heard a description of a person (e.g., “Rose is eight years old. Rose eats a lot of carrots.”) followed by one of two possible sentences. Half of the children heard a noun label for each character (e.g., “She is a carrot-eater.”), and half heard a verbal predicate (e.g., “She eats carrots whenever she can.”). Participants were asked to make a series of inferences about whether the behavior in question was likely to be stable over time and across contexts. For example, they were asked about future behavior (“Will Rose eat a lot of carrots when she is grown up?”) and behavior with no family support (“Would Rose eat a lot of carrots if she grew up in a family where no one liked carrots?”). Children judged characteristics to be more stable when they were referred to by a noun than when they were referred to by a verbal predicate.

In the present study we sought to determine whether elementary-school-age bilingual Spanish and English speakers would take advantage of the *ser/estar* linguistic distinction when making inferences about the extent to which psychological characteristics are stable and fundamental. In particular, we asked whether inferences about the stability of psychological characteristics would differ when descriptions were provided that used the *ser* and the *estar* forms and how these inferences would compare with those based on the English form *to be*. There are several possible answers to these questions.

One possibility is that children do not rely on the *ser/estar* distinction when reasoning about the stability of psychological characteristics. Although it is clear that children of this age are capable of making a distinction between these forms in some contexts (Sera, 1992; Sera et al., 1997), it is not necessarily the case that they would make use of it when reasoning about psychological characteristics. This could be because children do not think the *ser/estar* distinction is relevant to this domain or because they have definite beliefs about the stability of psychological characteristics that lead them to override the language information. If children do not make use of the *ser/estar* distinction, then inferences about stability should not differ on the basis of the verb form that is used to describe the psychological characteristics in question.

A second possibility is that linguistic effects are limited to inferences in which a particular characteristic is described with the use of a particular verb form. For example, children who hear that “Maria es penosa” may be more likely to assume that Maria will persist in being *penosa* (shy) than if they hear “Maria está penosa,” but they may not necessarily infer that Maria’s other psychological characteristics, or psychological characteristics in general, are stable. This possibility leads to the prediction that one will see only local effects of the verb form on reasoning (i.e., effects of *ser* vs. *estar* should be limited to reasoning about characteristics for which the *ser/estar* manipulation is used).

Finally, a third possibility is that the *ser/estar* distinction leads to broad differences in inferences about stability that apply beyond the contexts in which the *ser* and *estar* forms are used. For example, it is possible that after hearing several characteristics described with the *estar* form, children assume that these characteristics do not tend to be stable and that other psychological characteristics do not tend to be stable either. If this is the case, the *ser/estar* distinction will serve to teach children about the stability of psychological characteristics more generally.

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\(^2\) These forms have certain syntactic differences. For instance, forms of *estar* are nearly always used as auxiliaries, and forms of *ser* are used with nominals, but both forms can be used with adjectives (see Sera, 1992). In the experimental tasks used in the current study, the forms appeared preceding adjectives and thus appeared in identical syntactic frames.
These general possibilities notwithstanding, it is plausible that the effects of linguistic input on children’s reasoning may vary across development. These variations may result from developmental changes in children’s beliefs about traits (see Rhodes, Newman, & Ruble, 1990) or in their sensitivity to linguistic input (Slobin, 1985).

Regarding changes in children’s beliefs about psychological characteristics, Hirschfeld (1996) would seem to predict an initial default essentialism that would remain relatively stable over development or that might be reduced by cultural inputs. Consistent with this possibility is evidence found by Bales and Sera (1995) that preschool children tend to show strong essentialist assumptions about some human characteristics that tend to decrease over time. On the other hand, Atran’s (1990) and Sperber’s (1996) views would seem to imply that with time, and exposure to certain cultural and linguistic inputs, children learn to apply essentialist beliefs to psychological characteristics. In other words, essentialism in the social domain might grow stronger with development.

It is likely that with increasing exposure to linguistic distinctions, children become better at recognizing their conceptual implications. Consistent with this possibility is some evidence that 4-year-olds are more sensitive than 3-year-olds to linguistic distinctions present in their language that relate to the truth value of propositions. For example, 4-year-olds are more sensitive than 3-year-olds to linguistic distinctions present in their language that relate to the truth value of propositions (Shatz, Martinez, Diesendruck, & Akar, 2001).

In the present study we took an exploratory look at these developmental issues by investigating possible changes in the effect of ser, estar, and to be in 6–10-year-olds’ reasoning about psychological characteristics. Specifically, we hoped to shed some light on these questions by looking at developmental changes in children’s reliance on ser, estar, and to be in drawing inferences about the stability of psychological characteristics and by analyzing children’s biases to use ser versus estar to explain human behavior.

This consideration of whether language affects thought implies a corresponding question: How might thought affect language production in this context? Specifically, do children’s beliefs about the stability of human characteristics influence the extent to which they use the ser and estar forms to describe the characteristics of others? Previous research has suggested that children who endorse the belief that characteristics are stable also tend to endorse the belief that there is a direct mapping between information (such as behaviors and outcomes) and more general traits and consequently tend to draw more general inferences about people on the basis of limited information (Camby & Ruble, 1994; Dweck, 1999; Giles & Heyman, 2001; Heyman & Dweck, 1998; Heyman et al., 1992; Rholes et al., 1988). For example, Heyman and Dweck (1998) found that 7- and 8-year-olds who endorsed beliefs in the stability of traits showed a tendency to make global trait judgments of others on the basis of even minor transgressions. These individuals were also more likely to rapidly equate academic difficulty with a lack of ability and to deemphasize the role of task-relevant processes such as effort and strategy generation in academic achievement.

Moreover, there is evidence that in a nonsocial domain (reasoning about animals), preschoolers from diverse cultures use essentialist reasoning when making linguistic decisions (Diesendruck, 2001; Diesendruck, Gelman, & Lebowitz, 1998). Preschoolers were more likely to infer that two entities had the same name when the entities were two animals with similar internal (i.e., essential) properties then when the entities were two animals with similar superficial properties or two artifacts with similar internal, superficial, or functional properties. On the basis of these findings, one might expect that Spanish-speaking children who tend to endorse a belief in stable characteristics would be especially likely to use the ser form to explain events that depict specific behaviors or outcomes.

A key question for the present study is how children’s inferences about psychological characteristics that are described with the Spanish ser and estar forms will compare to their inferences about the same characteristics described with the English to be form. In a sense, the latter serves as a conceptual baseline representing children’s beliefs about psychological characteristics without the effect of language. All participants were bilingual speakers of Spanish and English and were randomly assigned to one of three conditions: ser, estar, and to be. This random assignment of participants from a single bilingual population, rather than separate monolingual populations, helps to ensure that any group differences that might be seen can be attributed to linguistic rather than cultural differences (see Sera et al., 1997). This is particularly important in the study of beliefs about psychological characteristics in light of arguments that cultures differ dramatically in their tendency to emphasize the importance of stable psychological characteristics (Lillard, 1998; Lutz, 1985; Markus & Kitayama, 1991; Miller, 1984). However, it should be noted that language effects with regard to the ser/estar distinction are likely to be weaker for bilingual Spanish and English speakers than for monolingual Spanish speakers. This difference may be due to interference from the English form to be on the use and extension of its Spanish equivalents (see Silva-Corvalán, 1986).

Participants in the present study were between the ages of 6 and 10 years, ages at which they may be sensitive to linguistic cues when reasoning about psychological characteristics (e.g., Gelman & Heyman, 1999) and at which beliefs about the stability of psychological characteristics have motivational implications (e.g., Heyman & Dweck, 1998). Although some of these effects have also been seen among younger children, no children younger than age 6 were included because it was not clear that they would have the necessary linguistic sophistication to understand and respond to many of the measures.

In short, in the present study we had two complementary goals. The first goal was to examine children’s use of the Spanish ser/estar distinction and the English to be form when making inferences about whether psychological characteristics are likely to remain stable over time and across contexts. The second goal was to examine whether individual differences in beliefs about the stability of psychological characteristics would be associated with differences in the tendency to use the ser and estar forms when describing people and explaining social events. We hoped that by looking at a wide age range, we would be able to explore some developmental issues related to these questions.

Method

Participants

Eighty-five bilingual elementary-school children (45 girls and 40 boys; age range = 6 years 4 months to 10 years 1 month, mean age = 8 years 0 months) participated in individual interviews. All participants were His-
panic and attended public schools in Calexico, California, a small city on the border between the United States and Mexico. Only children who were able to converse reasonably well in both English and Spanish, as judged by their teachers, were selected for participation. Parents were also asked to rate their child’s proficiency in English and Spanish on a scale from 1 (doesn’t speak at all / no habla nada) to 5 (speaks very well, as a mother tongue / habla muy bien como lengua materna). Ratings were completed for 84.7% of participating children. The mean proficiency ratings for Spanish (M = 4.74, SD = 0.60) were significantly higher than those for English (M = 3.12, SD = 1.34), F(1, 69) = 84.96, p < .01. This difference reflects the fact that participants in the study primarily spoke Spanish in the home and tended to speak Spanish or a mixture of Spanish and English with other children outside of class while attending school. Participants were randomly assigned to one of three conditions: ser (n = 27, mean age = 8 years 1 month), estar (n = 29, mean age = 7 years 11 months), and to be (n = 29, mean age = 7 years 11 months).

Measures

Overview. Participants took part in individual interviews that involved four tasks in one of two possible orders. The tasks are described below in one of the orders (Order 1) in which they were presented. (In Order 2, the tasks were presented in the reverse order). The inference task served primarily to address the effect of the ser/estar distinction on children’s inferences. The memory task was designed to examine whether children systematically preferred one verb form to the other. The story generation task was included to evaluate children’s spontaneous use of ser and estar. Finally, the belief task was designed to measure children’s beliefs about the stability of behaviors associated with psychological characteristics and to allow for subsequent analysis of the relation between stability beliefs and stability of behaviors associated with psychological characteristics. The task consisted of three question sets that were presented in random order. On each item, participants were shown a line drawing of a target characteristic with the question “Do you think that Maria will spend time by herself when she is 10 years old?” The other two question sets described a character who gets all the answers right on her spelling test and is described as smart and a character who forgets his notebooks at school and is described as distractible. For purposes of analysis, responses to the two inferences within each of the three question sets were summed to create an inference score that ranged from 0, indicating no responses of stability, to 6, indicating stability responses on all questions.

Memory task. The memory task was designed to examine whether children might systematically misremember the ser and estar forms. Also of interest was which verb form children would use when translating stories from English into Spanish.

The memory task consisted of three character descriptions presented in random order. In the ser and estar conditions, the first sentence of each story described a behavior (e.g., “Pablo visita a su abuela”), which means “Pablo visits his grandmother”). A sentence that was presented second in one of the stories and fourth in the other two described a permanent characteristic with the ser form (e.g., “Pablo es alto”), which means “Pablo is tall”). A sentence that appeared second in two of the stories and fourth in the other used the estar form and contained a description that was clearly limited to one context (e.g., “Pablo está colgando un cuadro en la pared,” which means “Pablo is hanging a picture on the wall”).

The sentence representing the ser/estar manipulation appeared in the third position within each story. This sentence described a target characteristic and used the ser form for the ser condition (e.g., “Pablo es limpio”) and the estar form for the estar condition (e.g., “Pablo está limpio”). The target characteristics were limpio (clean), amistosa (friendly), and feliz (happy), each of which can be used plausibly with both ser and estar.

The memory task was different for the to be condition: Children were presented with English versions of the stories and were asked to repeat them back to the experimenter, translated into Spanish.

Responses were coded as to the number of times children used ser and estar to describe the target characteristics. These were summed across the three character descriptions, resulting in ser and estar scores that could each range from 0 to 3.

Story generation task. The story generation task was designed to assess children’s spontaneous use of the ser and estar forms. The task was identical across the ser and estar conditions and was presented in English in the to be condition. This task consisted of three items presented in random order. On each item, participants were shown a line drawing of a child exhibiting a behavior relevant to a particular characteristic, accompanied by a verbal description. For example, one picture depicted a boy throwing rocks at dogs, and the description was “Mira a Mario tirandoles piedras a los perros” (“Look at Mario throwing rocks at the dogs”). Children were asked to tell a story about the child and to explain the behavior. The other behaviors concerned a child who had trouble with her schoolwork and a child who helped to keep the park clean. Of primary interest was the extent to which children in the two Spanish conditions would use the ser or estar forms in their descriptions. For this purpose, the numbers of times children in the Spanish conditions used ser or estar in their descriptions were recorded. These were summed across the three stories, resulting in ser or estar scores that could range from 0 to 3.

Belief task. The belief task was designed to provide a language-neutral assessment of children’s beliefs about the stability of behaviors associated with psychological characteristics. The task was identical across the ser and estar conditions and was presented in English in the to be condition. In the belief task, children were given behavioral descriptions of characters and were asked about the stability of the behaviors. The behavioral descriptions were consistent with the psychological characteristics antisocial,
Figure 1. Overview of measures and scoring. For each of the four tasks, one of the three trait labels or trait-relevant behaviors is summarized.
silly, and thrill-seeking, but no psychological characteristics were mentioned overtly.

The belief task consisted of two questions about each of the three psychological characteristics. All questions were presented in random order. For each characteristic, one question concerned whether the behavior was likely to continue in the future (e.g., for the antisocial behavior in the to be condition: “Imagine a second-grade girl who gets into a lot of trouble at school. Some people think she will keep getting into a lot of trouble even when she is two years older. Do you think this is right?”). A "yes" response was considered to be an endorsement of the stability of the behavior. The other question concerned whether the behavior was likely to stop in the future (e.g., “Imagine you see a girl who takes another kid’s lunch, steps on the sandwich, and then spills the drink. When I asked some kids about this girl, they said she will stop acting like this when she gets a little older. Do you think this is right that she will stop acting like this when she gets a little older?”). For these questions, a "no" response was considered to be an endorsement of the stability of the behavior. Responses indicating stability were summed across the two questions for each of the three characteristics to create a belief score that ranged from 0, indicating no responses of stability, to 6, indicating stability responses on all questions.

**Results**

**Effects of the Ser/Estar Distinction on Inferences**

A key question was whether describing psychological characteristics with the ser and the estar forms would lead to differences in the extent to which children infer stability. To address this issue, we compared results of the inference measure from the inference task across conditions. A 3 (verb form: ser, estar, to be) × 2 (participant gender) × 2 (task order) analysis of variance (ANOVA) conducted on the inference scores revealed a significant effect of verb form, $F(2, 73) = 5.89$, $p < .01$. Post hoc Scheffé tests revealed that children in the ser condition ($M = 4.2, SD = 1.2$) were significantly more likely to make stability inferences than were children in the estar condition ($M = 3.3, SD = 0.9, p < .05$). For example, after hearing that María sat by herself at a party, participants who heard María described as shy with the ser form (i.e., “María es penosa”) were more likely to infer that she sits by herself when she goes to other parties and would spend time by herself at parties 2 years in the future than were participants who heard the same description with the estar form (i.e., “María está penosa”).

The differences in children’s expectations of stability across the ser and estar conditions raise the question of how these inferences compare with those in the to be condition. Results of the inference measure from the to be condition ($M = 4.2, SD = 1.2$) were compared with those from the ser and estar conditions. Post hoc Scheffé tests indicated that stability inferences in the to be condition did not differ significantly from those in the ser condition ($p > .05$) but did differ significantly from those in the estar condition ($p < .05$).

Taken together, these results show that the linguistic distinction between ser and estar did influence children’s inferences about the stability of psychological characteristics. Moreover, the findings indicate that for the purposes of inferring the stability of psychological characteristics, children treated the to be form as equivalent to the ser form.

Having demonstrated that the linguistic manipulation affected children’s reasoning about psychological characteristics, we turned to examine the breadth of these effects. If the effects are relatively broad, one would expect that for participants who received Order 1, exposure to the verb form manipulation on the inference and memory tasks might affect responses to subsequent items in which no condition manipulation was presented.³ To address this possibility, we tested the effect of Spanish verb form condition, for children in the ser and estar conditions who received Order 1, on the following measures: (a) ser and estar scores from the story generation task and (b) belief scores from the beliefs task. Results indicated no significant effects of condition ($p > .20$). This suggests that at least in the context of the present experimental procedure, the effects of the ser/estar manipulation were local in that they affected items in which the verb form was manipulated but not subsequent items.

**Effects of Beliefs on Use of the Ser/Estar Forms**

Another question concerned whether individual differences in children’s beliefs about the stability of behaviors associated with psychological characteristics were related to children’s use of the ser and estar forms to produce descriptions and explanations of behaviors and outcomes. To examine this issue, for children in the ser and estar conditions, we correlated scores on the belief task (which measured expectations that behaviors associated with psychological characteristics would be stable over time) with the frequency of ser and estar in children’s responses to (a) the explanation measure of the inference task and (b) the story generation task. Although correlations between stability beliefs and production of estar forms were not significant on these measures, correlations between stability beliefs and production of ser forms were. Specifically, the correlation between stability beliefs and the use of the ser form on the explanation measure was .27, and the correlation between stability beliefs and the use of the ser form on the story generation task was .33 ($n = 56, p < .05$ for each correlation). These results suggest that children who tend to perceive behaviors associated with psychological characteristics as stable are more likely to use the ser form when describing people.

Given that half of the participants were presented with items in Order 1, in which the ser/estar manipulation was implemented at the beginning of the experimental session, could it be that these correlational results were an artifact of the ser/estar manipulation? This would be possible if the manipulation affected levels of production of ser versus estar and also reported beliefs about the stability of traits. For example, participants in the estar condition who received Order 1 may have been implicitly taught that traits are not stable and may consequently have responded with increased use of the estar form and a decrease in the tendency to endorse a belief in stable traits. This possibility is highly unlikely given that children in the ser condition did not differ from children

³Note that responses by participants who received Order 2 are not relevant here, because in this order, the verb form manipulation appeared at the end of the interview and could not have affected responses to other questions.
in the estar condition in their responses to these measures. It appears that the correlations are not merely an experimental artifact and instead reflect individual differences in response patterns.

Exploratory Analyses of the Development and Nature of Social Essentialism

In addition to the primary questions of interest, a series of analyses was conducted to explore the development and status of children’s reasoning about the stability of psychological characteristics. These analyses focused on three issues: (a) children’s general tendencies to use ser and estar, (b) age-related changes in children’s reasoning, and (c) the effect of order of exposure to the linguistic manipulation on children’s reasoning.

Use of ser versus estar. To assess whether children had a preferential tendency to use ser or estar to describe and explain behavior, we computed the overall number of times children in the ser and estar conditions used ser on all measures (the story generation task, the memory task, and the explanation measure of the inference task, with a total range from 0 to 9) and subtracted from it the overall number of times children used estar on these measures (range from 0 to 9). If children had no preference toward one of the verb forms, we would expect this score to approach zero. Positive scores would indicate a preference for the ser form, and negative scores would indicate a preference for the estar form. The overall mean for this score was 0.95 (SD = 1.54), which was significantly different from 0, t(55) = 4.59, p < .01. In other words, children had a general preference for ser over estar when describing and explaining behavior.

A more precise measure of this preference was available in children’s responses to the memory task. That task gave a measure of the extent to which children correctly remembered the verb form used by the experimenter to describe the characters’ target behavior. To test whether children had a preference for one of the verb forms, we calculated the proportion of times in which children used ser, as opposed to estar, when mentioning the target characteristic (i.e., proportion of ser = total ser / [ser + estar]). If children in the ser condition remembered the stories correctly and in an unbiased manner, their proportion of ser responses should have been 1. If children in the estar condition remembered the stories correctly and in an unbiased manner, their proportion of ser responses should have been 0. Children in the estar condition, who translated the stories into Spanish, might have been expected to use the ser and estar forms equally often if they were unbiased (i.e., proportion of ser = .5).

Children’s responses were tested against these expected values. In the ser condition, participants tended to correctly remember the verb form; the proportion of responses involving ser was .98 (SD = .01), which was not significantly different from the expected value of 1 (p > .3). However, in the estar condition, participants showed a tendency to misremember the verb form as ser; the proportion of ser responses was .64 (SD = .41), which was significantly different from the expected value of 0, t(20) = 7.14, p < .01. Participants in the to be condition showed no significant difference in their tendency to use the ser and the estar forms, although in general they were more likely to use ser; the proportion of ser responses was .61 (SD = .38), which was not significantly different from the expected value of .5 (p > .2). Across conditions, the proportion of ser responses was .74, which was significantly different from chance (.5), t(60) = 5.02, p < .01. These results again suggest that children appeared to have used the ser form when describing psychological characteristics, which is consistent with an essentialist bias.

The results for the memory task raise the question of why participants did not show a statistically significant tendency to translate the to be form as ser given that they treated these forms in the same manner on the inference task. One reason is that different attributes were used on the tasks, and children may have had different beliefs about the stability of these attributes that affected their reasoning. A second reason might be that on the inference task, children were not asked to make translations, and it is unlikely that they did so. When children make translations, many factors come into play, including word accessibility. It is possible that children generally think of the ser form as roughly equivalent to the to be form when reasoning about people (as suggested by the inference task) but that the estar form is more accessible to them. Consistent with this possibility is evidence that in at least some contexts, children tend to use the estar form more than the ser form (see Sera, 1992, Study 1).

Age-related changes. Also of interest was whether there might be age-related changes in children’s reasoning about the stability of psychological characteristics. To examine this question, we subjected the sample to a median split, creating a group of children who were older than 7.90 years (M = 8.69 years, SD = 0.57) and a group of children who were younger than 7.90 years (M = 7.26 years, SD = 0.51). Age-related changes were evaluated by examining whether these groups differed in their tendency to give responses indicating trait stability on the beliefs task and in their relative production of ser and estar on the memory and story generation tasks. The results indicated no significant differences between the age groups on any of the tasks (p > .5). In other words, there were no developmental changes in children’s essentialist tendencies on these measures.

To examine whether there may have been developmental changes in children’s tendency to be affected by the ser/estar manipulation, we compared responses of younger and older children to the inference measure of the inference task. These comparisons are presented in Table 1.

Overall, there was a significant effect of condition, with children from both age groups treating the to be form as more similar to the ser form than to the estar form, F(2, 79) = 6.62, p < .01. It is interesting that when we looked at each age group separately, Scheffé tests on differences between conditions revealed that for the younger group, the difference between the ser and estar conditions was not significant, and only the difference between the to be and estar conditions was significant (p < .05); for the older group, only the difference between the ser and estar conditions was marginally significant (p < .06). These results provide sug-

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4 It seems surprising that children’s level of ser versus estar production on the explanation measure of the inference task was not significantly affected by the verb form manipulation (for ser production, means were .67 and .41 in the ser and estar conditions, respectively; for estar production, means were .19 and .31 in the ser and estar conditions, respectively). A plausible explanation, which is consistent with the overall frequency of ser and estar productions for this measure, is that children often avoided repeating what they had heard verbatim. Instead, they offered alternative explanations for the behavior that did not involve the ser/estar distinction.
gestive evidence that older children may rely more on the ser/estar distinction in making inferences about psychological characteristics than do younger children. However, further research is needed to reach any firm conclusions and to determine what factors might account for change over time. For example, results from a population comparable to that included in the present study could be compared with results from a sample of monolingual Spanish speakers to examine possible effects of English-language schooling.

Order effects. To further explore whether children’s initial biases were to infer that psychological characteristics are stable, we compared inference scores when the inference task was presented first (Order 1) with inference scores when the inference task was presented last (Order 2). (Order effects had been revealed by the 3 [verb form: ser, estar, to be] × 2 [participant gender] × 2 [task order] ANOVA on the inference scores that was described earlier.) This analysis revealed a significant effect of task order, F(1, 73) = 4.37, p < .05. Participants gave more responses of stability in Order 1, in which the inference task was presented at the beginning of the interview (M = 4.2, SD = 1.3), than in Order 2, in which it was presented at the end (M = 3.6, SD = 1.0). There was no Verb Form × Task Order interaction. These results are consistent with other research suggesting that after children have reasoned about psychological characteristics in an experimental task, their reasoning about people becomes less essentialist for a period of time (Heyman & Gelman, 2000a). This may mean that many children readily use essentialist reasoning when no opportunities to explore alternative explanations are made available.

Discussion

In the present study we made use of the Spanish ser/estar distinction to examine the relation between linguistic form and the way children reason about the stability of psychological characteristics. In particular, the present study addressed whether children’s inferences about the stability of a characteristic are sensitive to its being described with the ser, estar, and to be forms, whether children’s beliefs about the stability of characteristics are related to their use of ser and estar to describe behaviors, and how the relationship between linguistic form and beliefs about stability develops.

Effects of the Ser/Estar Distinction on Inferences About Stability

The results showed that participants made use of the ser/estar distinction in their reasoning about the stability of psychological characteristics. When children heard psychological characteristics described with the ser form, they expected the characteristics to be relatively more stable. A cross-linguistic analysis indicated that in the to be condition, children’s inferences about stability corresponded to those of the ser condition and differed from those of the estar condition. In other words, children who heard psychological characteristics described with the estar form were the least likely to construe these characteristics in an essentialist way.

These results build on the results of prior research that examined the ser/estar distinction, in which it was found that adults treat adjectives that convey information such as shape and size as more fundamental in defining a category when the ser form is used than when the estar form is used (Sera, 1992). The present research demonstrated a related pattern of results among children, in the context of reasoning about people rather than objects.

The present findings can also be viewed in relation to other research suggesting that language can shape children’s beliefs about the extent to which human characteristics are stable and fundamental. For example, there is evidence that the use of verbal labels, such as describing a child as “a dawdler” rather than saying that she “dawdles a lot,” conveys to children that the characteristic in question is relatively stable (see Gelman & Heyman, 1999). There is also evidence that when children are given global ability praise, such as “You are so smart,” they are more likely to view ability in essentialist ways (Kamins & Dweck, 1999; Mueller & Dweck, 1998). More broadly, the present findings add to a body of literature suggesting that language can affect reasoning about people in various subtle ways (Brown & Fish, 1983; Fiedler, Semin, & Bolten, 1989; Semin & Fiedler, 1988; see also Gelman & Taylor, 2000, and Wylie, 1990).

In the present study, the linguistic distinction influenced children’s reasoning only at a local level. Specifically, we found that when the ser/estar distinction was manipulated, inferences were affected only with regard to the characteristic in question. As is consistent with other findings, the effects of language on thought often appear to be limited in scope (Sera et al., 1997; Shatz et al., 2001).

Beliefs About Stability and Use of the Ser and Estar Forms

Children who endorsed the belief that behaviors associated with psychological characteristics are stable were especially likely to use the ser form in their descriptions and attributions of behaviors and outcomes. This pattern was seen in both the explanation measure of the inference task and the story generation task. For example, in the story generation task, children were asked to explain behaviors that had been depicted in drawings and described verbally. Children with stronger beliefs in the stability of psychological characteristics were more likely to explain the behavior using the ser form. To explain why Mario threw rocks at dogs, some children said “porque él es malo” (“because he is mean,” using the ser form), and to explain why Maria helped to keep the park clean, some children said “porque ella es buena” (“because she is good,” using the ser form).

These results provide support for the notion that children have general beliefs about the stability of psychological characteristics that they use to guide their interpretations of particular situations (Heyman & Dweck, 1998). Specifically, the results are consistent with the view that language can shape children’s beliefs about the stability of characteristics.
with previous findings that children who tend to endorse a belief in
stable psychological characteristics are especially likely to draw
general inferences about people on the basis of limited information
about behaviors or outcomes. More broadly, these results support
arguments that children use schemas or theory-based conceptions
to draw inferences when they are faced with new information
(Barrett, Abdi, Murphy, & Gallagher, 1993; Greenhout, 2000;
Heyman & Gelman, 1999; Liben & Signorella, 1993).

The present results are also consistent with findings that chil-
dren’s essentialist beliefs can play an important role in certain
linguistic decisions, such as the extension of names (Diesendruck,
2001; Diesendruck et al., 1998). In these studies, preschoolers
were likely to accept a common name for two entities when the
entities were animals that were described as having the same
internal properties. This tendency was significantly weaker when
the entities were animals that were described as having the same
superficial properties or when the entities were objects that were
described as having the same internal, superficial, or functional
properties. Presumably, children inferred that if two animals have
common internal properties, they are probably the same kind of
animal and would share a common name.

This line of reasoning can help to account for a difference
between the present findings and those of Sera et al. (1997). As
noted previously, in their study of the appearance–reality distinc-
tion, Sera et al. found that the ser form seemed to be a better clue
to the real characteristics of an object than the to be form. This
contrasts with findings from the present study on the inference
measure, in which the ser form was as effective as the to be form
in leading children to infer that psychological characteristics are
stable. One possible explanation for this disparity between the two
studies is that children’s beliefs about the nature of the character-
istics in question might have influenced their inferences. Specifi-
cally, children may believe that human psychological characteris-
tics (see Bales & Sera, 1995) are relatively stable, and they may
have shown a bias to interpret the to be form so as to be consistent
with this belief. In contrast, children may have different beliefs
about other characteristics, such as the characteristics of objects,
that guide their interpretation of the to be form in those contexts.
This possibility is consistent with evidence that young children
use information about ontological kind to guide their inferences (Hey-
man & Gelman, 2000b; Imai & Gentner, 1997; Katz, Baker &
Macnamara, 1974; Mandler & McDonough, 1998; Soja, Carey, &
Spelke, 1991).

In general, these findings illustrate some ways in which children
exploit the semantic possibilities of their language to express their
beliefs as precisely as possible. The findings also have method-
ological implications in that they serve as a reminder that language
is a reliable measure of children’s beliefs only to the extent that it
is rich and flexible enough to allow the beliefs of interest to be
clearly expressed (see also Slobin, 1985).

Origins of Essentialist Reasoning in the Social Domain

As mentioned in the introduction, a number of researchers have
made arguments about why children might apply essentialist
reasoning to the social domain. Hirschfeld (1996) argued that essen-
tialist reasoning is part of the way children naturally think about
human kinds. In his view, this reasoning strategy derives from a
“human-kind-creating module” (p. 196). Atran (1990) offered an
alternative explanation. In his view, children transfer a reasoning
pattern that naturally develops in the domain of biology to the
social domain. Sperber (1996) offered yet another explanation. In
his view, essentialist reasoning is not naturally used in the social
domain, but certain types of cultural input concerning the social
domain can initialize essentialist reasoning.

Taken together, the present findings shed some light on these
different proposals. A number of our findings lend support to
Hirschfeld’s (1996) claims. First, there were no clear developmen-
tal changes in children’s essentialist reasoning. Particularly impor-
tant from Hirschfeld’s perspective is that older children (8–10-
year-olds) were no more likely to infer that psychological
characteristics are stable than were younger children (6–8-year-
olds). Second, there was some evidence that children may have a
default essentialist bias in their reasoning about psychological
characteristics. Specifically, children tended to use the ser form
when describing characteristics, even to the point of misremem-
bering an experimenter’s use of estar as ser. Moreover, when
drawing inferences based on psychological characteristics, chil-

dren treated the English form to be as equivalent to the ser form
rather than the estar form. As noted above, the latter pattern is
the opposite of what Sera et al. (1997) found in children’s reasoning
about objects. Third, the only age-related effect we found was that
older children seemed to be more sensitive to the ser/estar dis-
tinction than younger children. In sum, it seems that children may
initially assume that psychological characteristics are relatively
essential, and the use of the estar form teaches them to override
this assumption.

The finding that language affects children’s essentialist reason-
ing about psychological characteristics is nonetheless consistent
with the other two views. In particular, Sperber (1996) suggested
that language may be one of the most powerful types of cultural
input for initializing essentialist reasoning. He noted that nominal
labeling can lead children to think more essentialistically about
certain categories (see, e.g., Gelman & Heyman, 1999).

Within the context of Atran’s (1990) “transfer” model, the
present findings reinforce the notion that language can be one of
the means by which the transfer occurs. That is, children may
transfer essentialist beliefs onto the social domain because they
notice that the way adults talk about the social domain is similar to
the way adults talk about the biological domain (e.g., if Spanish
speakers define both animal kinds and human kinds using the ser
form). Older children’s greater tendency to make use of the ser/
estar distinction when reasoning about psychological characteris-
tics may be an indication that young children are still in the process
of transferring their knowledge about this distinction from animal
kinds to human kinds.

What seems to be somewhat inconsistent with Sperber’s (1996)
and Atran’s (1990) views, however, is the suggestive direction of
the language effects. As we have noted throughout, it seems that
rather than ser leading Spanish-speaking children toward an es-

sentialist construal of the social domain, as predicated by Sperber’s
and Atran’s views, estar teaches Spanish-speaking children to
overcome such a construal. Within the context of Hirschfeld’s
(1996) model, the present findings suggest that language can play
a role in directing children toward the specific human kinds that
are not essentialized by a particular culture.
Unanswered Questions and Future Directions

As noted in the previous section, there is suggestive evidence that children tend to show essentialist biases in their reasoning about human psychological characteristics. However, this possibility is in need of further investigation. This is especially true in light of results from the belief task, in which children did not generally assume that behavior would be stable. It is likely that children show greater essentialist tendencies when asked to reason about psychological characteristics themselves instead of behaviors that are associated with psychological characteristics (see Heyman & Gelman, 2000c, for similar arguments). It should also be noted that young children do not always show clear patterns of essentialist bias even when reasoning about psychological characteristics. For example, Heyman and Gelman (2000a) found that kindergartners tended to assume an innate basis for physical characteristics such as ear shape but showed no clear pattern of systematic beliefs about psychological characteristics. In part, the issue depends on definition. Patterns of essentialist reasoning may differ depending on the specific form of essentialist reasoning that is investigated (e.g., innateness vs. stability). However, there is likely to be variation even with the same general form. For example, it would not be surprising if children exhibited more essentialist tendencies when reasoning about short-term stability than when reasoning about long-term stability. In short, further research is needed to determine under what conditions children may treat essentialist responses as a default.

A related issue concerns whether children change in their tendency to reason about psychological characteristics in essentialist ways as they develop. No such evidence of developmental change was seen in the present study. However, caution should be taken in interpreting these results in light of the relatively small sample size and the possibility that key developments in these beliefs may occur at ages that were not assessed (see Bales & Sera, 1995, concerning evidence that preschool children tend to become less essentialist over time in their reasoning about human characteristics). Also, change over time may involve the development of specific beliefs about specific traits. For example, Heyman and Gelman (2000a) found that 10- and 11-year-olds and adults tended to show different patterns of reasoning about the innateness of different psychological characteristics (with intelligence seen as relatively innate, as opposed to prosocial vs. antisocial tendencies), a pattern that was not seen among younger children. Another possibility is that the key developmental difference in children’s beliefs about stability is not the extent to which beliefs in stability are endorsed but the way children reason about change over time (see Szrybalo & Ruble, 1999, for a related argument that younger children who make predictions consistent with gender constancy tend to do so for reasons different from those of older children).

Another issue to be addressed in future research is the scope of the implications of the ser/estar distinction. For instance, it is possible that a child who tends to hear characteristics described with the estar form over a long period of time will be more likely to develop a general belief in the transitory nature of human characteristics. It is also possible that children make use of the ser/estar distinction when reasoning about unfamiliar characteristics. For example, a child might learn that someone “está ambicioso” and have no idea what “ambicioso” is but conclude that it is some sort of characteristic that is not stable. In general, the idea that linguistic forms influence the meaning of accompanying complements is compatible with long-standing arguments in the world-learning literature about syntactic bootstrapping (see, e.g., Brown, 1957; Gleitman, 1990).

If it is the case that the ser/estar distinction can have some broad effects on reasoning about human characteristics, it is possible that Spanish-speaking children have more opportunities to learn about the stability of psychological characteristics from their interactions with others than do English-speaking children. Although English speakers can convey the information that is conveyed by the ser and estar forms by making explicit reference to stability (e.g., by noting that someone is “a shy kind of person” or is “shy at the moment”), the distinction is not obligatory in English, and it cannot be made as easily as in Spanish. Even if hearing the ser and estar forms does not broadly affect Spanish-speaking children’s beliefs about the stability of human characteristics, it is possible that their reasoning is affected by production demands. For example, Spanish-speaking children may give more thought to questions of the stability of characteristics because they are generally required by their language to convey this information in their descriptions (see Slobin, 1985, for similar arguments).

In short, the present research provides evidence of bidirectional effects between language and thought in children’s reasoning about the stability of human characteristics. It points to important questions about the role of language and belief systems in the development of person perception.

References


